

# A STORM SURGE ATLAS FOR CORPUS CHRISTI, TEXAS\*

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\*Encompasses the area from the middle of Laguna Madre to San Antonio Bay

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## Acronyms and Definitions

CAT	<u>Category</u> - used to indicate the intensities of hurricanes on the Saffir/Simpson scale. Ranges from 1 to 5 with 1 being a minimal hurricane and 5 being a maximum hurricane.
CPA	<u>Closest Point of Approach</u> of the center or eye of a hurricane to a particular geographical location.
Delta-p or $\Delta p$	The difference between ambient and central sea-level pressure in a hurricane.
EOHW	<u>Envelope Of High Water</u> - The SLOSH model-generated grid of highest water for an individual hurricane.
GMT	<u>Greenwich Mean Time</u> - Also called Z or Zulu.
LST	<u>Local Standard Time</u> - Ranges from 0000 to 2400 hours.
Marigram	A continuous plot of water height versus time.
mb	<u>Millibar</u> - A measure of pressure that can be converted directly to inches of mercury.
MEOW	<u>Maximum Envelope Of Water</u> - (1) The SLOSH model-computed highest water that occurs over a region generated by a <u>series</u> of hurricanes of given intensity and direction, or (2) a composite of the highest water over a region for a <u>series</u> of hurricanes of given intensity and direction.
Miles	All references are to statute miles unless so stated.
MSL	<u>Mean Sea Level</u> - The mean location of sea level relative to some datum obtained by averaging the hourly tide values over a period of time.
NGVD	<u>National Geodetic Vertical Datum of 1929</u> . In 1929 the land and sea, in the United States, were "tied" together and mean sea level (MSL) was established. Thus, in 1929 NGVD and MSL were the same. However, mean sea level is constantly changing in time. At Port Aransas, Texas the mean sea level value is approximately .82 feet greater than NGVD. This difference is accounted for before a SLOSH model run is made.
RMW	<u>Radius of Maximum Wind</u> - The radial distance from the center or eye of a hurricane to the strongest winds.
SLOSH	<u>Sea, Lake, Overland Surges from Hurricanes</u> - A numerical storm-surge model with inland inundation.
SPLASH	<u>Special Program to List Amplitudes of Surges from Hurricanes</u> - A numerical storm-surge model without inland inundation. Computed high-water values apply at the shoreline only.
Z	<u>Zulu time</u> . Same as GMT.

account separately. A section is devoted to the discussion of these processes.

## 2. CORPUS CHRISTI SLOSH MODEL GRID

Figure 1 illustrates the area covered by the Corpus Christi SLOSH model grid. The area covered by the grid is termed a "basin". References to the area may also be termed the "Corpus Christi basin". The grid is a telescoping polar coordinate system with the pole inland at latitude 27°44' N and longitude 97°48' W. The grid is tangent to the earth at the basin center, which is near the city of Port Aransas on Mustang Island. Its coordinates are 27°50' N and 97°02.8' W. The telescoping grid has two functions. First, it provides increased resolution of the storm surge at the coastline and inside the bays and rivers while decreasing the resolution in the deep water where detail is not required. Second, it allows economy in computations. If a fine-mesh, equally spaced, Cartesian grid, with a grid spacing similar to the values inside of Corpus Christi Bay, were created, a smaller explicit time step between computations and a greater number of grid points would be necessary. Therefore, the Cartesian grid would take substantially more computer time and storage to produce the same results.

Some of the advantages of using this grid scheme for computations have already been pointed out. However, there are disadvantages. The primary problem is displaying the forecast. For the foreseeable future, access to the computed information from the SLOSH model will be by digital computer printout. Because of fixed spacing associated with computer printout, the grid as observed in Figure 1 would be extremely difficult to reproduce. However, a far more important factor should be considered. The area of most interest (i.e., barrier islands, harbor, population centers) would be compressed and present problems in interpretation and analysis. Therefore, a projection scheme to explode the area of interest at the expense of latitude, longitude and geographical distortion was adopted. The projection, however, is conformal. Figure 2 shows the projection of the polar grid to an equally spaced digital computer printout. Notice the distortion of the latitude and longitude lines. A section of the basin has been highlighted to show the distortions in the coastline.

## 1. INTRODUCTION

A numerical storm surge model developed in the late 1970's has been applied to the southern Texas coast. The model, which predicts sea, lake, and overland surges from hurricanes (SLOSH) (5) has been named the Corpus Christi SLOSH model for the largest inland body of water along the southern Texas coast.

The National Hurricane Center uses the SLOSH model as an operational tool to provide guidance to the hurricane forecaster. However, the Corpus Christi SLOSH model has been used for preparedness planning in the Corpus Christi region. In fact, this publication, which will be referred to as the Corpus Christi Storm Surge Atlas, is based upon a series of Corpus Christi SLOSH model runs used in a regional hurricane evacuation study.

Except for the additional inclusion of the finite amplitude effect, the partial differential equations solved by the model are given by Jelesnianski (2). Coefficients for surface drag, eddy viscosity, and bottom slip are exactly the same as those in the SPLASH (Special Program to List Amplitudes of Surges from Hurricanes) model (Jelesnianski, (3)). There is no calibration or tuning to force agreement between observed and computed surges; that is, the coefficients are universally set as constants and not varied locally for a particular geographical region. The model is used in a forecast mode; hence there is no requirement for input boundary values during surge activity (e.g., tide gage readings or computed boundary surge values from an alternate surge model).

Special techniques are incorporated to consider two-dimensional inland inundation, routing of surges inland when barriers are overtopped, the effect of trees, movement of the surge up rivers, flow through cuts and channels, and flow over sills. Rain, riverine flow, astronomical tide, and shallow water wind waves are other processes tending to be independent of the storm surge and must be taken into

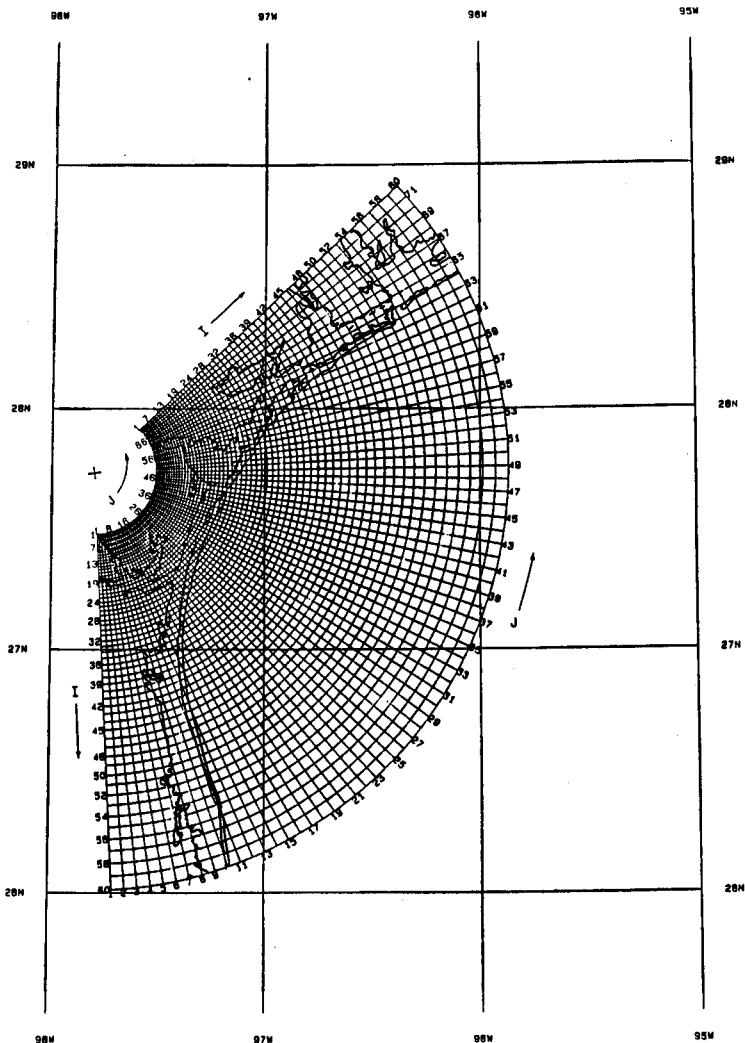


FIG. 1. AREA COVERED BY THE CORPUS CHRISTI SLOSH MODEL GRID.

Additional information, such as the locations of cities and major highways, has been added to the computer projection of Figure 2 and is shown in Figure 3. Numbers of major highways are circled. Figure 4 shows the topography of the basin on the computer projection. The heights represent values above NGVD<sup>1</sup>. The contours are drawn at 5-ft intervals, up to 30 ft. Also shown are the roads that act as barriers to the storm surge (i.e., roads higher than the average terrain). The numerical value (circled) on the road represents the average height of the road above mean sea level. In addition, 12 locations, identified by stars, are shown. At these locations, detailed time histories of storm surge, wind speed, and wind directions have been generated.

To locate a point on the grid, a two-dimensional I-J scheme has been adopted. In Figure 1, the I and J axes are labeled and the grid point I=1, J=1, is indicated by an arrow. All references to a particular grid point will be the I value followed by the J value or (I,J). The size of the grid is 60 X 72. The grid spacing is 6/10 of a mile<sup>2</sup> I=1 to 3.7 mile at I=60. In the region where most of the population resides, the grid resolution is 1 to 2 miles.

### 3. TOPOGRAPHY AND BATHYMETRY IN THE CORPUS CHRISTI BASIN

The Corpus Christi basin is composed of barrier islands with intermittent passes and cuts, bays, and an intracoastal waterway between barrier islands and mainland. Also there are many small bays on the mainland (Figure 3). The major river in the basin, the Nueces, flows into Nueces Bay which in turn is connected to Corpus Christi Bay. The large city in the region, Corpus Christi, is located on the western shore of Corpus Christi Bay.

The barrier islands contain massive and broad sand dunes except for the lower portion of Padre Island where numerous gaps exist. For instance, the barrier island buffer

<sup>1</sup> N.G.V.D. National Geodetic Vertical Datum of 1929. Approximately equal to mean sea level (MSL). (See Acronyms and Definitions, p. iv.)

<sup>2</sup> All references are to statute miles. Nautical miles are specifically labeled as such.

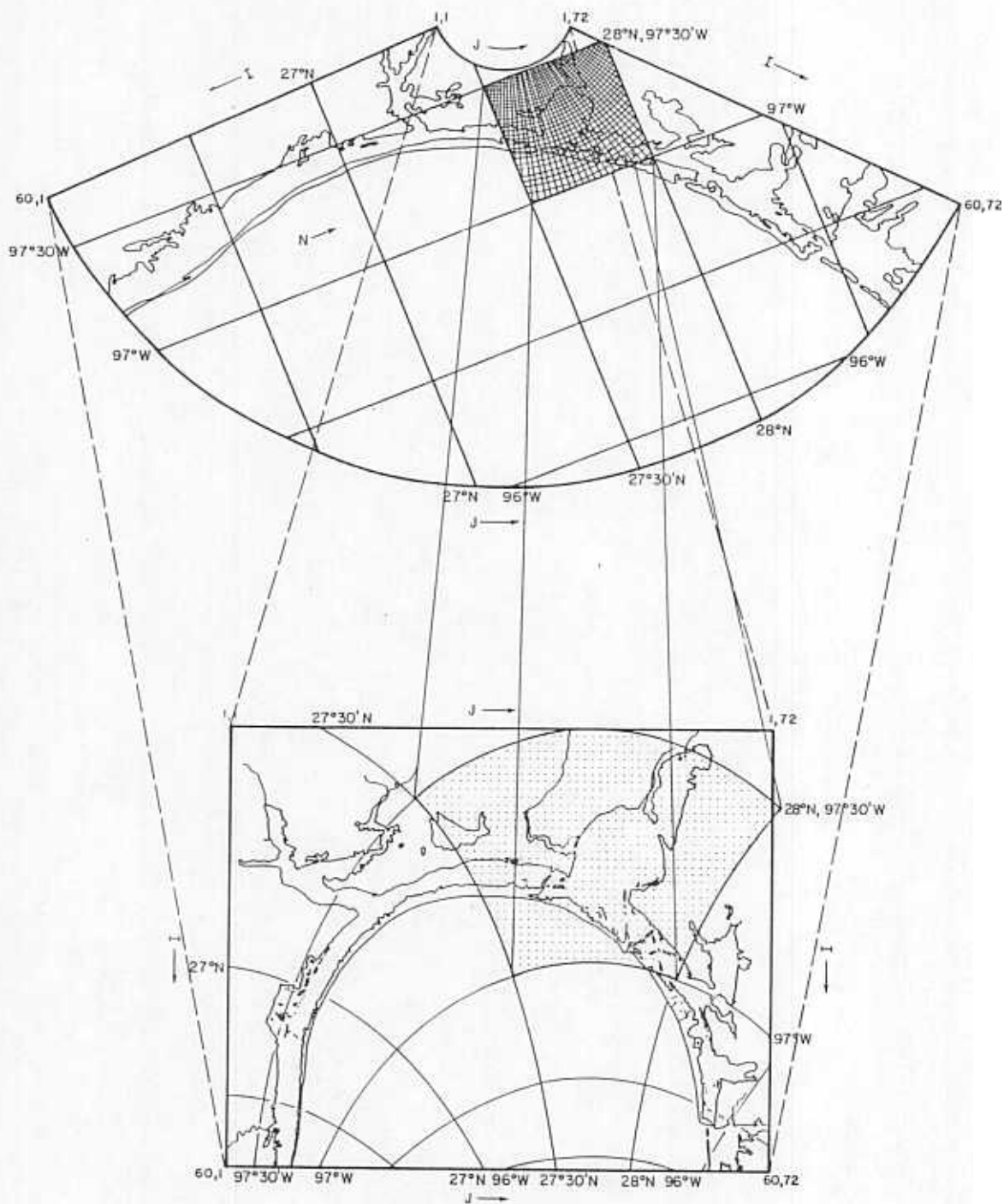


FIG. 2. PROJECTION OF POLAR GRID (FIG. 1.) TO AN EQUALLY SPACED DIGITAL COMPUTER PRINTOUT.

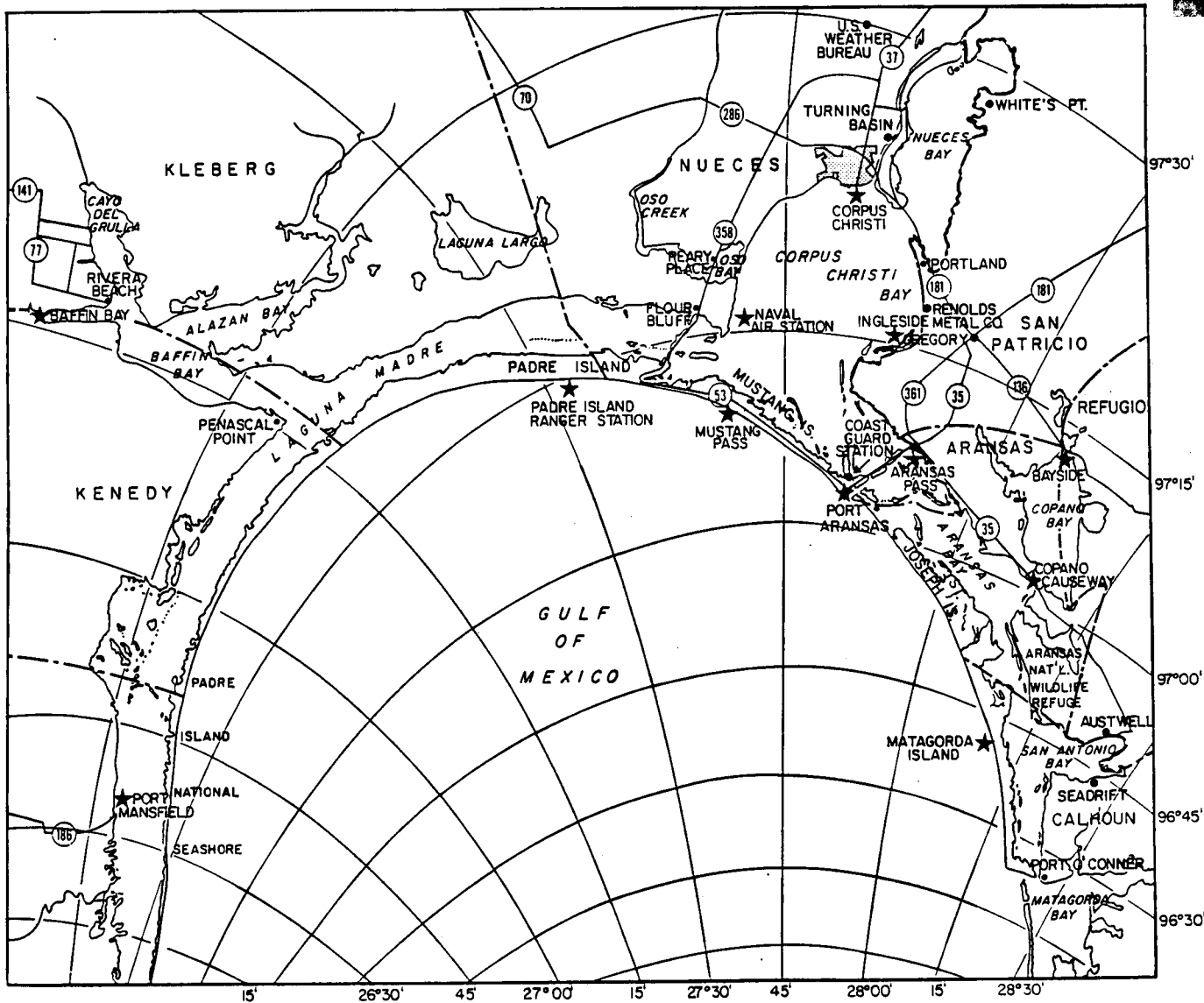


FIG. 3. LOCATION OF COUNTIES, CITIES, AND MAJOR HIGHWAYS (CIRCLED NUMBERS) IN THE CORPUS CHRISTI BASIN.

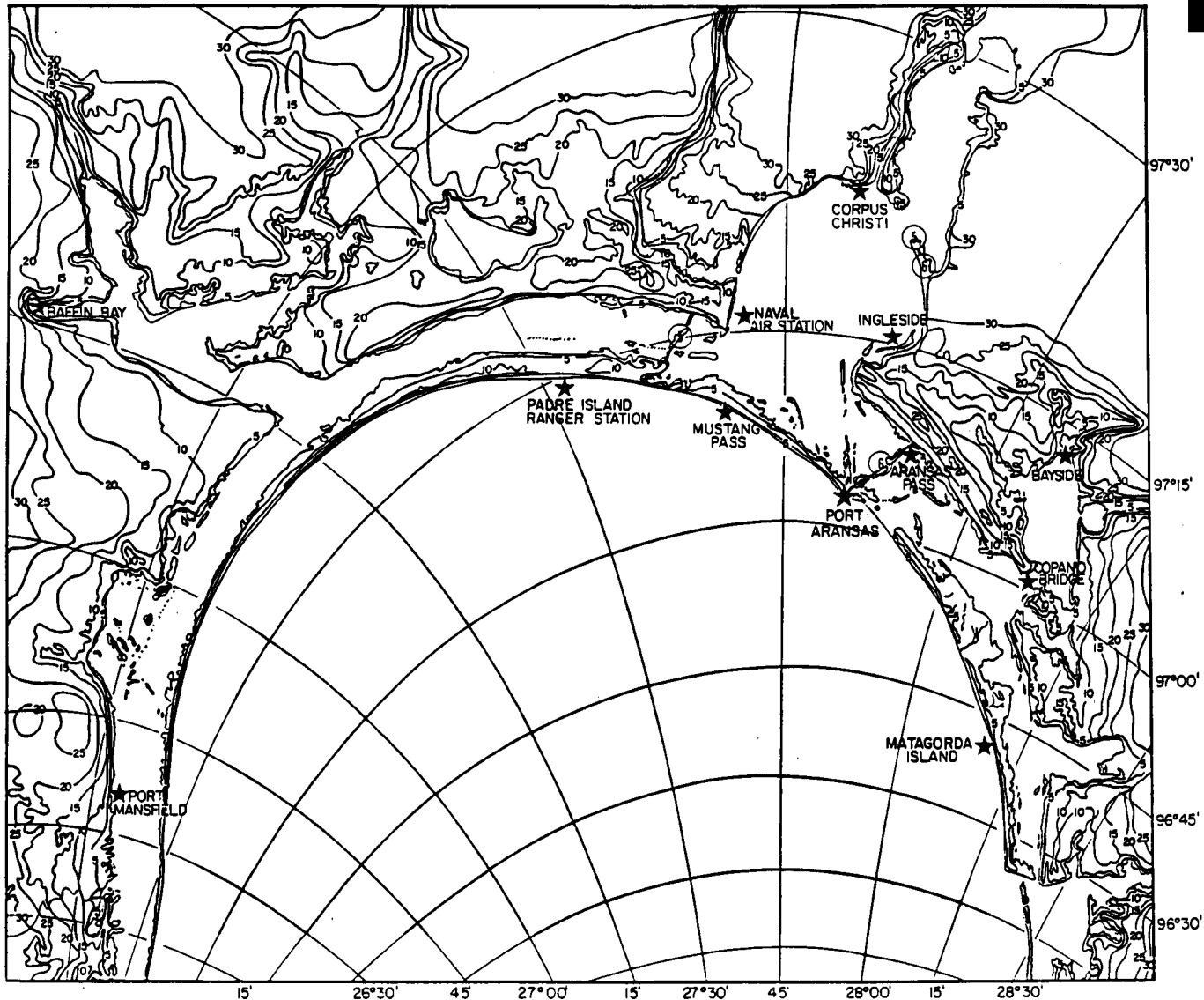


FIG. 4. TOPOGRAPHY OF CORPUS CHRISTI BASIN. CONTOURS AT FIVE FOOT INTERVALS. ROADS (HEAVY LINES) ACTING AS BARRIERS ARE ALSO INDICATED WITH AVERAGE HEIGHT ABOVE MEAN SEA LEVEL (CIRCLED). TIME HISTORIES OF STORM SURGE, WIND SPEED AND DIRECTION COMPUTED AT STARRED LOCATIONS.



fering Corpus Christi Bay from the Gulf of Mexico is called Mustang Island. The sand dunes on this island range from 3 feet (near minor breaks in the dune system) to 25 feet with the average height being 12 to 13 ft. The sand dunes often extend inland several hundred feet. The importance of the sand dunes being broad was demonstrated in hurricane Allen of 1980. The eye of this hurricane made landfall just north of Port Isabel, Texas near the Texas/Mexico border. Thus, the barrier islands northward were subject to storm surge and pounding waves. On Mustang Island and Padre Island approximately 100 feet of sand dunes were eroded. Before Allen 50 feet of beach were present between the sand dunes and shoreline. Afterwards 150 ft of beach existed. However, the sand dunes looked just as formidable after Allen as before.

During Allen the lower portion of Padre Island was overtopped in many locations because of the numerous gaps. The erosion was so extensive in many locations that channels were cut across the island. Since Allen, the channels have filled near the Gulf side of the barrier islands. On the upper portion of Padre Island and on Mustang Island the sand dunes have been rebuilding toward the Gulf of Mexico.

Under normal tidal conditions water is exchanged between the Gulf of Mexico and Corpus Christi Bay by means of a channel which enters the Gulf of Mexico at Port Aransas. The "Achilles heel" of the Corpus Christi basin exists just north of Port Aransas. For approximately 4 miles sand dunes are non-existent and the barrier island averages 3 feet. This 4 mile strip is easily overtopped during any hurricane and the water pouring over this strip can add a significant amount of water to Corpus Christi Bay.

A noteworthy topography feature in this region is the high bluffs that surround most of Corpus Christi Bay. For instance, at the city of Portland on the north side of the bay, the bluff rises to a height of 34 ft above MSL, while Corpus Christi rises to a height of 38 ft above MSL. Except for the shoreline and near shoreline developments, most people are not vulnerable to the storm surge because of these bluffs.

North and south of Corpus Christi, the region is sparsely populated. The major use of the land is for cattle

ranching, farming, and gas and oil production. Protected areas include the Padre Island National Seashore and Aransas National Wildlife Refuge.

The continental shelf is relatively narrow when compared with most other locations in the Gulf of Mexico. 60 ft depth is 6 to 7 miles from shore. The bottom is predominantly sand and no reefs exist near the shore. Therefore, the beach is susceptible to the erosive force of breaking waves generated by a hurricane.

The average depths in Corpus Christi Bay range from 10 to 13 ft. The greater depths are located in the center of the bay. A major shipping channel begins near Port Aransas on the Gulf of Mexico, continues to Port Ingleside on the north shore of Corpus Christi Bay, and thence directly to Corpus Christi. The average depth of the channel is 40 ft and its average width is 900 ft. The channel can transmit a significant amount of water into or out of Corpus Christi Bay when a hurricane affects the region. The channel has been modeled and its effects are taken into account in SLOSH simulations.

#### 4. SLOSH HURRICANE MODEL AND INPUT PARAMETERS

One of the most important functions of the storm-surge model is to generate the meteorological driving forces. Surface stress and the atmospheric pressure gradient are dominant forces. They must be determined in both space and time while the hurricane is affecting the Corpus Christi SLOSH basin. In the SLOSH model, the vector field of driving forces on the sea surface is calculated using a hurricane model developed by Jelesnianski and Taylor (4).

This hurricane model uses as input the radius of maximum wind and the difference between the ambient and level central pressures of the hurricane. Directly measured wind vectors are not used. The main portion of the hurricane model is a trajectory model, which was derived from horizontal equations of motion, and a wind speed profile approximation scheme. The trajectory model represents the balance between pressure gradient, centrifugal, Coriolis, and surface frictional forces for a stationary hurricane. Additional adjustments are made to the computed vector field to take into account the hurricane's forward motion.

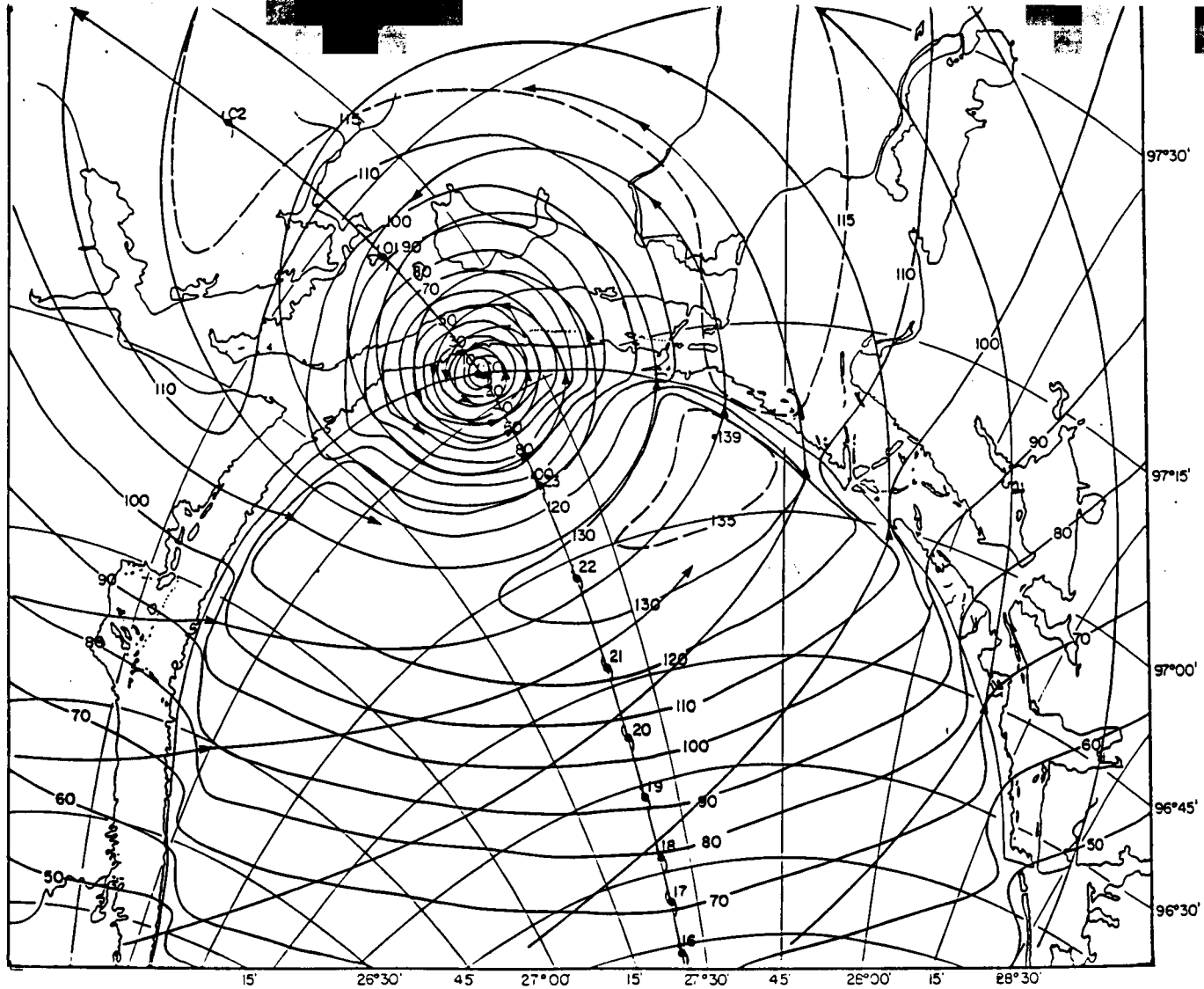


FIG. 5. STREAMLINE (HEAVY LINES) AND ISOTACH (LABELLED IN MPH) AT LANDFALL FOR A CATEGORY 3 HURRICANE (950 MB) ON THE SAFFIR-SIMPSON SCALE. HURRICANE SYMBOL DENOTES HOURLY POSITION.

Recently, Jelesnianski and Chen (5) made additional corrections to the hurricane model to include the surface isobar distortion at landfall and changes in the wind over inland water bodies.

An instantaneous snapshot of the streamline and isotach field for a hypothetical 950 mb hurricane taken during land-fall 30 miles south of Port Aransas is shown in Figure 5. The track of the hurricane is labeled with hurricane symbols at hourly intervals. The direction of hurricane motion is toward the west. The radius of maximum wind is 20 miles. The streamlines are represented by the converging lines. The isotachs, labeled in miles-per-hour, represent 1-minute sustained winds. Features of interest are the:

- 1) Asymmetry in wind speed on the right versus the left side of the hurricane.
- 2) Decrease in the wind speed as one moves, in a normal direction to the shoreline, from water to land.
- 3) Angle made by the streamlines and isotachs. This is an approximate measure of the inflow angle, which is the angle made by a streamline and isobar, because the isobars are approximately parallel to the isotachs.
- 4) Decrease of the wind speed near the shoreline, which results in larger inflow angles near the shoreline and inland (i.e., includes bays, and rivers). Any changes in storm-surge height caused by decrease in wind speed are offset by increase in convergence by the greater inflow angle.

The SLOSH model requires that one know the eye location, central sea-surface pressure, ambient pressure, and radius of maximum wind at each model time step. Since the time step for the Corpus Christi SLOSH is on the order of hundreds of seconds, and since the model may run for up to 72 hr, the amount of input could be overwhelming. In practice, the parameters listed above are supplied at 6-hourly intervals for a total period of 72 hours (i.e., 13 sets of information). This 6-hourly data is interpolated by computer to the model time step and the computations proceed. For optimum results, 48 hr of this information is selected before passage near the center of the basin and 24 hr after. For hurricanes moving greater than 15 mph, only about 12 hr

of information before and after eye passage near the center of the basin need be used. However, if the hurricane is slow moving (i.e., 5 mph) or has an eye passage away from the basin center or beyond the basin, more of the 72 hr information will be necessary.

## 5. SLOSH MODEL OUTPUT

The Corpus Christi SLOSH model output consists of:

- 1) Gridded values of water height at selected times the computations called "snapshots".
- 2) A grid that represents the maximum water height computed at each grid point regardless of when the maximum occurred. This grid is called the envelope of high water EOHW (Fig. 12).
- 3) Time histories at preselected grid points of water heights, 1-min wind speeds, and wind directions (Fig. 13). Water heights are in feet relative to mean sea level. Wind speeds are in miles per hour. Wind directions are meteorological with north toward the top of the page.

### 5.1 Interpretation of Results

If accurate input data are available for a storm track, intensity, and size, the computed surges are estimated to be within  $\pm 20\%$  of observed water levels. The major reasons for this error are:

- 1) Terrain and bathymetric features for the Corpus Christi basin were taken from Storm Evacuation Maps and bathymetric charts prepared by the National Ocean Survey and topographic charts of the U.S. Geological Survey. The elevations determined by the Geological Survey are not always current. In many cases the maps are at least years old. Any inaccuracy in terrain or bathymetric values contributes directly to errors in the forecast magnitude of all storm surges.
- 2) All topographic features and water levels are based on the National Geodetic Vertical Datum of 1929. At initialization, before storm event, the SLOSH model must be adjusted to local MSL using current tide gage information or errors will be introduced.

3) The model does not address such highly localized features as wind-generated waves, astronomical tidal effects, storm rainfall, and riverine flooding. These effects often are included in observed high water mark data used for verification.

## 5.2 Transparent Overlays

Two transparent overlays are at the back of this atlas. These overlays can be placed on any of the envelopes of high-water figures, which are published throughout the atlas. One overlay highlights the major geographical features of the region, including counties, cities, and major highways. The second overlay shows the locations of 12 selected grid points where time histories of surge, wind speed, and wind direction are computed, as well as the heights of the land above mean sea level in 5-ft intervals. As the need arises modifications to the existing overlays can be made.

## 6. OTHER PROCESSES THAT CHANGE LOCAL WATER HEIGHTS

As mentioned in the introduction, there are independent processes other than the storm surge that tend to change local water heights. These processes are tide anomalies, astronomical tide, wind waves, and rainfall and riverine flow. Their effect and the rules of thumb for dealing with these processes in the Corpus Christi basin are presented in this section.

### 6.1 Tide Anomaly

Days or weeks before arrival of a hurricane's gale-force wind field, mean sea level in a basin may be raised or lowered. This fluctuation causes tide gages in the area to read above or below the predicted tide heights. The difference between the observed and predicted tide values is termed the "tide anomaly". Anomalies of  $-.4$  to  $3.5$  ft have been observed in the Gulf of Mexico. The tide anomaly value on the outer continental shelf may be different from that inside the basin. For this reason, the SLOSH model allows input of these values before computations begin.

For the Corpus Christi basin, the tide anomaly for the continental shelf can be obtained from a tide gage located

near the entrance of the ship channel at Port Aransas. A tide gage representing the tide anomaly in Corpus Christi Bay is located near the ship channel at the city of Corpus Christi.

If no tide anomaly information can be obtained in real time, the following rule of thumb may be useful. For a hurricane moving out of the Gulf of Mexico from the south or southeast, use a positive 1.5-ft tide anomaly for both input values.

### 6.2 Astronomical Tide

The mutual gravitational forces of the sun, moon, and earth cause the free-moving liquid surface of the earth to oscillate diurnally or semidiurnally. The oscillations are called astronomical tides or tides. The difference between a minimum value and a maximum value of the tide measured at any one point is called the tidal range. During the new and full moon, the gravitational forces are the strongest, and the maximum high and minimum low tides for the month occur. These maxima, which are called spring tides, occur twice each month.

Correspondingly, the tidal range is also a maximum during spring tides. For the Corpus Christi basin from May through October, the maximum spring tidal range varies between 1 and 2 ft on the Gulf coast. In Corpus Christi Bay and upstream along the rivers the range is  $\frac{1}{2}$  to 1 foot.

Therefore, if the peak of the storm surge were occurring at high/mean/low tide,  $\frac{1}{2}$  to  $1/0/\frac{1}{2}$  to 1 ft of water would be added/added/subtracted to/to/from the storm-surge values on the Gulf coasts. Similar arguments can be made for the values in Corpus Christi Bay and up the rivers.

Inspection of tide predictions made by the National Ocean Survey for the Corpus Christi basin indicate time differences as large as 4 to 5 hr in occurrence of high and low tide at various points. Thus, the peak storm surge may occur at high tide at one point and low tide at another.

Because of the uncertainties in the timing of landfall in the actual hurricane event, a "least regret" rule of thumb for the tide follows. Add 1 ft of height to the storm-surge values to account for the astronomical tide.

## 6.3 Wind Waves

Wind waves can best be visualized as successive breaking waves riding on top of the storm surge. This process of increased water height is different from the storm surge. Large wind waves are most frequently observed breaking on the outer barrier islands. However, if the duration and fetch of the wind is long enough, this phenomenon may occur in a bay, lake, or estuary. The magnitude of this phenomenon appears to be related to: (1) depth and slope of the bathymetry, and (2) intensity of the hurricane.

Wind waves breaking at the shoreline have rarely been measured in a hurricane. Therefore, little verification exists between theoretical results and actual events. No rules of thumb are presented for this phenomenon. However, more information is available in the Shore Protection Manual, Volume 1, Chapter 3 (10).

## 6.4 Rainfall and Riverine Flow

At eye landfall, approximately one-half of the total hurricane rainfall will have fallen over the basin. Hydraulic forces tend to move some of this water back into the Gulf of Mexico so that a portion of the accumulated rainfall over the water could be added to the storm surge. For a hurricane moving at 12 mph, an additional 2 to 3 inches might be added for rainfall effect.

Fresh water flooding on the river systems in almost all cases lags behind the time of peak storm surge flooding. However, for slow-moving hurricanes, both types of flooding may be occurring simultaneously along portions of the river. No guidelines are offered for riverine flow.

## 7. HURRICANE CLIMATOLOGY

### 7.1 Tracks

Based upon information found in Neumann, et al (8), 29 tropical cyclones of hurricane intensity have passed within 100 miles of Port Aransas, Texas, from 1886 through 1984. This averages one hurricane within 100 miles every 2.9 years. Thirteen of these hurricanes passed within 50 miles (Table 1). This averages one hurricane within 50 nautical miles every 7.6 years.

Figure 6 shows the tracks of these 13 hurricanes the 50-mile circle. The tracks represent "best estimate" based, in many cases, on sparse information. The tracks are labeled at 6-hr intervals with month/day/hour (GMT). A circled number references the number given in Table 1. In this figure, three hurricane track scenarios are highlighted. Hurricanes:

1) Move up from the south or southeast, out of the Gulf of Mexico toward the north or north-northwest and parallel the Texas coastline. These are called north-northwest moving hurricanes.

2) Enter the Texas coast from the southeast moving toward the northwest. These are called northwest moving hurricanes.

3) Enter the Texas coast from the east moving toward the west. These are called west moving hurricanes.

The tracks in Figure 6 are replotted in Figures 7, 8, and 9 depending on the track scenarios described above. Inspection of Figures 7, 8, and 9 show that the north-northwest and northwest moving hurricanes are more likely than the west moving hurricanes. Further inspection of the dates of occurrence of the various scenarios, in Table 1, indicates that there is no preferred time of year for a hurricane in any particular direction. In other words, when a hurricane occurs in the Corpus Christi region it may come from any of the three directions and at any time, June through November.

### 7.2 Intensity

Historically, the intensity of a hurricane has been measured by two parameters: the maximum sustained sea-level wind speed, which occurs at some radial distance from the center or eye of the hurricane and/or the lowest sea-level pressure in the eye.

Before aircraft reconnaissance, which began in 1945, only hurricanes passing close to or over ships or land stations yielded accurate estimates of these parameters. Therefore, for many of the historical hurricanes, estimates of the central sea-level pressures were not obtained because the hurricane eye did not pass over a station.

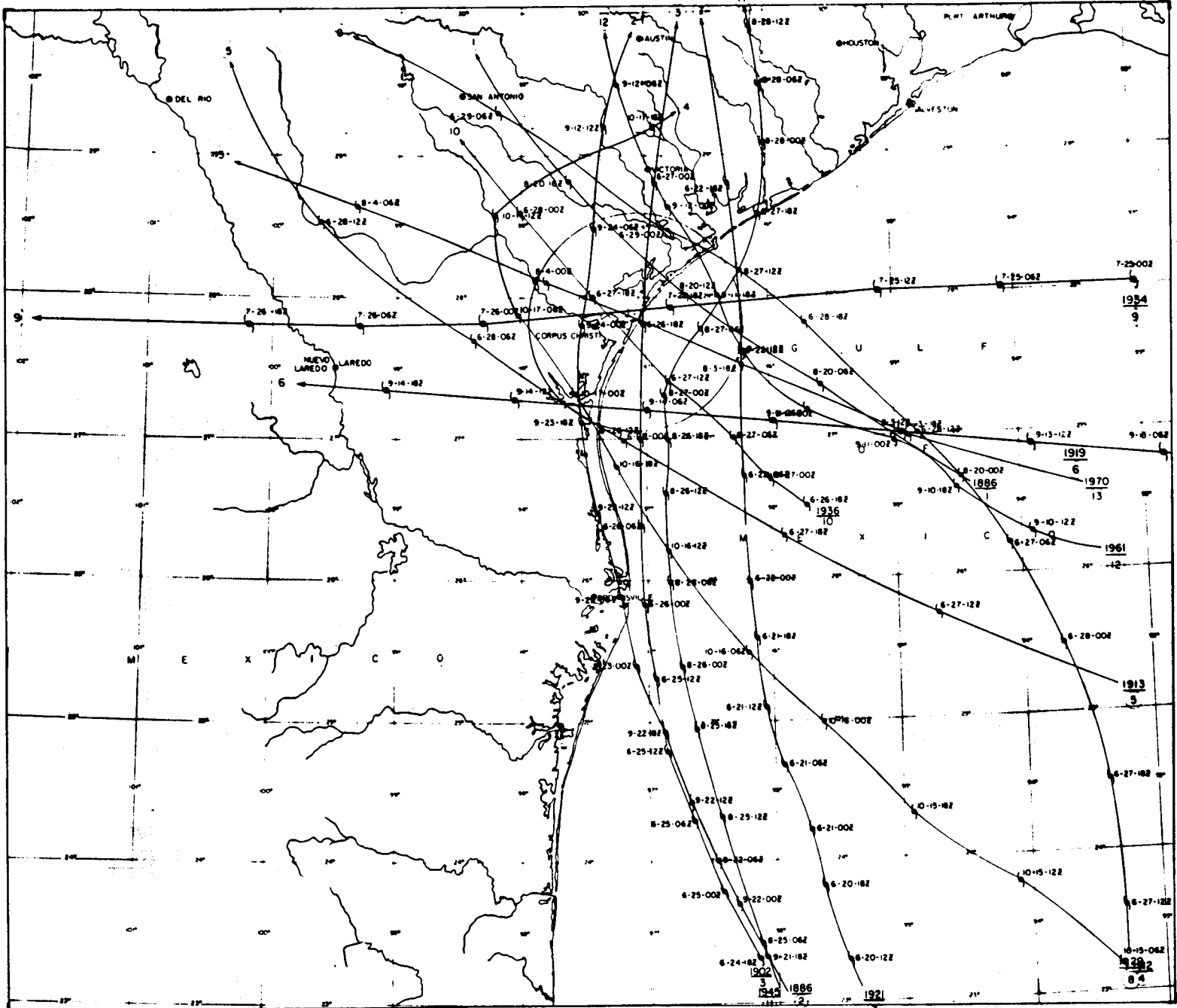


FIG. 6. TRACKS OF 13 HURRICANES PASSING WITHIN 50 MI OF PORT ARANSAS, TEXAS. MONTH, DAY, AND TIME (GMT OR ZULU) ARE GIVEN AT 6-HOURLY INTERVALS.

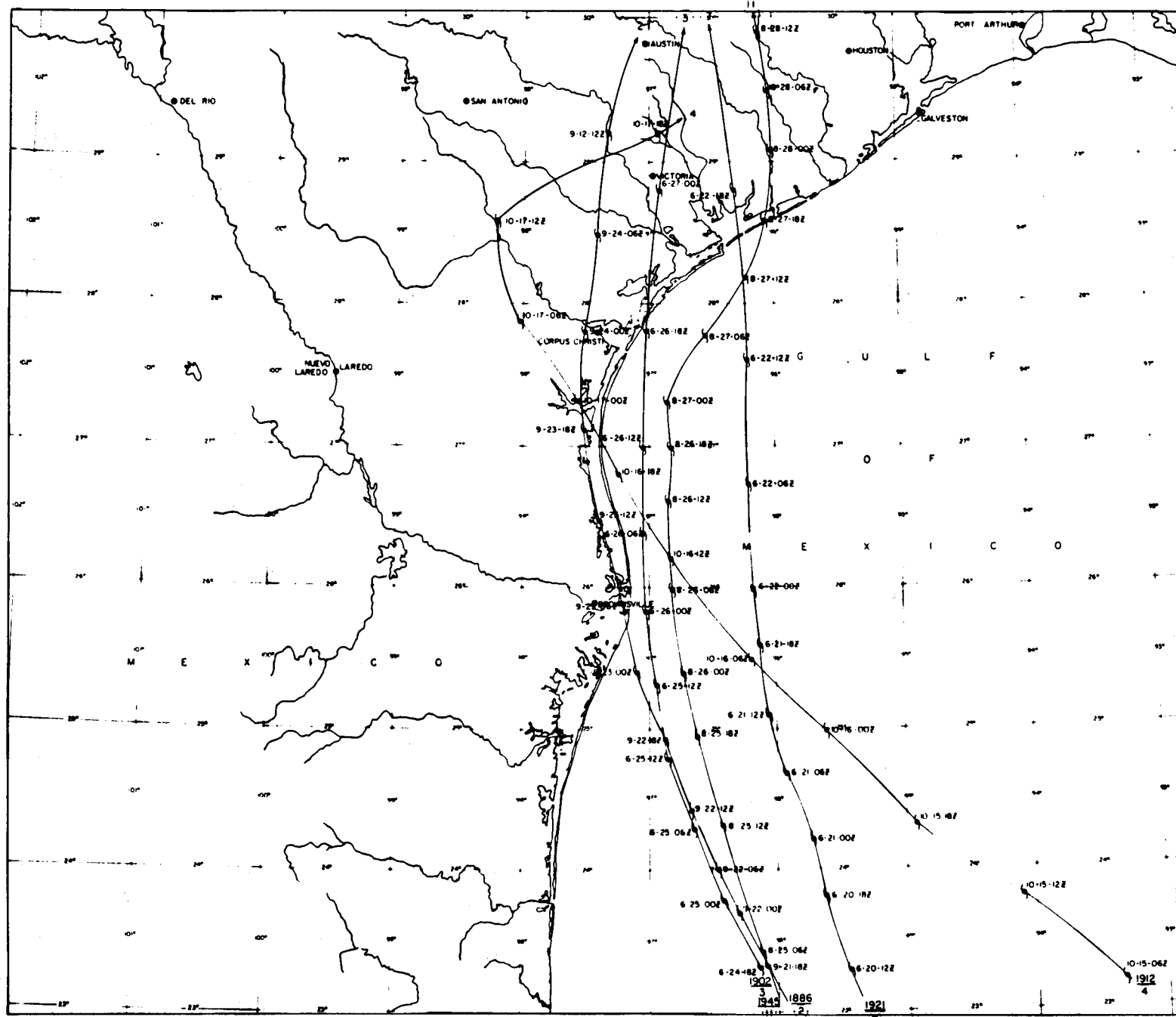


FIG. 7. NORTH-NORTHWEST MOVING HURRICANES.

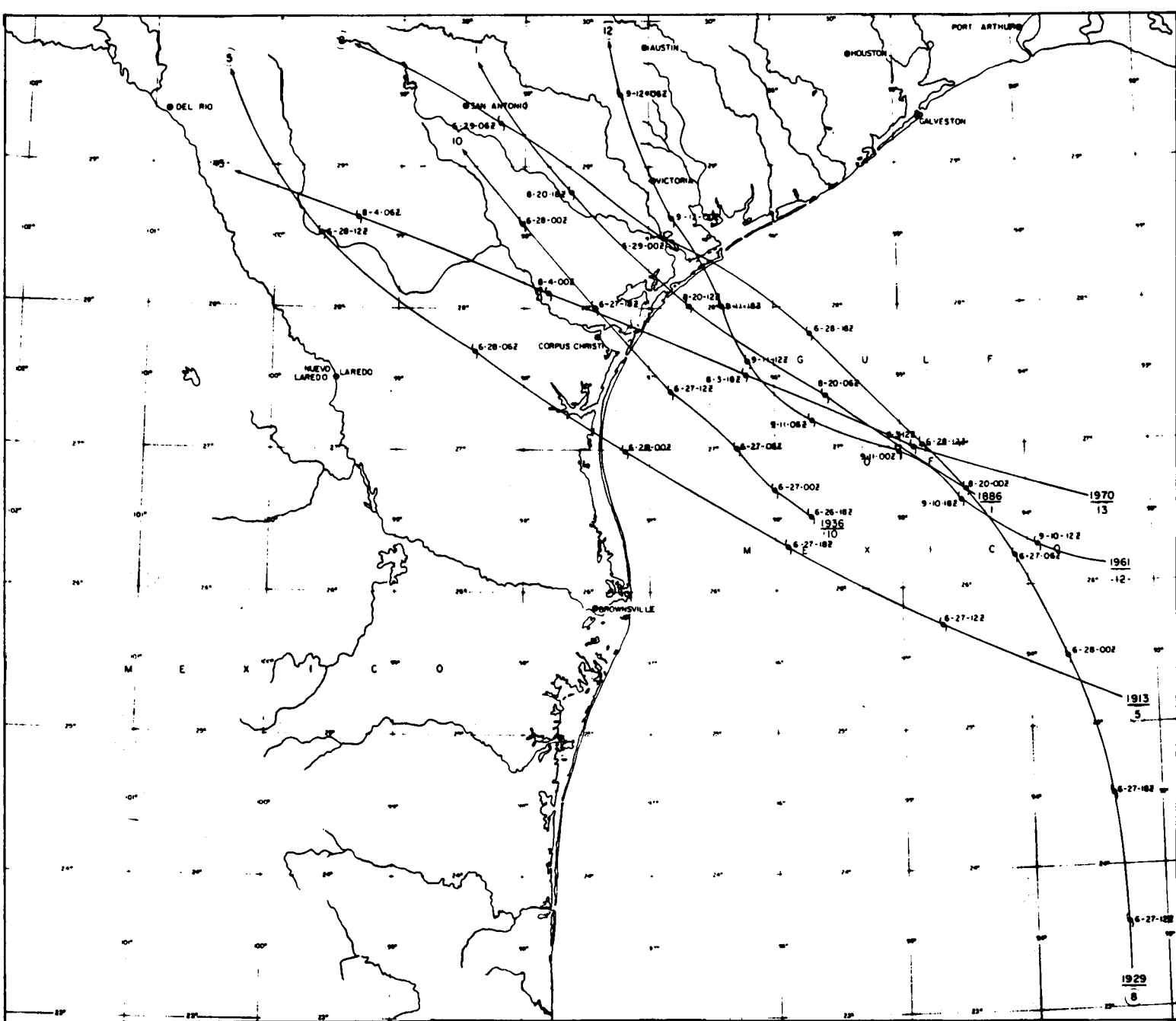


FIG. 8. NORTHWEST MOVING HURRICANES.





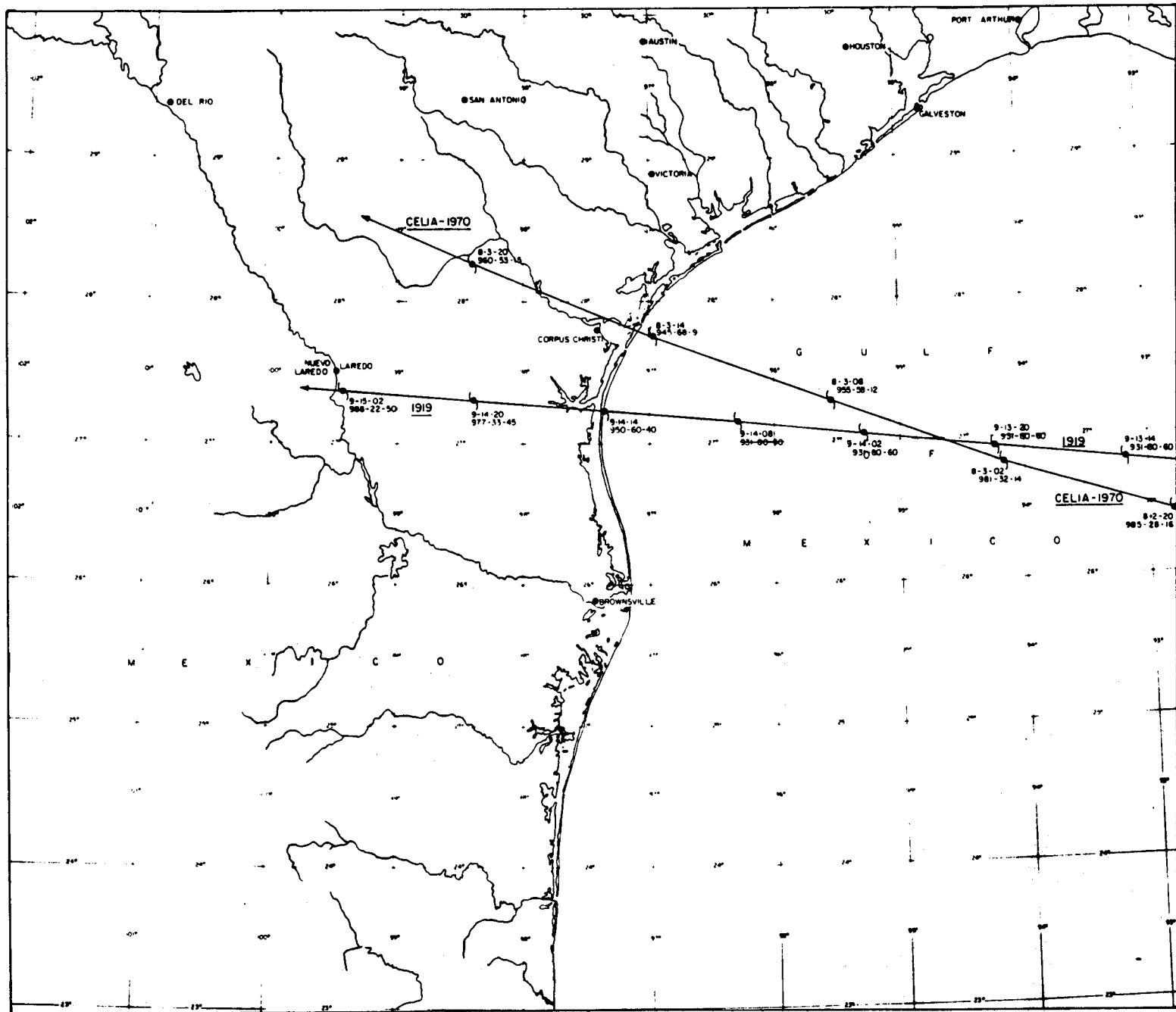


FIG. 10. TWO HISTORICAL HURRICANES USED FOR VERIFICATION OF OBSERVED VERSUS SLOSH MODEL PREDICTIONS. MONTH, DAY, TIME (LST) ARE GIVEN FIRST, FOLLOWED BY SEA-LEVEL CENTRAL PRESSURE (MB), DELTA-P (MB), AND RMW (MI) AT 6-HOURLY INTERVALS.

However, since the maximum wind speed occurs at some radial distance from the eye, a station was more likely to experience the maximum wind speed. In all the tracks shown in Figure 6, an estimate of the maximum wind speed at 6-hourly intervals was made. In many cases, extensive interpolations or extrapolations were done to obtain these 6-hourly values. For each hurricane track in Figure 6, the hourly values of the maximum wind speed inside the 50-mile circle were checked to find the largest value. This value is called the maximum sustained wind speed for the hurricane while it is within 50 miles of Port Aransas. The maximum value is given for each hurricane in column 7 of Table 1 under the title "wind speed".

The values listed in Table 1 are often poor estimates of the maximum wind speed and the following must be considered:

1) The maximum winds are generally asymmetrical, not only in radial distance from the center, but in actual value.

2) The wind speed and direction exhibit a "gustiness" pattern.

3) The wind speed has been averaged over various time intervals. The following time intervals have been observed in the historical wind records: 1-hr, 10-min, 5-min, 1-min, and gusts (on the order of seconds). If the above five averages are taken from a wind speed trace, five values of the wind speed could be obtained with the shorter time intervals generally recording higher wind speed values.

4) The measuring platforms for the maximum surface wind speed have changed over the years from ship and land stations to mostly aircraft, satellite, and land stations. However, aircraft and satellites are sensing the maximum surface wind speed remotely!

The above limitations in determining the maximum wind prompted the use of central sea-level pressure as a measure of intensity in the Corpus Christi SLOSH model. However, this eliminates many of the historical hurricanes from consideration as case studies, since pressure values were unavailable.

## 8. CASE STUDIES OF HISTORICAL HURRICANES

Two historical hurricanes have been selected to verify the Corpus Christi SLOSH model. Both of these hurricanes appear in Table 1 (Celia (1970) and the 1919 hurricane). The tracks of the two hurricanes are plotted in Figure 10. The 6-hourly positions are labeled with month/day/hour(LST)/pressure(mb)/delta-p(mb)/RMW(mi)/. (See page iv for definitions.)

As one would expect, the amount of information decreases as one recedes in time. Numerous measured high-water marks and tide gage data exist for Hurricane Celia (1970), while only five high-water observations are available for the 1919 hurricane. Likewise, meteorological data from aircraft reconnaissance, radars, ships, and land-based stations are available for Celia, while only three land stations, with wind, pressure, and rainfall data, are available for the 1919 hurricane.

Each case study contains a discussion of the meteorology of the hurricane, the envelope of high water with the actual observed high water marks superimposed, and the time histories of storm surge, wind speed, and wind direction.

### 8.1 1919 Hurricane

During most of its existence in the Gulf of Mexico this hurricane resembled Hurricane Carla (1961) in both size and intensity. Storm tides of 6 ft or greater were reported from New Orleans, Louisiana to Point Isabel, Texas. Galveston reported 7.6 ft and LaPorte, inside Galveston Bay, reported 8.5 ft. The city of Carancahua, inside Matagorda Bay, reported 13 ft. The highest reported storm tide was 16 ft at Whites Point in Nueces Bay, which is connected to Corpus Christi Bay. Estimates of the height of the storm tide in the city of Corpus Christi range from 11.5 to 15 ft. These heights are the highest recorded for Corpus Christi Bay. A total of 357 deaths were recorded in this hurricane. Most of these deaths were the result of the storm surge. This hurricane has been used as a benchmark for the redevelopment of the downtown commercial district of Corpus Christi as well as the construction of protective seawalls.

The system from which this hurricane formed passed through the Lesser Antilles as a tropical storm on the 2nd

Table 1. Hurricanes Passing Within 50 Statute Miles of 27.8°N 97.1°W During 1886-1984, Port Aransas, Texas.

Index	Storm name	Closest Point of Approach (CPA)			Forward speed	Wind speed
(1)	(2)	date	distance (st.mi.)	bearing (degs.)	(mph)	(mph)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Not Named	08/20/1886	28	040	13.6	98
2	Not Named	09/24/1886	26	269	8.1	92
3	Not Named	06/26/1902	5	099	10.4	92
4	Not Named	10/17/1912	46	242	8.1	78
5	Not Named	06/28/1913	42	219	14.7	75
6	Not Named	09/14/1919	45	204	11.9	86
7	Not Named	06/22/1921	49	092	12.7	86
8	Not Named	06/28/1929	46	030	14.6	75
9	Not Named	07/25/1934	5	014	15.3	75
10	Not Named	06/27/1936	8	194	9.2	81
11	Not Named	08/27/1945	29	126	6.7	132
12	Carla	09/11/1961	43	061	8.1	167
13	Celia	08/03/1970	4	097	16.8	127

Notes:

- (1) Index number
- (2) Storms were not formally named before 1950.
- (3) - (5) Date of, distance to, and bearing to closest point of approach (CPA) from Port Aransas, Texas.
- (6) Storm forward speed at CPA.
- (7) Maximum sustained wind speed near hurricane center while center is within specified distance. This is not necessarily the wind recorded at a given site. See reference (8).

of September. The tropical storm turned northwest and passed between the islands of Puerto Rico and Hispanola. Hurricane intensity was reached just north of Haiti on the 6th of September. It moved slowly on a west-northwest course and passed south of Key West, Florida on the 9th. The hurricane continued to move very slowly into the Gulf of Mexico during the 10th through 12th. When the hurricane was approximately south of New Orleans, Louisiana on the 13th, it took a more westerly course with an increase in forward speed. The hurricane center made landfall at Padre Island, Texas at 1400 LST on the 14th. The landfall location is approximately 45 mi southsouthwest of Port Aransas, Texas. 15-minutes later the center passed 40 mi south of Corpus Christi. After landfall the hurricane again changed direction to west-northwest and dissipated in western Texas on the 15th.

The lowest pressure observed by a land station was at Dry Tortugas, 65 mi west of Key West, Florida, with a reported corrected barometer reading of 931 mb. The center passed over the island. The steamship, Lake Winona, and the tank steamer, Fred W. Weller, reported minimum barometer readings of 929 mb and 927 mb respectively. These ships were also in the vicinity of the Dry Tortugas. The log from the steamship Berwyn stated that the vessel passed through the storm center at midnight of September 12, at latitude 26°30'N and longitude 90°30'W with a barometer reading of 931 mb. At this time the hurricane was south of New Orleans, Louisiana and taking a turn toward the west. Two days later at 0900 CST, September 14, the steamship F. R. Kellogg reported a 950 mb pressure and an approximate location of 27°N and 95°W. Whether the F. R. Kellogg passed through the center of the hurricane is unknown. In Texas, Corpus Christi reported the lowest pressure of 970 mb, while Brownsville reported 986 mb. The center passed inland between these two stations.

Based upon the above information, wind information from Corpus Christi, and wind and pressure data from Galveston it was determined that the hurricane passed approximately 40 mi south of Corpus Christi at 1415 LST, 14 September. The central pressure at time of landfall was estimated at 950 mb with a radius of maximum wind of 40 mi. Surface pressure charts indicate the ambient pressure at about 1010 mb, giving a delta-p of 60 mb at landfall. Sixty-three hours

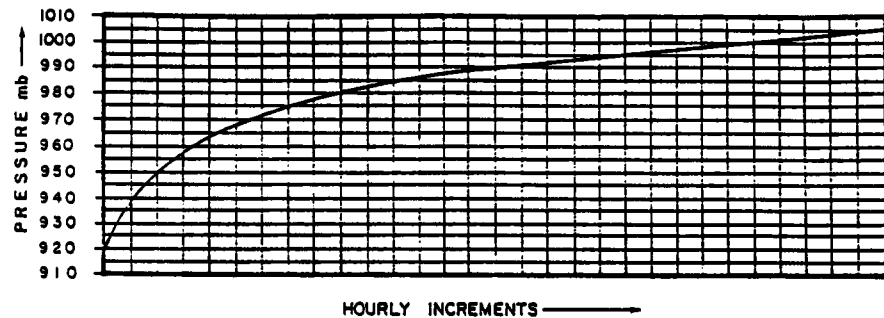


FIG. 11. FILLING RATE CURVE FOR CORPUS CHRISTI LANDFALLING HURRICANES.

before landfall the steamship Berwyn reported a 931 mb central pressure. This represents a 19 mb change in central pressure. However, based upon observations of the large central pressure oscillations in hurricane Allen (1980) over a 24 to 30 hour period a linear filling rate of 19 mb in 63 hours may not be correct. To help determine the correct filling rate before landfall a series of SLOSH model runs were made in three other basins - Matagorda Bay, Galveston Bay, and Sabine Lake - using the track of the 1919 hurricane and varying the intensity and RMW parameters. In order to obtain the best comparisons with the high water mark observations in the three basins a delta-p of 80 mb and RMW of 60 mi was necessary until the center was approximately due south of the mouth of Matagorda Bay. Thus, these results suggest that the filling of the hurricane and decrease in size occurred approximately 6-hour prior to landfall (see figure 10).

After landfall, a standard hurricane filling rate for Texas was used. Figure 11 shows the filling rate. The graph represents a plot of the central sea-level pressure versus time while the eye of the hurricane is over land. This rate is a modified form that was first derived by Schwerdt, et al. (9). For the 1919 hurricane, one locates the 950 mb value on the ordinate (y-axis) and follows this line until intersection with the filling rate curve. The abscissa (x-axis) location is now termed the "zero" or land-

fall time. To determine the 6-hourly change in central pressure, one moves over 6 hours on the abscissa from the "zero" time and moves back up to the filling rate curve. The central sea-level pressure is then read off the ordinate. For the 1919 hurricane, this value is 977 mb. The RMW was slowly increased with time after landfall.

Figure 12 is the computed envelope of high water for the 1919 hurricane. The envelope represents the highest water that occurs regardless of time. The values are relative to mean sea level and are analyzed at 1-ft intervals. The shaded areas represent land that has been inundated, according to the model, by the storm surge. Transparent overlays are available at the back of this atlas to highlight various geographical features. Observed high water values are indicated in the figure. A range of values is given for the city of Corpus Christi. These values were not obtained from one report but represent the range of values quoted from several reports and articles. The SLOSH model gives a peak surge value of 13.0 ft for Corpus Christi. The increase of the surge heights from the mouth of Corpus Christi Bay to the back of Nueces Bay is quite striking. This increase is confirmed by the high water value at White's Point. The SLOSH model results indicate a peak storm surge value of between 17 and 18 feet at the back of Nueces Bay. The observed value at Port Aransas of 9.0 feet agrees well with the SLOSH value. Both Aransas Pass and Ingleside SLOSH values are approximately 1 foot lower than observed.

Figure 13 represents the Corpus Christi SLOSH-model-generated time histories of storm surge, wind speed, and wind direction for 12 selected grid points in the basin (Fig. 4). The graph labeled Corpus Christi has been reproduced in Figure 13a, except that the model-computed wind speeds have been converted from 1-min to 10-min averages by reduction of all values by 31%. This conversion was necessary because the actual 1919 Corpus Christi wind speed observations were 10-min averages, with the largest 10-min average per hour being recorded. These actual observations of wind speed and directions are also plotted in Figure 13a. The wind barbs blow with the wind, north being toward the top of the page. The last observation was taken at 12:27 PM (72 mph from the NE) because the wind measuring equipment failed. Comparison of observed versus computed wind direc-

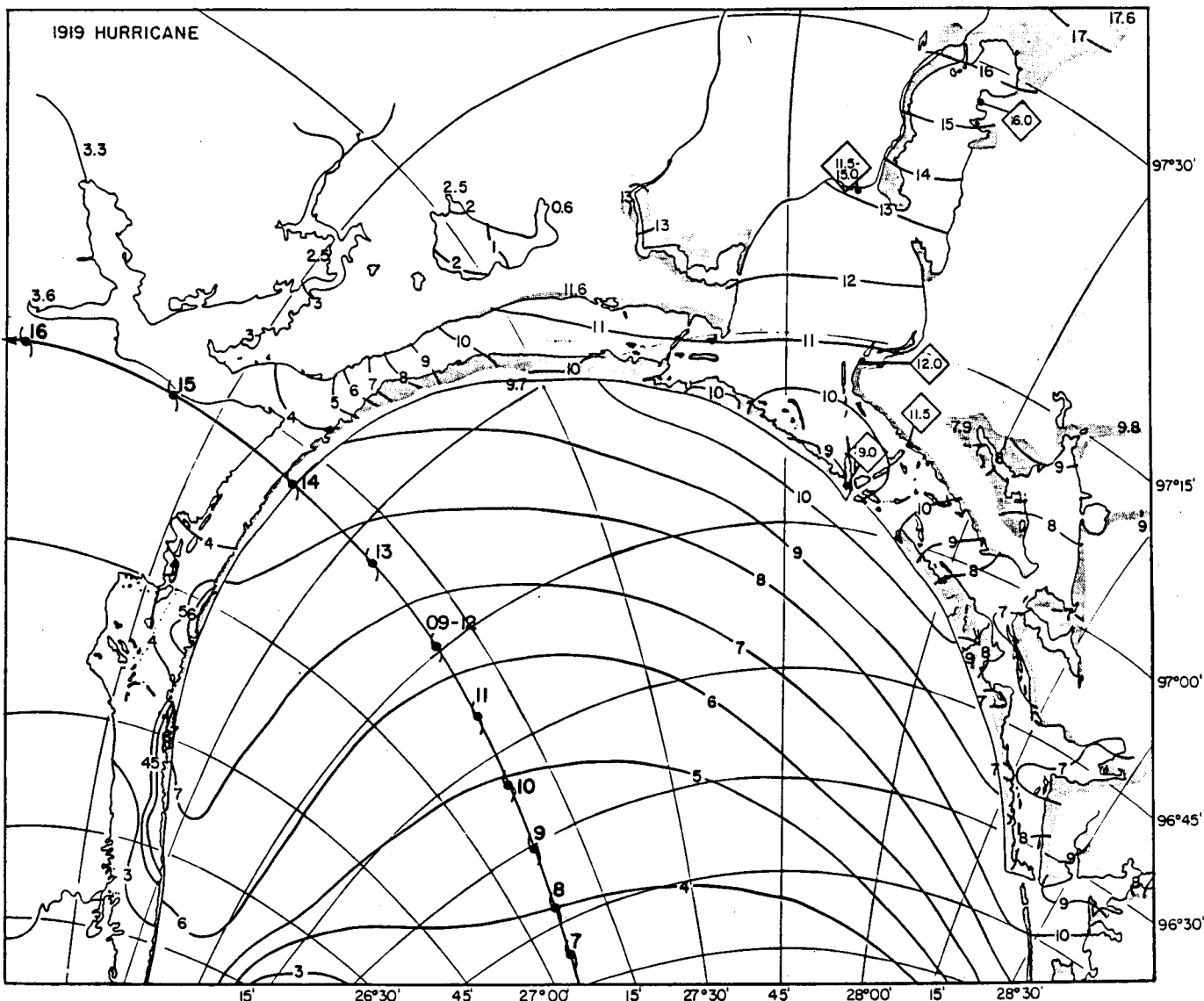


FIG. 12. ENVELOPE OF HIGH WATER FOR THE SEPTEMBER 1919 HURRICANE. CONTOURS REPRESENT WATER ABOVE MSL. SHADED AREAS REPRESENT INUNDATED LAND. DIAMOND REPRESENTS OBSERVATION. HURRICANE TRACK WITH HOURLY POSITIONS (LST) IS ALSO SHOWN.

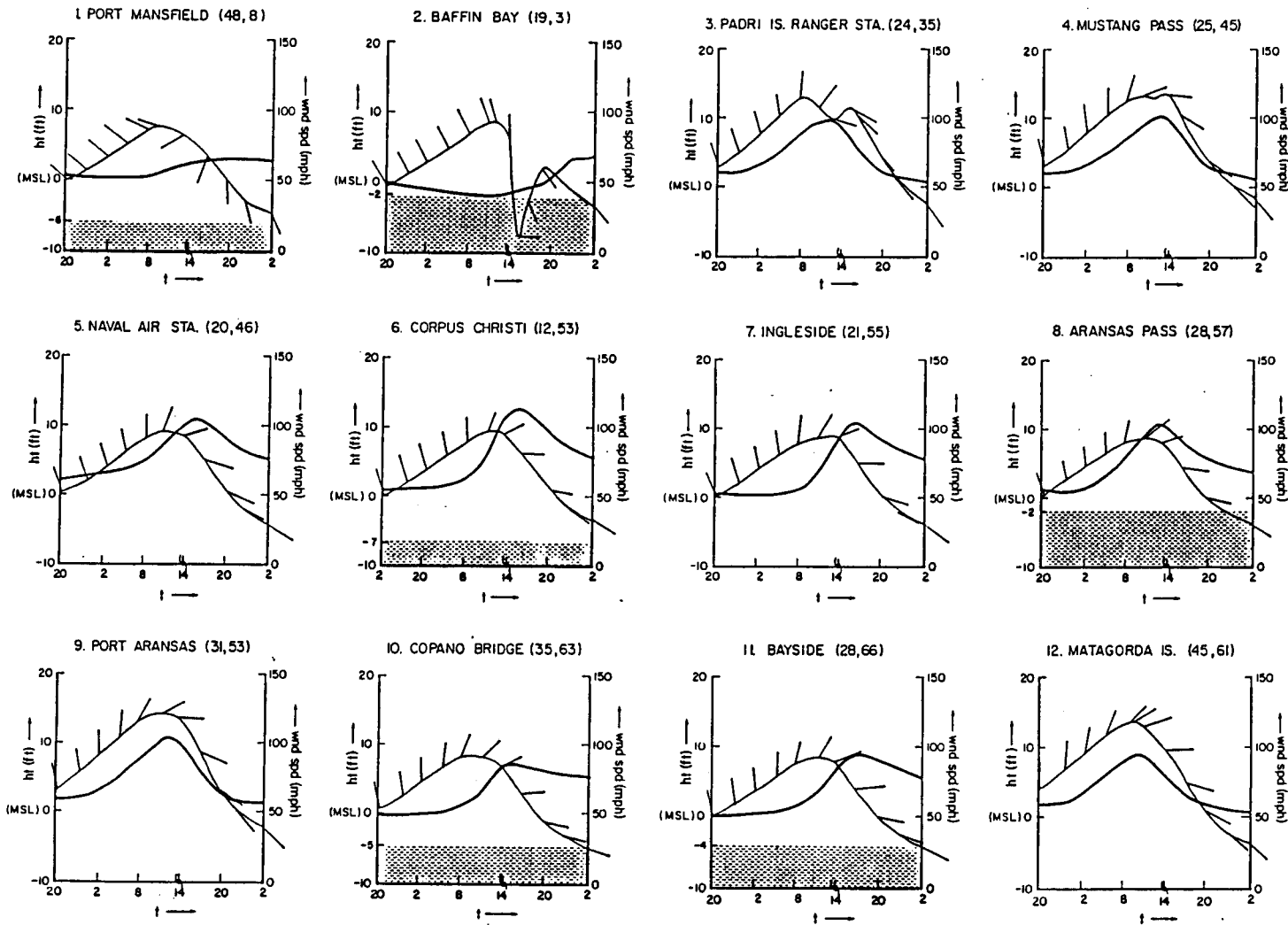


FIG. 13. TIME HISTORIES OF STORM SURGE, WIND SPEED, AND DIRECTION AT 12 SELECTED POINTS (SEE FIG. 4.) FOR THE SEPTEMBER 1919 HURRICANE. TIME IN LST. HEAVIER CURVE REPRESENTS STORM SURGE HEIGHT. BARBS REPRESENT WIND DIRECTION WITH NORTH TOWARD THE TOP OF THE PAGE.

tion show very good agreement. However, wind speeds from midnight to about 10 AM show a large difference. The observing station in downtown Corpus Christi in 1919 was located such that winds from a northerly around to westerly around to southerly direction had a over the land trajectory. Whereas, northnortheasterly around to easterly around to southsoutheasterly represented an over the water trajectory. The SLOSH model winds represent values that would be occurring with an over the water trajectory. Thus, at 11:40 AM when the winds shift to northeast, with an over the water trajectory, the agreement becomes close.

The SLOSH model storm surge trace in Figure 13a shows an interesting phenomena. The peak storm surge lags behind the maximum wind speed by about 3 hours. This demonstrates the importance of the wind direction which is blowing normal (i.e. easterly) to the Corpus Christi shoreline when the peak surge occurs.

## 8.2 Celia 1970

In late July an African disturbance moved across the Atlantic Ocean and into the Caribbean Sea. A closed circulation developed within the disturbance on July 30 just west of Caymen Island and the system was labeled a depression. The depression moved toward the northwest and crossed over the western tip of Cuba into the Gulf of Mexico. The depression intensified to tropical storm strength on the 1st of August and was given the name Celia. During the same day the system continued to intensify and by late afternoon was labeled a hurricane. Celia moved across the Gulf of Mexico at an average speed of 15 mph and made landfall 4 miles southwest of Port Aransas, Texas at approximately 1445 CST on the 3rd of August. After landfall the hurricane continued toward the northwest and dissipated in western Texas on the 4th of August.

Celia is an example of a rapidly deepening hurricane as it makes landfall. The central sea-level pressure at landfall was 945 mb while 12 hours earlier it was 981 mb. This represents a deepening rate of 3 mb per hour. Celia maintained this central pressure of 945 mb for approximately one hour after landfall, at which time it began to fill very slowly.

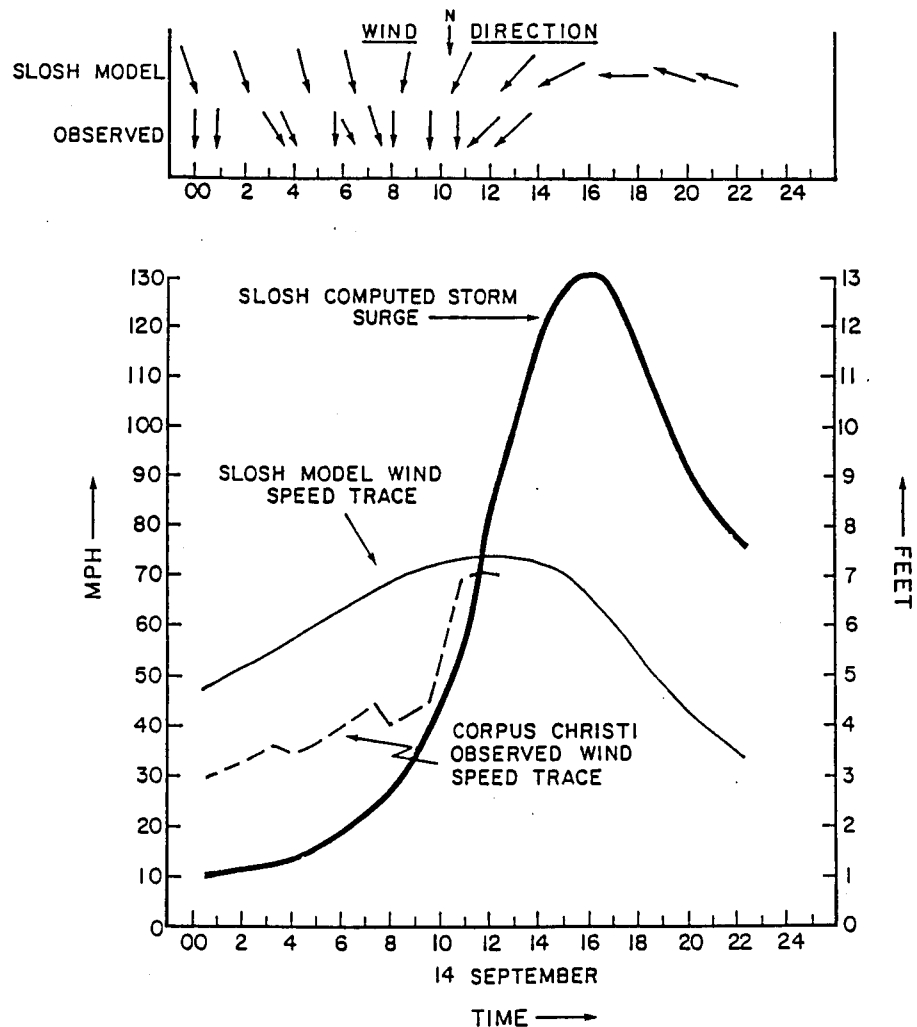


FIG. 13a. COMPARISON OF THE TIME HISTORIES OF OBSERVED VERSUS SLOSH MODEL COMPUTED WIND SPEED AND DIRECTION AT CORPUS CHRISTI, TEXAS, FOR THE 1919 HURRICANE. ALSO SHOWN IS THE SLOSH MODEL COMPUTED STORM SURGE. TIME IN LST.



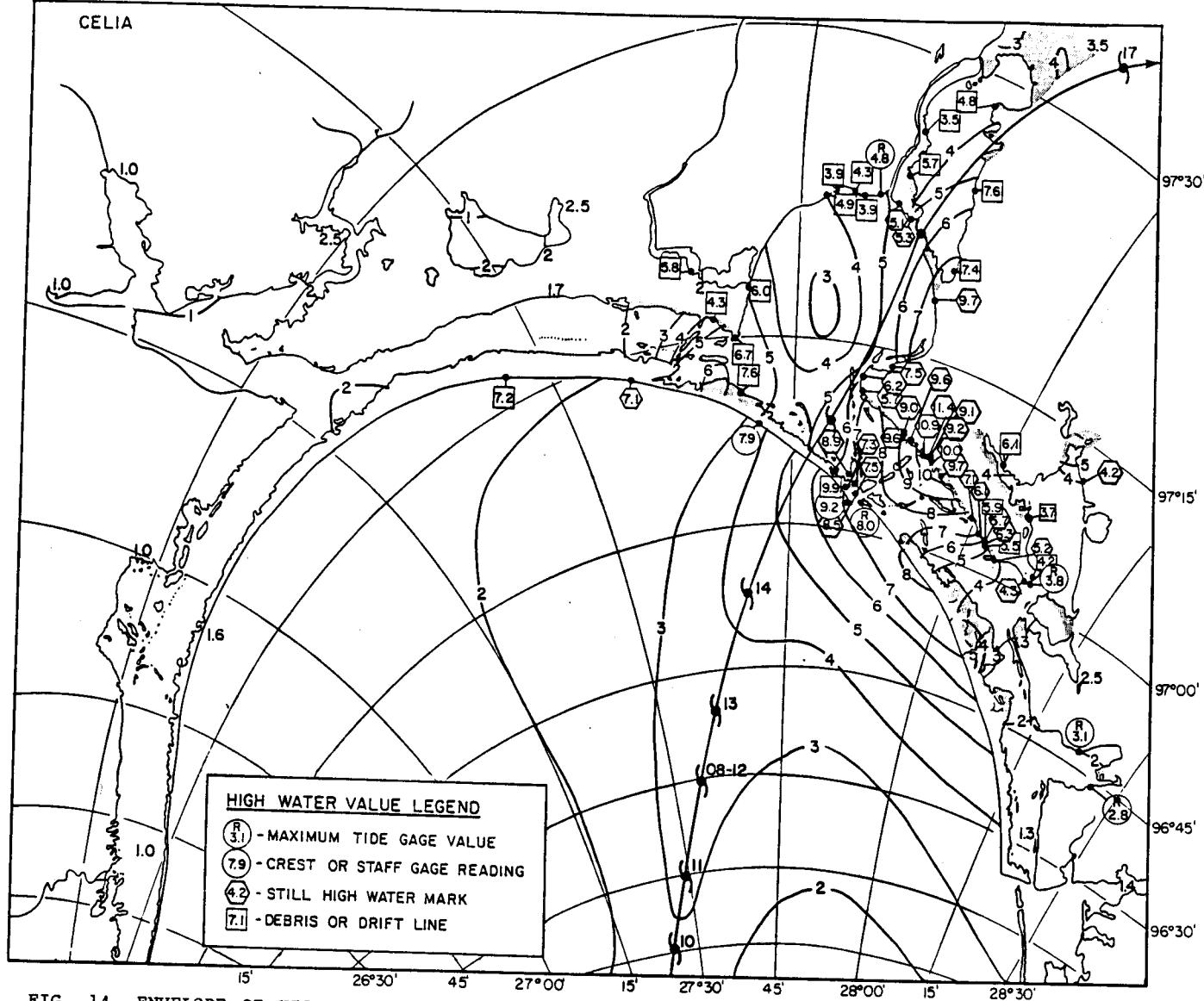


FIG. 14. ENVELOPE OF HIGH WATER FOR HURRICANE CELIA (1970). CONTOURS REPRESENT WATER ABOVE MSL. SHADED AREAS REPRESENT INUNDATED LAND. OBSERVED HIGH WATER MARKS WERE RECORDED FOUR WAYS - SEE LEGEND. HURRICANE TRACK WITH HOURLY POSITIONS (LST) IS ALSO SHOWN.

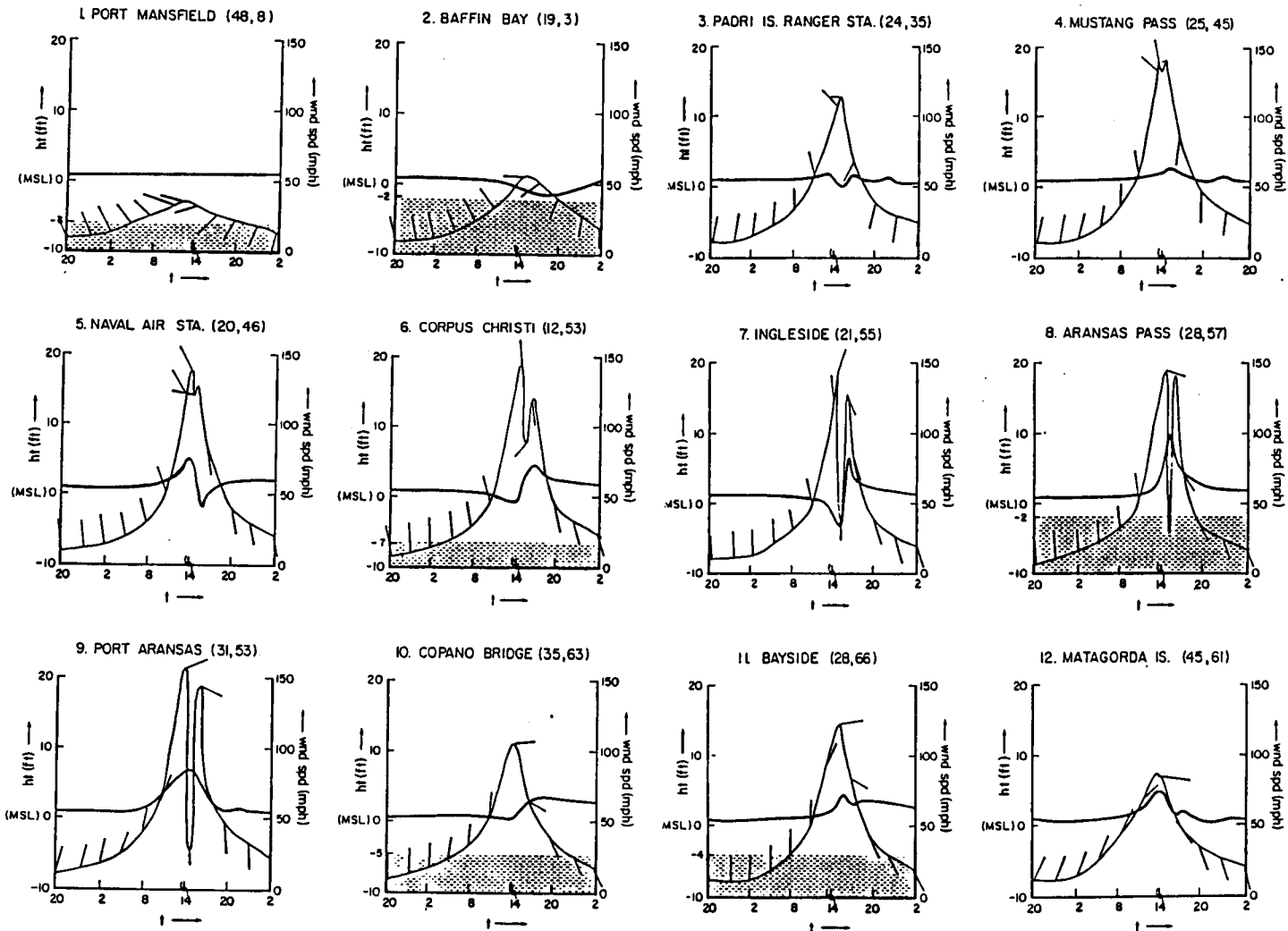


FIG. 15. TIME HISTORIES OF STORM SURGE, WIND SPEED, AND DIRECTION AT 12 SELECTED POINTS (SEE FIG. 4.) FOR HURRICANE CELIA (1970). TIME IN LST. HEAVIER CURVE REPRESENTS STORM SURGE HEIGHT. BARBS REPRESENT WIND DIRECTION WITH NORTH TOWARD THE TOP OF THE PAGE.

Celia's RMW, as measured by aircraft reconnaissance and land based radar, decreased up to the point of landfall, at which time it was 9 miles. After landfall the RMW slowly increased.

Figure 14 is the envelope of high water for hurricane Celia. The track of the hurricane with hourly positions is indicated. Also shown in Figure 14 are the locations of the observed high water values as given in the Galveston District Army Corps of Engineers report on hurricane Celia (1). The observed high water values were recorded 4 different ways - maximum tide gage value, crest or staff gage reading, still high water mark, and debris or drift line. Each value was plotted inside a designated symbol as indicated in the legend on Figure 14. Five values from the Corps of Engineers report were not plotted because no SLOSH estimates were computed for their respective grid squares. These points include two debris elevations of 5.1 and 3.9 ft inside the Corpus Christi turning basin, a debris elevation of 6.7 ft on Oso Creek that flows into Oso Bay, and 8.6 and 6.2 ft inside the Aransas Pass levee system. The SLOSH results indicate a peak storm surge value of 10.5 ft near Aransas Pass. This agrees well with the 10.0 ft which is the average of six still high water marks near Aransas Pass (i.e. 10.9, 11.4, 9.6, 9.1, 9.2, 10.0).

Inspection of the observed versus computed high water values indicates over all good agreement with a few exceptions. In order to make a comparison of the results, the observed high water value was subtracted from the SLOSH generated value as determined from Figure 14. The differences were plotted in bar graph form (Figure 16) with one foot class intervals centered on integer values. The error statistics for the 57 cases are shown in an inset in Figure 16. The mean value of -0.61 ft reflects a negative bias in the data and indicates that the SLOSH model is under estimating the high water slightly. The absolute error of 1.02 ft and the standard deviation of 1.45 ft are consistent with SLOSH model error analyses for historical hurricanes in other basins. A comment concerning two of the high water values seems prudent. On Padre Island a still high water mark of 7.1 ft and a drift line of 7.2 ft were recorded. The SLOSH model gives 2.1 ft and 1.8 ft respectively. These account for the two largest errors. It is speculated that these high water values were generated by large breaking waves generated by Celia before eye landfall. The SLOSH model

does not take into account this phenomena. Future use the SLOSH model as either a forecast or hindcast tool for landfalling hurricanes must suggest the possibility having higher high water values on the outer coast to the left of the eye than the model suggests.

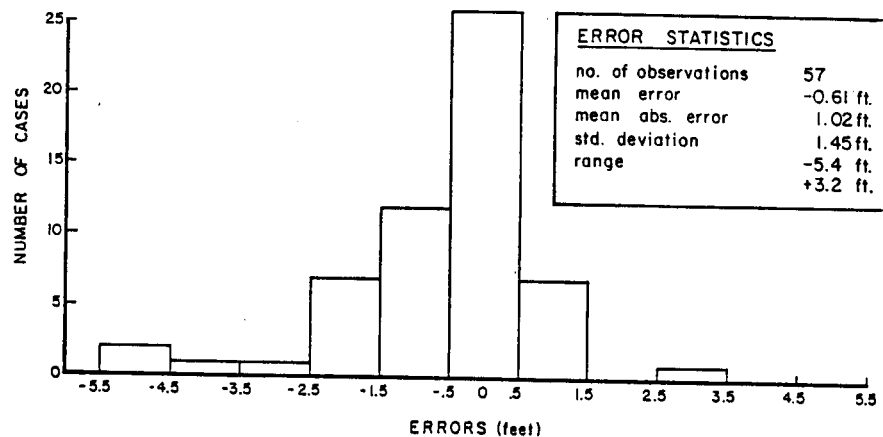


FIG. 16. BAR GRAPH OF THE DIFFERENCES OF SLOSH MODEL GENERATED VALUES MINUS OBSERVED VALUES FOR HURRICANE CELIA (1970).

Figure 16 represents the Corpus Christi SLOSH-model-generated time histories of storm surge, wind speed, and wind direction for 12 selected grid points in the basin (Figure 4).

Figure 17 represents comparisons between tide gage marigrams and SLOSH model generated marigrams for five locations in the Corpus Christi Basin. Both the Copano Bay Causeway and Port Aransas comparisons agree well. The Corpus Christi comparisons indicate that the magnitudes are in agreement but appear to be out of phase by approximately 1 to 2 hours. At Austwell and Seadrift, located in San

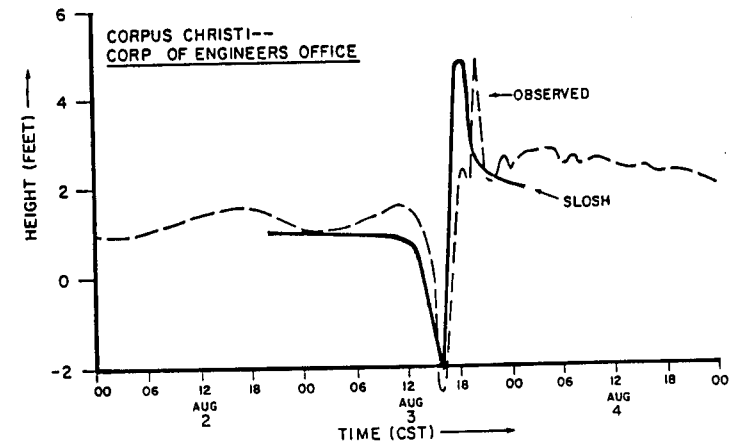
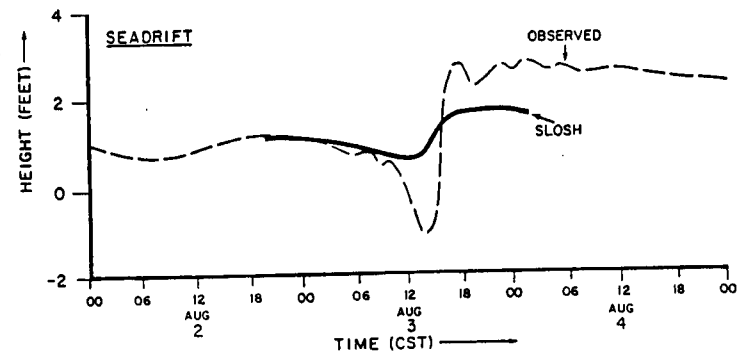
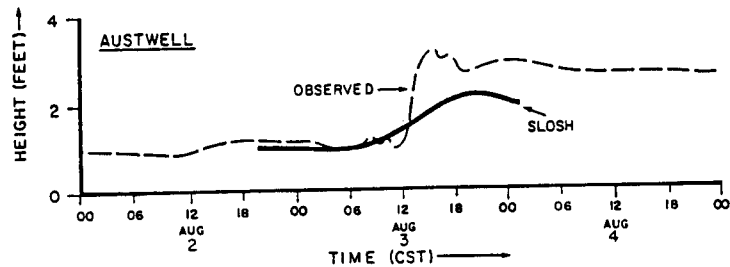
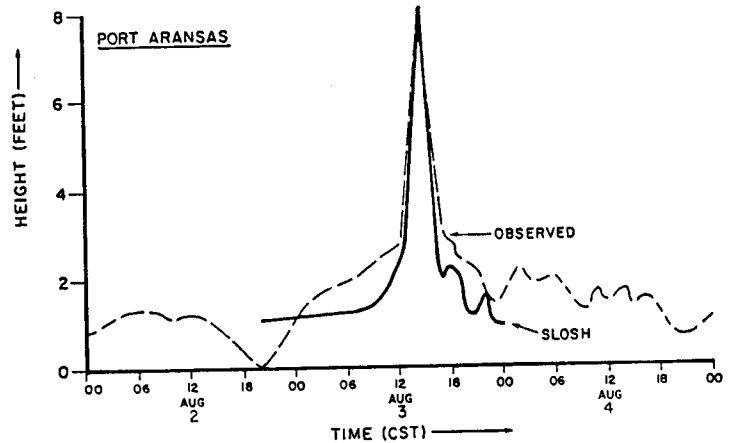
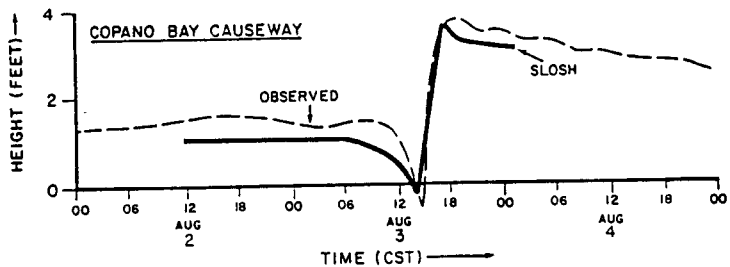


FIG. 17. COMPARISONS BETWEEN TIME GAGE MARIGRAMS AND SLOSH MODEL GENERATED MARIGRAMS FOR FIVE LOCATIONS (SEE FIG. 3.) IN THE CORPUS CHRISTI BASIN FOR HURRICANE CELIA (1970).

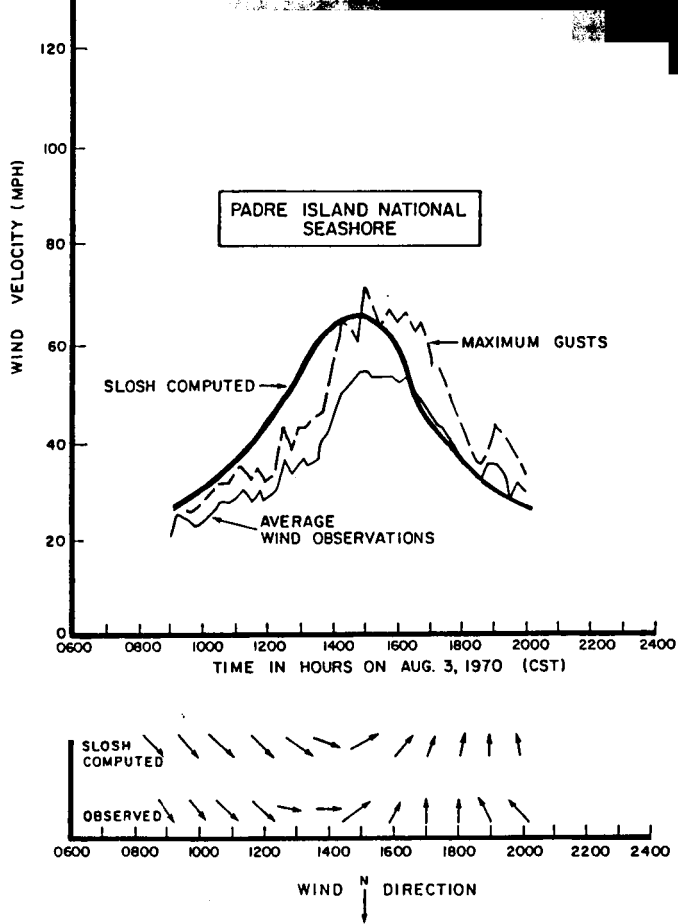


FIG. 18. COMPARISON OF THE TIME HISTORIES OF OBSERVED VERSUS SLOSH MODEL COMPUTED WIND SPEED AND DIRECTION AT PADRE ISLAND NATIONAL SEASHORE RANGER STATION FOR HURRICANE CELIA (1970). OBSERVED MAXIMUM GUSTS ARE ALSO SHOWN.

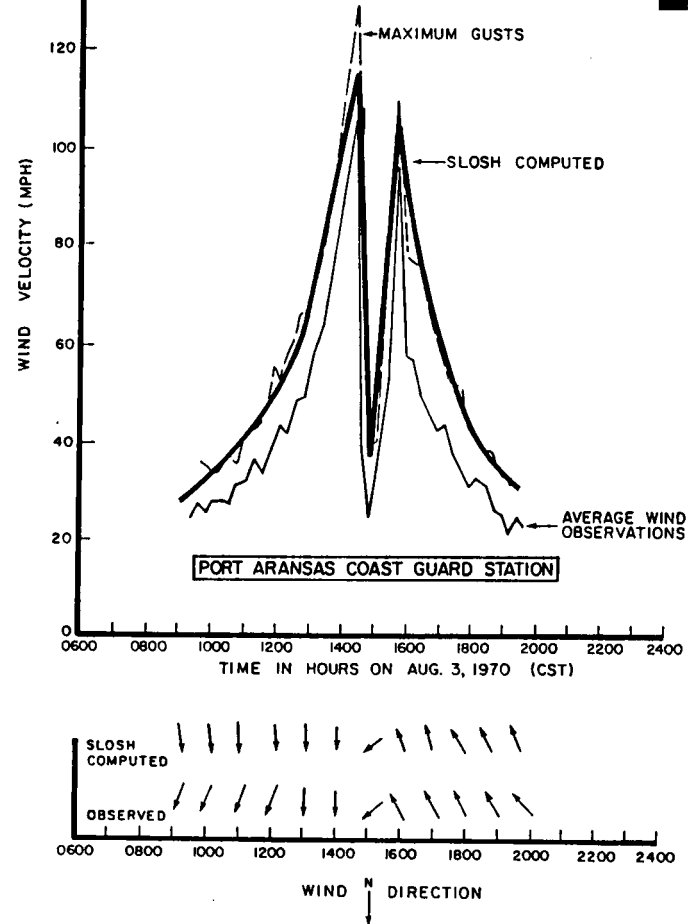


FIG. 19. COMPARISON OF THE TIME HISTORIES OF OBSERVED VERSUS SLOSH MODEL COMPUTED WIND SPEED AND DIRECTION AT THE PORT ARANSAS COAST GUARD STATION FOR HURRICANE CELIA (1970). OBSERVED MAXIMUM GUSTS ARE ALSO SHOWN.

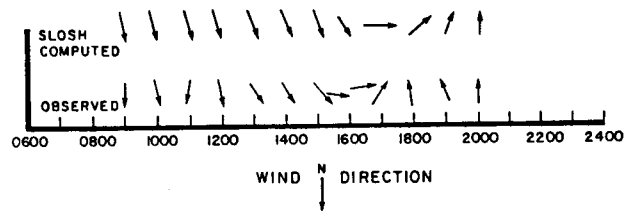
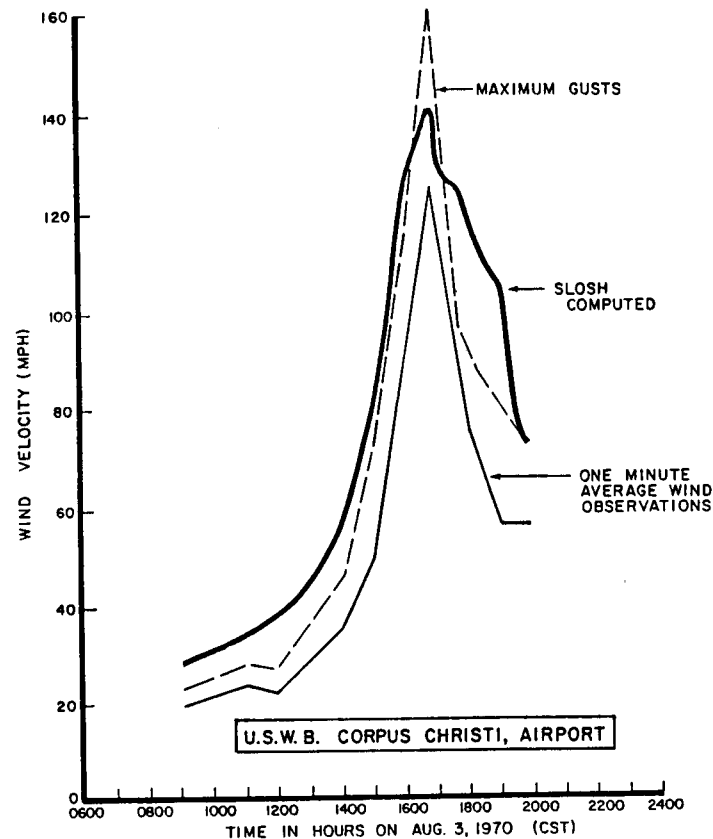
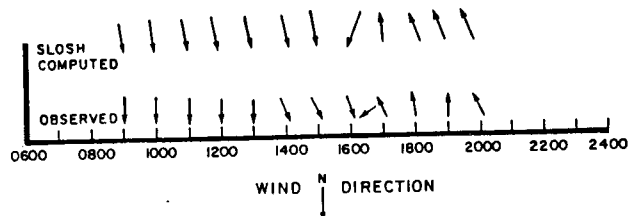
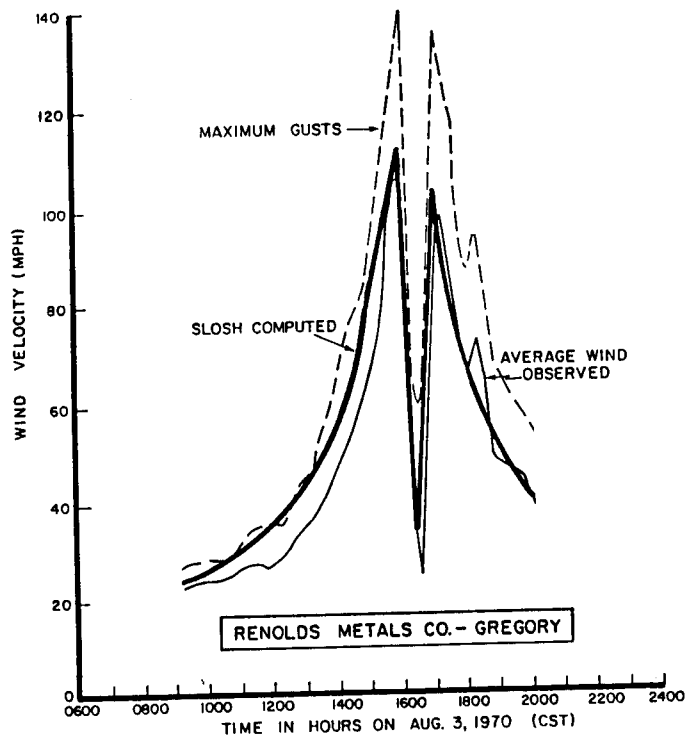


FIG. 20. COMPARISON OF THE TIME HISTORIES OF OBSERVED VERSUS SLOSH MODEL COMPUTED WIND SPEED AND DIRECTION AT THE RENOLDS METALS COMPANY AT GREGORY FOR HURRICANE CELIA (1970). OBSERVED MAXIMUM GUSTS ARE ALSO SHOWN.

FIG. 21. COMPARISON OF THE TIME HISTORIES OF OBSERVED VERSUS SLOSH MODEL COMPUTED WIND SPEED AND DIRECTION AT THE UNITED STATES WEATHER BUREAU AT THE CORPUS CHRISTI AIRPORT FOR HURRICANE CELIA (1970). OBSERVED MAXIMUM GUSTS ARE ALSO SHOWN.

Antonio Bay, the phase of the surge is in approximate agreement but the magnitude of the SLOSH values are lower than observed. All the tide gage marigrams show a tide anomaly of approximately one foot occurring before the onset of the storm surge. The SLOSH model run for hurricane Celia was initiated with a one foot tide anomaly inside the bays and along the Gulf Coast.

A unique set of wind observations was obtained at four locations in the Corpus Christi basin during Celia. These locations are the Padre Island National Seashore ranger station, Port Aransas Coast Guard station, Renolds Metals Company at Gregory, and United States Weather Bureau at the Corpus Christi airport. These locations are indicated in Figure 3 and on one of the overlays located at the back of this atlas. Figures 18 thru 21 show the wind data obtained from the four locations as well as the computed SLOSH model wind data at the same locations.

For Figures 18 thru 20, the average wind value was determined once every 15 minutes (i.e., on the hour and fifteen, thirty, and forty-five after the hour) by taking the average of the original wind speed trace for a fifteen minute period centered on the time of interest. The maximum gust represents the highest peak value on the wind speed trace in the same 15 minute interval. The SLOSH computed winds represent 15 minute average winds that would be measured for an over the water trajectory and were also plotted at 15 minute intervals. The average wind direction on Figures 18 thru 20 was determined at 15 minute intervals, but only plotted at one hour intervals. However, one half hour values were used where the wind changed direction rapidly during eye passage. The SLOSH computed wind directions were plotted at one hour intervals only.

For Figure 21 the average wind value was determined once every hour by taking the highest one minute average of the original wind speed trace one half hour before and after the hour. The maximum gust represents the highest peak value on the wind speed trace in the same one hour period. The SLOSH computed winds represent one minute average winds that would be measured for an over the water trajectory. On Figure 21, the average wind direction for one hour was plotted except when the center was near the station at which time one half hour averages were also plotted. The SLOSH

computed wind directions were plotted at one hour intervals only.

Inspection of the ratio of the gust values to the average wind speed values (i.e., gust ratio) in Figures 18 thru 21 shows values ranging from 1.20 to 1.46 for average wind speed values in the gale force wind range (i.e., 39 to 73 mph) and values of 1.11 to 1.41 in the hurricane range of 74 to 126 mph.

A discussion of the observed winds and the SLOSH computed winds for each location follows:

The Padre Island National Seashore ranger station is located near the Gulf of Mexico on Padre Island. Winds blowing from the direction range of north to northwest to west to southwest at the site will have an over the land trajectory. Winds blowing from southsouthwest to south to east to northnortheast will have an over the water trajectory. In Figure 18 the SLOSH computed winds are over estimating the actual winds up until 1700 CST. At this time and there after the wind trajectory becomes over the water and the comparison is good.

The Port Aransas Coast Guard station is located on the west side of Mustang Island. Spoil islands in all directions around the station tend to eliminate any direction as an over the water trajectory. Figure 19 bears this out by showing that the SLOSH model values are always greater than observed.

The Renolds Metals Company at Gregory is located near the northern shore of Corpus Christi Bay. Winds blowing from east to north to west will have an over the land trajectory while winds from the southwest to south to southeast will have an over the water trajectory. Figure 20 shows that the SLOSH model over estimates the wind speed up until 1700 CST when an over the water trajectory occurs. After 1700 CST the comparison is good.

The United States Weather Bureau at the Corpus Christi airport is a land locked location. Figure 21 shows this, in that the SLOSH model winds always over estimate the observed winds.

In evacuation planning, a primary rule is to have the evacuation completed before the arrival of sustained gale force winds (i.e., 39 mph or greater). Questions have been asked as to how well the SLOSH model winds simulate the actual winds in hurricanes. Figures 18 thru 21 give us a comparison for at least one landfalling hurricane. For stations that receive an over-the-water wind trajectory the SLOSH model will give satisfactory answers. For stations that receive an over the land wind trajectory the SLOSH model will indicate gale force wind arrival 1 to 2 hours earlier than will occur.

## 9. SLOSH RUNS THAT USE HYPOTHETICAL HURRICANES

Section 8 compared SLOSH model output for historical hurricanes versus actual observed data. Over all, the results are within  $\pm 20\%$ . One might ask, what types of envelopes of high water are generated by hypothetical hurricane tracks of varying intensities? What is the maximum high water generated for a series of hypothetical hurricanes of the same intensity passing over the basin at different locations? These questions are discussed in this and the following section (Section 10).

### 9.1 Tracks

Figures 22, 23, 24 show a series of hypothetical hurricane tracks plotted on a Mercator projection. The tracks represent the three track scenarios described earlier. The figures also show two additional tracks moving toward the southwest. Although hurricanes move along this track direction very infrequently it is necessary to determine the storm surge flooding associated with this direction. Figures 25, 26, and 27 represent portions of the same tracks as shown in Figures 22, 23, and 24 plotted on the computer projection used in this atlas.

Landfall locations for the tracks were spaced at 10-mile intervals along the coastline. Because of the fixed-track direction and undulations in the coastline, the tracks in many cases are spaced less than 10 miles apart relative to each other. The actual coastline, rather than a smoothed or straightened version, was selected because of the desire of civil defense directors and regional planners to have specific eye landfall points. The distance of 10

miles was chosen to resolve the maximum storm surge heights that can occur in the basin.

The tracks are labeled according to their distance and position relative to the city of Port Aransas on Mustang Island (zero miles). For the hurricanes moving toward the west and northwest, with the observer moving with the eye and looking forward, the tracks to the south of Port Aransas are called Left Side (LS) of Port Aransas and those to the north, Right Side (RS) of Port Aransas. The distance is measured along the shoreline in statute miles. For example, a hurricane landfalling 20 miles to the south of Port Aransas is labeled NOR10C3LS020. The NOR indicates a normal landfall relative to the coastline which is a northwest moving hurricane, the 10 indicates the speed of the hurricane along the track in miles per hour, the C3 indicates the category on the Saffir/Simpson scale, and the LS020 indicates 020 miles on the left side of Port Aransas. All hurricanes moving to the west and northwest are simulated with categories 1 through 5 intensities on the Saffir/Simpson scale.

The paralleling (PAR) or northnorthwest moving hurricanes use the same labeling scheme described above. However, because of the angle between the track direction and coastline only five tracks are needed to resolve the maximum surges. The western most track is labeled L-150 (left side of Port Aransas 150 miles) because the actual landfall takes place on the Mexican coast southeast of Brownsville. All hurricanes moving in this direction are simulated with categories 1 through 3 intensities on the Saffir/Simpson scale.

The two southwest moving hurricane tracks use the same labeling scheme described above. The hurricanes moving in this direction are simulated with categories 1 and 2 intensities on the Saffir/Simpson scale.

Another parameter that was investigated in the Corpus Christi basin was the affect of the speed of the hurricane on the storm surge along the different track directions. Table 1 indicates that historical hurricanes within 50 miles of Port Aransas have had track speeds ranging from 6.7 to 16.8 mph with the average being 11.6 mph. Investigation of other hurricane track speeds in the western Gulf of Mexico



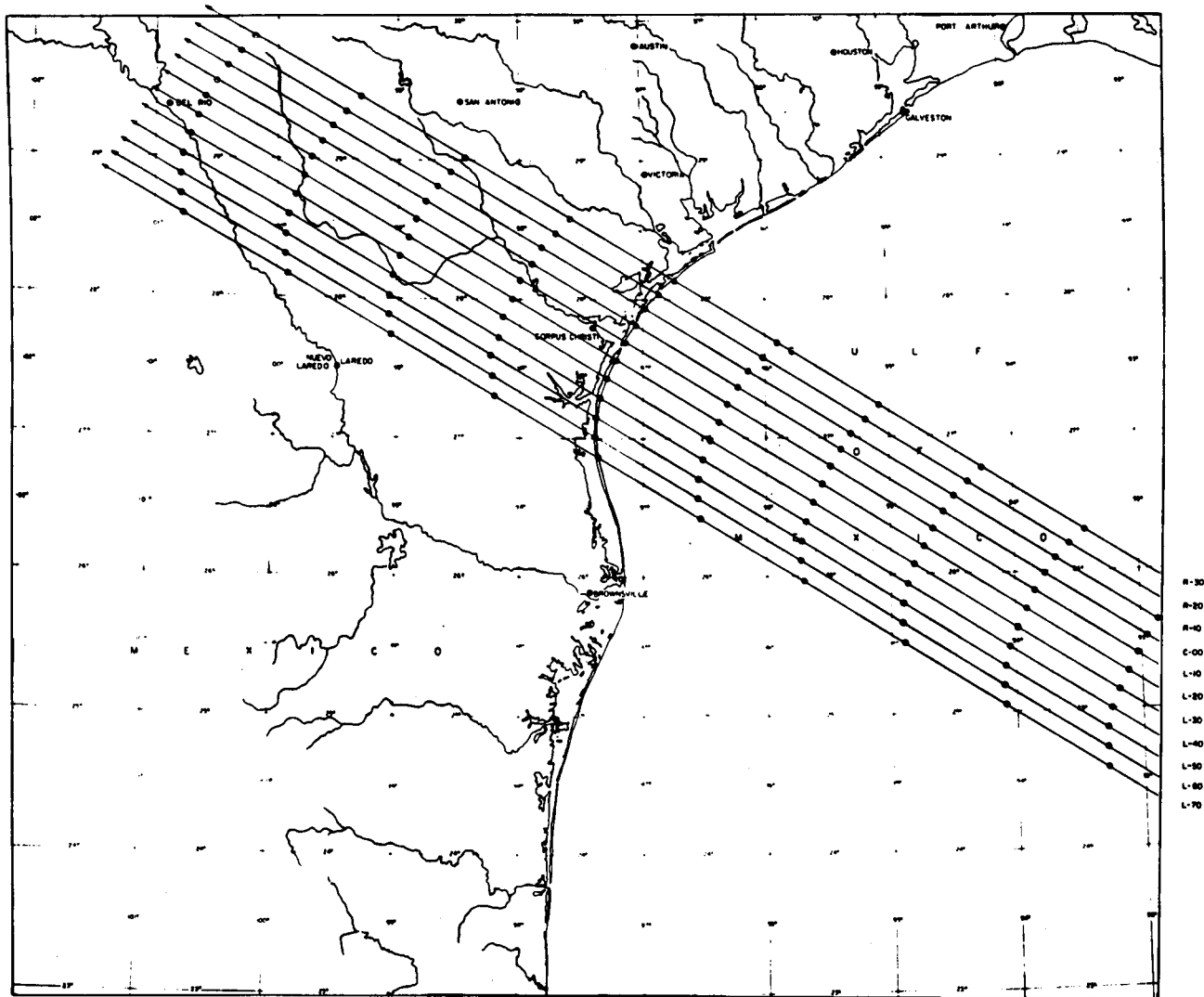


FIG. 22. HYPOTHETICAL HURRICANE TRACKS FOR NORTHWEST DIRECTION PLOTTED ON A MERCATOR PROJECTION. ALPHA-NUMERIC VALUE AT BEGINNING OF TRACK REPRESENTS RIGHT, CENTER OR LEFT DISTANCE BETWEEN PORT ARANSAS, TEXAS AND LANDFALL POINT IN STATUTE MILES. DISTANCE IS MEASURED ALONG THE COASTLINE. CIRCLES REPRESENT 6-HOURLY POSITIONS.

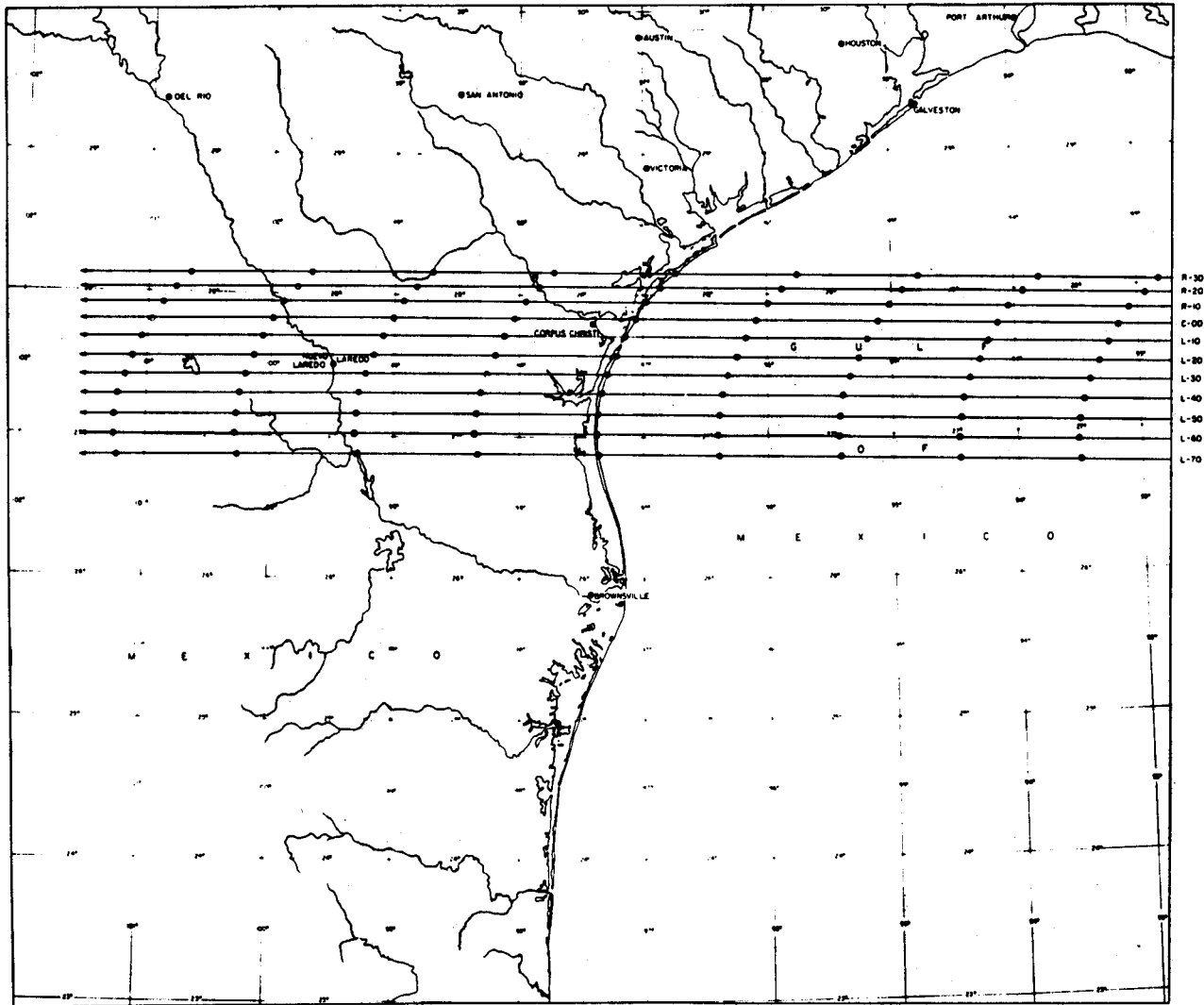


FIG. 23. HYPOTHETICAL HURRICANE TRACKS FOR WEST DIRECTION PLOTTED ON A MERCATOR PROJECTION. ALPHA-NUMERIC VALUE AT BEGINNING OF TRACK REPRESENTS RIGHT, CENTER OR LEFT DISTANCE BETWEEN PORT ARANSAS, TEXAS AND LANDFALL POINT IN STATUTE MILES. DISTANCE IS MEASURED ALONG THE COASTLINE. CIRCLES REPRESENT 6-HOURLY POSITIONS.

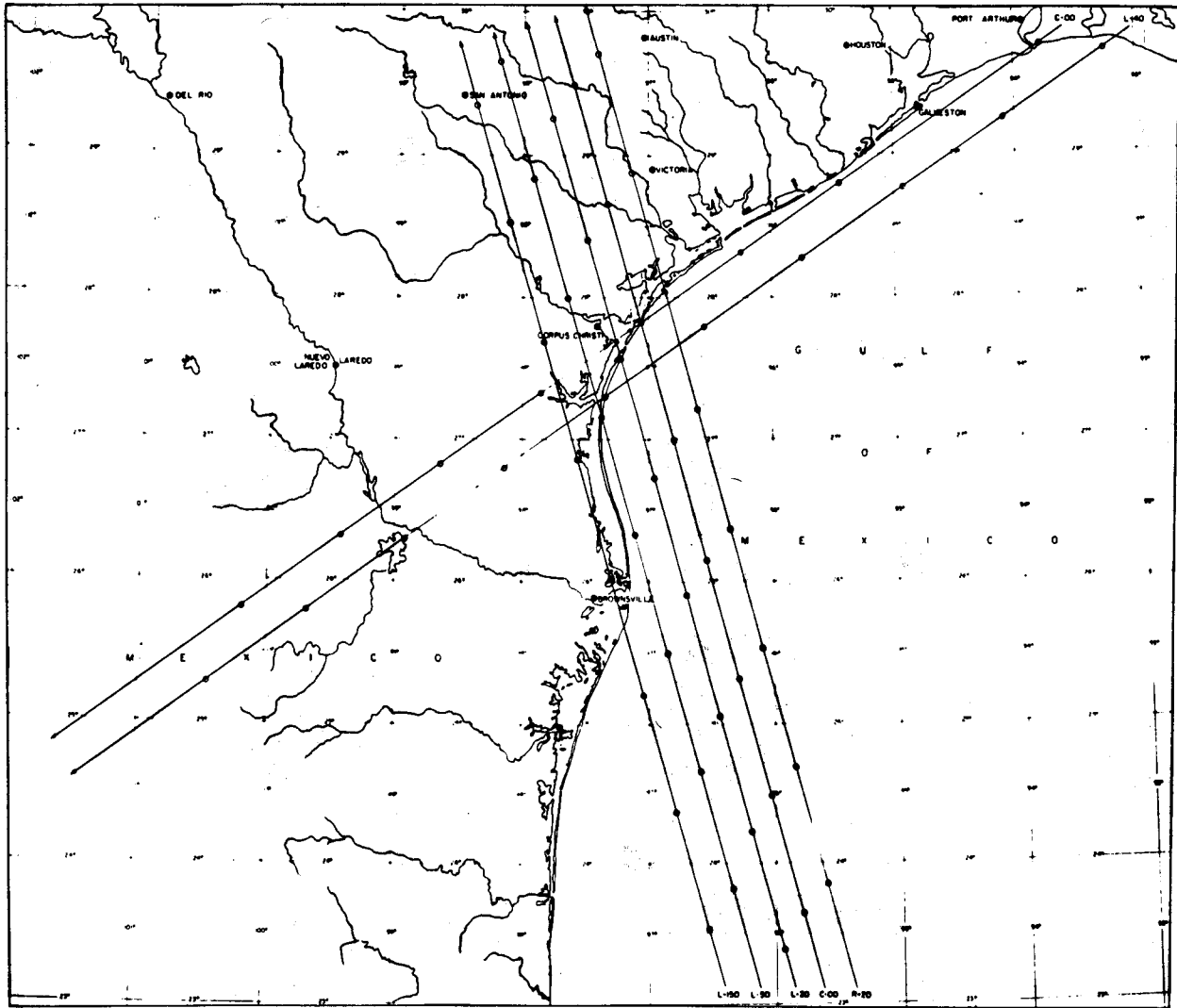


FIG. 24. HYPOTHETICAL HURRICANE TRACKS FOR NORTH-NORTHWEST AND SOUTHWEST DIRECTIONS ON A MERCATOR PROJECTION. ALPHA-NUMERIC VALUE AT BEGINNING OF TRACK REPRESENTS RIGHT, CENTER OR LEFT DISTANCE BETWEEN PORT ARANSAS, TEXAS AND LANDFALL POINT IN STATUTE MILES. DISTANCE IS MEASURED ALONG THE COASTLINE. CIRCLES REPRESENT 6-HOURLY POSITIONS.

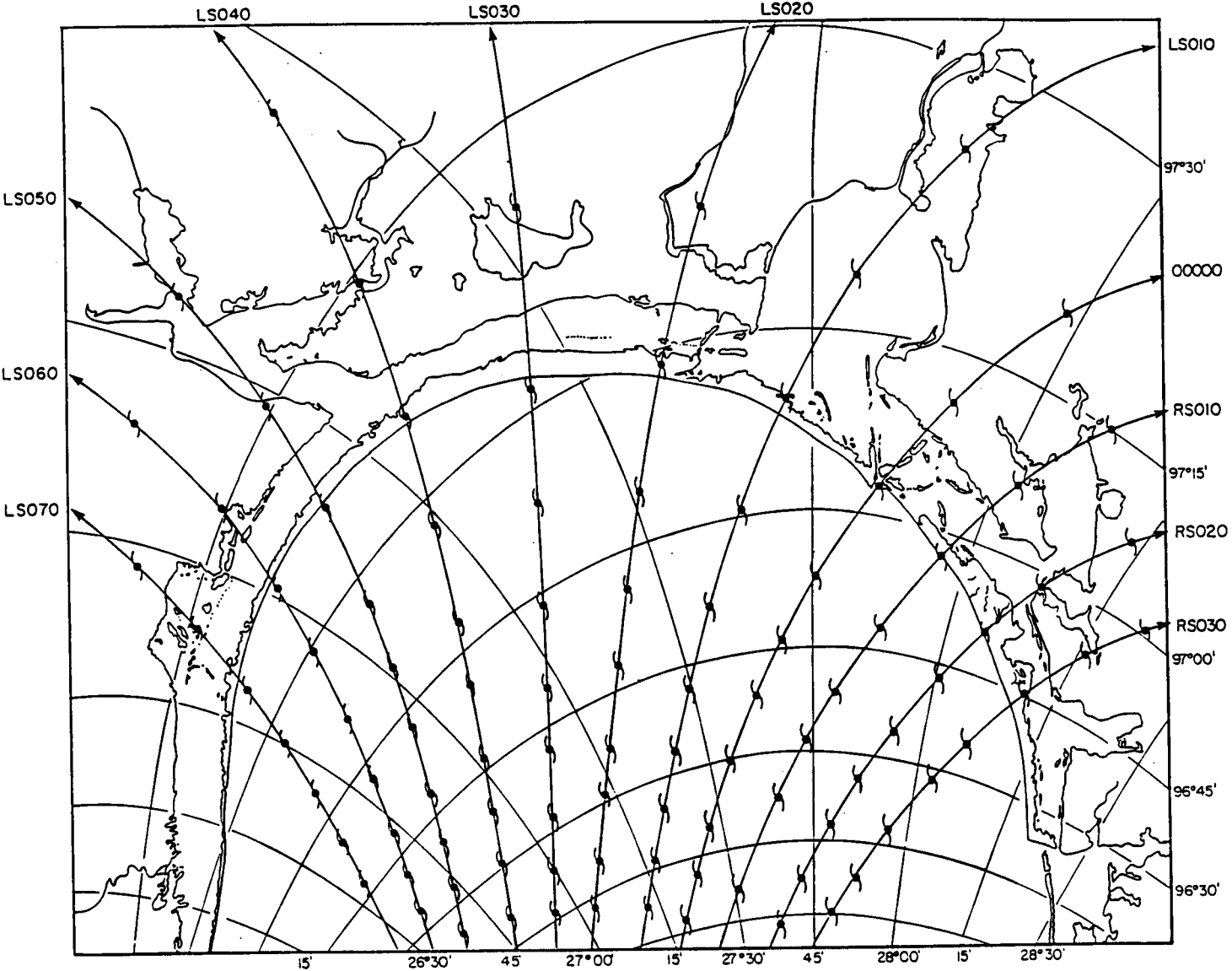


FIG. 25. HYPOTHETICAL HURRICANE TRACKS FOR NORTHWEST DIRECTION PLOTTED ON A COMPUTER PROJECTION (SEE FIG. 22.). HURRICANE SYMBOL DENOTES HOURLY POSITION.

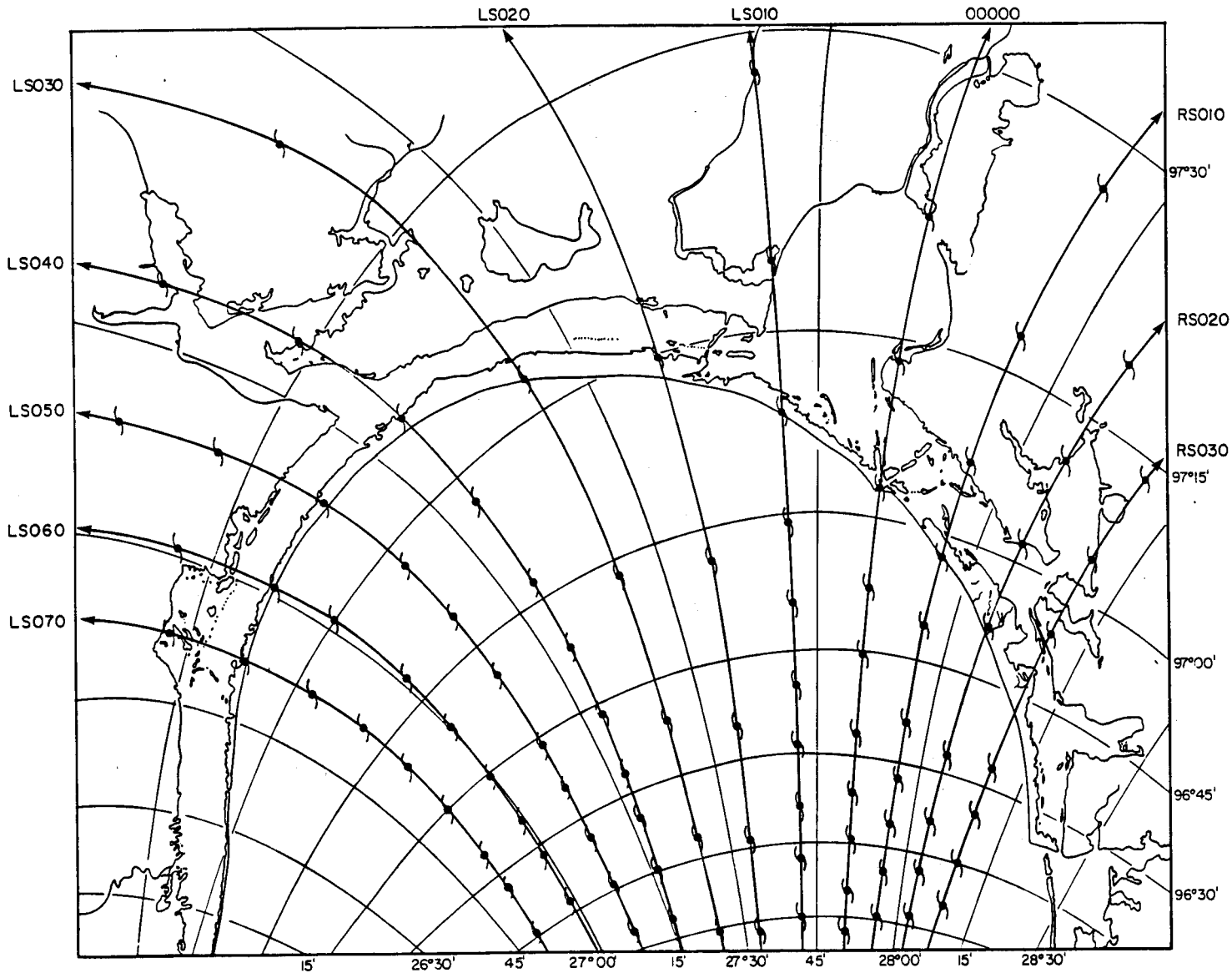


FIG. 26. HYPOTHETICAL HURRICANE TRACKS FOR WEST DIRECTION PLOTTED ON A COMPUTER PROJECTION (SEE FIG. 23.). HURRICANE SYMBOL DENOTES HOURLY POSITION.

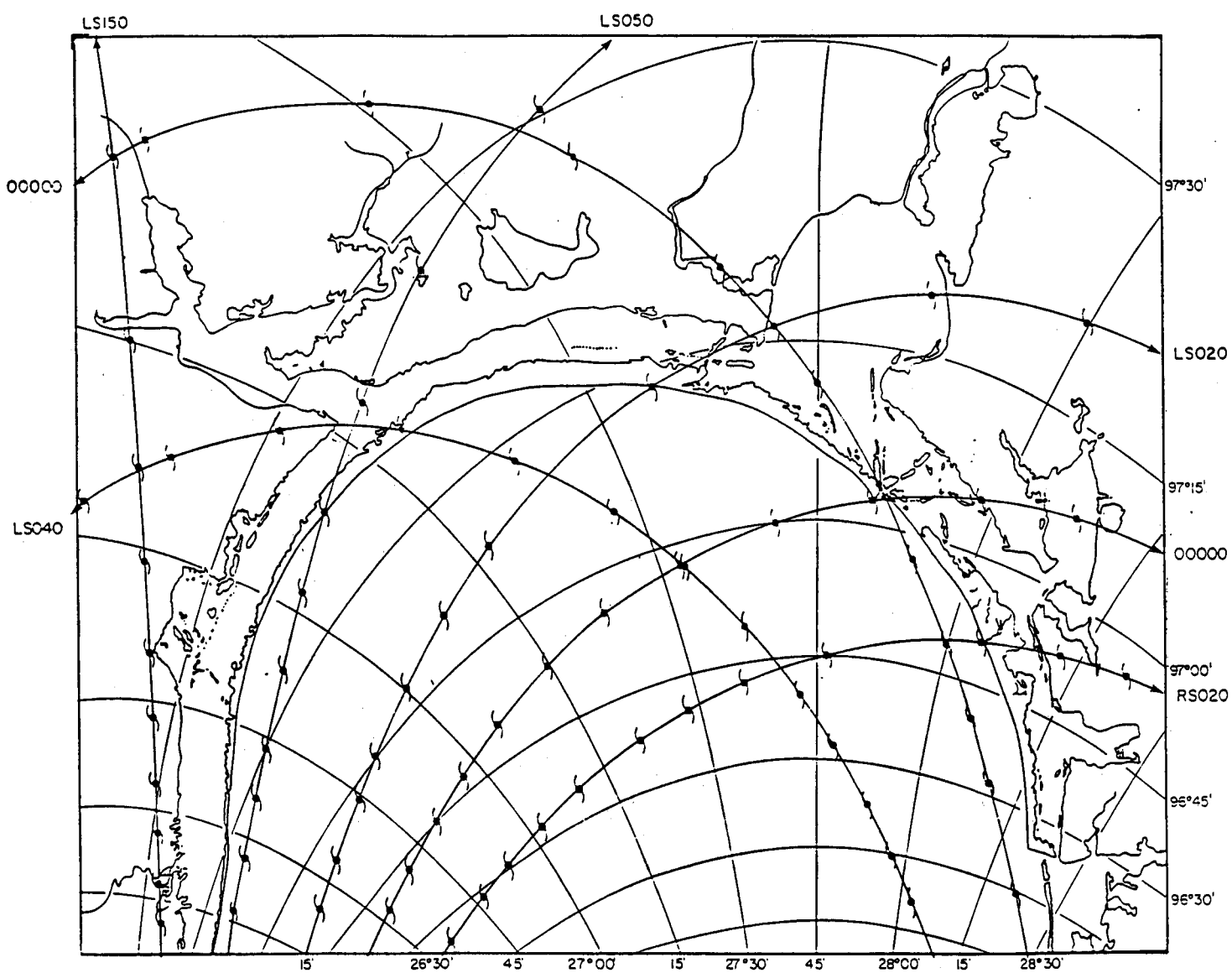


FIG. 27. HYPOTHETICAL HURRICANE TRACKS FOR NORTH-NORTHWEST AND SOUTHWEST DIRECTIONS ON A COMPUTER PROJECTION (SEE FIG. 24.). HURRICANE SYMBOL DENOTES HOURLY POSITION.

indicate that a more representative range might be from 0.0 to approximately 20.0 mph. The 0.0 value indicates a stationary hurricane but usually occurs on the order of hours not days. If 24-hour average speeds are computed for hurricane tracks that have a stationary time period in them, then the average speed is always greater than zero (i.e., of the hurricanes sampled with a stationary period, values ranged from 4 to 8 mph for a 24-hour average).

Based upon the climatological track speed data, a value of 10 mph was selected as the representative average value to be run on every track and intensity level. Track speeds of 5 and 20 mph were run on all of the northnorthwest moving hurricanes, categories 1 through 3. Track speeds of 5 and 20 mph were also run on the west and northwest moving hurricanes, categories 1 through 5 but only for landfall points LS30, LS20, and LS10. These landfall points were selected to investigate the storm surge height differences, on the outer coast and Corpus Christi Bay, as a result of the different track speeds.

## 9.2 Intensities and Radius of Maximum Wind (RMW)

For all of the hurricanes, the delta-p and the radius of maximum wind are held invariant over the Gulf of Mexico and begin to change after landfall. Table 2 shows the 6-hourly values of both quantities after landfall relative to the initial values at landfall. For example, a category 5 hurricane with a delta-p of 100 mb and RMW of 10 miles at landfall would have a delta-p of 40 mb and RMW of 15 miles 6 hours later.

Inspection of the filling rate graph presented in Figure 11 indicates an approximate linear filling rate for hurricanes with central pressures of 990 mb (i.e., 20 mb delta-p) or greater and a nonlinear filling rate below 990 mb. Since the SLOSH model linearly interpolates the 6-hourly input values, it will tend to overestimate the intensity of hurricanes below 990 mb for the first few hours after landfall. To compensate for this fact, hourly values of delta-p for the first 6 hours after landfall are also entered into the SLOSH program. The hourly delta-p values after landfall are shown in Table 3. For example, the category 5 hurricane fills 33 mb in the first hour. If the 6-hourly values are used and a linear interpolation made,

Table 2.--Six-hourly delta-p ( $\Delta p$ -mb) and radius of maximum wind (RMW-st.mi.) after landfall for hurricanes along the Texas Coast.

Saffir/Simpson Category	$T_0$ (landfall)		T+6		T+12		T+18		T+24	
	$\Delta p$	RMW	$\Delta p$	RMW	$\Delta p$	RMW	$\Delta p$	RMW	$\Delta p$	RMW
1	30	20	19	30	11	35	10	40	10	40
2	40	20	22	30	14	35	11	40	10	40
3	60	20	35	25	22	30	16	35	12	40
4	80	20	38	20	24	30	17	35	13	40
5	100	10	40	15	25	25	17	30	13	40

Table 3.--Hourly delta-p ( $\Delta p$ -mb) after landfall for hurricanes along the Texas Coast.

Saffir/Simpson Category	$T_0$ (landfall)	T+1	T+2	T+3	T+4	T+5	T+6
	$\Delta p$	$\Delta p$	$\Delta p$	$\Delta p$	$\Delta p$	$\Delta p$	$\Delta p$
1	30	28	26	24	22	20	19
2	40	37	34	31	28	25	22
3	60	54	50	45	41	38	35
4	80	63	56	51	47	43	38
5	100	67	58	53	48	44	40

the hurricane would only fill 10 mb in the first hour. Use of the 6-hourly interpolation scheme, in this case, would generate higher surges inside Corpus Christi Bay.

The delta-p and radius of maximum wind values presented in Tables 2 and 3 were determined by combining the work done by Schwerdt, et al. (9) and other historical hurricane information. It should be noted that existing data indicate there are two possibilities of RMW changes after landfall: (1) a decreasing radius with a later increase, and (2) an increasing radius. However, the philosophy in the hypothetical runs is not to introduce complexities, and consequently, the RMW was slowly increased after landfall.

### 9.3 Initial Water Height

Historical tide gage information in the Corpus Christi basin indicates the possibility of having tidal anomalies of 1 to 2 ft before hurricane arrival. Therefore, for all the hypothetical runs in the atlas, the initial basin height was set at 1.5 ft above MSL. If an actual hurricane event is occurring in the basin and tide gage data indicate no tide anomaly, simply subtract 1.5 ft from the existing storm surge values of the hypothetical case.

### 9.4 Envelopes and Graphs Series B

The envelopes of high water and graphs of time histories at selected points are in Appendix B. Each envelope and graph is identified with a label in the upper left-hand corner. Interpretation of the label is described in section 9.1.

Appendix B is divided into four parts. Each part represents a track scenario, as described earlier. The first part concerns the hurricanes moving toward the north-west and making a normal landfall on the coast. The NOR in the label in the upper left-hand corner of the figure is an abbreviation for normal. The second part concerns the hurricanes moving toward the west. The third part concerns hurricanes moving toward the northnorthwest or paralleling the coast. The PAR in the label in the upper left-hand corner of the figure is an abbreviation for parallel. The fourth part deals with the hurricanes moving toward the southwest.

In the first and second parts, the results are organized into three sections. The first section deals with hurricanes moving at 10 mph, the second with hurricanes moving at 5 mph, and the third with hurricanes moving at 20 mph. In the first section, (i.e., for hurricanes at 10 mph) the results are further organized as follows: results of the southernmost hurricane track with category 1 intensity are displayed first. Next comes the same track with categories 2, 3, 4, and 5. Next, a shift is made of one track to the north and the process repeated. Since there are 11 land-falling tracks with five intensities on each track, 55 cases of SLOSH results are found in section 1. Sections 2 and 3 are organized identical to section 1, except that only three tracks are used - LS030, LS020, LS010. As was mentioned earlier, these were picked to identify the differences in surge height generation for the outer coast and inside Corpus Christi Bay (for hurricanes moving at different speeds). Since sections 2 and 3 have 3 landfalling tracks with five intensities on each track, 15 cases of SLOSH results are found in each section. Thus, the first and second parts each contain 85 cases of SLOSH results.

In the third part, the results are also organized into three sections according to hurricane track speed. In all three sections the results of the western most hurricane track with category 1 intensity are displayed first. Next comes the same track with categories 2 and 3. Next, a shift is made of one track to the east and the process repeated. Since there are 5 landfalling tracks with three intensities on each track, 15 cases of SLOSH results are found in each section. Thus, the third part contains 45 SLOSH results.

The fourth part contains SLOSH results for hurricanes moving toward the southwest. Only hurricanes moving at 10 mph and only categories 1 and 2 intensities were used. Thus, only 4 SLOSH cases appear in this part. The southern most landfalling categories 1 and 2 hurricanes appear first.

Thus, a total of 219 (i.e., 85, 85, 45, 4) SLOSH cases are available for Corpus Christi. Each case includes an analyzed envelope of high water and time histories of storm surge, wind speed, and wind direction for 12 selected grid points in the basin. The locations of the 12 grid points are shown in Figure 4. This overlay can be placed over any envelope in the atlas. Also available, on another overlay,



are the locations of cities, roads, and geographical points of interest.

The analyzed envelopes of high water show the track of the hurricane with hourly positions of the eye, shaded areas that represent dry land that has been inundated, and contours of high water relative to mean sea level. Determination of the height of the water above terrain was not made because of terrain variations that occur in any grid square. For example, a 1-mile grid square may be represented by a 6-ft height above MSL. This value represents the average height over the total square. Inside this square, local heights may range from 3 to 9 ft. Therefore, a surge value of 8 ft in this square would indicate an average of 2 ft of water over the terrain. However, because of the localized heights, some points would be dry while others could have as much as 5 ft of water. Based upon the above example, the storm surge above terrain is determined by subtracting the actual terrain height from the SLOSH-model-generated storm surge height.

On the page opposite the envelope of high water are 12 plots of the time histories of the storm surge, wind speed, and wind direction. The hurricane identification number is given in the upper left-hand corner. Next, the name and location in the I,J grid, of each point, is given. The predicted storm surge, given by the heavy line, is in feet relative to mean sea level with its reference scale given by the left y-axis. Most of the 12 points that were selected represent overwater locations. The average depth or height of the grid square is indicated by the topmost line of the hatched area (i.e., hatched area is solid ground). Any location with a depth below -10 ft is shown as -10 ft. Some locations may be above MSL and will not show any storm surge history until the water rises and inundates the grid square.

The values of the storm surge are plotted at 10-minute intervals even though the model uses a smaller time step. If the peak surge value for a particular location occurs between the 10-min sampling time, a slight discrepancy will exist between the peak surge value of the envelope of high water and the peak of the time history. This difference is usually one- or two-tenths of a foot. The abscissa (x-axis) represents the time scale and is labeled with hourly values. The actual time values selected were computed randomly and do not import any significance.

The wind speed (right-hand scale) is given in miles per hour and represents a 1-min sustained wind predicted by the model. The wind speed may be plotted into the hatched area. The wind directions are plotted on the wind speed trace at approximately 6-hour intervals. Meteorological north is taken towards the top of the page. For many locations inside the basin, the wind direction is all important in determining if or when a particular location will be inundated. Finally, a hurricane symbol is plotted on the time axis. This represents either the landfall time of the hurricane on the coastline for landfalling hurricanes, or the point of closest approach of the hurricane to the coast for exiting or paralleling hurricanes.

#### 9.5 Results of the Hypothetical Runs

A large amount of information is available in the 219 hypothetical runs and a detailed discussion of the results is beyond the scope of this atlas. Therefore, only a broad overview of the results is presented here and focuses on the viewpoint of the storm surge forecaster.

Based on the series of runs, any hurricane presents inundation problems to some portion of the Corpus Christi basin. Generally, the maximum surge at a particular point occurs when the RMW passes over or near the point and the wind direction is normal to the shoreline. On the barrier islands bordering the Gulf of Mexico, for west and northwest moving hurricanes, this location is to the right of the track. However, for the same barrier islands bordering the bays, this location is to the left of the track. Page 79 in appendix B gives a good example of the maximums occurring to the right and left of the track. Note: The value of the surge where the track and the Gulf shoreline intersect is smaller than the maximum to the right. The RMW did pass over this location but the winds were never normal to the shoreline as they were to the right and left. The same rules apply to other locations inside the bay. For rivers the maximum surges occur when the RMW blows parallel and "upstream" to the axis of the river.

To highlight the importance of the landfall point the reader need only look at pages 57 and 77 of appendix B. The only difference in the SLOSH results for these northwest moving, 10 mph, category 4 hurricanes is the landfall loca-

tion. The hurricane landfalling 20 miles to the south of Port Aransas produces 12.0 ft of surge at Corpus Christi while the hurricane landfalling directly over Port Aransas produces only 3.2 ft of surge at Corpus Christi. For the City of Corpus Christi, as far as storm surge is concerned, the difference in eye landfall of 20 miles is the difference between minor damage and a major catastrophe.

The highest surge value to the nearest foot at four locations in the basin and the hurricane direction, speed, category, and landfall location that produced it are shown in Table 4.

Table 4. Highest surge value to the nearest foot at four locations and the hurricane direction, speed, category, and landfall location that produced it.

Location	Surge Value (ft)	Direction	Speed (mph)	Hurricane Category	Landfall Location
Outer Coast	13	West	20	4	LS030
Aransas Pass	15	West	10	4	LS010
Corpus Christi	15	West	10	4	LS030
Nueces Bay	23	West	10	4	LS020

Obviously, the west moving hurricanes landfalling south of Port Aransas produce the maximum surge heights for the four locations mentioned in Table 4. However, for other locations the northwest moving hurricanes may produce higher or comparable heights to the west moving hurricanes. Also apparent from table 4 is the increase of surge heights from the outer coast to the west end of Nueces bay as was shown for the 1919 hurricane in section 8.1.

Such quantities as eye location and onset of gale-force winds, hurricane-force winds, and storm surge, plus duration time of the above quantities for 12 locations in the Corpus Christi basin, can be determined from the time histories of

the hypothetical runs. However, this information has already been gathered and synthesized for 60 selected points (including the 12 listed in this atlas) in the basin and forms the basis for a regional hurricane study mentioned earlier.

#### 10. MAXIMUM ENVELOPE OF WATER (MEOW)

For evacuation planning and forecasting, it is desirable to know what the maximum high-water value at a particular grid point would be, regardless of where the hurricane is landfalling. For example, to find the maximum high-water value that occurs at Corpus Christi for a northwest moving, 10 mph, category 3 hurricane, simply scan through the 11 envelopes of high water for the northwest moving, 10 mph, category 3 hurricanes in appendix B. If the process is continued for every grid point, the result is a maximum envelope of water (MEOW) for the northwest moving, 10 mph, category 3 hurricanes.

##### 10.1 MEOW Series A

The MEOWs were computed for the northwest and west moving hurricanes, categories 1 through 5, and speeds of 10, 5, and 20 mph. This gives a total of 15 MEOWs for each direction. The MEOWs were also computed for the northnorthwest moving hurricanes, categories 1 through 3, and speeds of 10, 5, and 20 mph. This gives a total of 9 MEOWs for this direction. Since only 4 runs were made for the southwest moving hurricanes no MEOWs were generated for this direction. This gives a total of 39 MEOWs, which are presented in the order given above in Appendix A. The contours represent the height of the water above mean sea level in 1-foot increments. The dark-shaded areas represent dry land that has been inundated and was only performed on the categories 3 through 5 intensity levels. Each MEOW is identified with a label in the upper left-hand corner.

Inspection of the MEOWs in Appendix A will show areas devoid of contours. This was done because no hypothetical hurricanes were run in these areas to generate the maximum surge. Since 11 tracks were used in the west and northwest moving, 10 mph hurricanes, the area of analysis is larger than the west and northwest moving, 5 and 20 mph hurricanes, where 3 tracks were used. The philosophy is to look at the

changes in surge height versus forward speed on the outer coast and inside Corpus Christi and Nueces Bays, determine if relationships exist, and apply them to other locations. If no relationships can be determined than additional SLOSH runs will be required to expand the area of the MEOOW data for the 5 and 20 mph hurricanes.

The northnorthwest moving hurricanes used 5 tracks at speeds of 10, 5 and 20 mph for categories 1 through 3. No areas devoid of contours appear on these MEOOWs because maximum surges are generated everywhere by this track direction.

## 10.2 Results From the MEOOWs

A brief discussion of the effect of intensity and RMW, track direction, and forward speed on the storm surge heights in the MEOOWs follows:

### 10.2.1 Intensity and RMW

When the track direction and RMW are held constant the surge heights increase as the intensity of the hurricane increases. However, the category 5 hurricane had a RMW of only 10 miles or one half the size of the other intensity levels. With a few localized exceptions, this produces surge heights comparable or smaller than the category 4 hurricanes. Why is this? Even though the category 5 hurricane has greater maximum wind speeds than the category 4 hurricane, the total kinetic energy in the wind field of the category 4 is greater than the category 5 because of the larger RMW in the category 4. The surge heights are directly proportional to the total energy transferred into the water from the hurricane. The localized exceptions are, indeed, a result of the higher category 5 wind speeds forcing a response to the water at particular locations in the basin.

### 10.2.2 Track Direction

West and northwest moving hurricanes generally give similar maximum surge values on the outer coast and inside the bays. The exceptions usually occur when the track direction parallels the axis of small rivers that flow into the bays.

### 10.2.3 Forward Speed

For the outer Gulf coast and Aransas Pass, when the hurricane forward speed increases, the storm surge height increase. The magnitude of the increase is a function of track direction and generally 2 ft or less. For the City of Corpus Christi increasing hurricane forward speed generally decreases the storm surge heights. Again the magnitude of the decrease is a function of track direction and generally 2.5 ft or less. In Nueces Bay the largest storm surge values may increase or decrease when the forward speed increases from 5 to 10 mph, but always decrease when the forward speed increases from 10 to 20 mph. The magnitude of the changes have a range from 3 to 10 ft. Thus, Nueces Bay is very sensitive to hurricane forward speed.

### 10.3 Uses of the MEOOW

The MEOOW has two major uses. First, it shows areas that are subject to storm surge flooding and defines the amount of population at risk. Thus, evacuation plans can be made well ahead of time. Also, it defines schools, hospitals, nursing homes, and other public buildings that may be at risk. Many of these locations are often used for evacuation shelters.

Secondly, for the hurricane forecaster, the MEOOW offer guidance in determination of the high-water values used in the hurricane warning. Generally, 12 to 24 hours before landfall, the point of landfall of the eye is forecast. Since the eye rarely makes landfall at the forecasted point a landfall error exists. The average 12- and 24-hour landfall errors are approximately 25 and 50 miles, respectively. This means that for a 24-hour forecast, the hurricane may landfall in a zone plus or minus 50 miles on each side of the predicted landfall point. Therefore, if a hurricane were forecast to make landfall at Port Aransas in 24 hours one would like to know what type of high water envelopes are generated by hurricanes landfalling in the zone 50 miles on either side of Port Aransas. The envelopes of high-water values for the different hurricanes landfalling in the zone are available in Appendix B. However, a composite of the highest values for the zone is available in the MEOOW in Appendix A. These values can be used by the forecaster as guidance in determining the high-water forecast section of the hurricane warning message.

## 11. ACKNOWLEDGMENTS

Extensive work was required to synthesize the data from computer printouts to the form presented in this atlas. All of the drafting and illustrations were ably produced by Joan David, a scientific illustrator at AOML/HRD. Her meticulous endeavors are greatly appreciated. Dale Martin of AOML/HRD provided expert consultation on the drafting and final form of the atlas. Tom Tatnall of AOML/HRD provided excellent photographic services and consultation. Perceptive and careful editorial readings were provided by Constance Arnholds of AOML/HRD. Charles Neumann, Chief of the NHC Research and Development Unit, acted as a consultant on many of the technical details. Of course, none of this would be possible without the developers of the SLOSH model, Chester Jelesnianski and Jye Chen of the Techniques Development Laboratory (TDL), who were consulted on numerous occasions. An atlas of this size would have been impossible to produce without the able administrative assistance provided by James Trout and Vivian Jorge of AOML/HRD. And, we thank Mary A.S. Damiano of NHC Research & Development Unit for typing the manuscript.

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## Page

A-1	MEOW northwest moving, 10 mph, category 1 hurricane
A-2	MEOW northwest moving, 10 mph, category 2 hurricane
A-3	MEOW northwest moving, 10 mph, category 3 hurricane
A-4	MEOW northwest moving, 10 mph, category 4 hurricane
A-5	MEOW northwest moving, 10 mph, category 5 hurricane
A-6	MEOW northwest moving, 5 mph, category 1 hurricane
A-7	MEOW northwest moving, 5 mph, category 2 hurricane
A-8	MEOW northwest moving, 5 mph, category 3 hurricane
A-9	MEOW northwest moving, 5 mph, category 4 hurricane
A-10	MEOW northwest moving, 5 mph, category 5 hurricane
A-11	MEOW northwest moving, 20 mph, category 1 hurricane
A-12	MEOW northwest moving, 20 mph, category 2 hurricane
A-13	MEOW northwest moving, 20 mph, category 3 hurricane
A-14	MEOW northwest moving, 20 mph, category 4 hurricane
A-15	MEOW northwest moving, 20 mph, category 5 hurricane
A-16	MEOW west moving, 10 mph, category 1 hurricane
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A-18	MEOW west moving, 10 mph, category 3 hurricane
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A-22	MEOW west moving, 5 mph, category 2 hurricane
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A-32	MEOW northnorthwest moving, 10 mph, category 2 hurricane
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A-35	MEOW northnorthwest moving, 5 mph, category 2 hurricane
A-36	MEOW northnorthwest moving, 5 mph, category 3 hurricane
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A-38	MEOW northnorthwest moving, 20 mph, category 2 hurricane
A-39	MEOW northnorthwest moving, 20 mph, category 3 hurricane

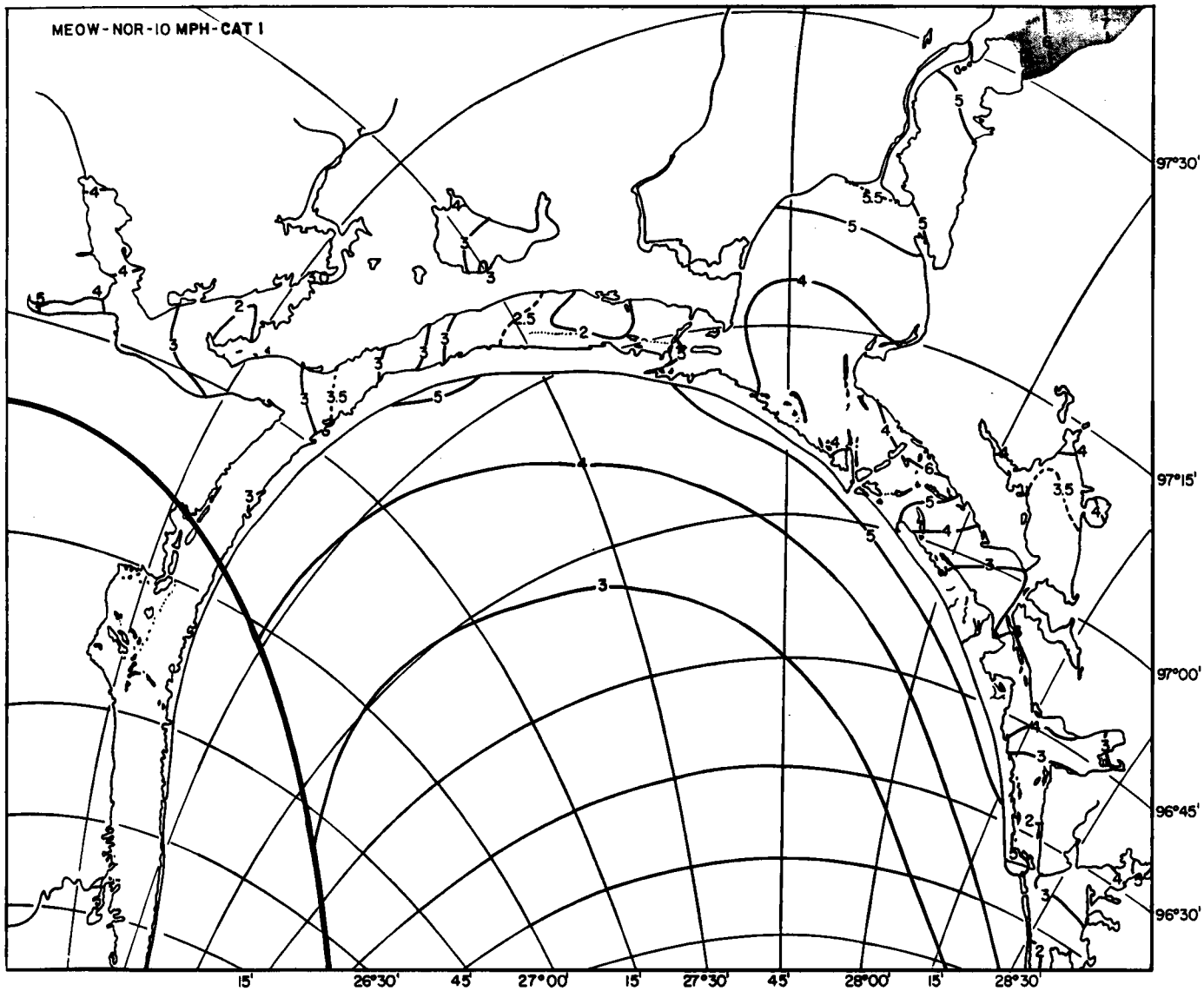
20 mph hurricanes 3 runs were used for each category. For the north-northwest 10, 5 and 20 mph hurricanes 5 runs were used for each category.

The MEOWs are analyzed at 1-ft contour intervals. The values are relative to mean sea level. The dark-shaded areas represent dry land that has been inundated. The inundation shading was only performed on the categories 3, 4, and 5 intensity levels. Each MEOW is identified with a label in the upper left hand corner. In the label NOR is an abbreviation for normal landfalling hurricane and is the same as a northwest moving hurricane. Likewise, WES is an abbreviation for west moving hurricane. Finally, PAR is an abbreviation for parallel moving hurricane and is the same as a northnorthwest moving hurricane.

Overlays for the MEOWs, depicting land contours and other geographical features are available at the end of this atlas.

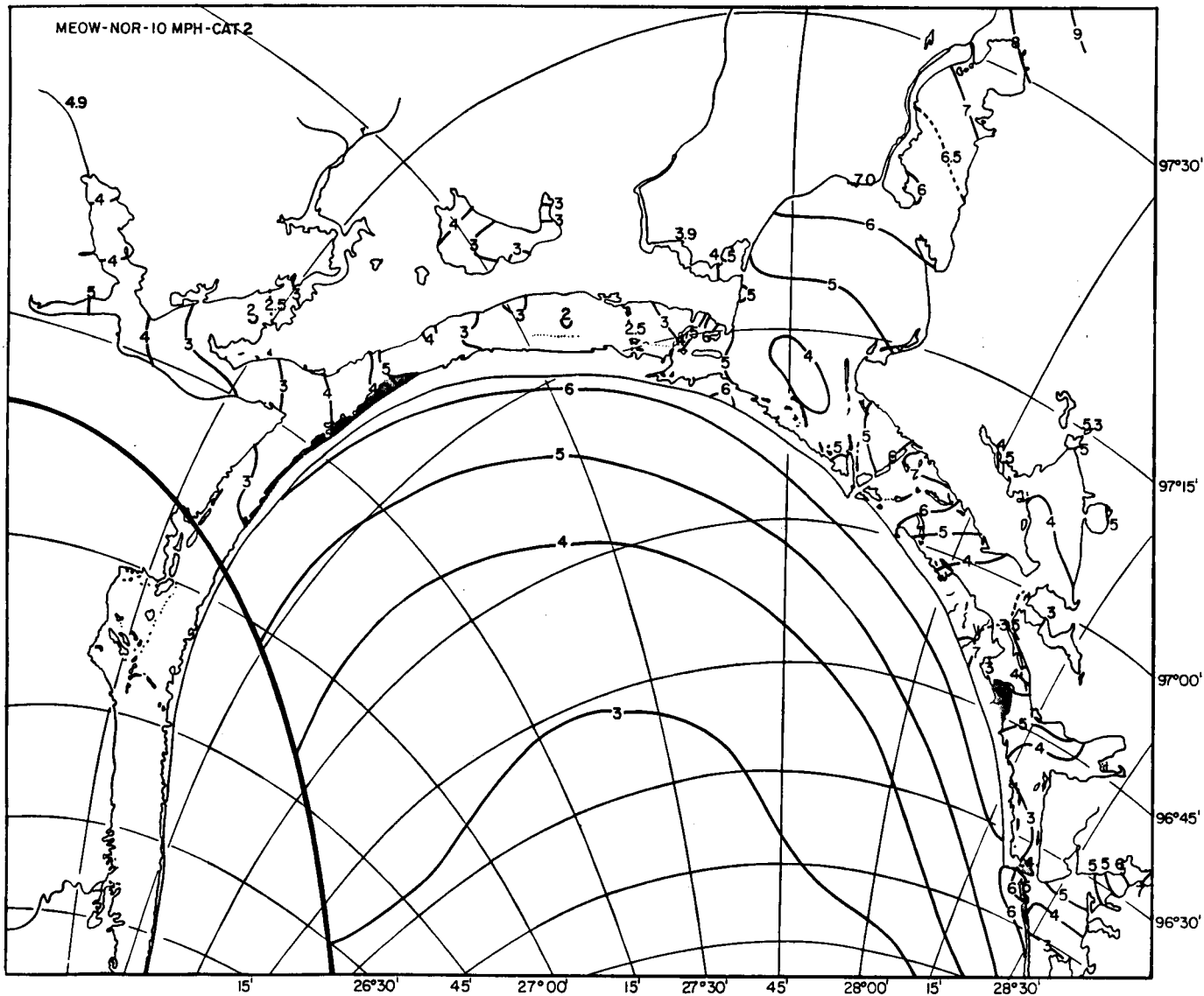
The MEOW represents the maximum high water that can occur in the Corpus Christi Basin for a particular hurricane direction, speed, and category. For the northwest and west moving 10 mph hurricanes 11 runs were used for each category. For the northwest and west moving 5 and

MEOW - NOR - 10 MPH - CAT 1

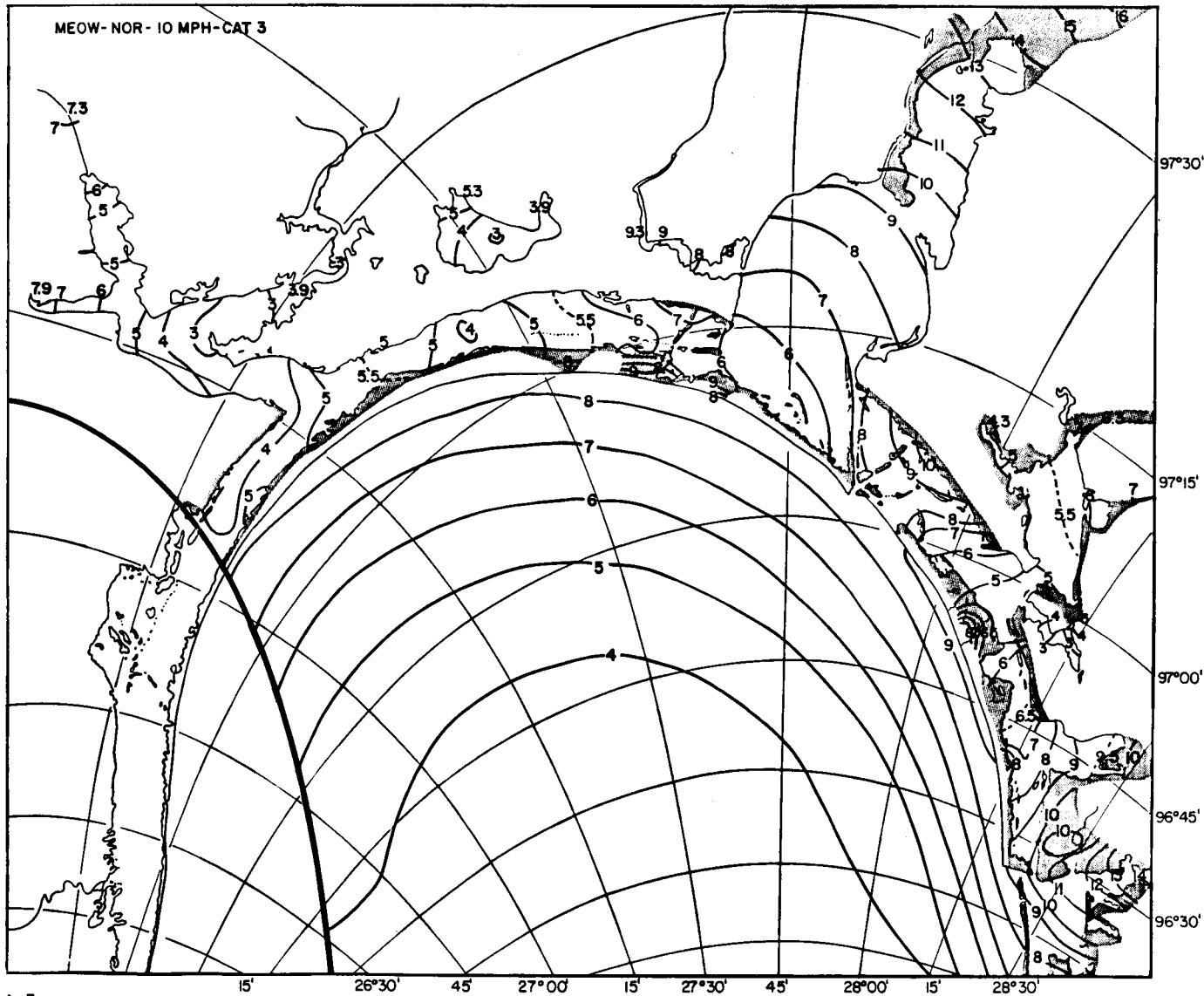


A-1

MEOW-NOR-10 MPH-CAT.2

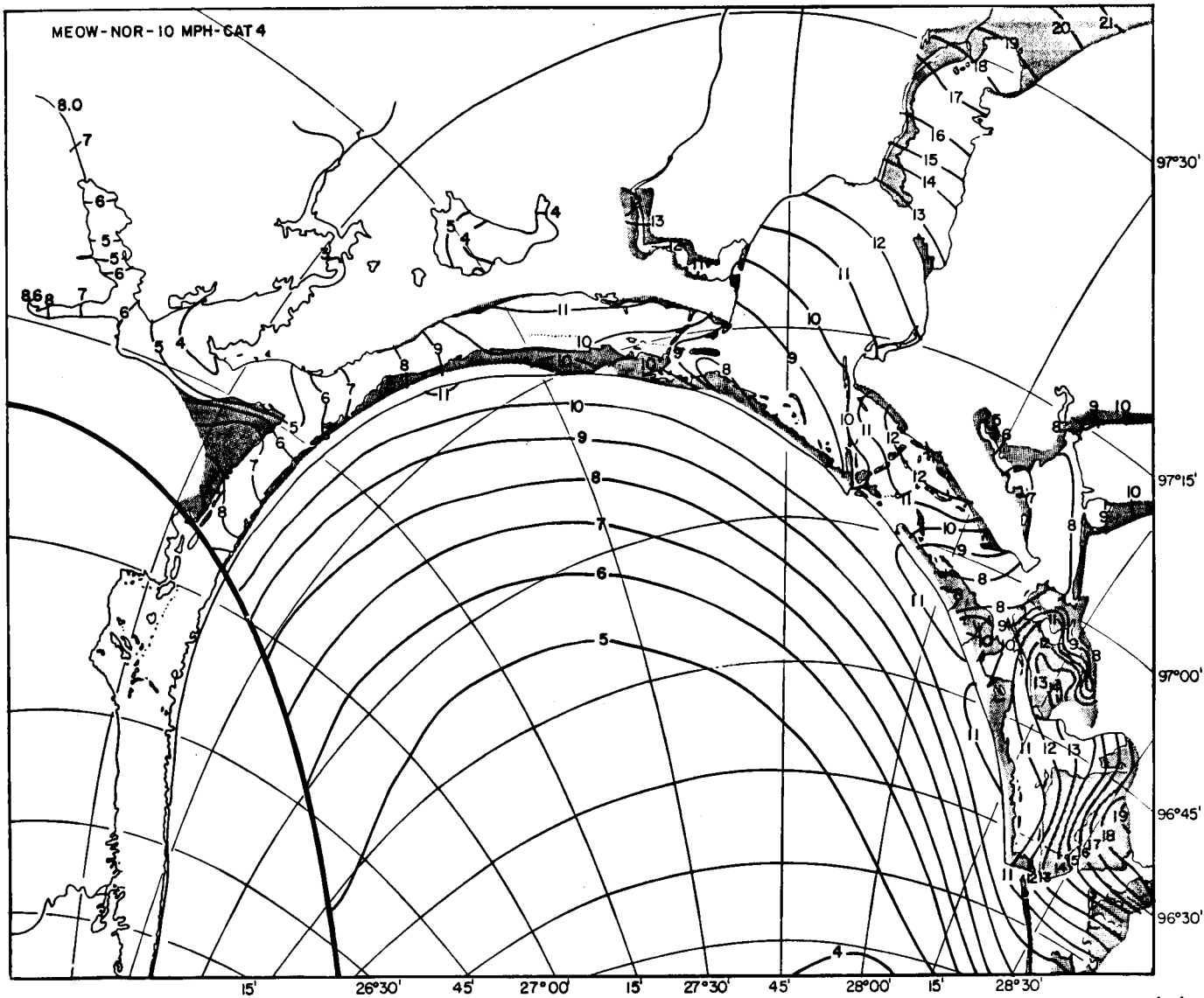


MEOW - NOR - 10 MPH - CAT 3

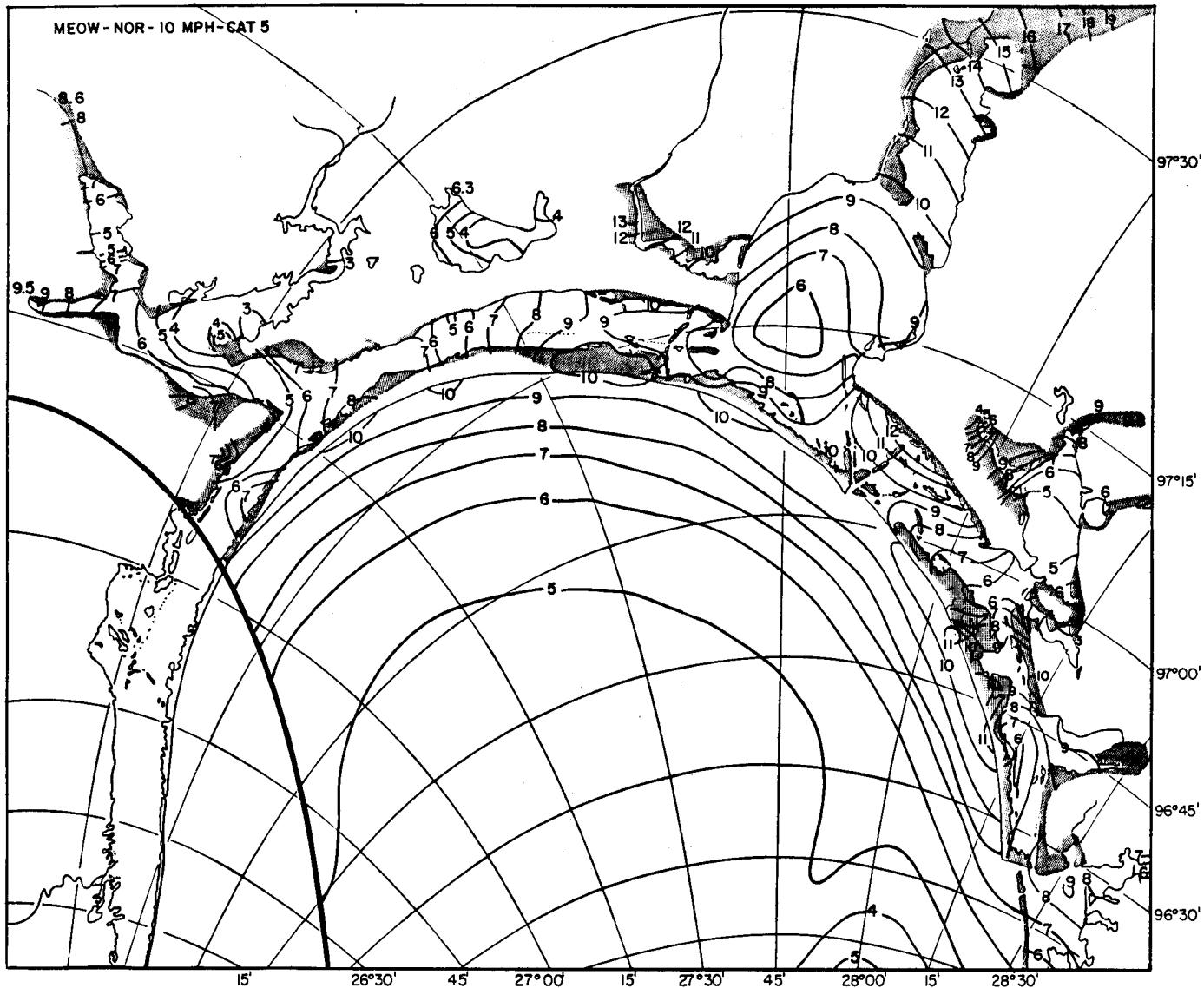




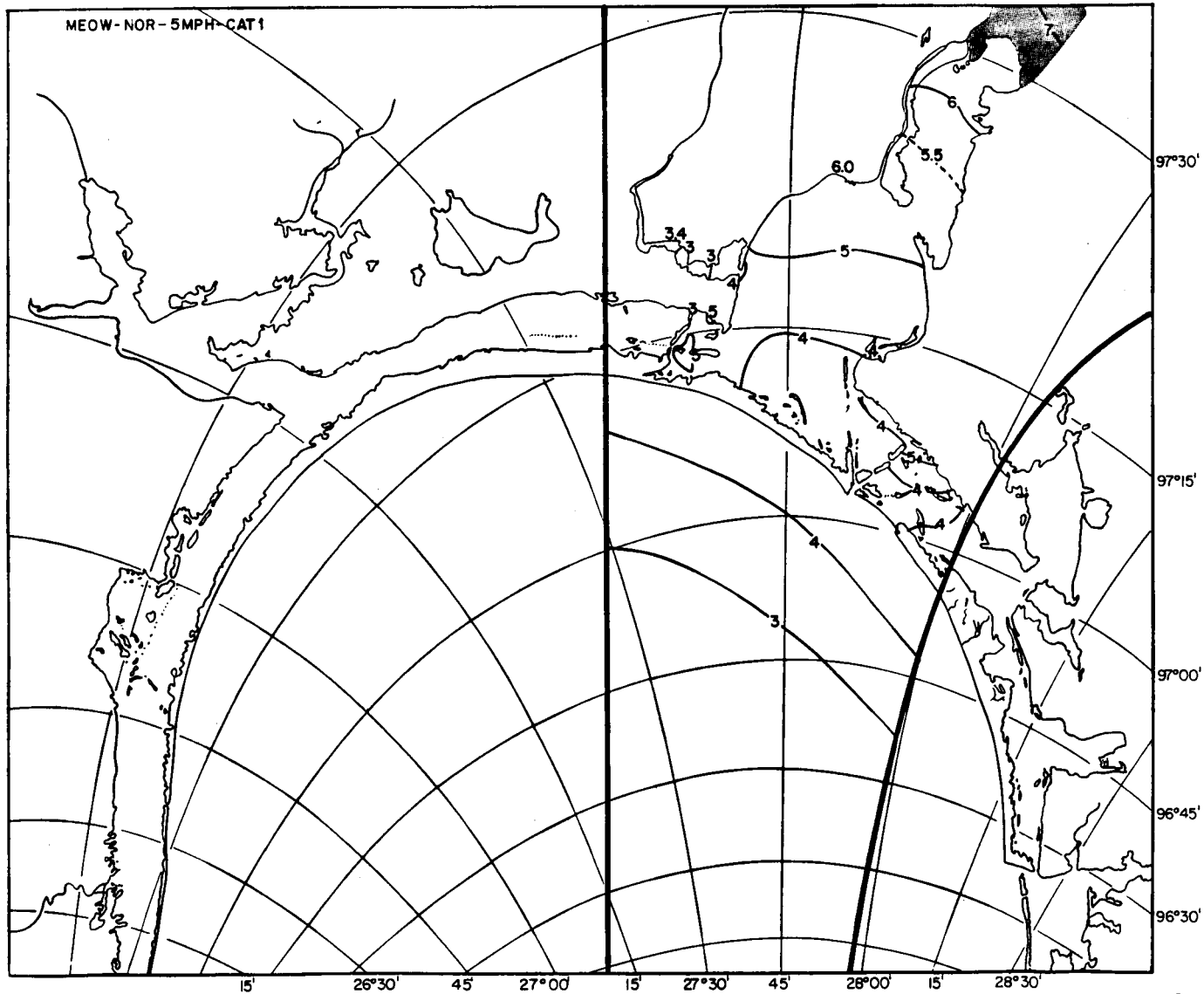
MEOW-NOR-10 MPH-CAT 4



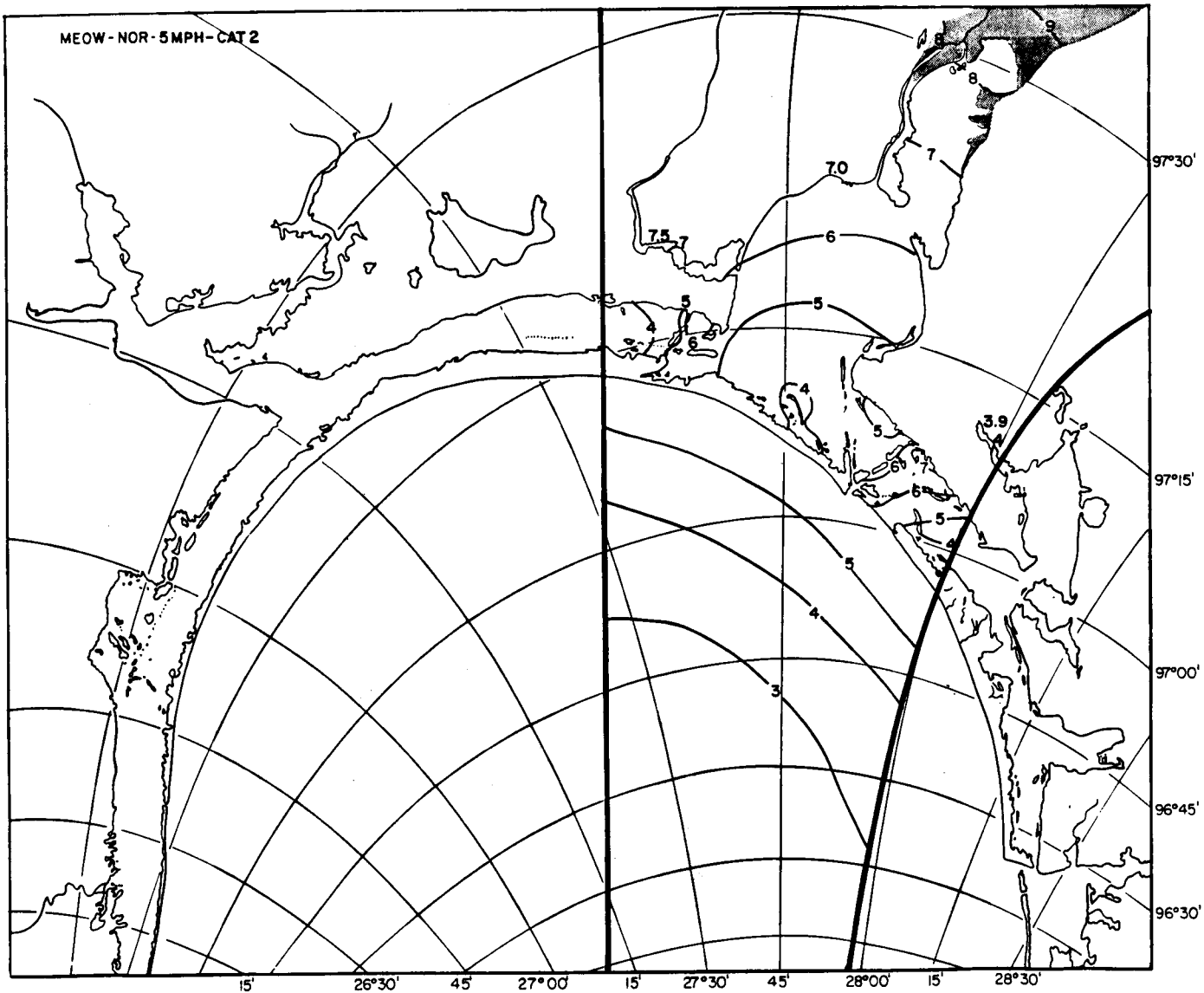
MEOW - NOR - 10 MPH - CAT 5



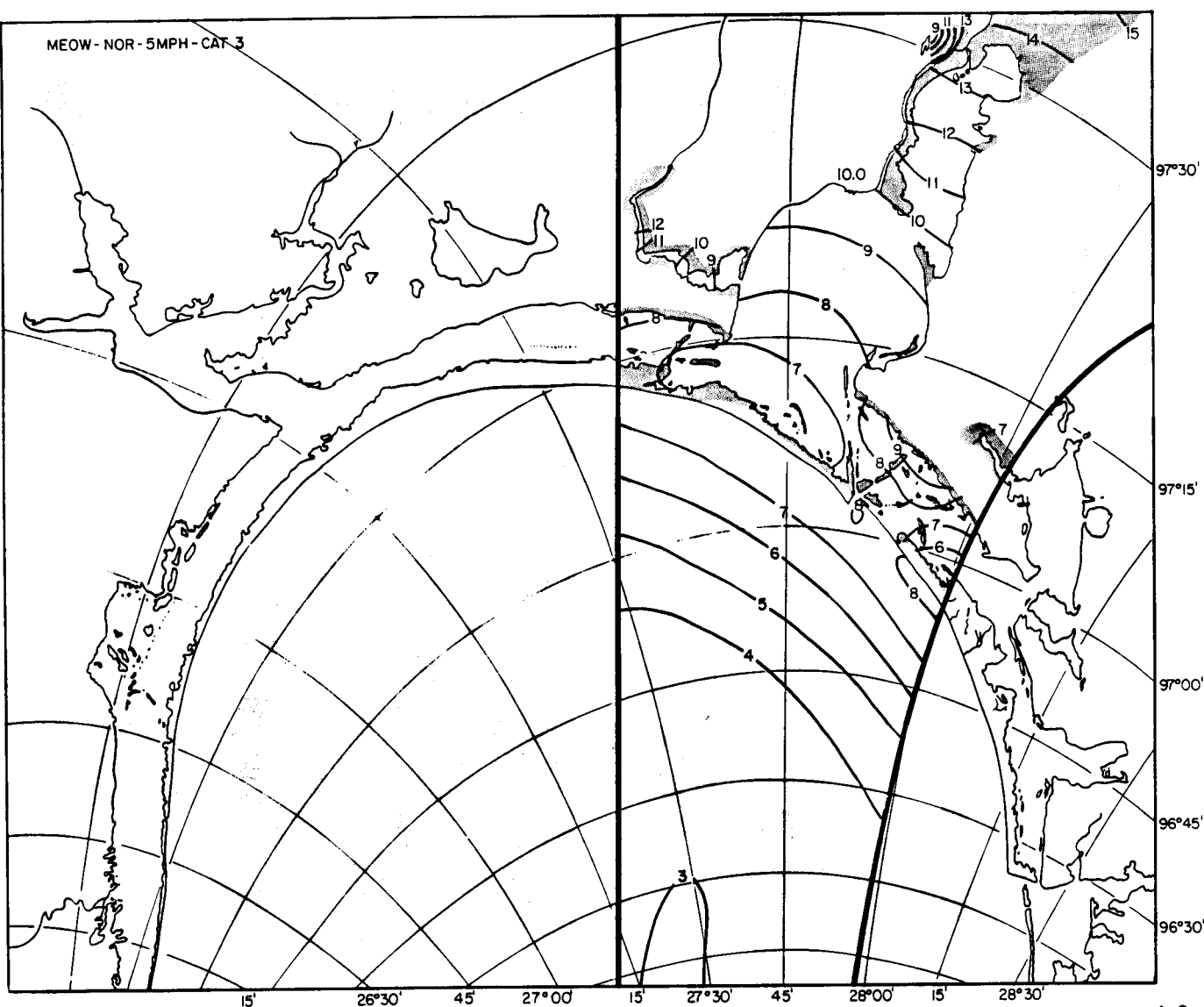
MEOW-NOR-5MPH-CAT1



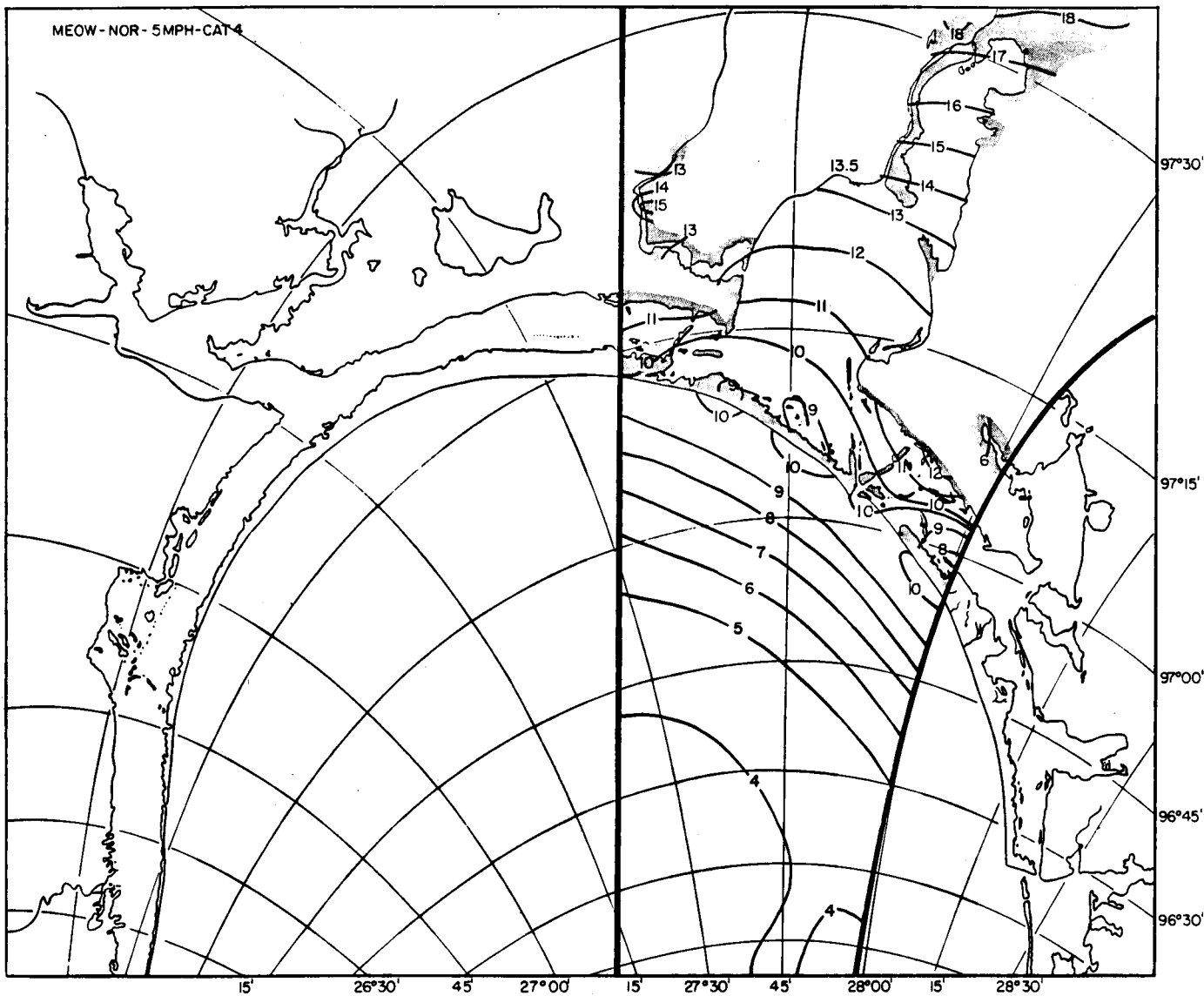
MEOW - NOR - 5MPH - CAT 2



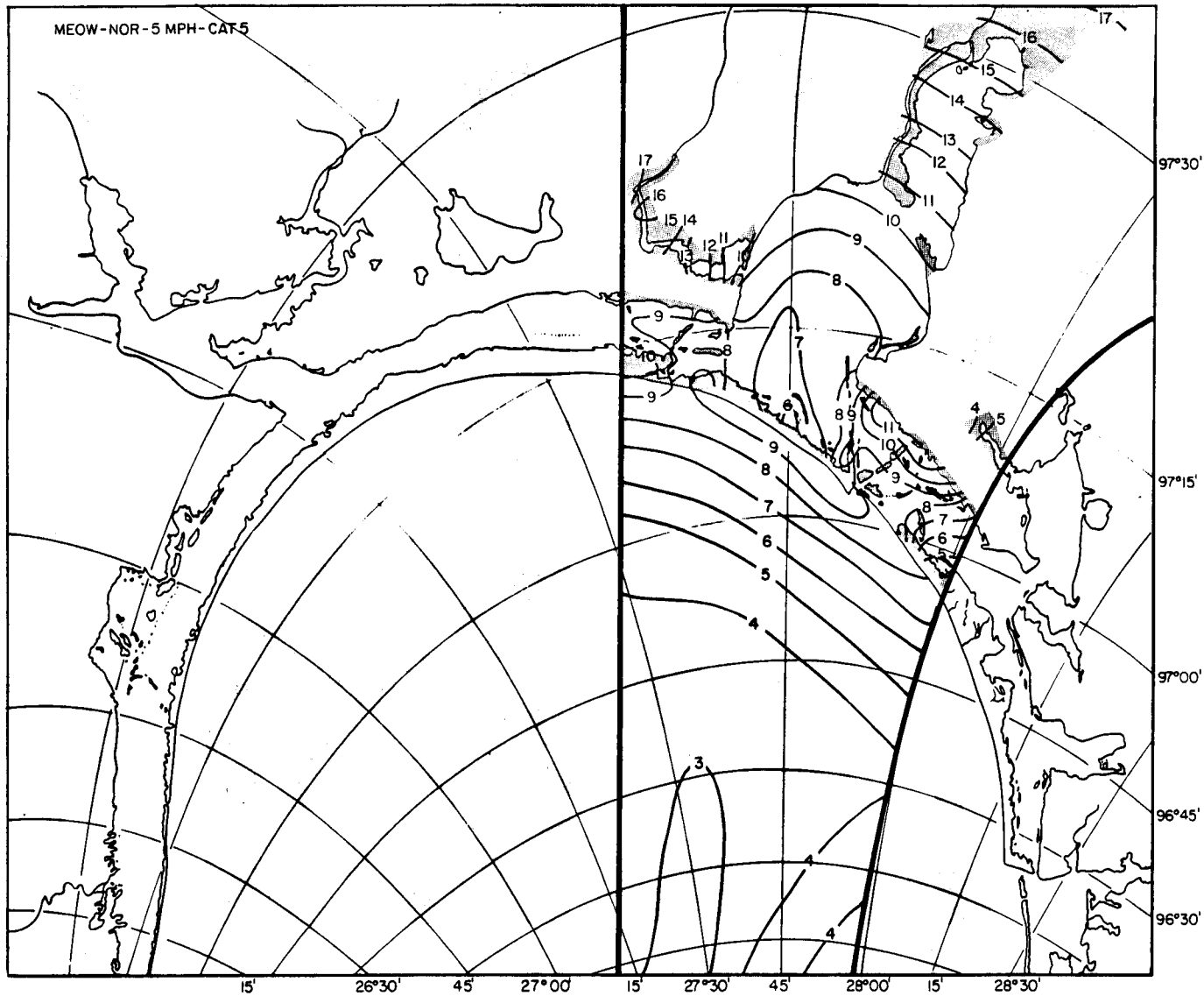
MEOW - NOR - 5MPH - CAT 3



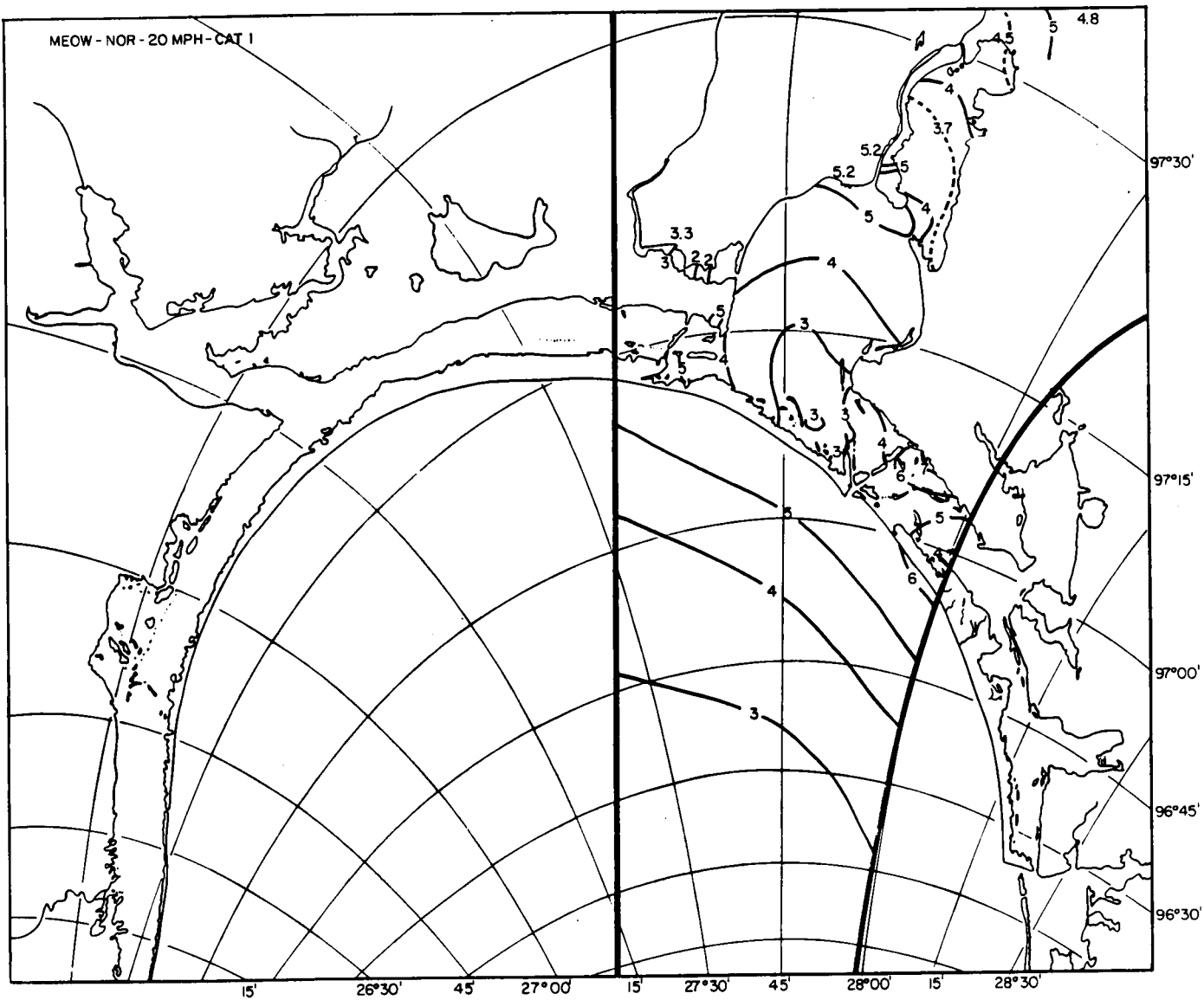
MEOW-NOR-5MPH-CAT 4



MEOW-NOR-5 MPH-CAT 5

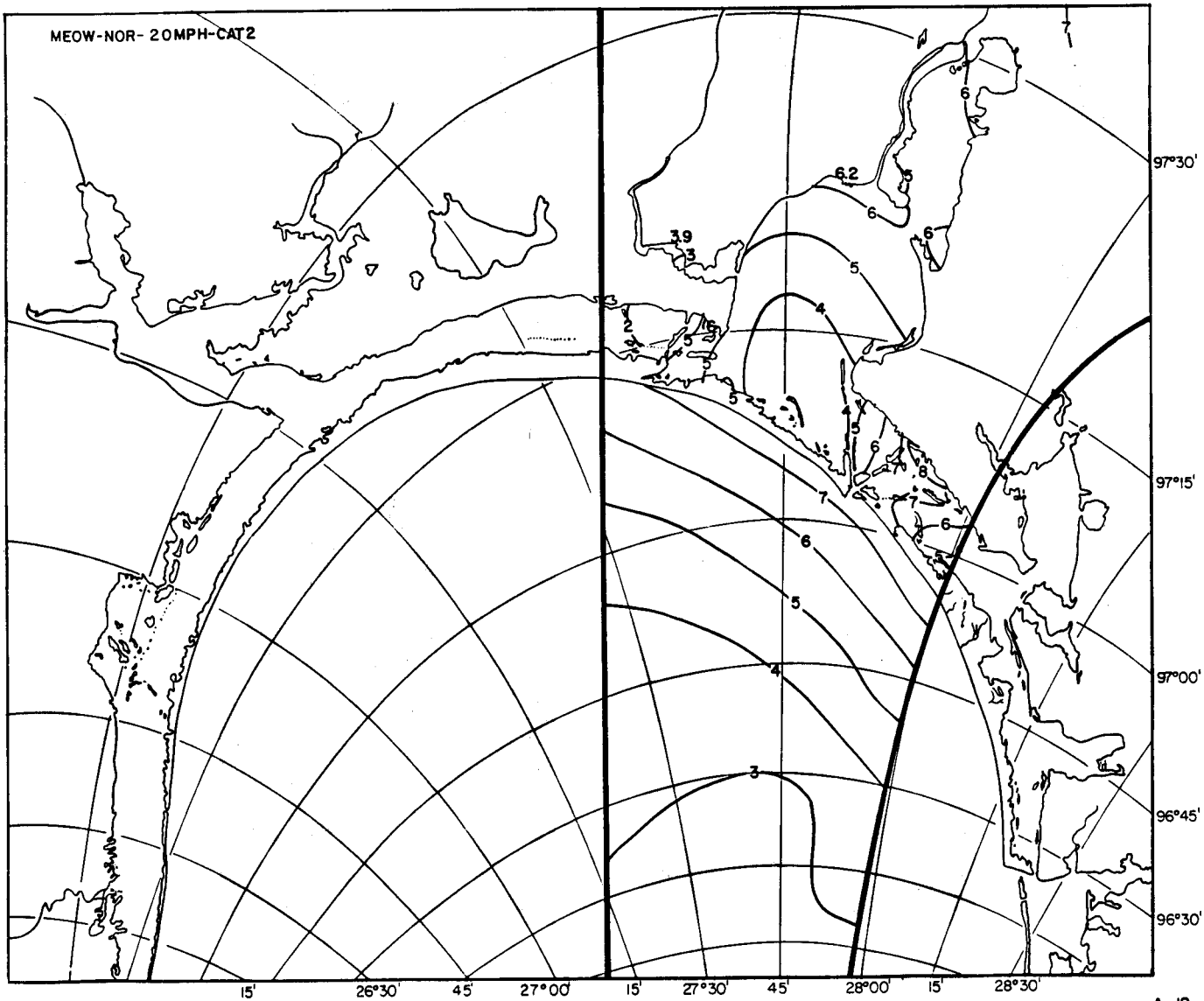


MEOW - NOR - 20 MPH - CAT 1

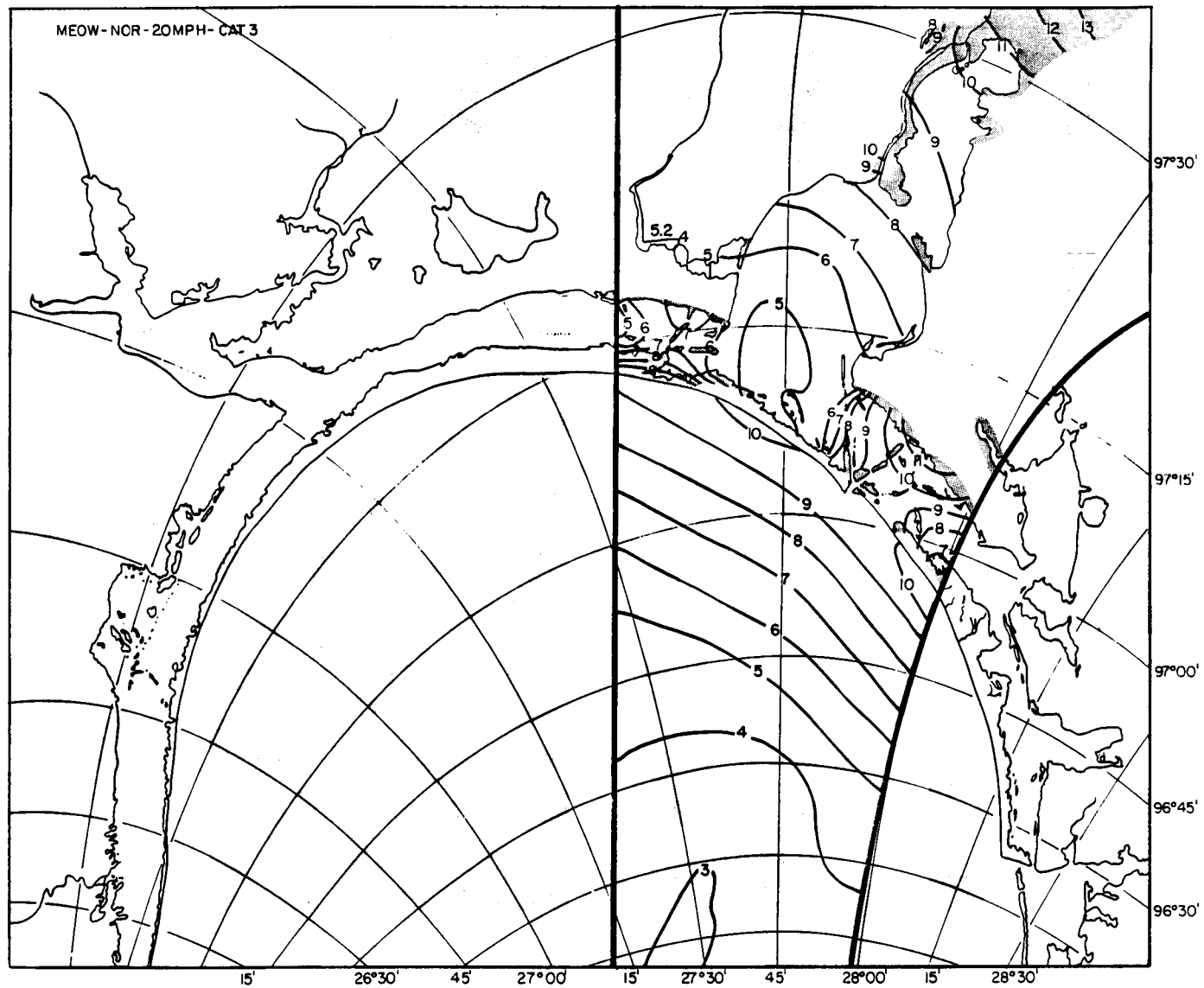




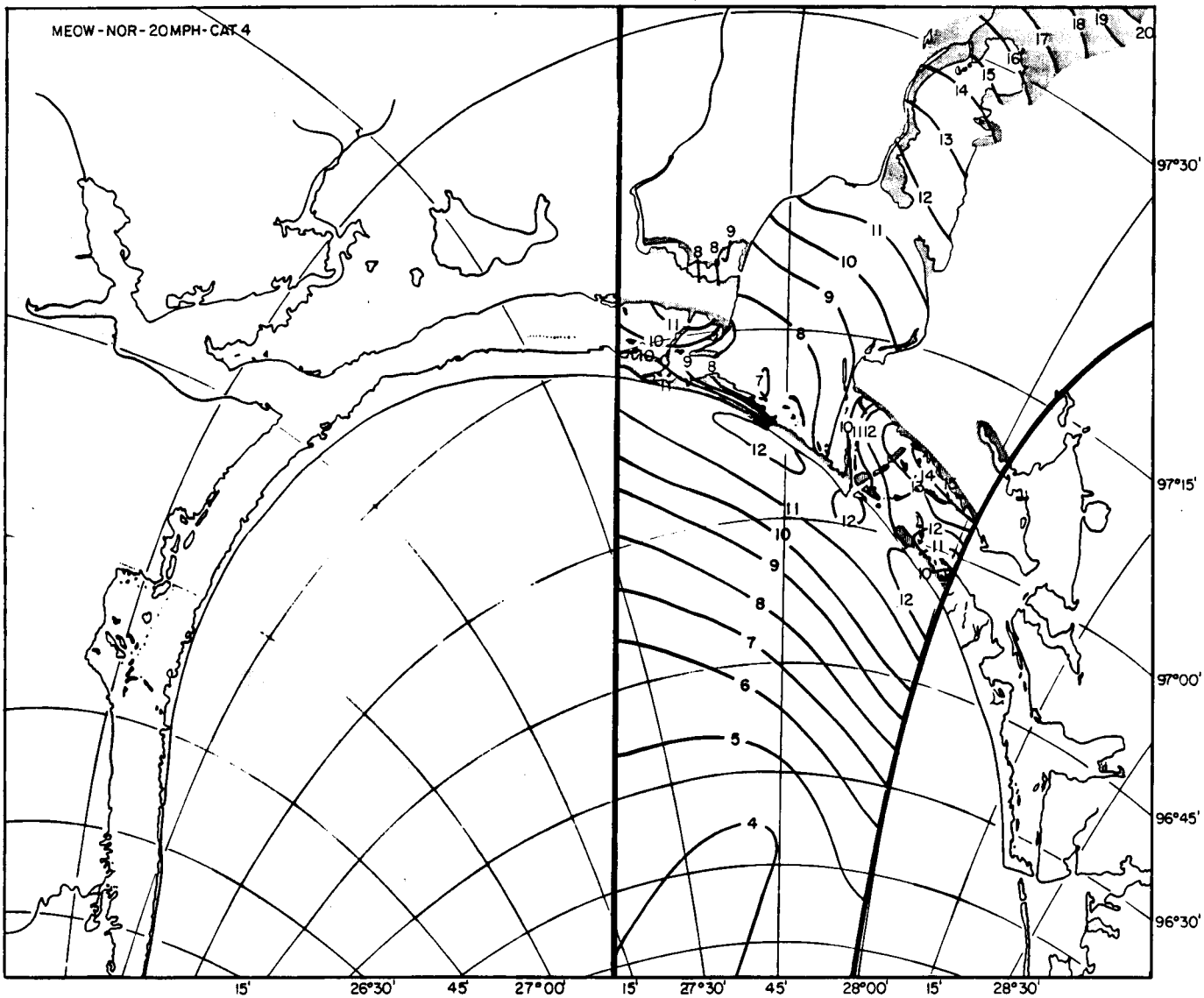
MEOW-NOR-20MPH-CAT2



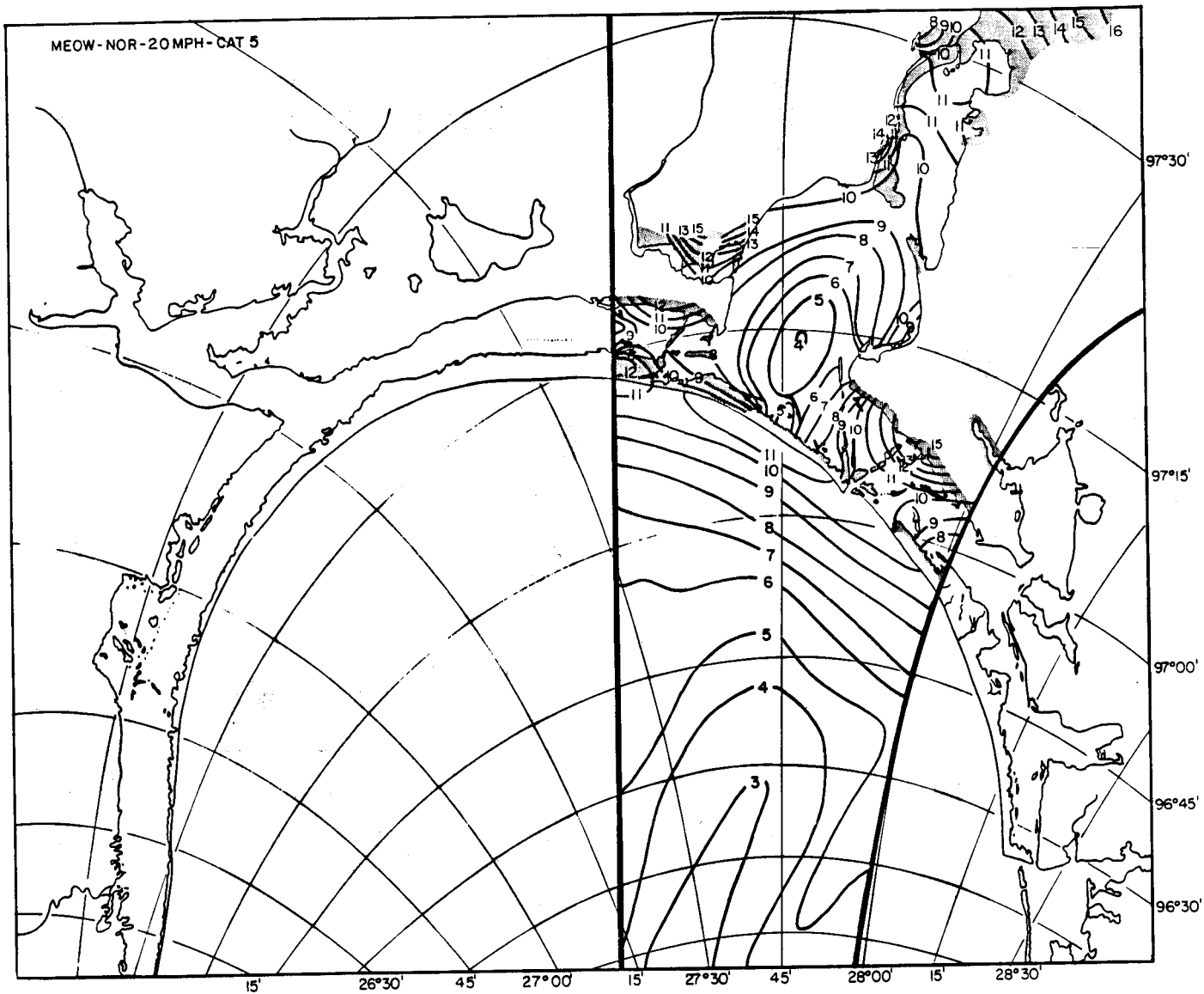
MEOW-NOR-20MPH-CAT 3



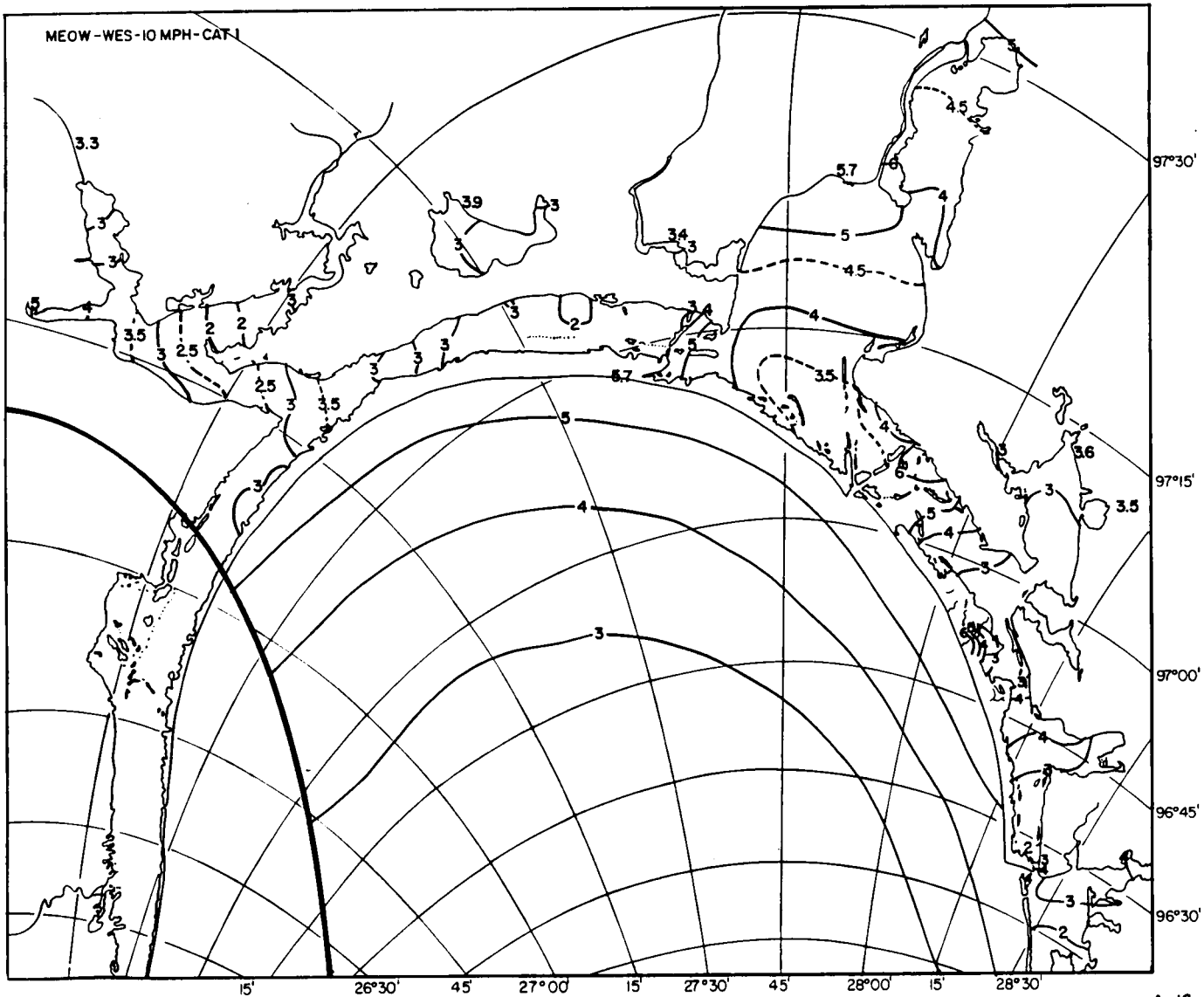
MEOW-NOR-20MPH-CAT 4



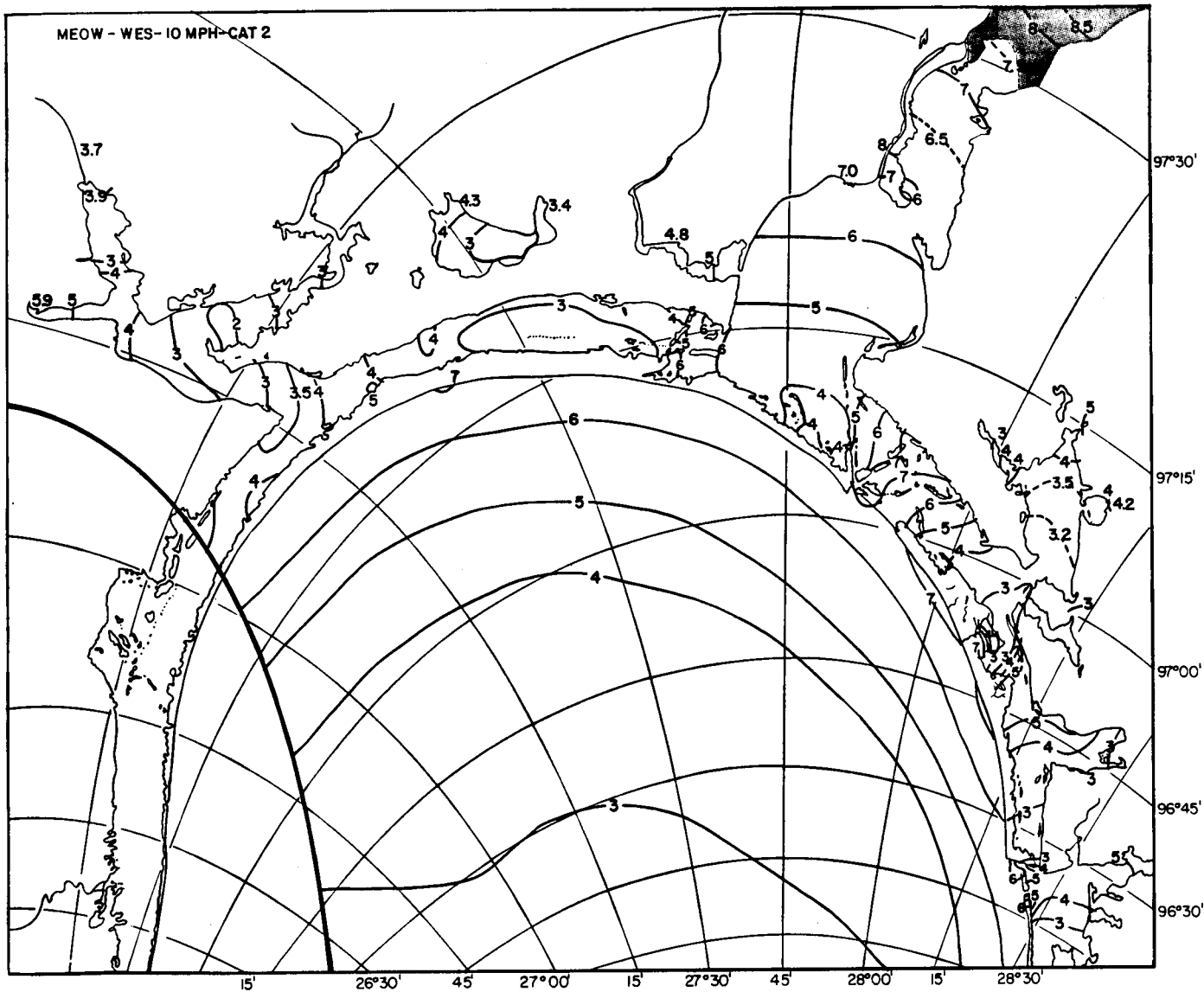
MEOW-NOR-20MPH-CAT 5



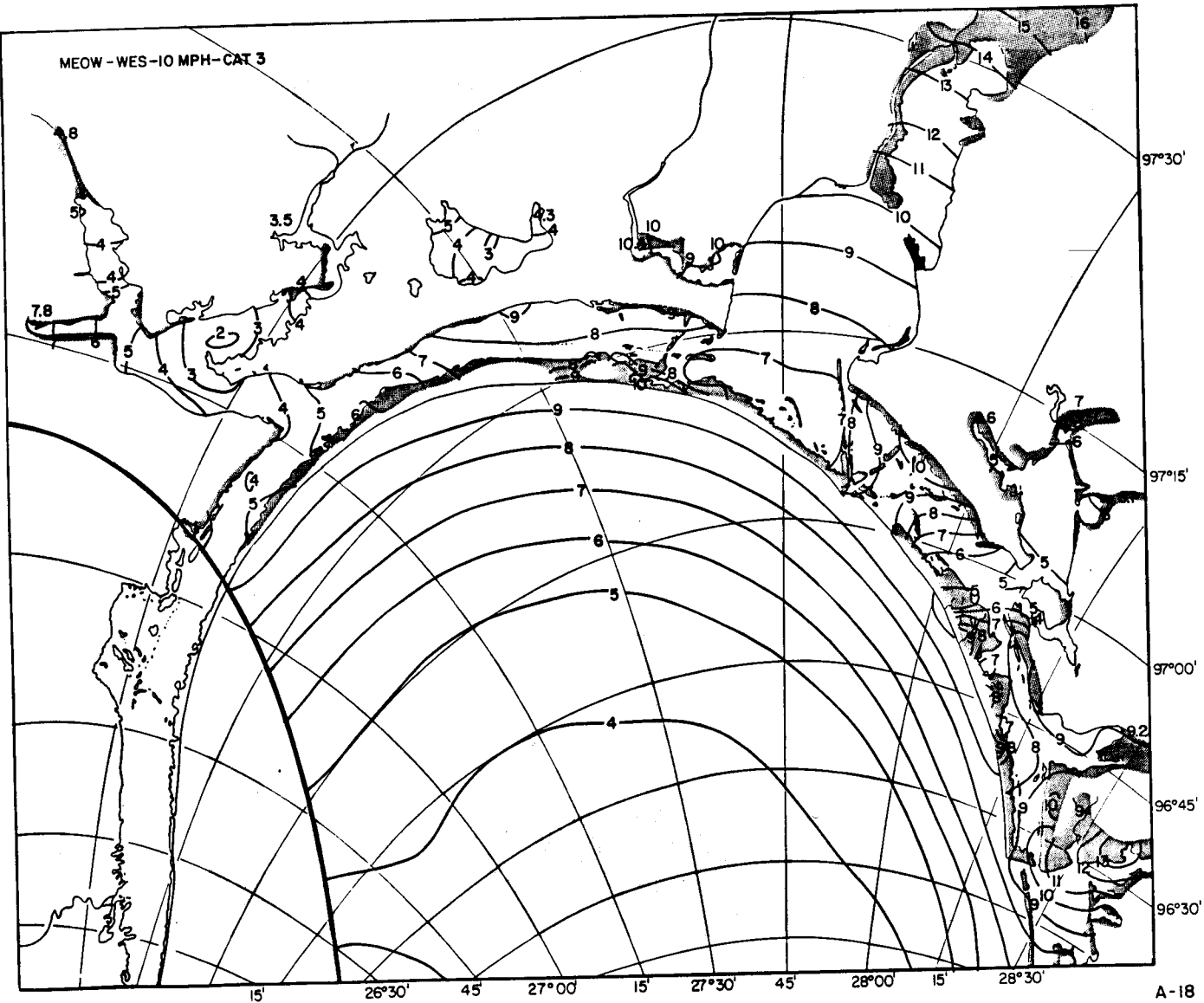
MEOW - WES-10 MPH - CAT 1



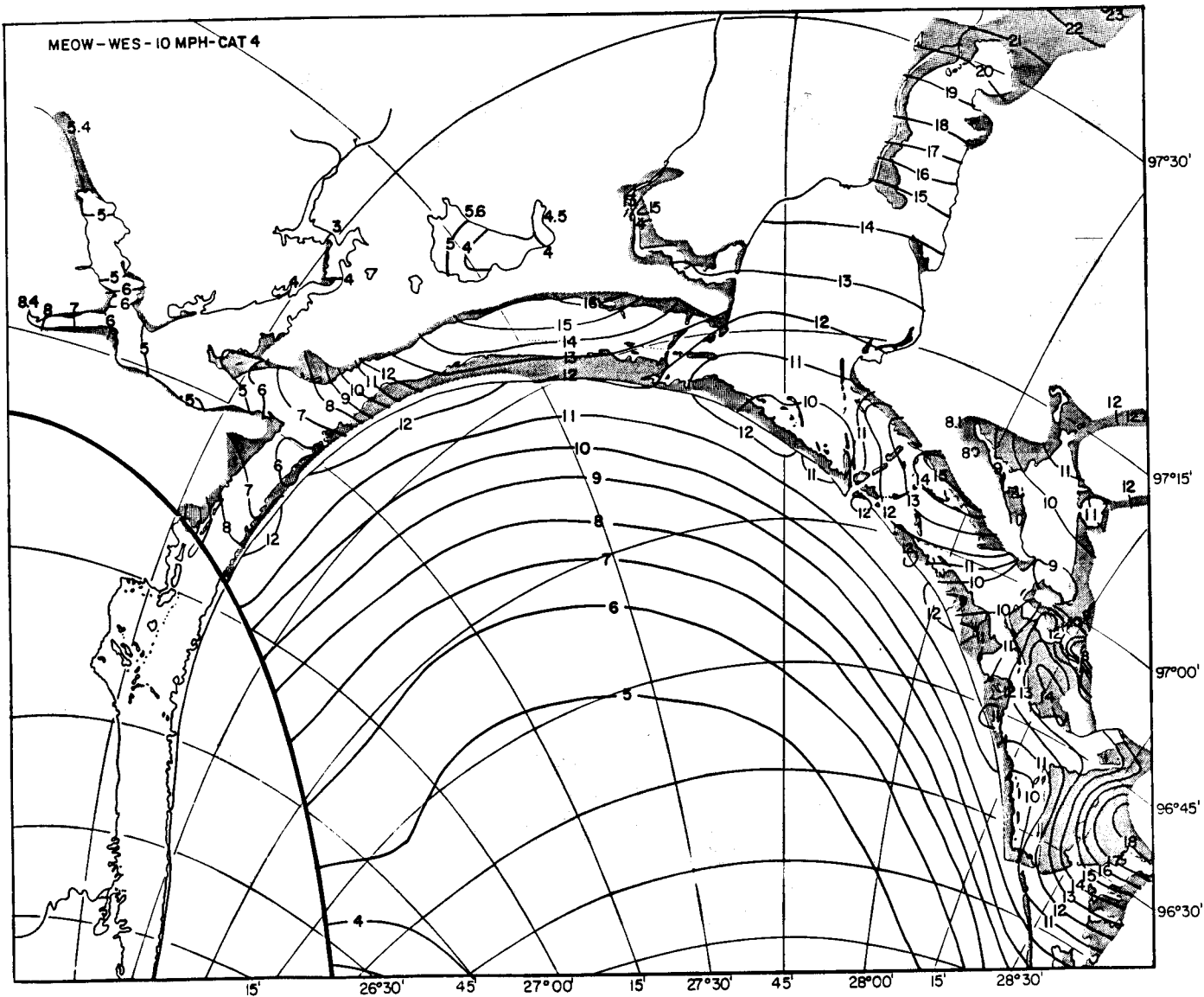
MEOW - WES-10 MPH-CAT 2



MEOW - WES-10 MPH-CAT 3

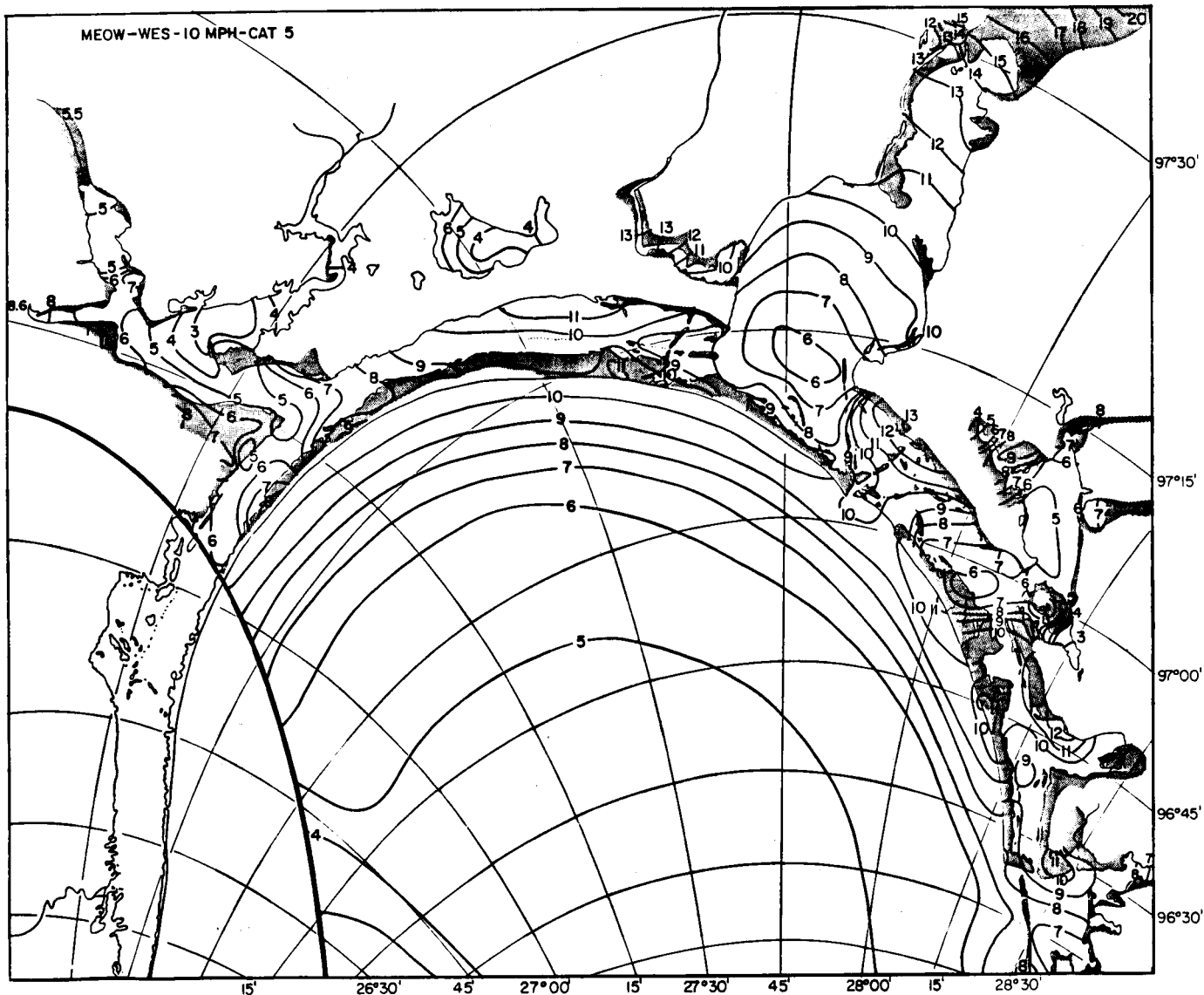


MEOW - WES - 10 MPH - CAT 4

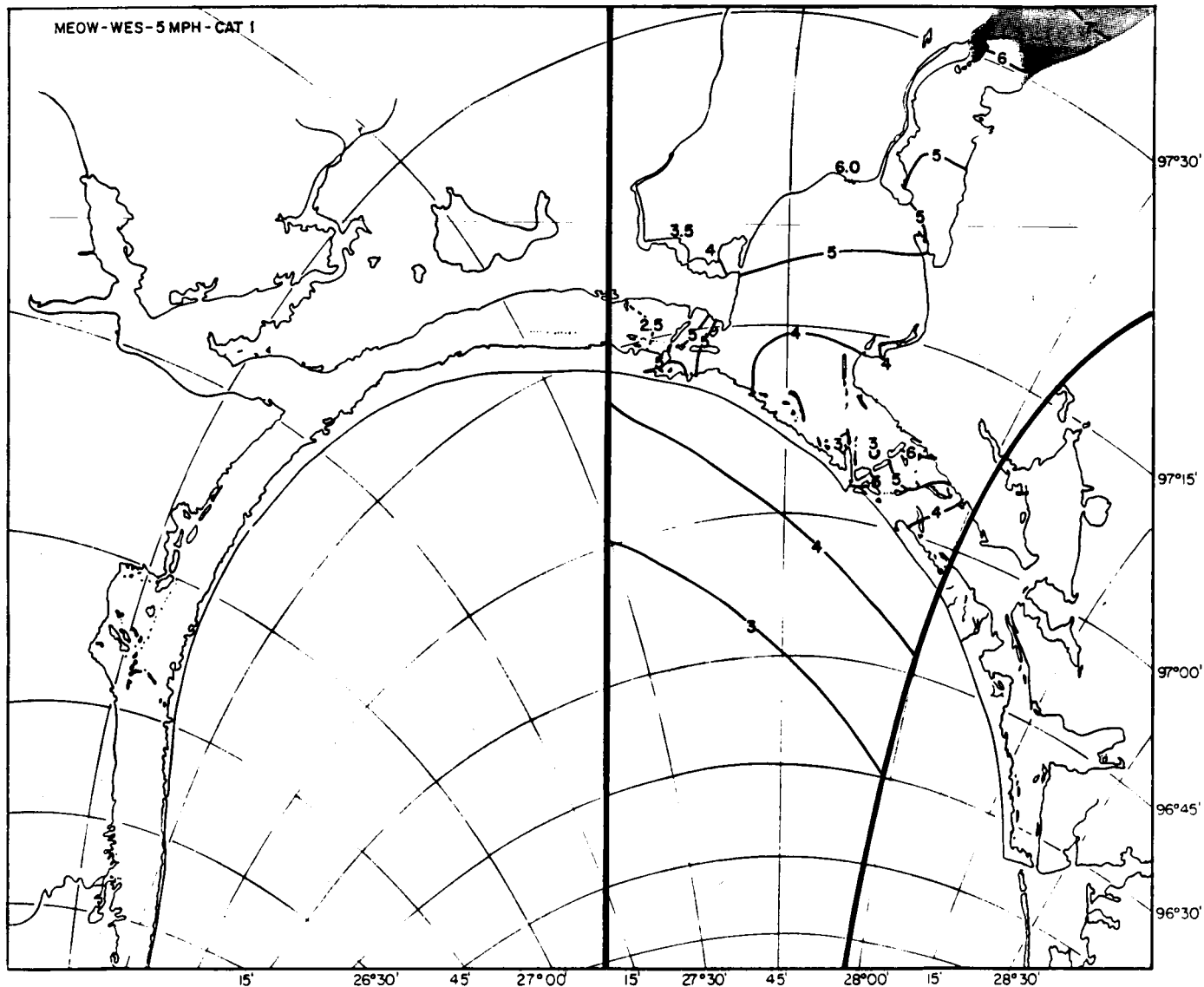




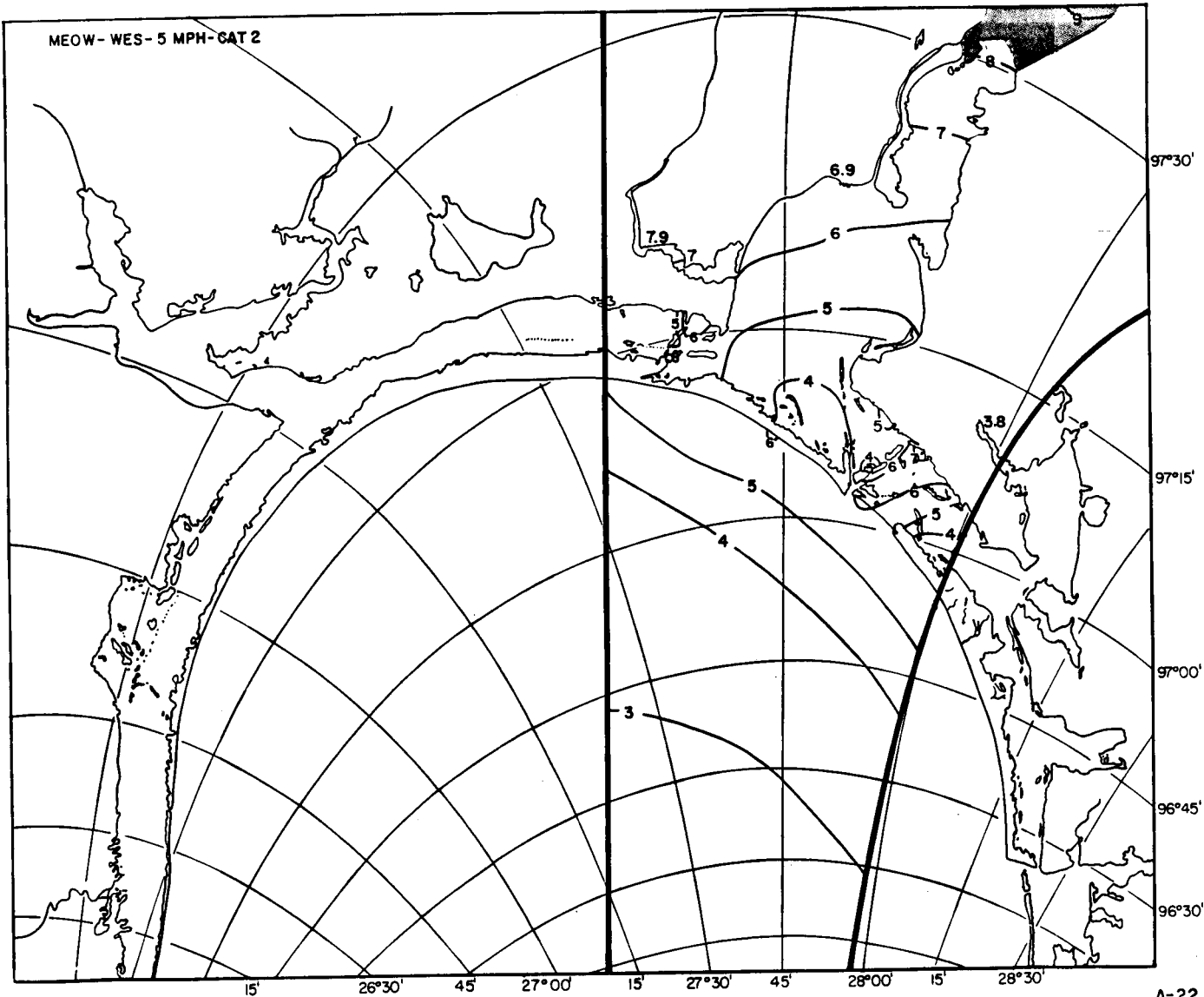
MEOW - WES - 10 MPH - CAT 5



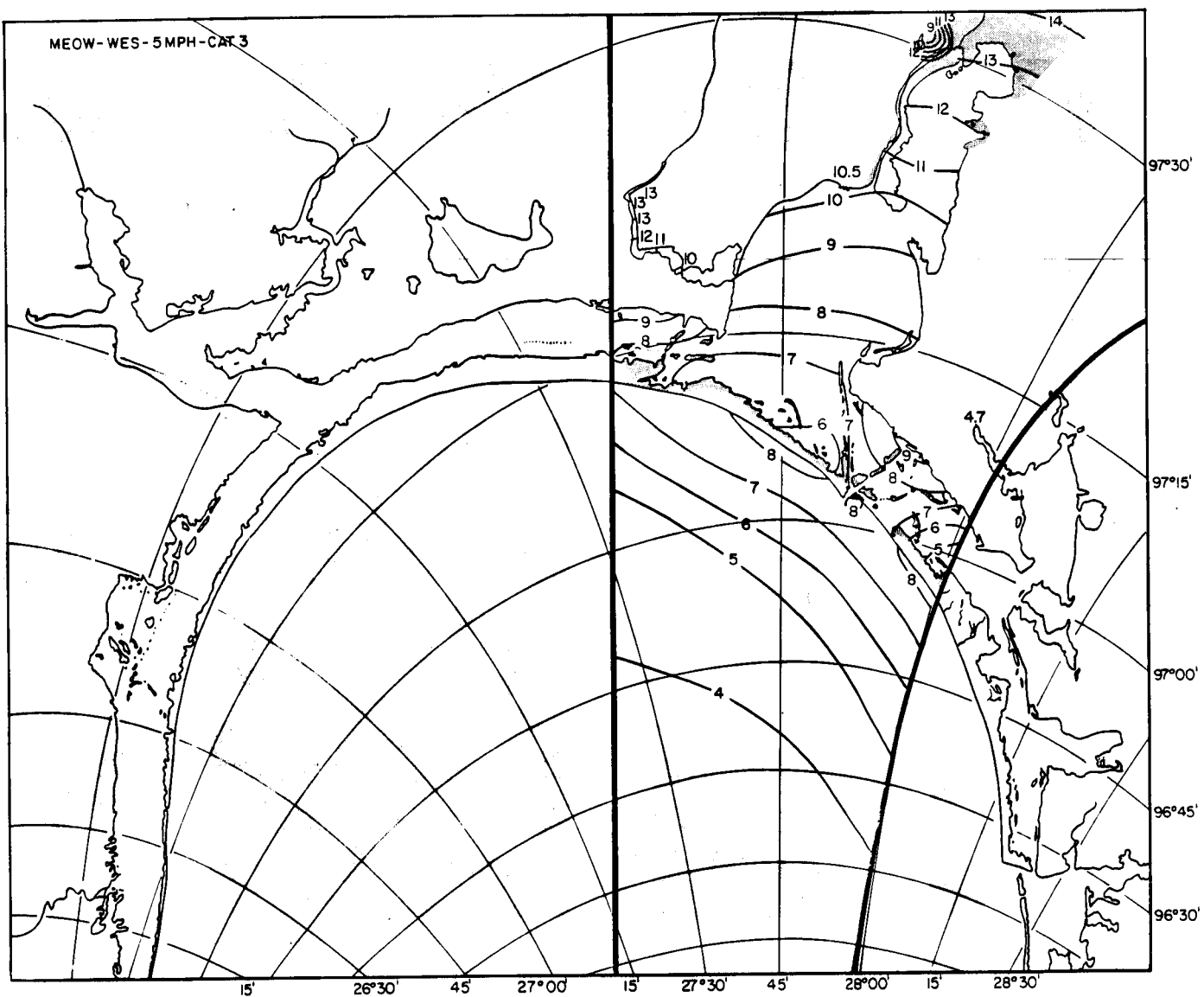
MEOW - WES - 5 MPH - CAT 1



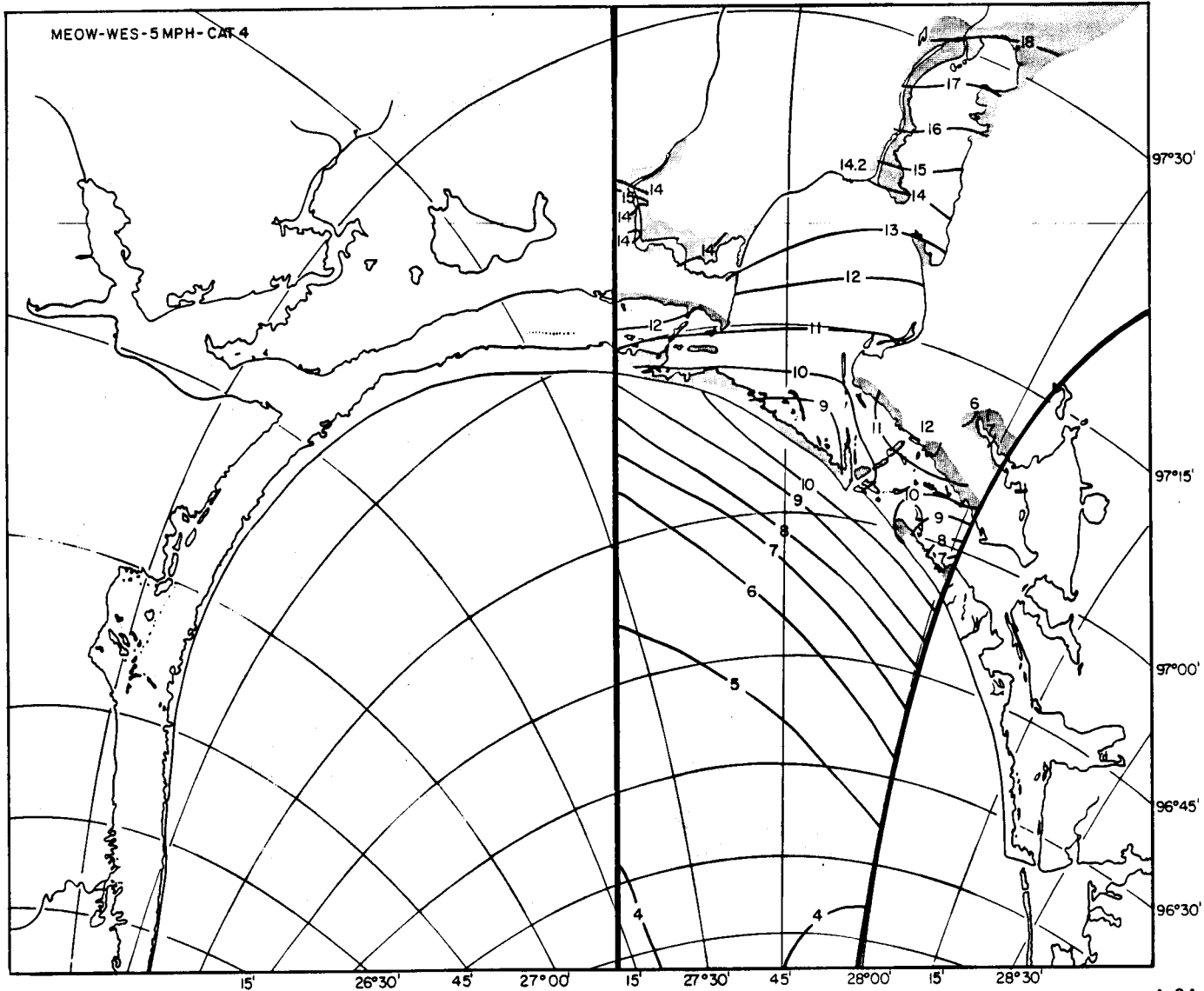
MEOW - WES - 5 MPH - CAT 2



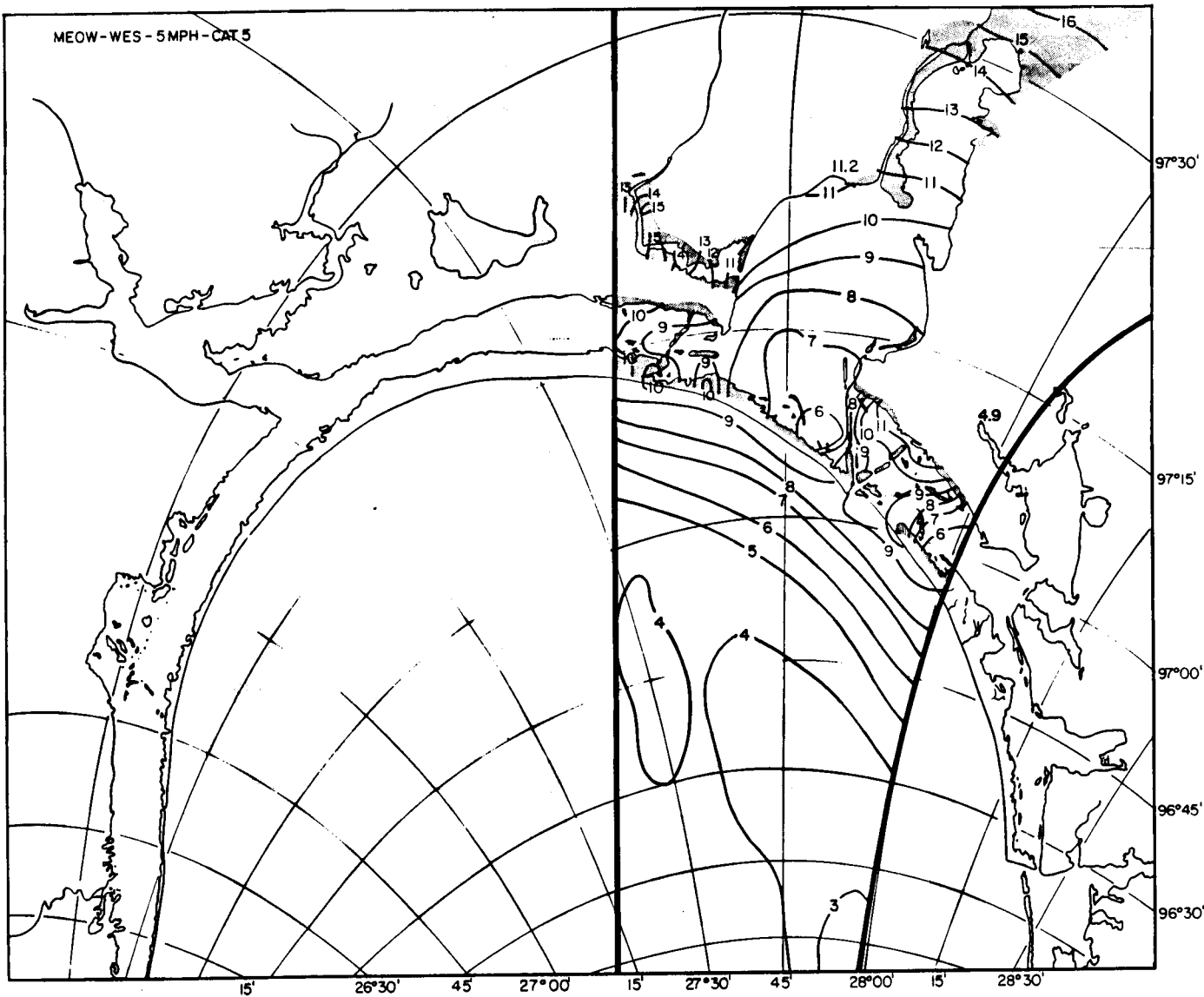
MEOW-WES-5MPH-CAT 3



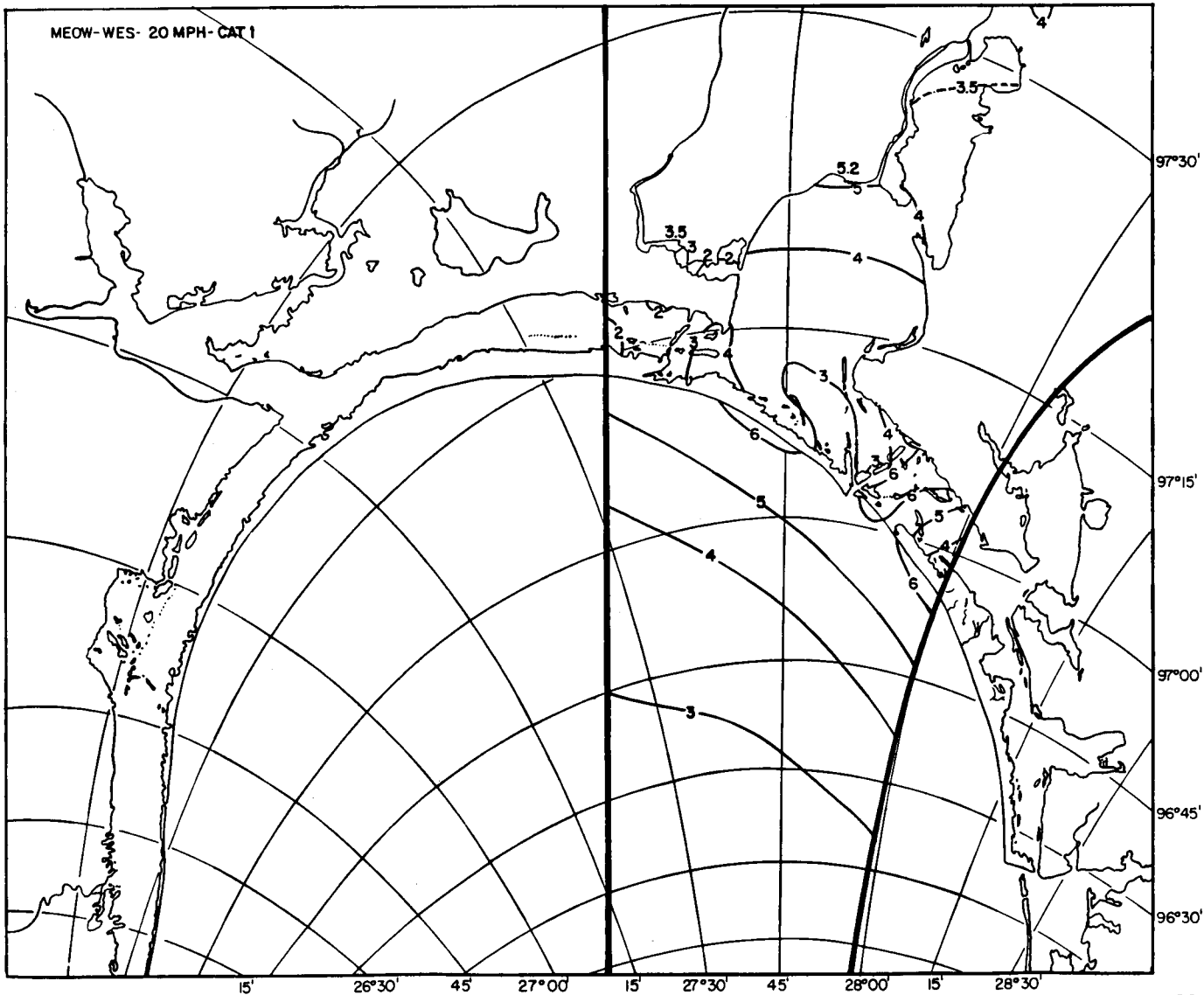
MEOW-WES-5 MPH-CAT 4



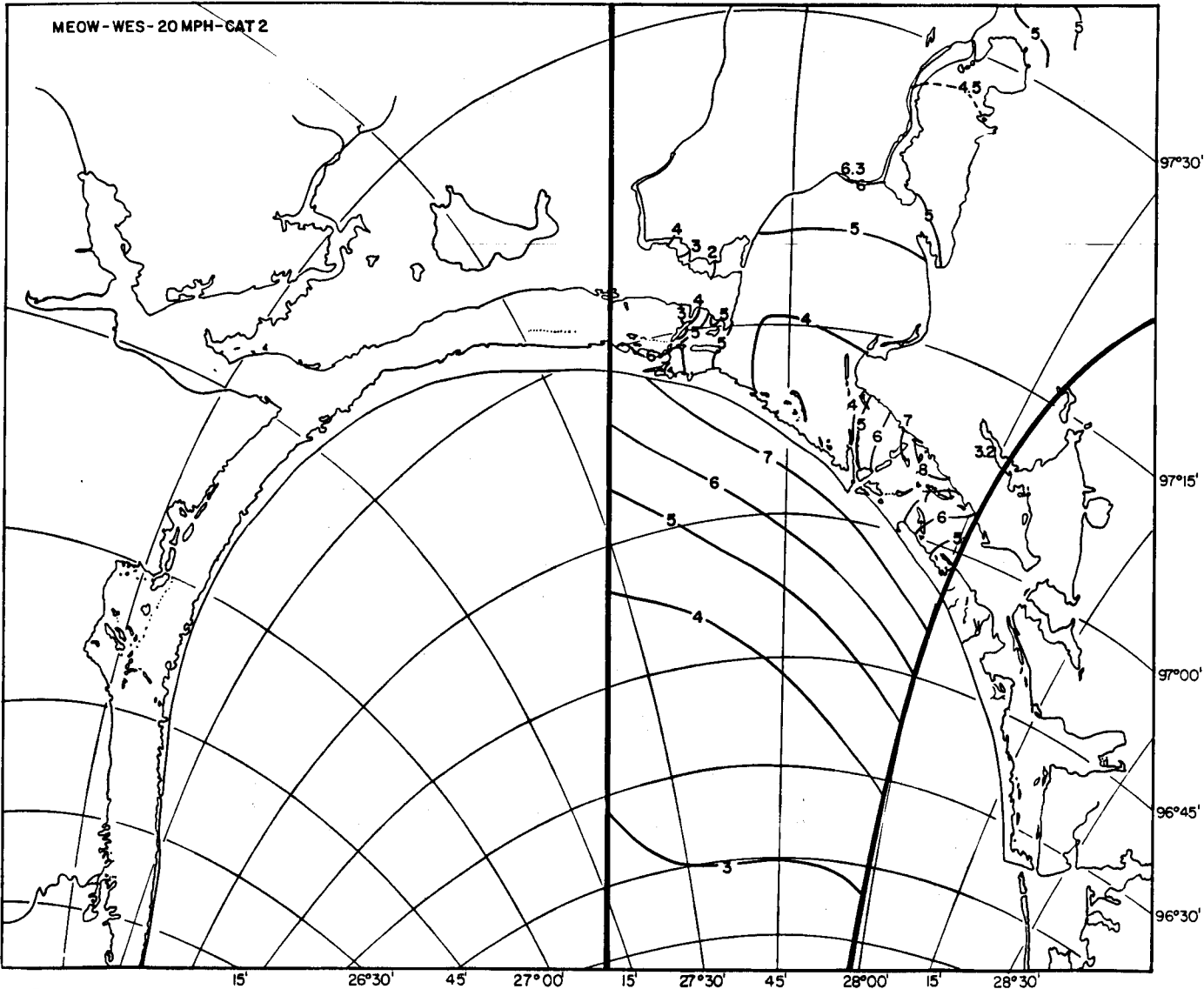
MEOW-WES-5MPH-CAT 5



MEOW-WES- 20 MPH- CAT 1

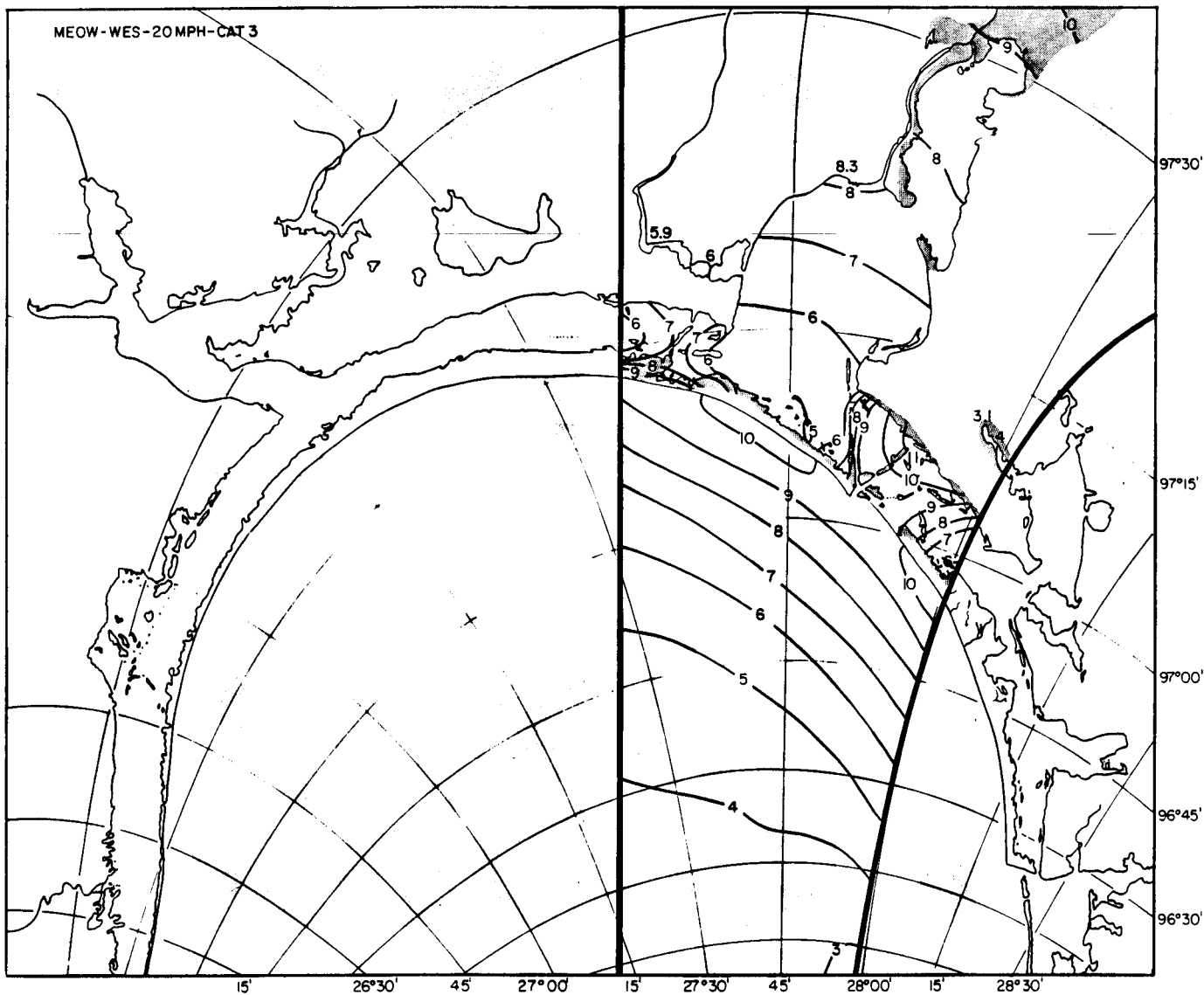


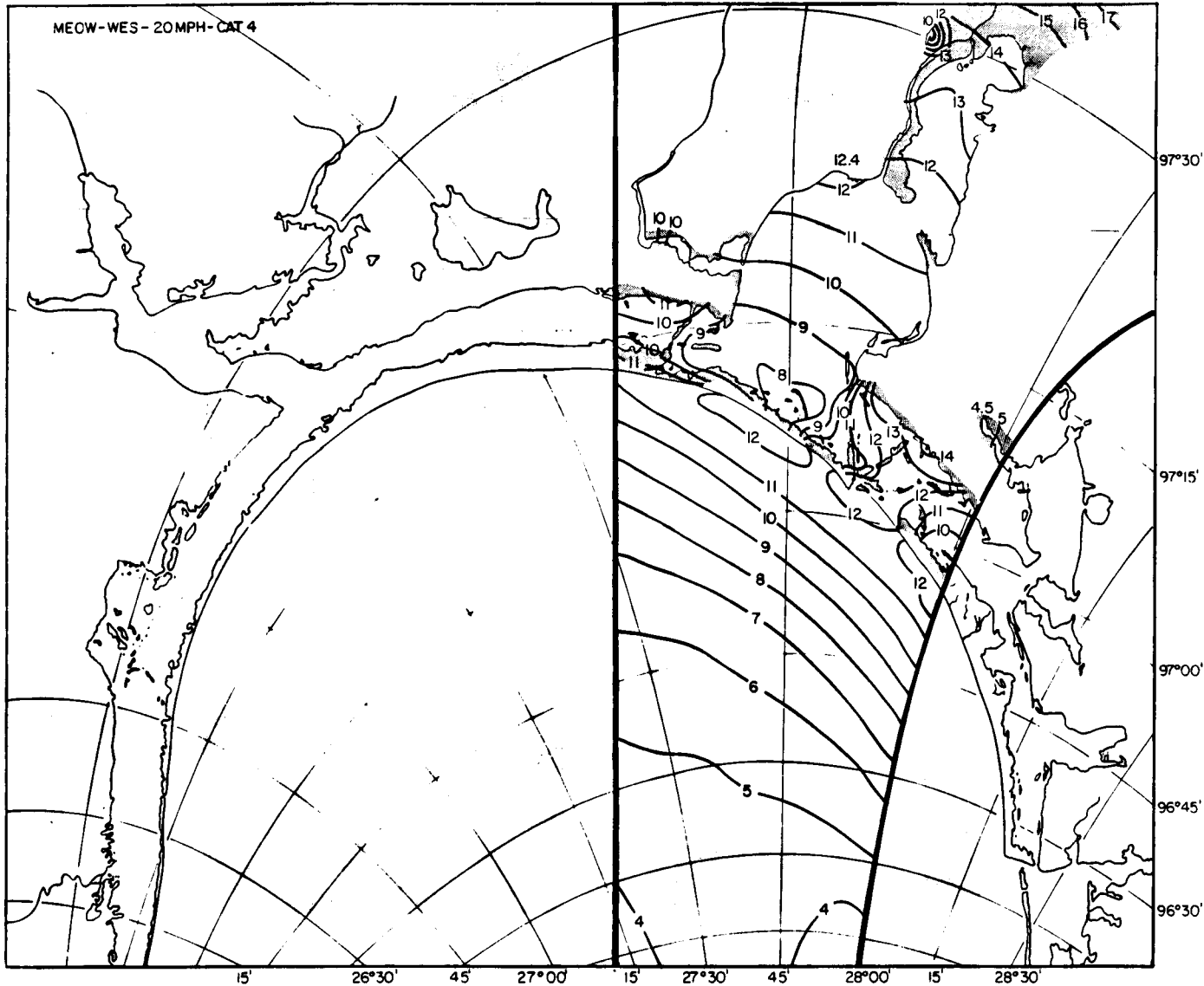
MEOW - WES - 20 MPH - CAT 2



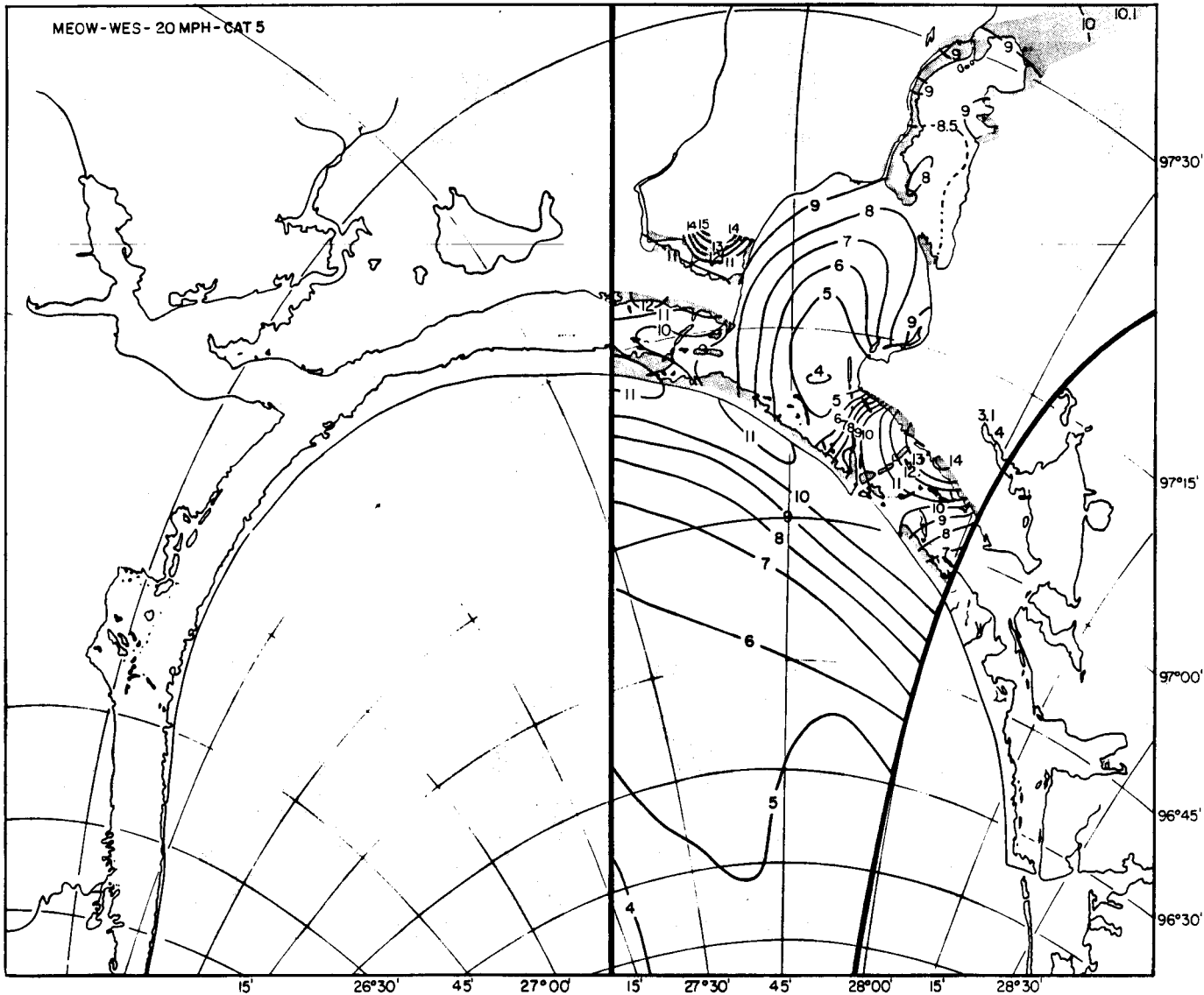


MEOW-WES-20MPH-CAT 3

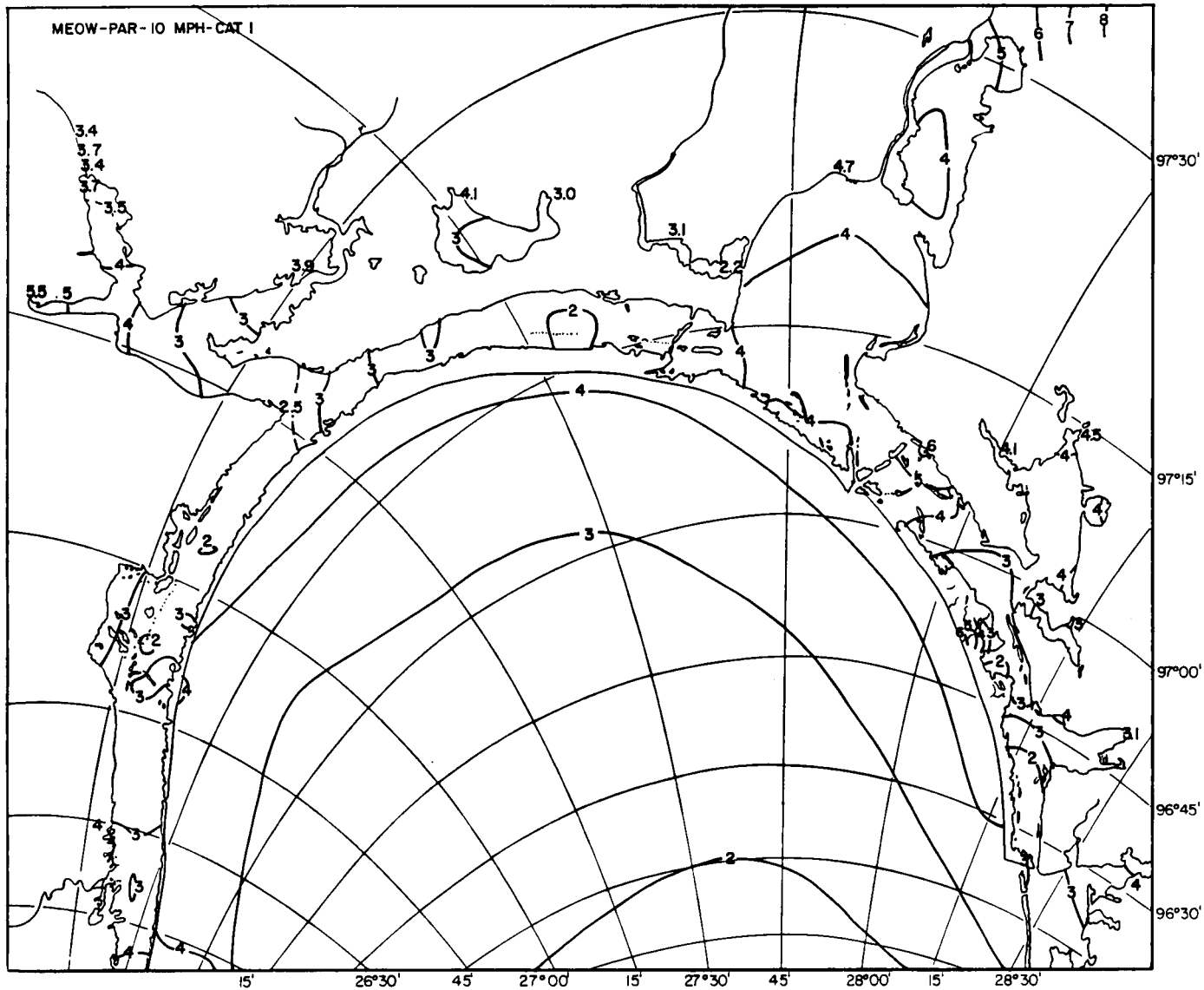




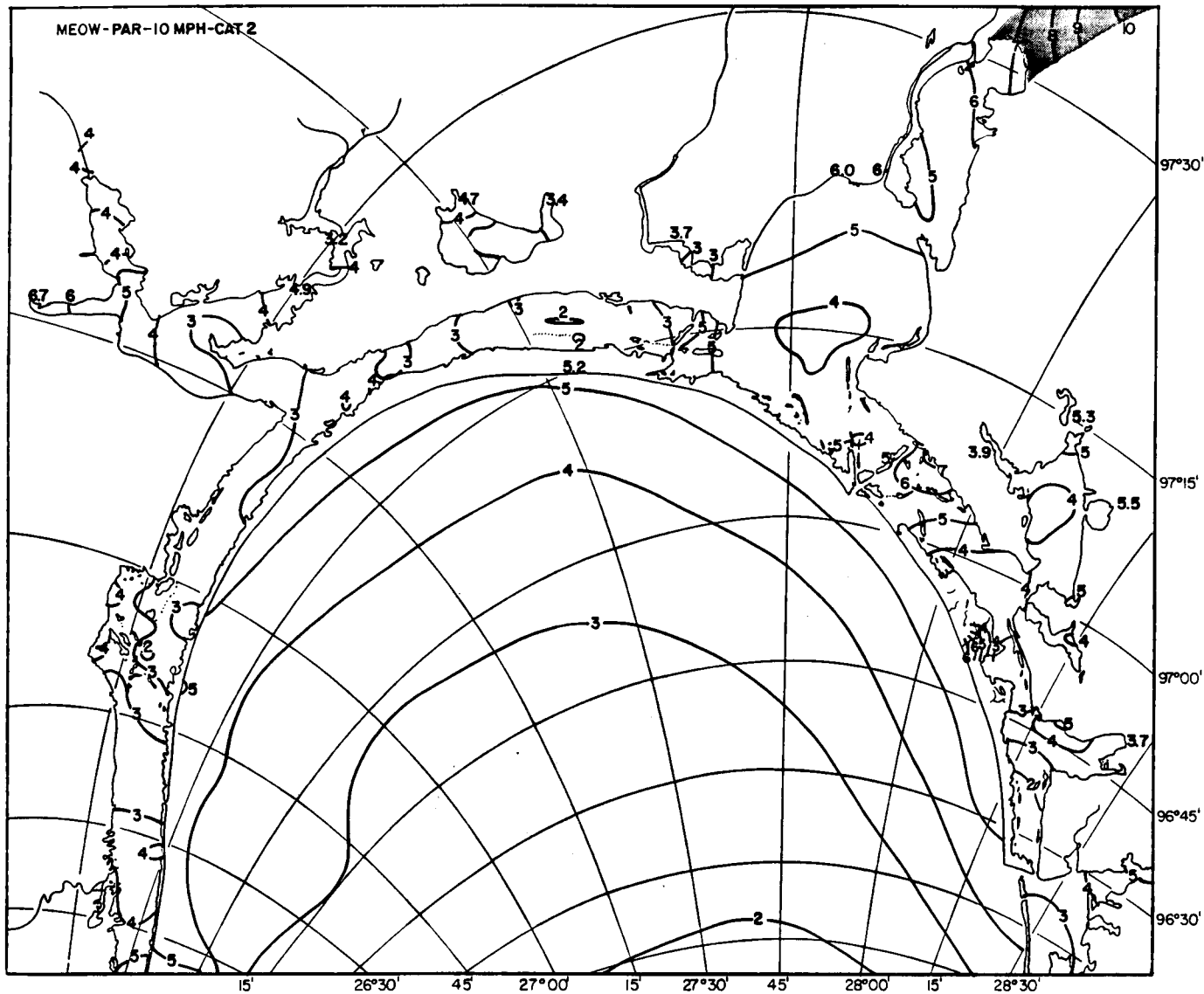
MEOW-WES-20 MPH-CAT 5

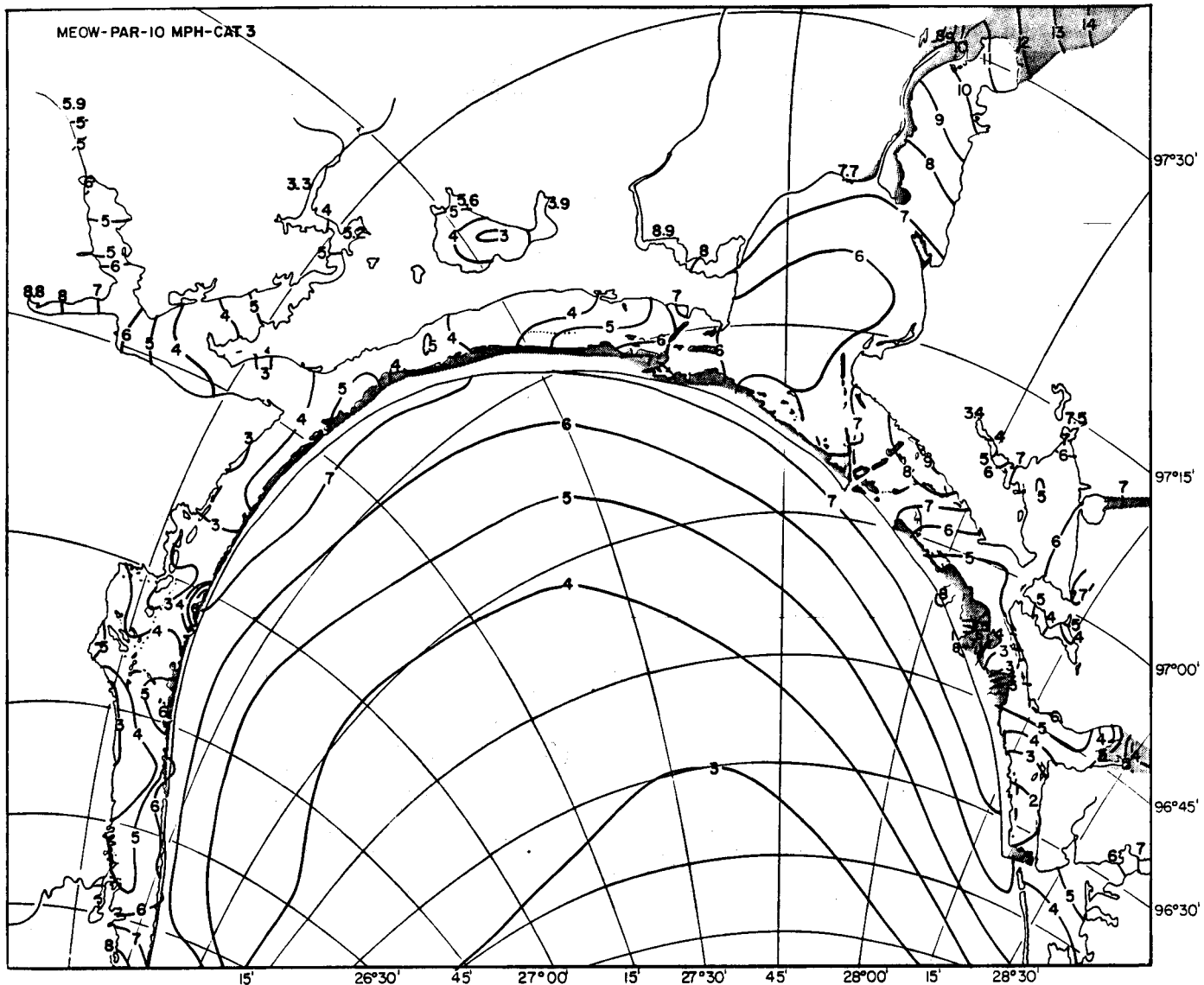


MEOW-PAR-10 MPH-CAT I



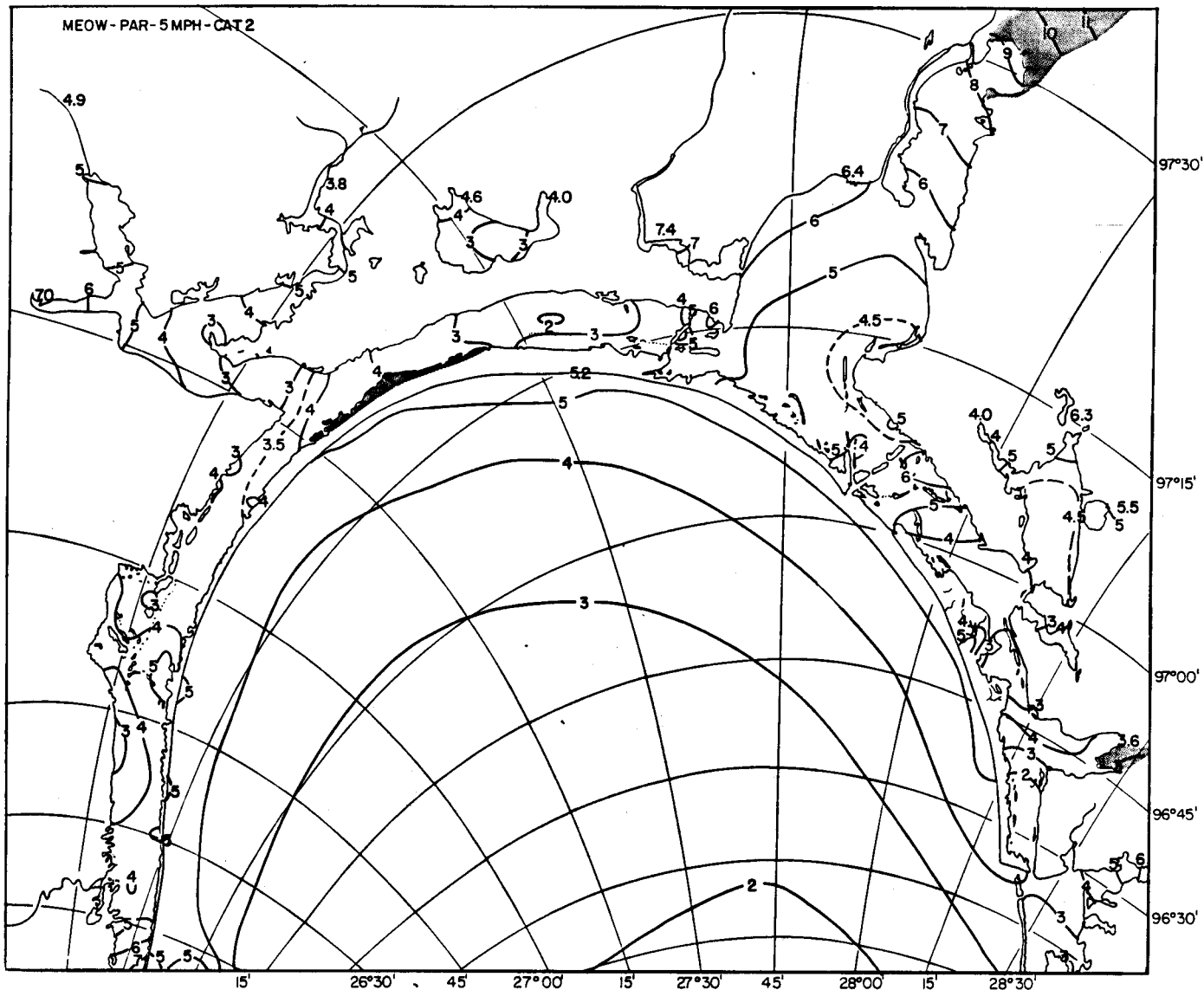
MEOW-PAR-10 MPH-CAT 2





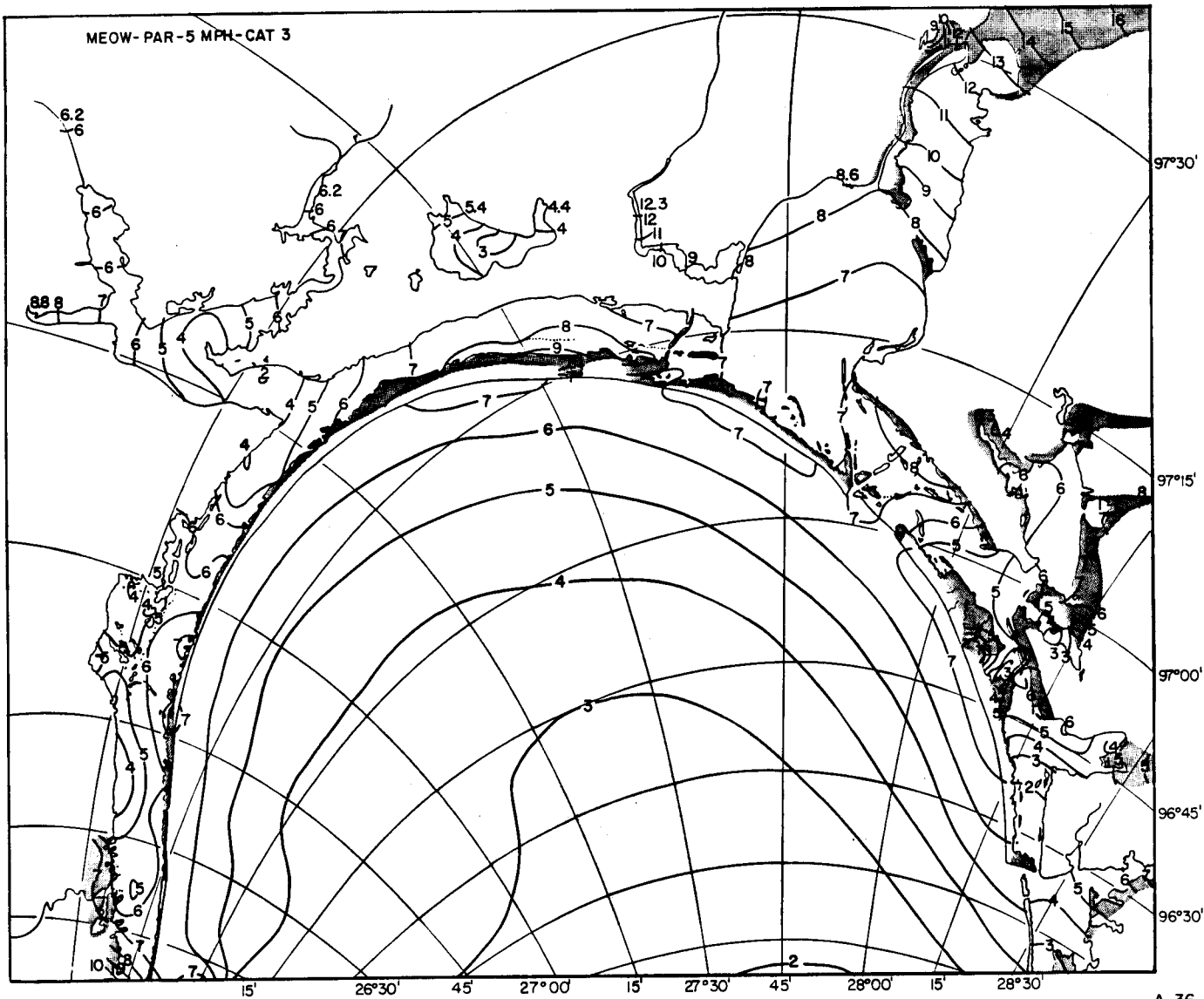


MEOW - PAR - 5MPH - CAT 2





MEOW-PAR-5 MPH-CAT 3



97°30'

97°15'

97°00'

96°45'

96°30'

15'

26°30'

45'

27°00'

15'

27°30'

45'

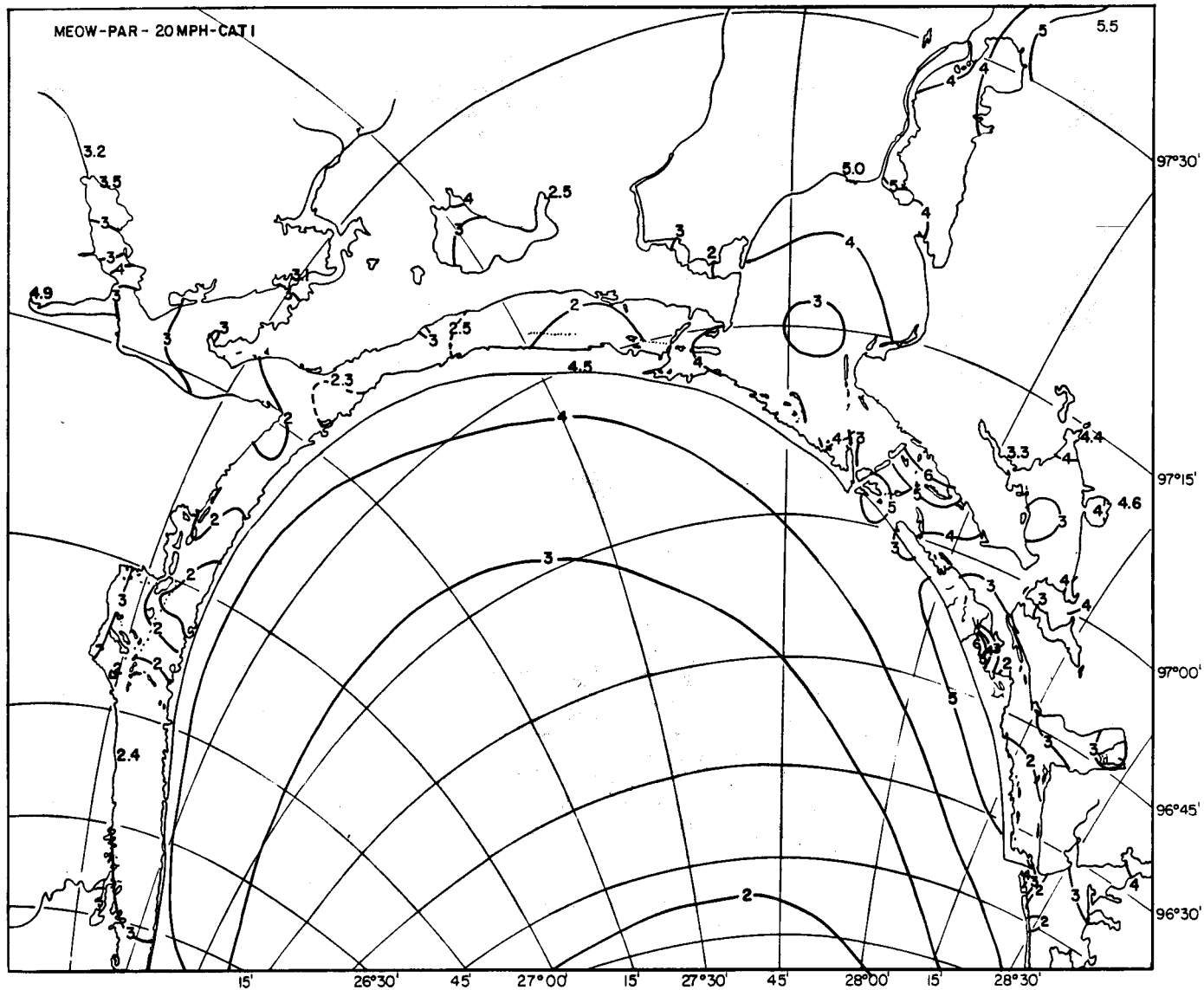
28°00'

15'

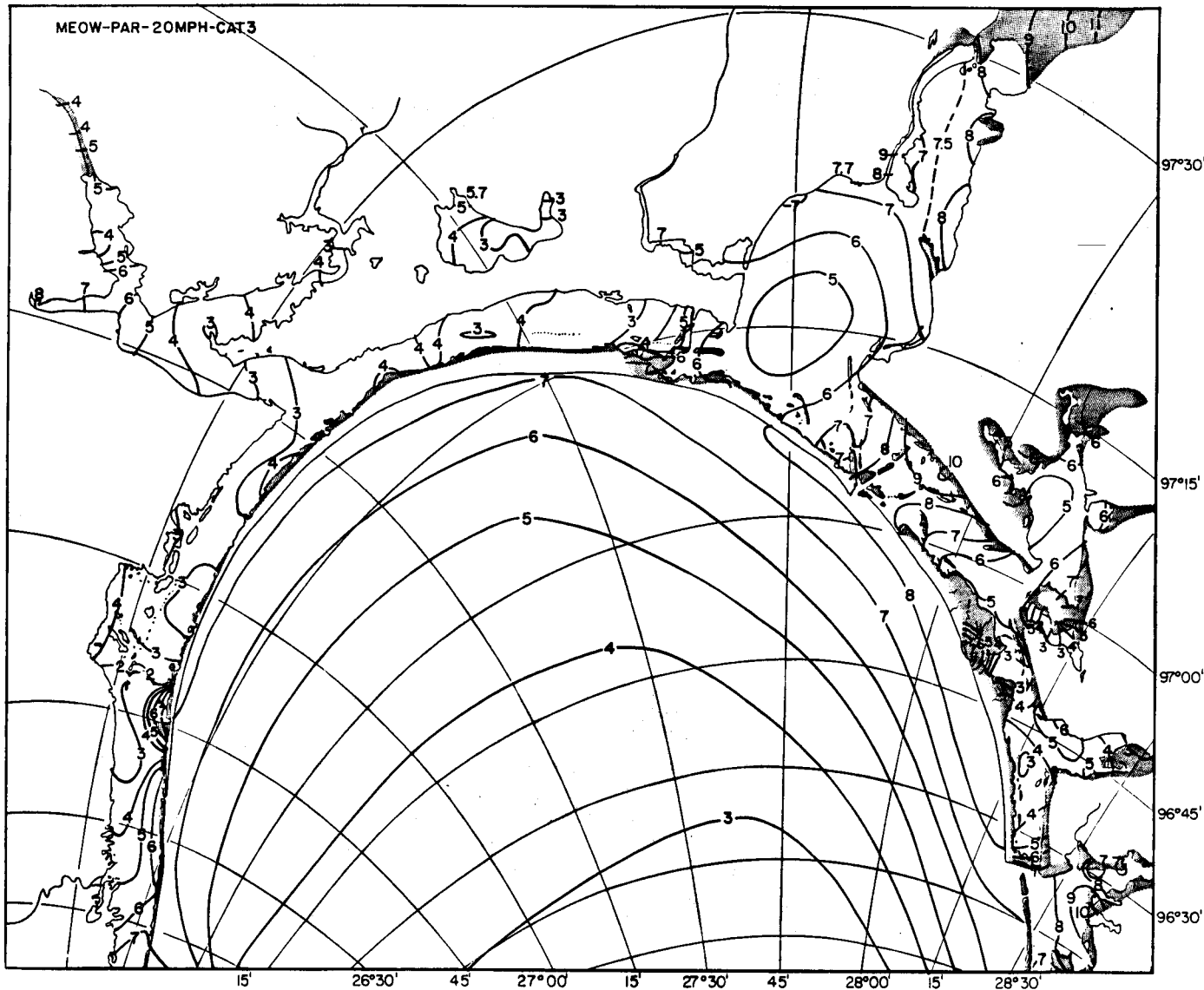
28°30'

A-36

MEOW-PAR - 20 MPH-CAT I







Pages

B- 1 to B-110	Northwest moving 10 mph hurricane
B-111 to B-140	Northwest moving 5 mph hurricane
B-141 to B-170	Northwest moving 20 mph hurricane
B-171 to B-280	West moving 10 mph hurricane
B-281 to B-310	West moving 5 mph hurricane
B-311 to B-340	West moving 20 mph hurricane
B-341 to B-370	Northnorthwest moving 10 mph hurricane
B-371 to B-400	Northnorthwest moving 5 mph hurricane
B-401 to B-430	Northnorthwest moving 20 mph hurricane
B-431 to B-438	Southwest moving 10 mph hurricane

B.1 Odd numbered pages

All odd-numbered pages contain the envelope of high water for the simulated hurricane. The hurricane label or identification is located in the upper left-hand corner. An example is NOR-10MPH-C1-LS070. This alphanumeric character label represents five pieces of information. Each piece of information is described in subsequent paragraphs. Figures 22, 23, and 24 are helpful in understanding the values used.

NOR is an abbreviation for normal landfalling hurricane and represents the orientation of the hurricane track direction to the coastline. However, northwest moving hurricanes is used throughout the text to describe this same track direction. Another abbreviation, WES, stands for west moving hurricanes. The PAR abbreviation signifies parallel moving hurricanes. Parallel moving hurricanes are also called northnorthwest moving hurricanes. SWW is an abbreviation for southwest moving hurricanes.

10 mph represents one of three track speeds used in the simulations. The other two speeds are 5 and 20 mph.

C1 represents one of the five possible categories on the Saffir/Simpson scale. Category 1 is a minimal hurricane and category 5 is the strongest.

LS is an abbreviation for "left side" and refers to the side on which the hurricane passes the city of Port Aransas located on Mustang Island. Therefore, the orientation is looking forward along the hurricane track. The other direction is RS or "right side" of Port Aransas. If the track passes directly over Port Aransas, "00" is given.

The last three numbers, 070, indicate the distance the hurricane is from port Aransas. This distance is measured along the coastline in statute miles.

The storm-surge heights are relative to mean sea level and are given in feet. The contours are labeled at 1-ft intervals.

Shaded areas represent dry land inundated by storm surge. Categories 3, 4, and 5 are always shaded where inundation occurs. Categories 1 and 2 may or may not have shading when inundation occurs. The shading depends on the height of the storm surge contour value. The hurricane track, with hourly positions is also given. Overlays for this envelope, depicting land contours and other geographical features, are available at the end of this atlas.

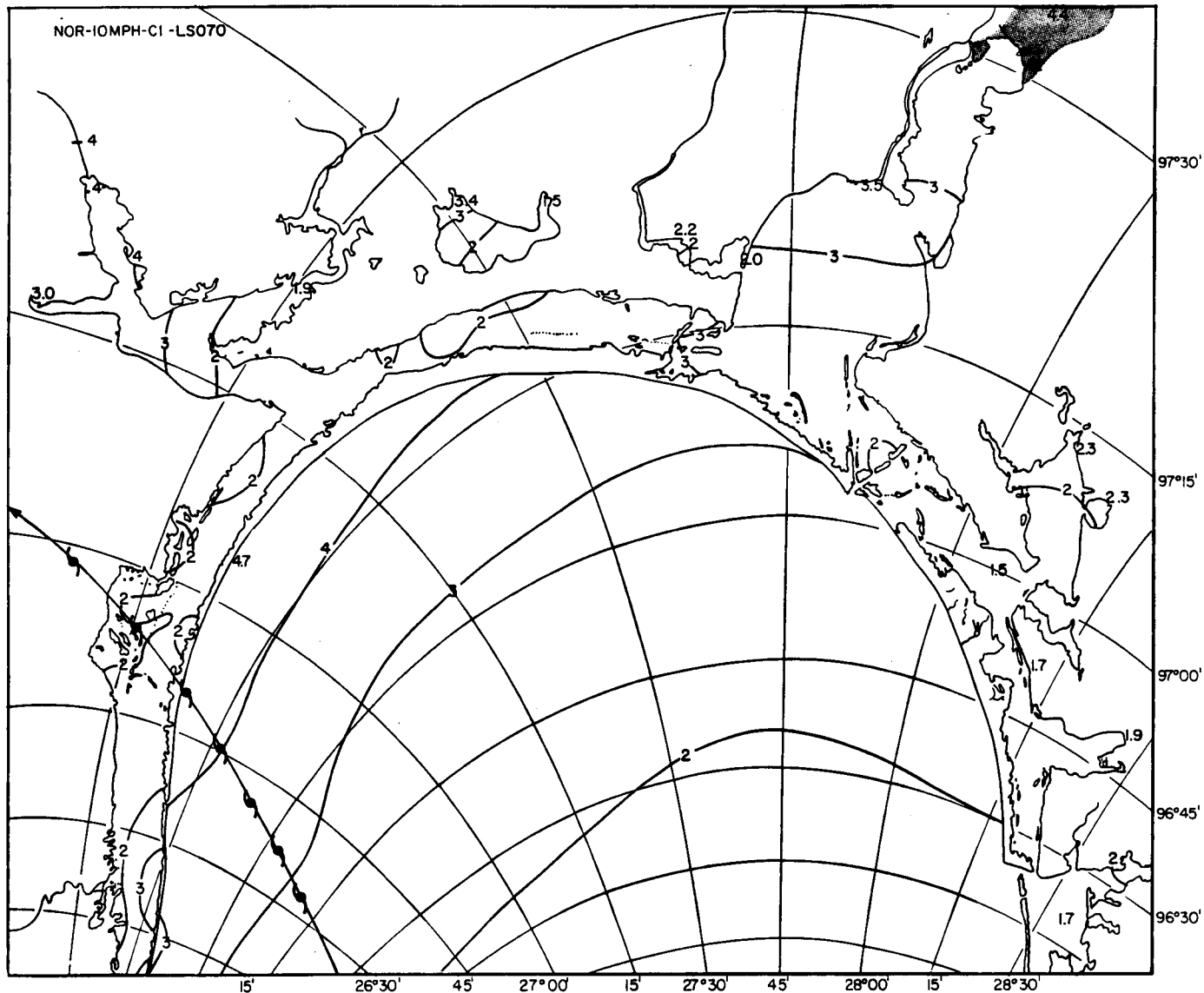
B.2 Even numbered pages

All even-numbered pages contain time histories of storm surge, wind speed, and wind direction for 12 selected locations in the basin (Figure 4). The hurricane label or identification is located in the upper left-hand corner (see B.1 for label interpretation). Each location is identified with a name and its SLOSH model grid coordinates.

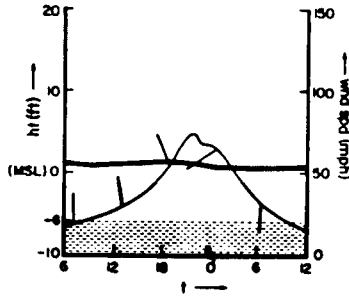
The time histories for each location are plotted in graph form. The x-axis represents time increasing to the right. The left y-axis represents storm surge height in feet and the right y-axis represents wind speed in miles per hour. The heavy line represents the storm surge; the thinner line represents the 1-minute averaged wind speed. The vectors located at varying intervals along the wind speed line represent the meteorological wind direction. North is oriented toward the top of the page.

The hatched or shaded areas represent solid ground (i.e., terrain or the water bottom). If no shaded area appears, the bottom is 10 ft or deeper relative to MSL.

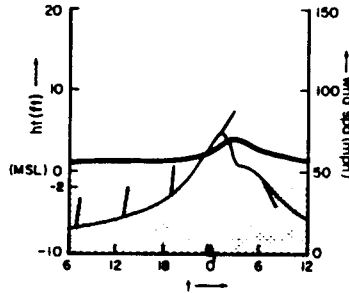
NOR-10MPH-CI-LS070



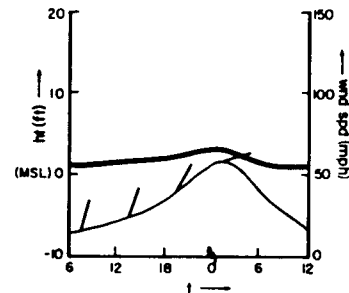
1. PORT MANSFIELD (48,8)



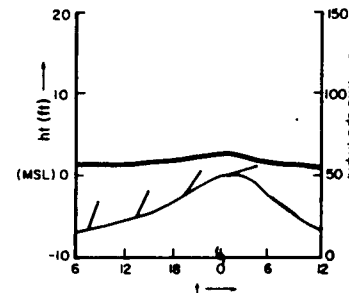
2. BAFFIN BAY (19,3)



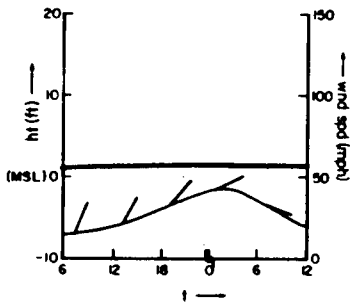
3. PADRI IS. RANGER STA. (24,35)



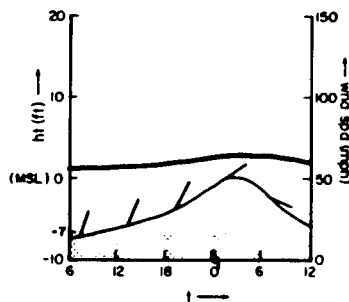
4. MUSTANG PASS (25,45)



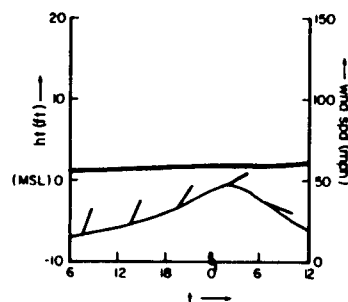
5. NAVAL AIR STA. (20,46)



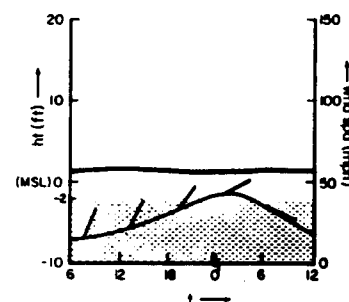
6. CORPUS CHRISTI (12,53)



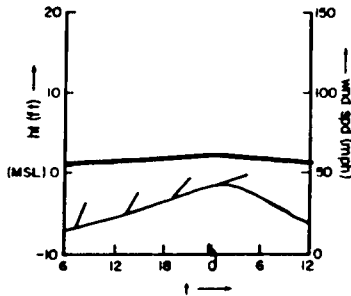
7. INGLESIDE (21,55)



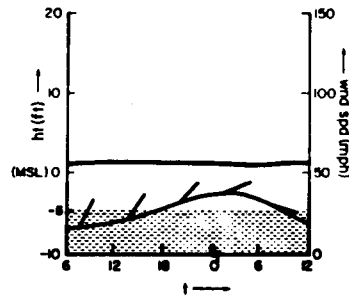
8. ARANSAS PASS (28,57)



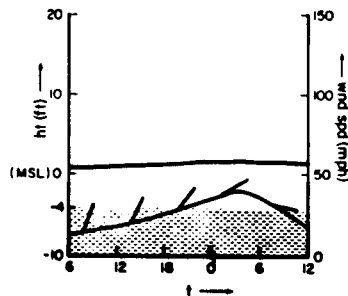
9. PORT ARANSAS (31,53)



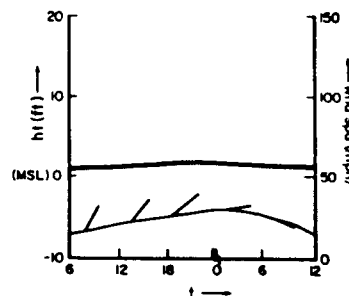
10. COPANO BRIDGE (35,63)



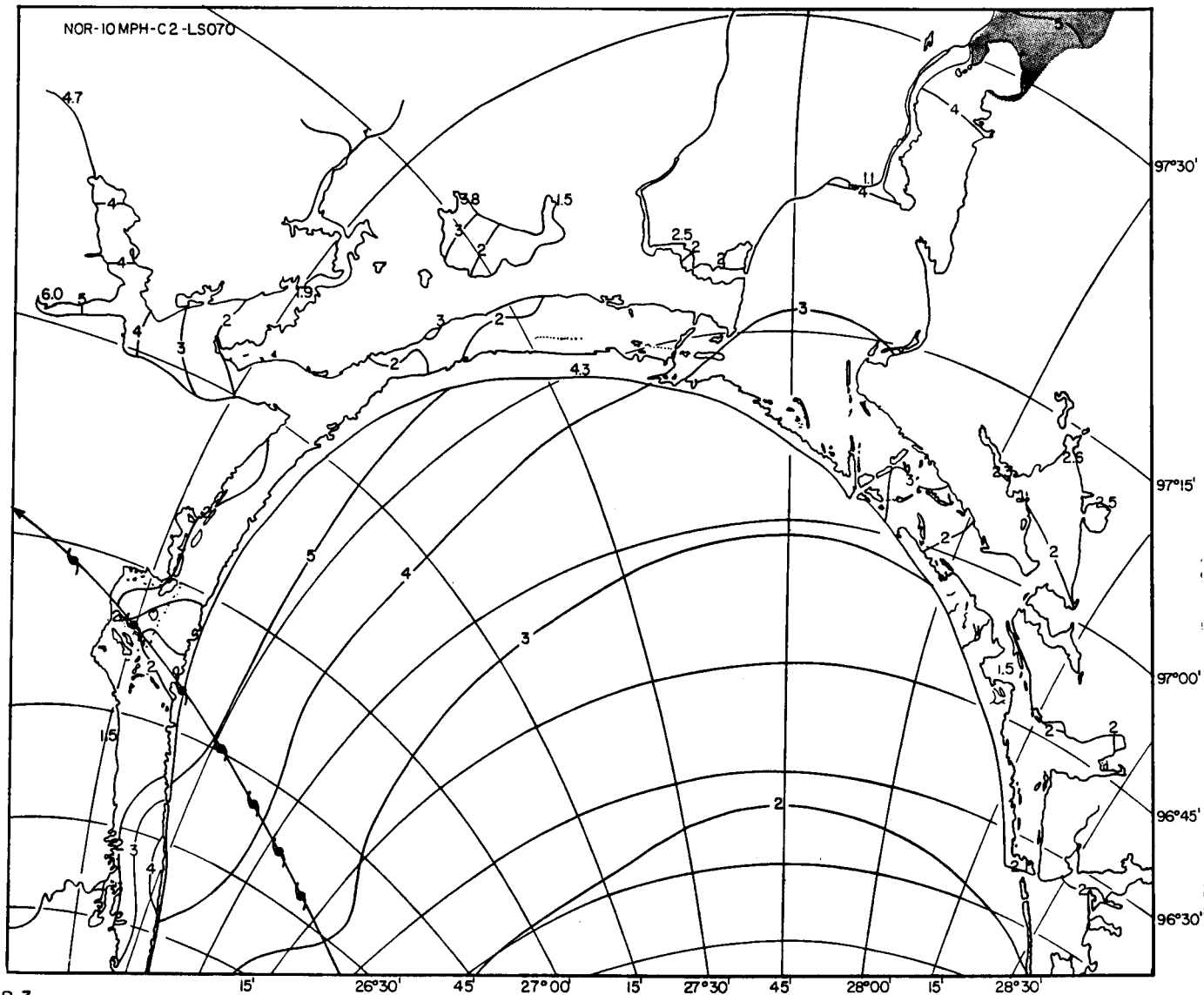
11. BAYSIDE (28,66)



12. MATAGORDA IS. (45,61)

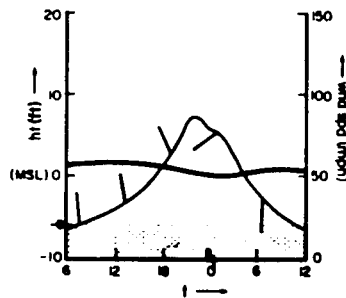


NOR-10MPH-C2-LS070

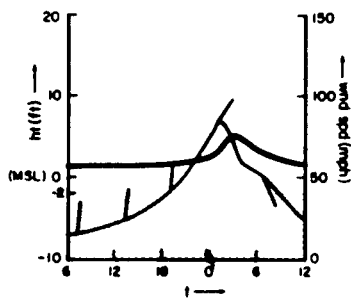




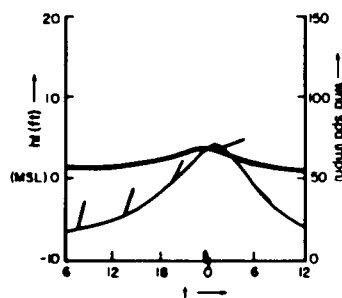
1. PORT MANSFIELD (48, 8)



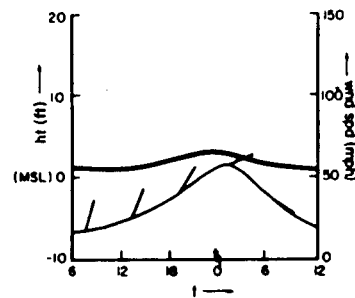
2. BAFFIN BAY (19, 3)



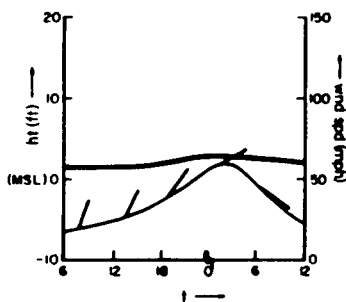
3. PADRI IS. RANGER STA. (24, 35)



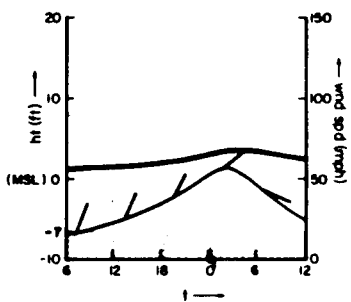
4. MUSTANG PASS (25, 45)



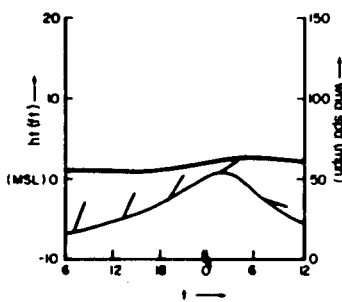
5. NAVAL AIR STA. (20, 46)



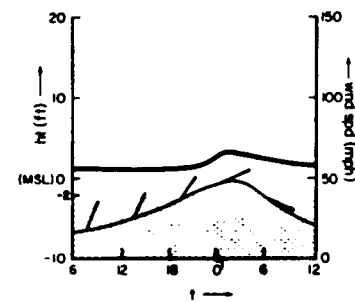
6. CORPUS CHRISTI (12, 53)



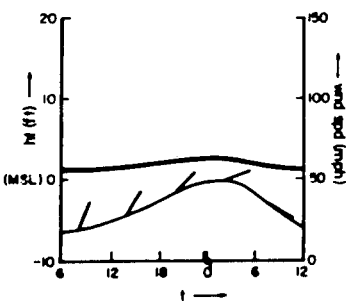
7. INGLESIDE (21, 55)



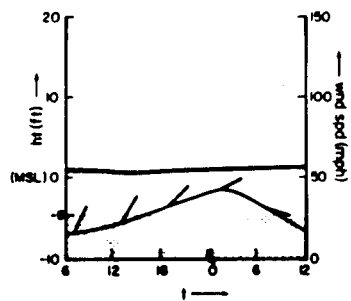
8. ARANSAS PASS (28, 57)



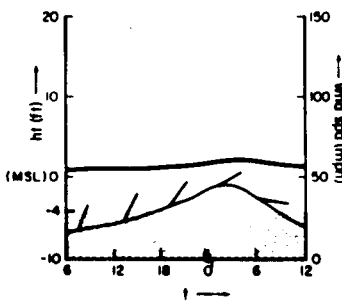
9. PORT ARANSAS (31, 53)



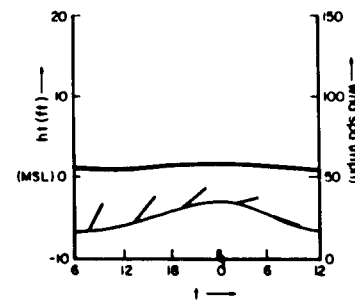
10. COPANO BRIDGE (35, 63)



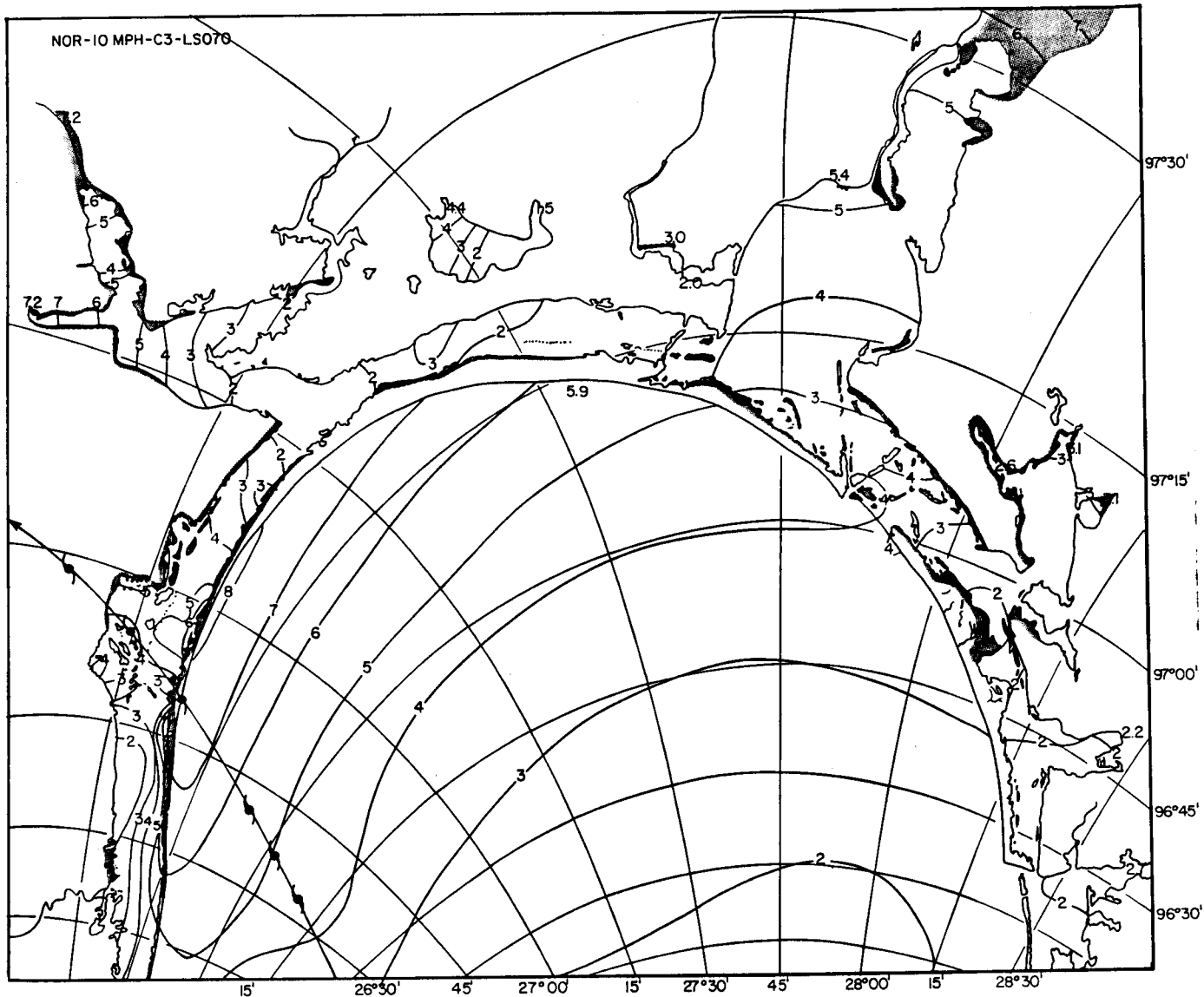
11. BAYSIDE (28, 66)



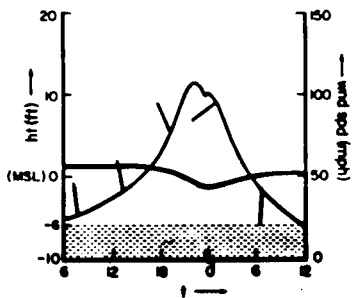
12. MATAGORDA IS. (45, 61)



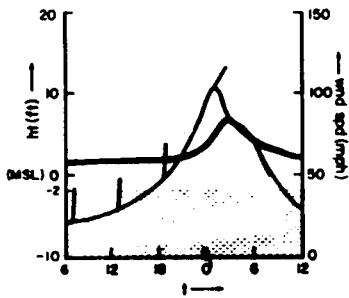
NOR-10 MPH-C3-LS070



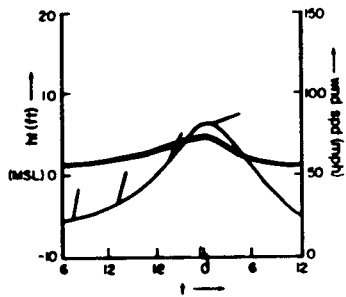
1. PORT MANSFIELD (48, 8)



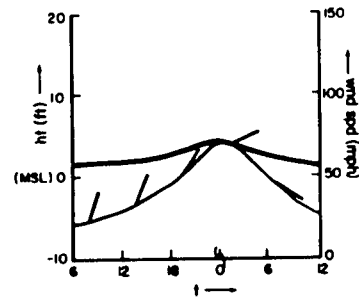
2. BAFFIN BAY (19, 3)



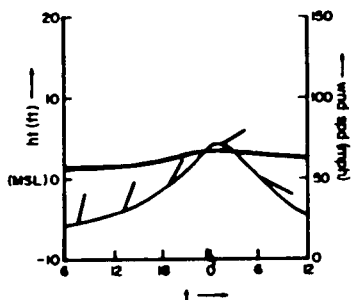
3. PADRI IS. RANGER STA. (24, 35)



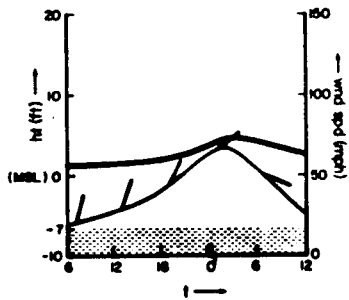
4. MUSTANG PASS (25, 45)



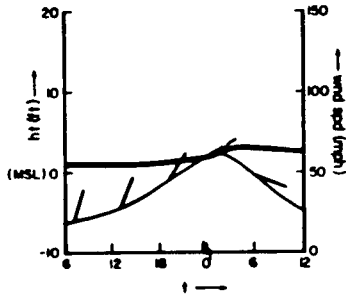
5. NAVAL AIR STA. (20, 46)



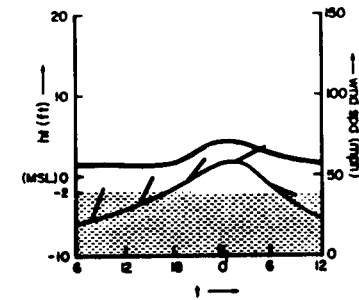
6. CORPUS CHRISTI (02, 53)



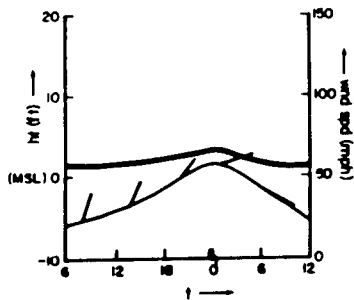
7. INGLESIDE (21, 55)



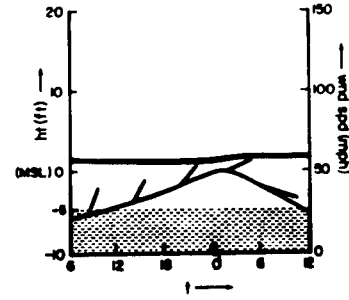
8. ARANSAS PASS (28, 57)



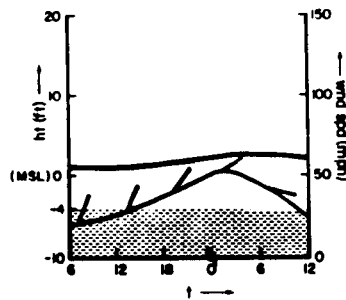
9. PORT ARANSAS (31, 53)



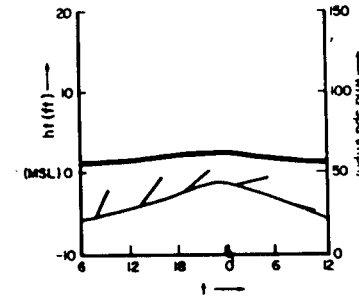
10. COPANO BRIDGE (35, 63)



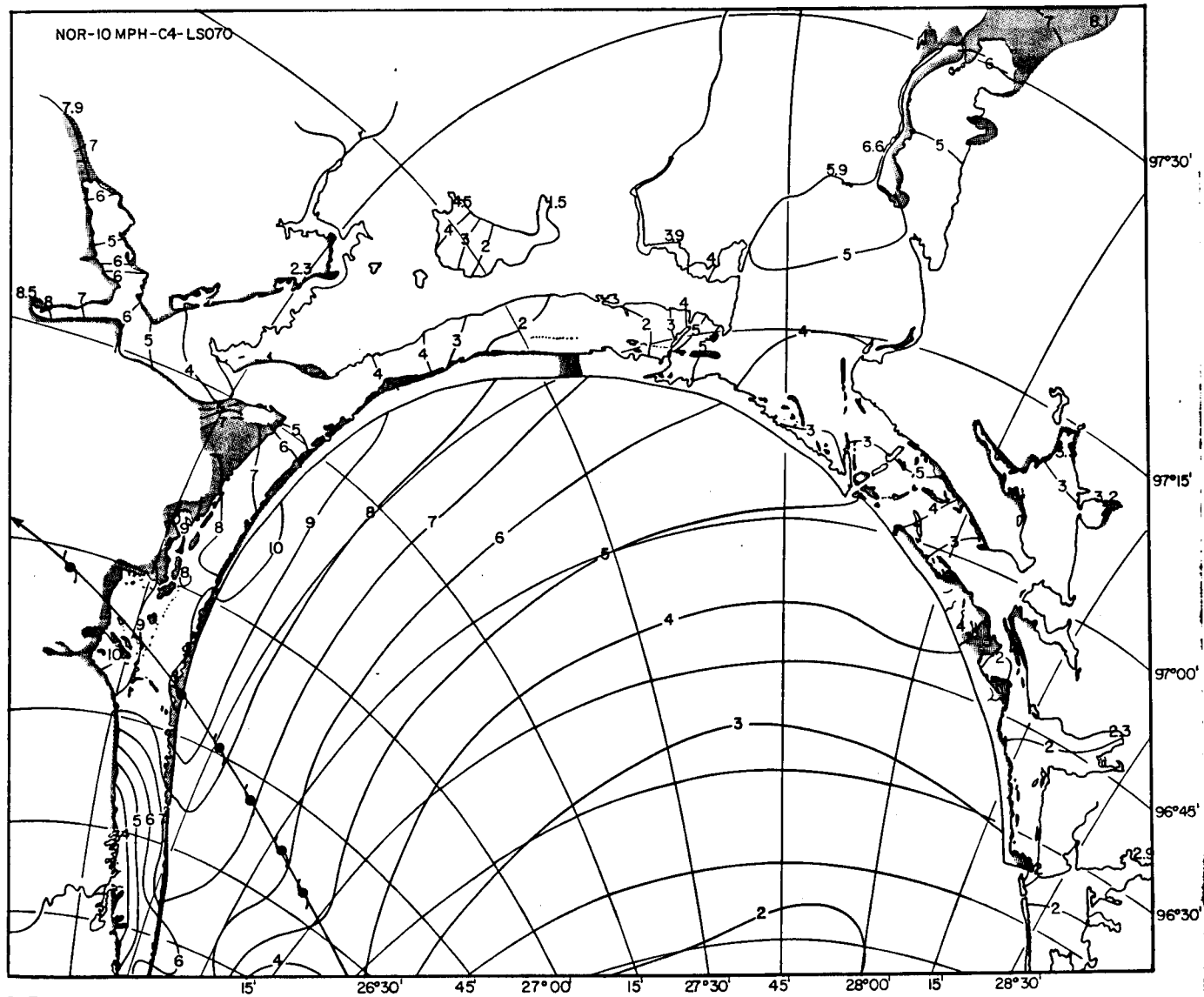
11. BAYSIDE (28, 66)



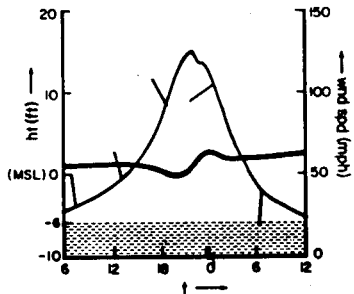
12. MATAGORDA IS. (45, 61)



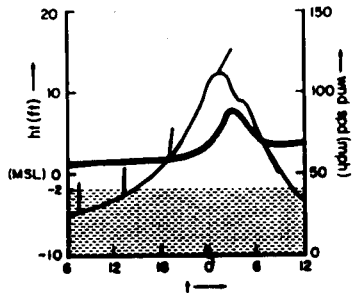
NOR-10 MPH-C4-LS070



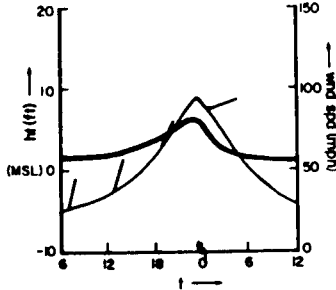
1. PORT MANSFIELD (48,8)



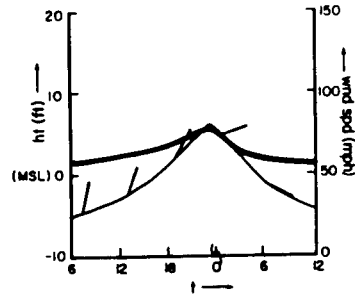
2. BAFFIN BAY (19,3)



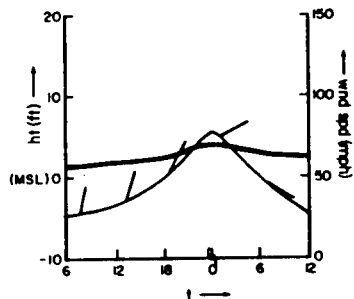
3. PADRI IS. RANGER STA. (24,35)



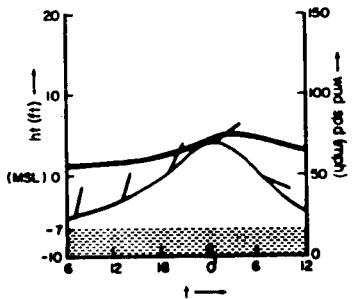
4. MUSTANG PASS (25,45)



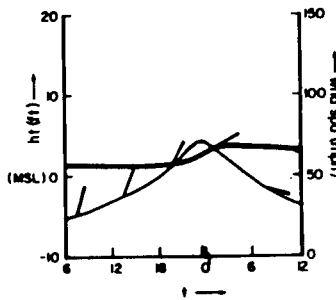
5. NAVAL AIR STA. (20,46)



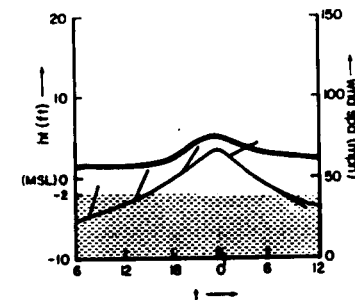
6. CORPUS CHRISTI (12,53)



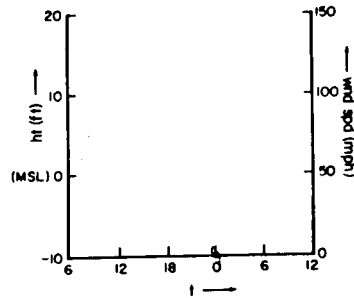
7. INGLESIDE (21,55)



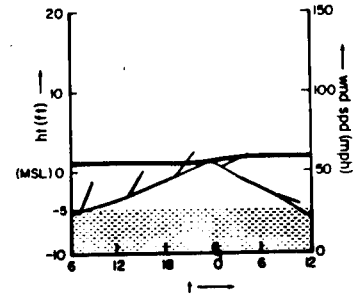
8. ARANSAS PASS (28,57)



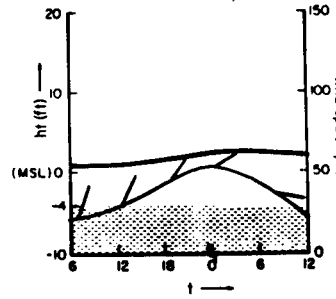
9. PORT ARANSAS (31,53)



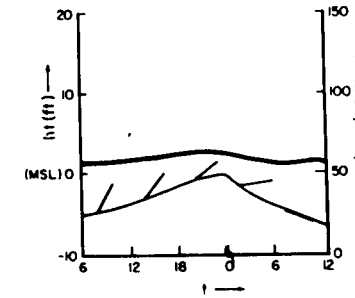
10. COPANO BRIDGE (35,63)



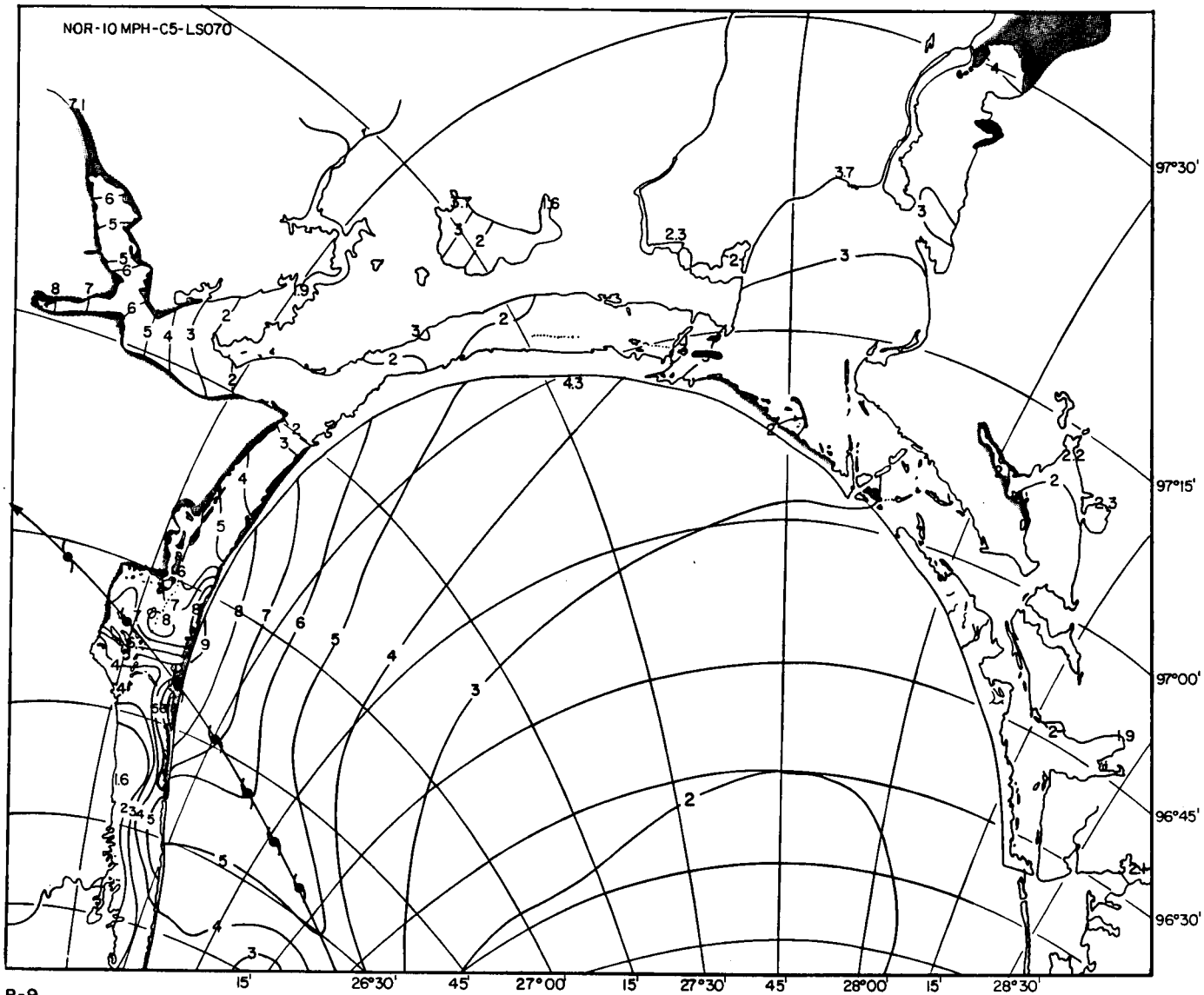
11. BAYSIDE (28,66)



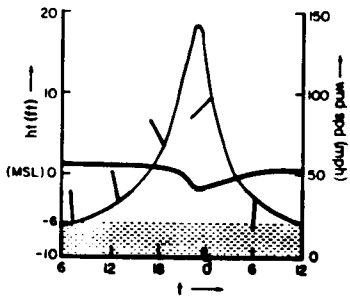
12. MATAGORDA IS. (45,61)



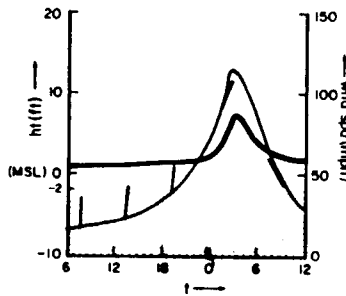
NOR-10 MPH-C5-LS070



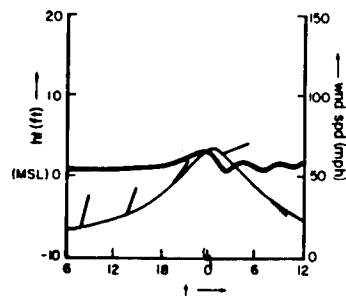
1. PORT MANSFIELD (48, 8)



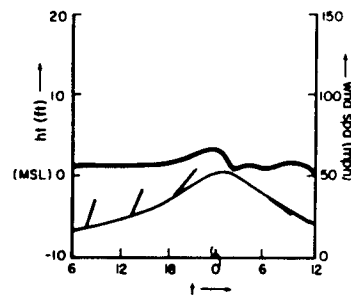
2. BAFFIN BAY (19, 3)



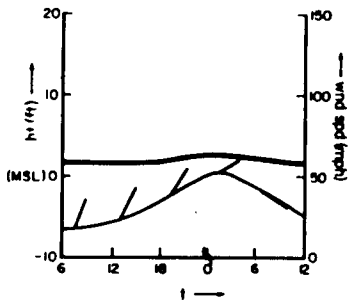
3. PADRI IS. RANGER STA. (24, 35)



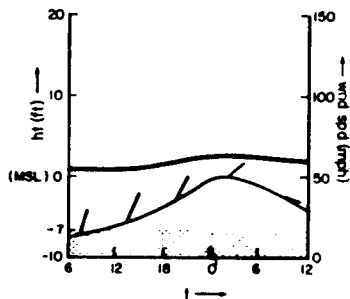
4. MUSTANG PASS (25, 45)



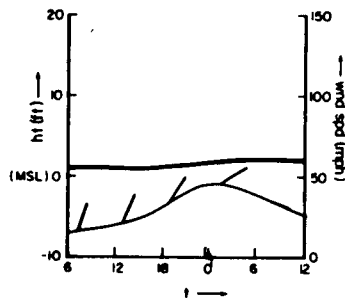
5. NAVAL AIR STA. (20, 46)



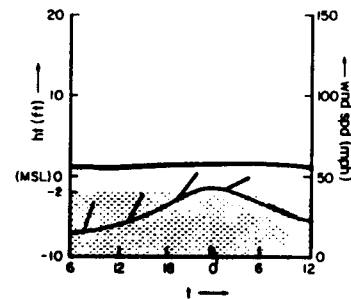
6. CORPUS CHRISTI (12, 53)



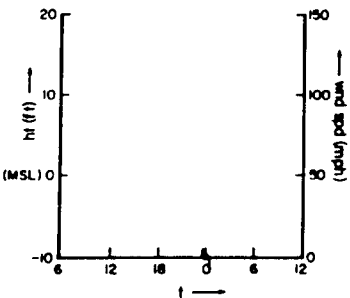
7. INGLESIDE (21, 55)



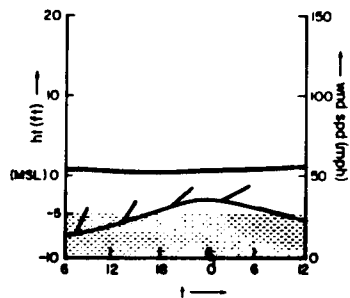
8. ARANSAS PASS (28, 57)



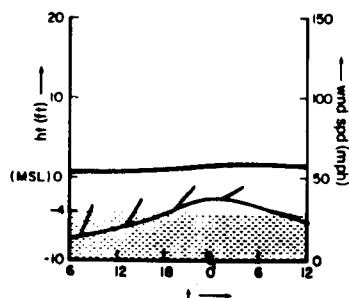
9. PORT ARANSAS (31, 53)



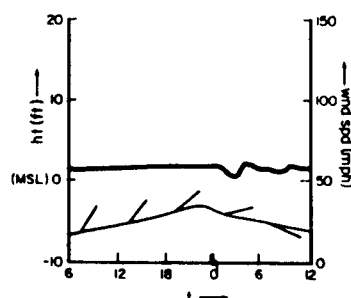
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)



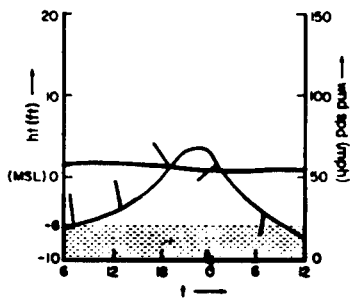
12. MATAGORDA IS. (45, 61)



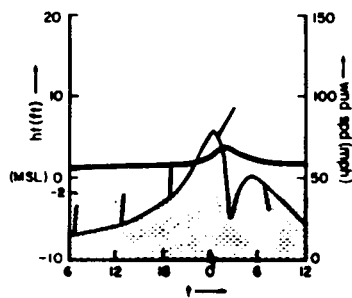




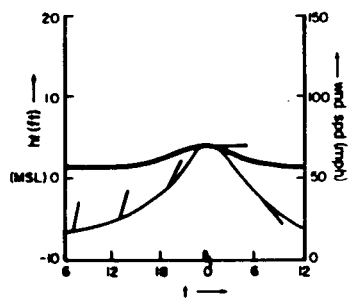
1. PORT MANSFIELD (48, 8)



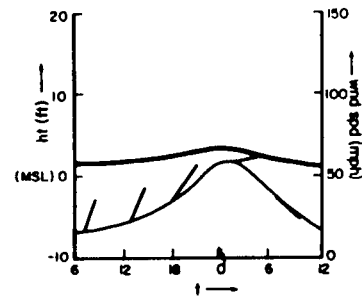
2. BAFFIN BAY (19, 3)



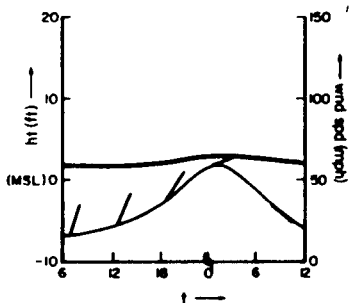
3. PADRI IS. RANGER STA. (24, 35)



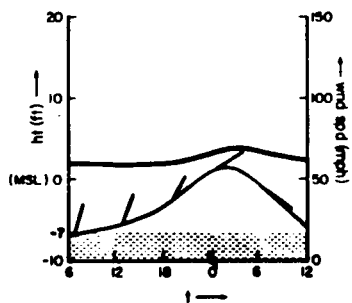
4. MUSTANG PASS (25, 45)



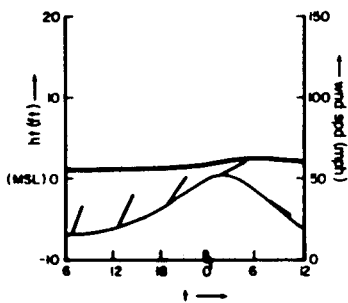
5. NAVAL AIR STA. (20, 46)



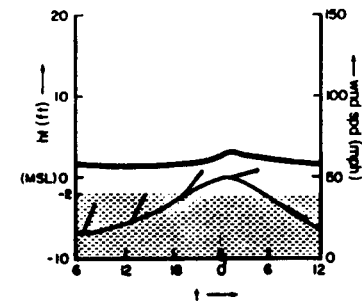
6. CORPUS CHRISTI (12, 53)



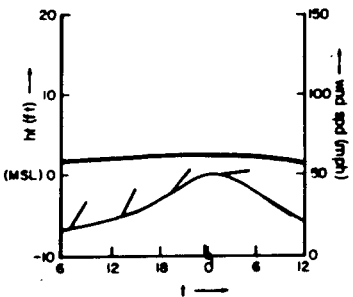
7. INGLESIDE (21, 55)



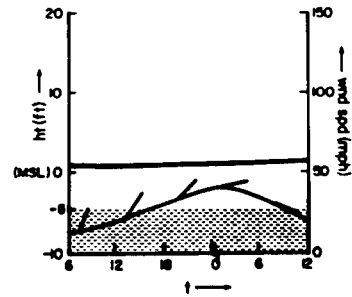
8. ARANSAS PASS (28, 57)



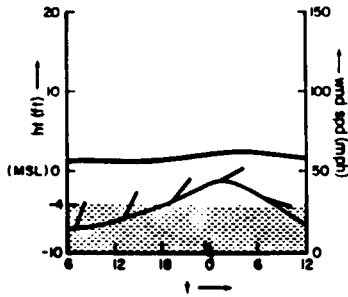
9. PORT ARANSAS (31, 53)



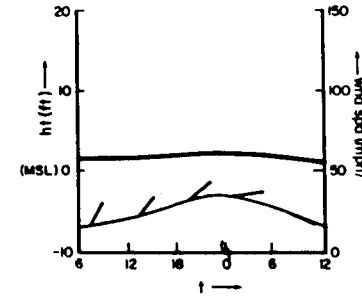
10. COPANO BRIDGE (35, 63)

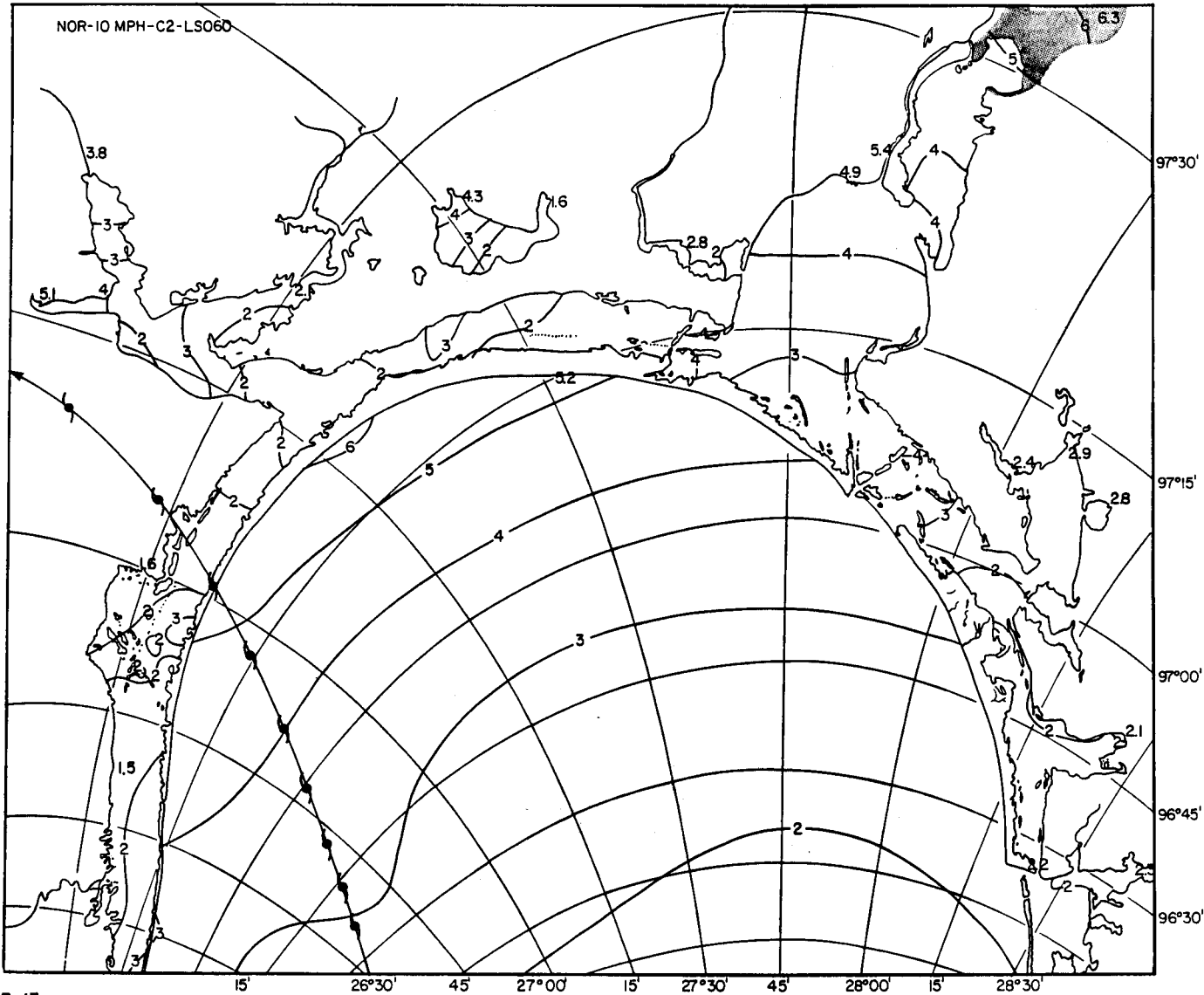


11. BAYSIDE (28, 66)

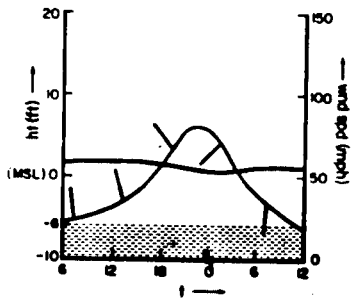


12. MATAGORDA IS. (45, 61)

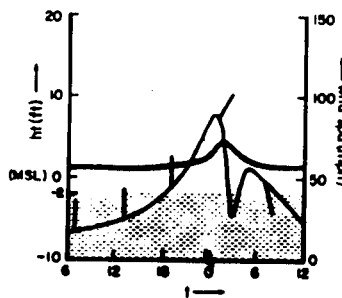




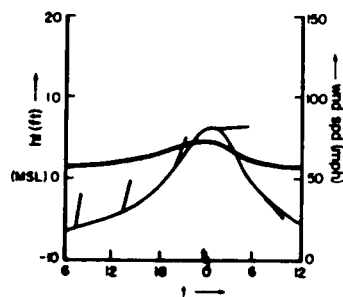
1. PORT MANSFIELD (48, 8)



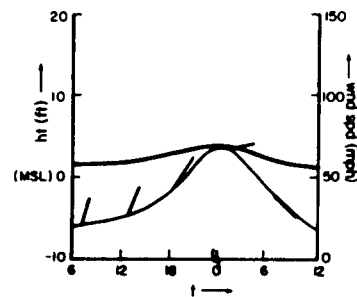
2. BAFFIN BAY (19, 3)



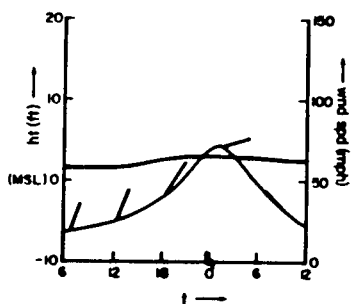
3. PADRI IS. RANGER STA. (24, 35)



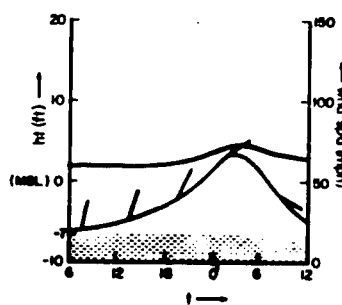
4. MUSTANG PASS (25, 45)



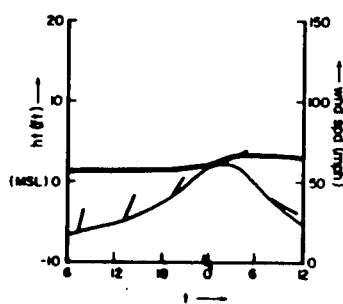
5. NAVAL AIR STA. (20, 46)



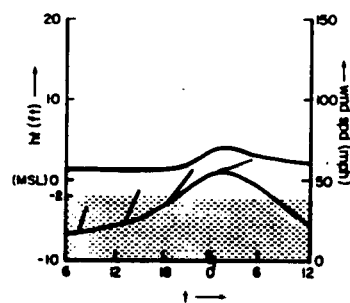
6. CORPUS CHRISTI (12, 53)



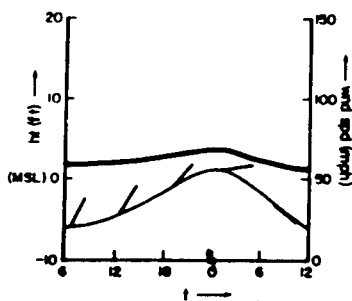
7. INGLESIDE (21, 55)



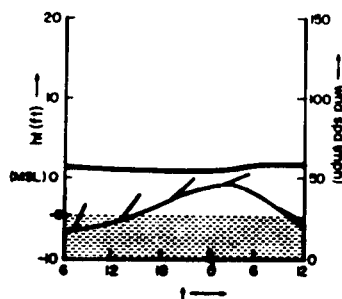
8. ARANSAS PASS (28, 57)



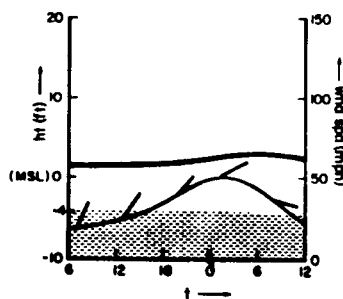
9. PORT ARANSAS (31, 53)



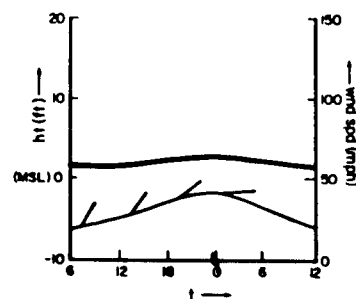
10. COPANO BRIDGE (35, 63)



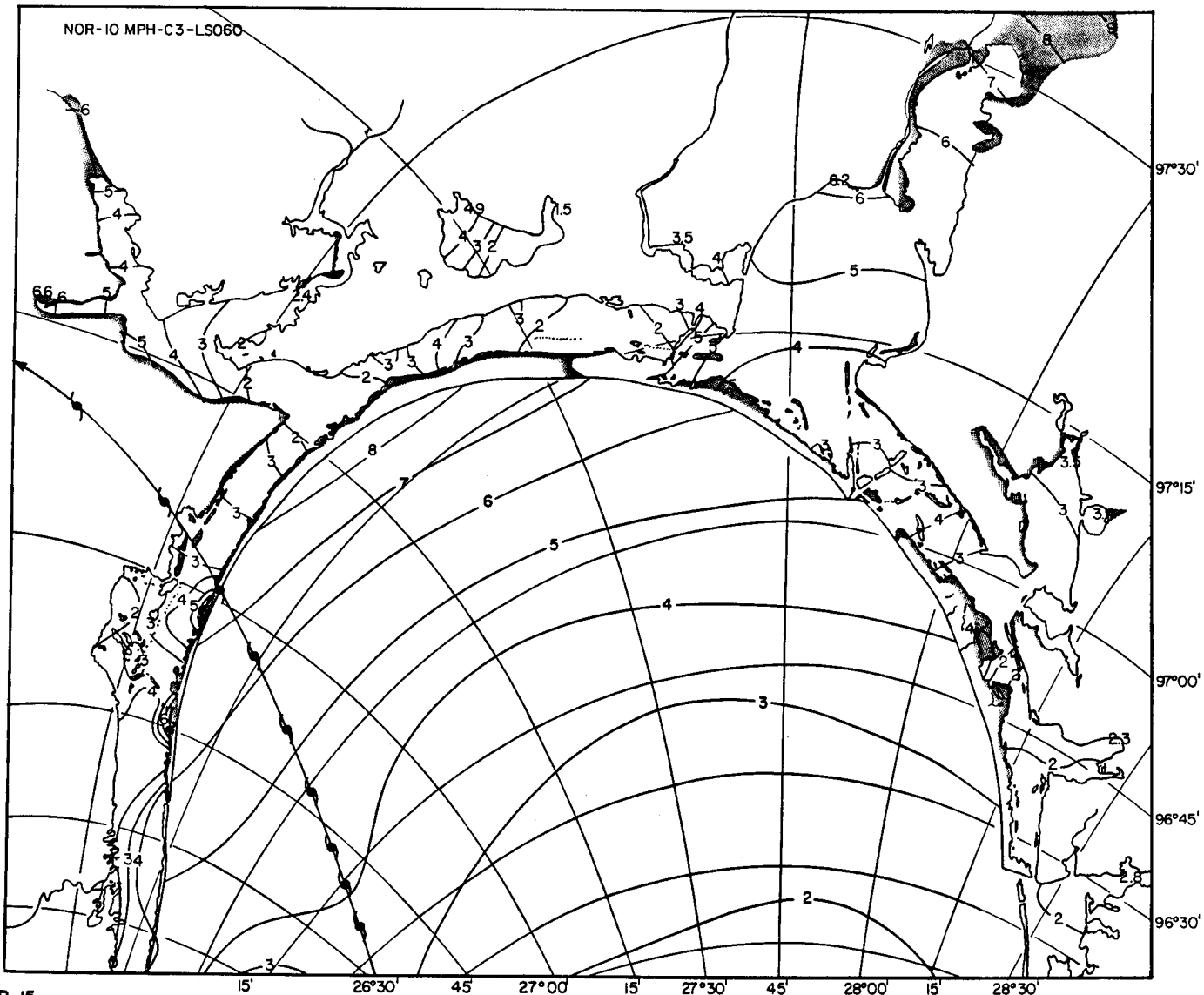
11. BAYSIDE (28, 66)



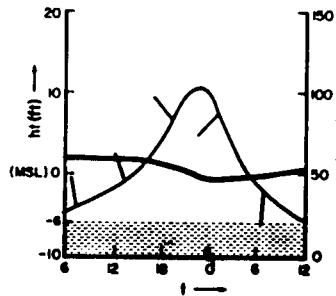
12. MATAGORDA IS. (45, 61)



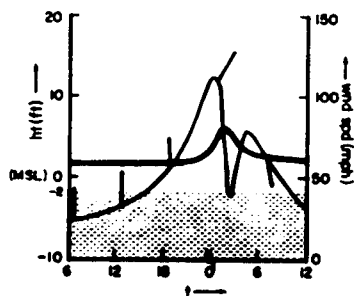
NOR-10 MPH-C3-LS060



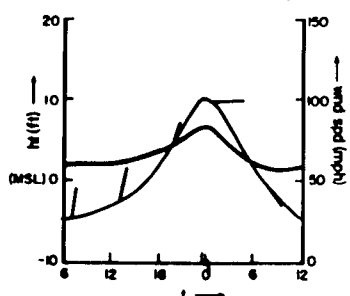
1. PORT MANSFIELD (48, 8)



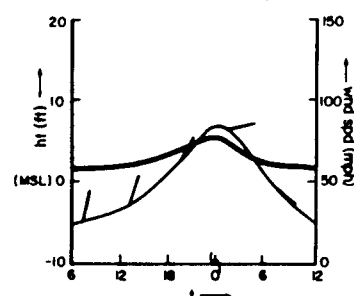
2. BAFFIN BAY (19, 3)



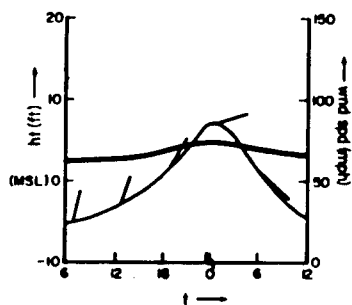
3. PADRI IS. RANGER STA. (24, 35)



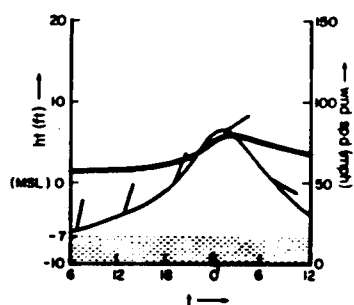
4. MUSTANG PASS (25, 45)



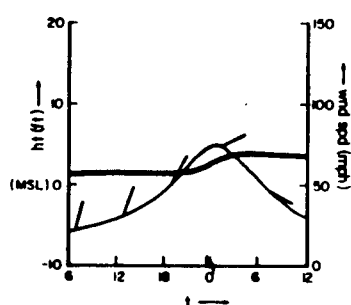
5. NAVAL AIR STA. (20, 46)



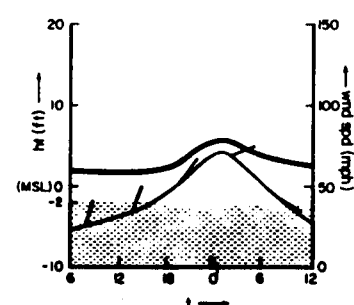
6. CORPUS CHRISTI (12, 53)



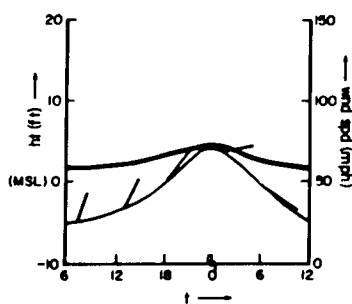
7. INGLESIDE (21, 55)



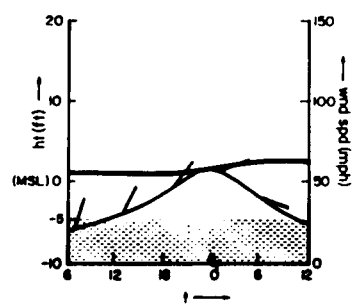
8. ARANSAS PASS (28, 57)



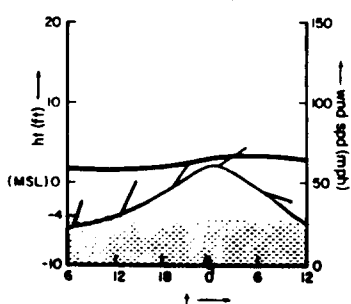
9. PORT ARANSAS (31, 53)



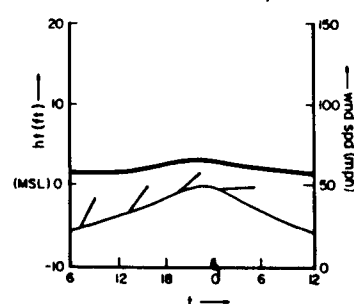
10. COPANO BRIDGE (35, 63)



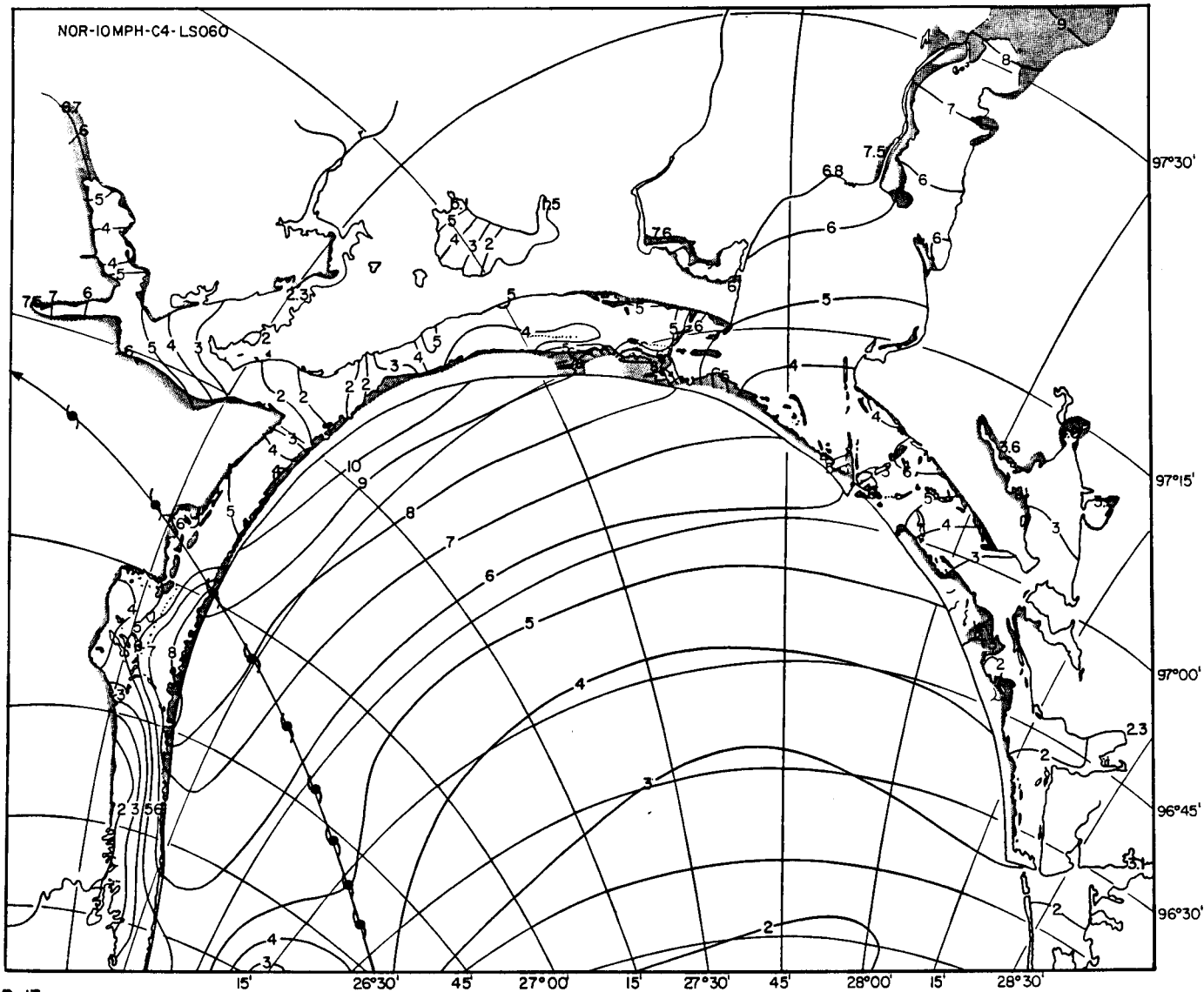
11. BAYSIDE (28, 66)



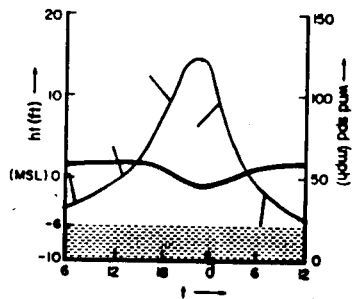
12. MATAGORDA IS. (45, 61)



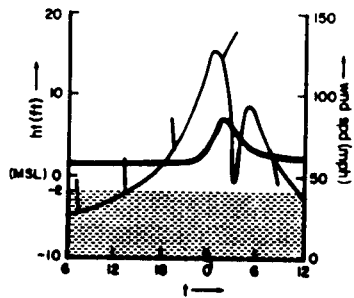
NOR-10MPH-C4-LS060



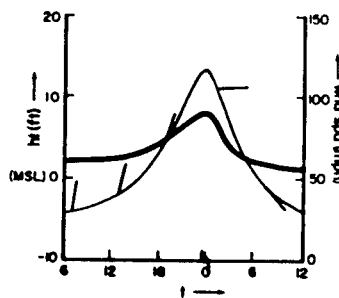
1. PORT MANSFIELD (48, 8)



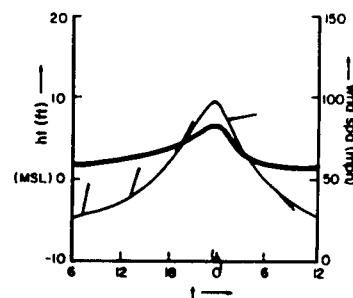
2. BAFFIN BAY (19, 3)



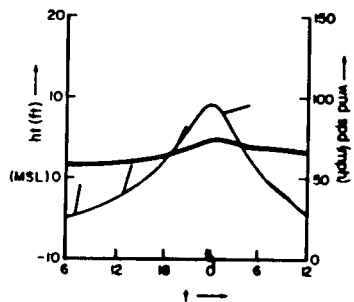
3. PADRI IS. RANGER STA (24, 35)



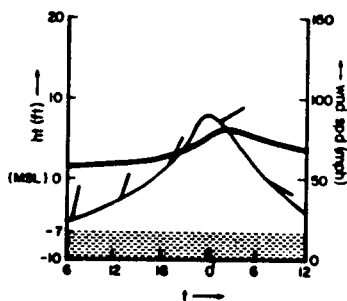
4. MUSTANG PASS (25, 45)



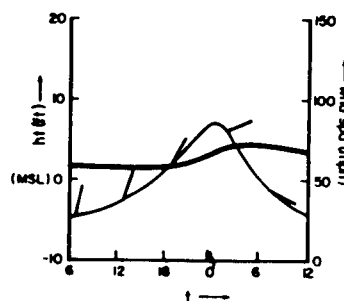
5. NAVAL AIR STA. (20, 46)



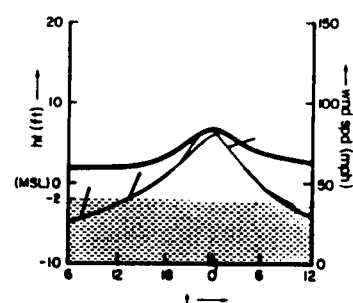
6. CORPUS CHRISTI (12, 53)



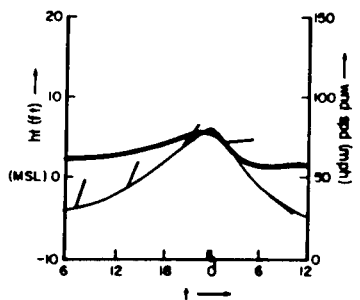
7. INGLESIDE (21, 55)



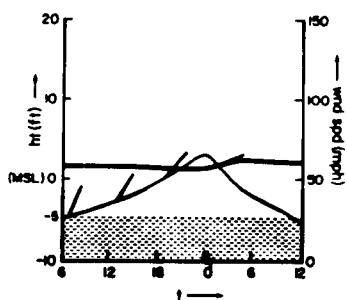
8. ARANSAS PASS (28, 57)



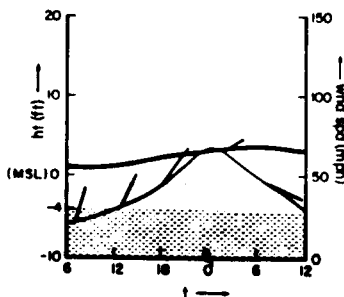
9. PORT ARANSAS (31, 53)



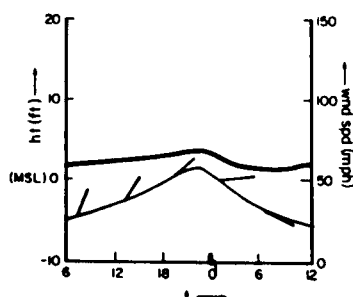
10. COPANO BRIDGE (35, 63)



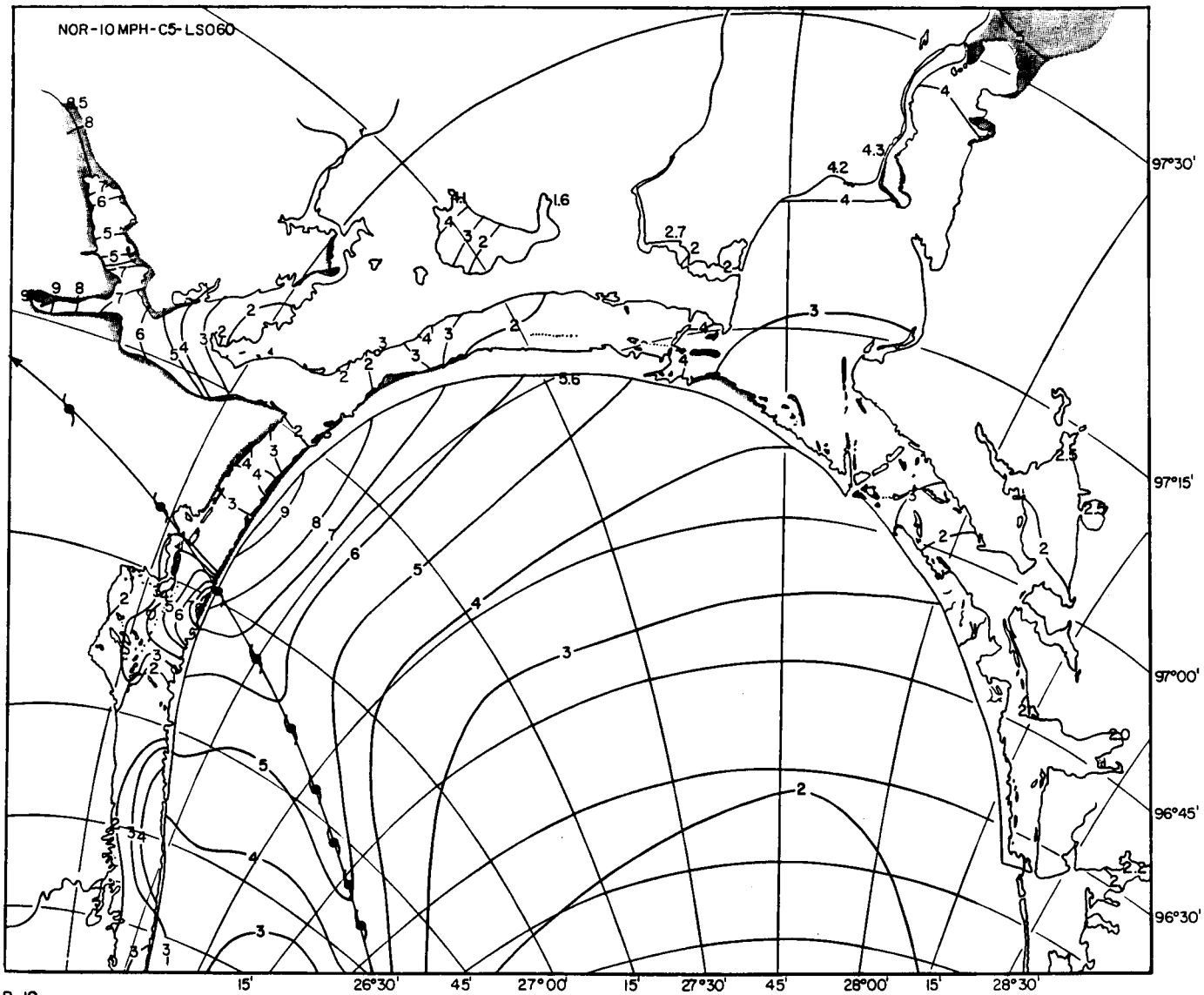
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

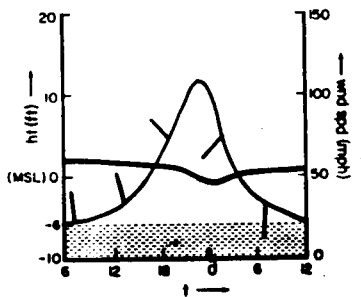


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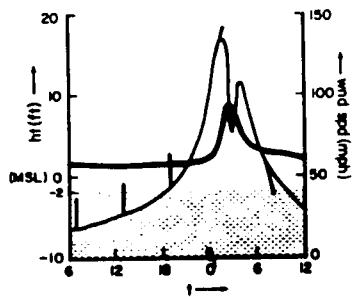




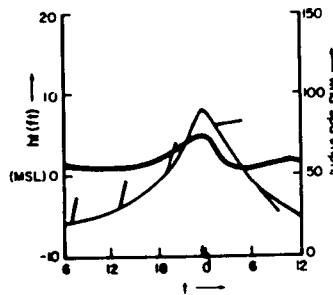
1. PORT MANSFIELD (48, 8)



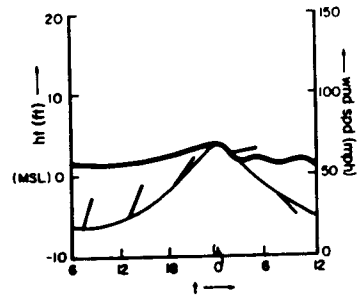
2. BAFFIN BAY (19, 3)



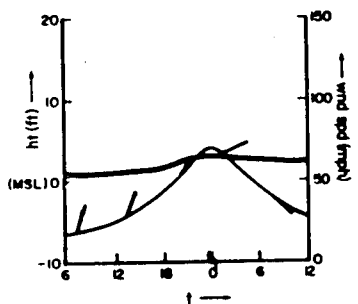
3. PADRI IS. RANGER STA. (24, 35)



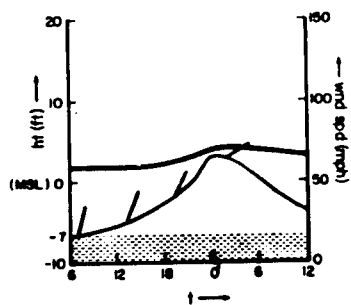
4. MUSTANG PASS (25, 45)



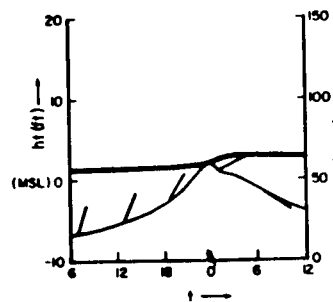
5. NAVAL AIR STA. (20, 46)



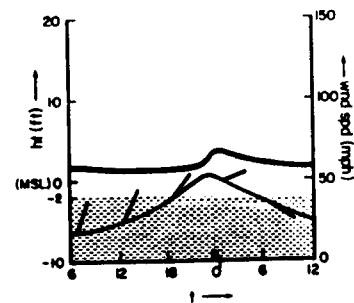
6. CORPUS CHRISTI (2, 53)



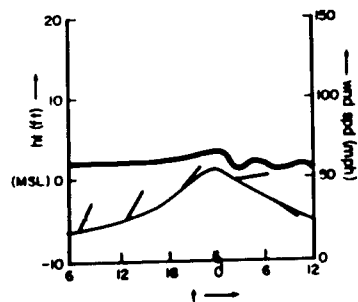
7. INGLESIDE (21, 55)



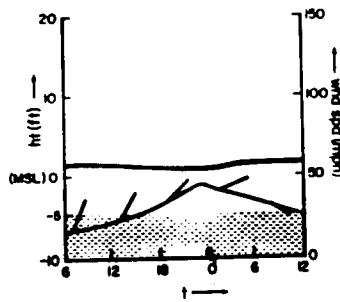
8. ARANSAS PASS (28, 57)



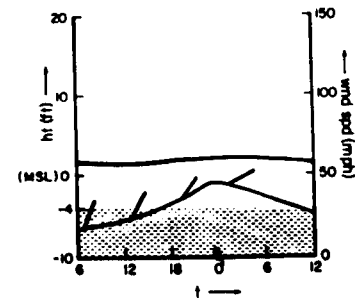
9. PORT ARANSAS (31, 53)



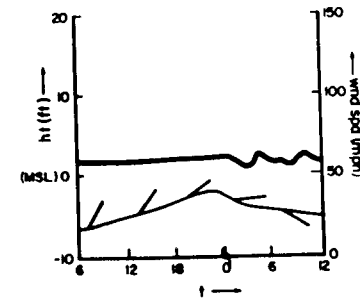
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)

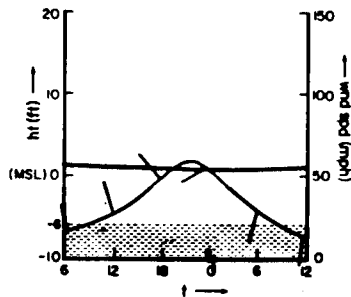


12. MATAGORDA IS. (45, 61)

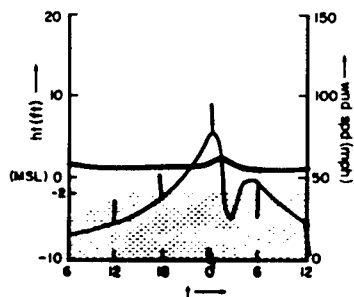




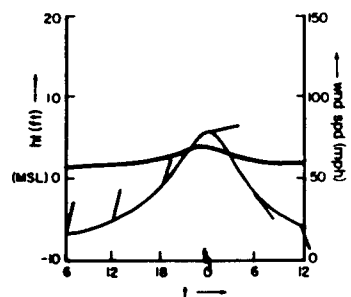
1. PORT MANSFIELD (48,8)



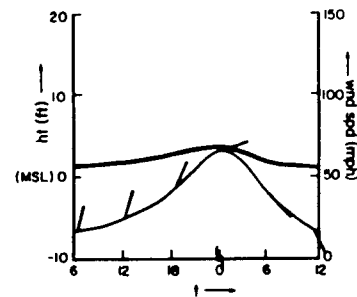
2. BAFFIN BAY (19,3)



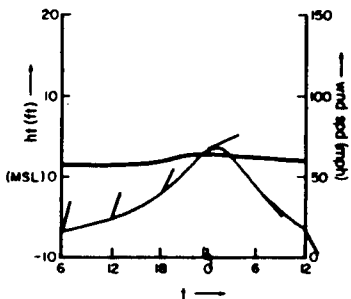
3. PADRI IS. RANGER STA. (24,35)



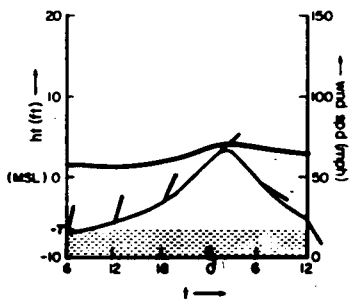
4. MUSTANG PASS (25,45)



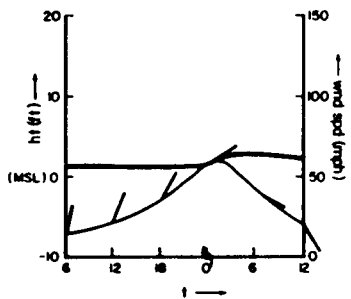
5. NAVAL AIR STA. (20,46)



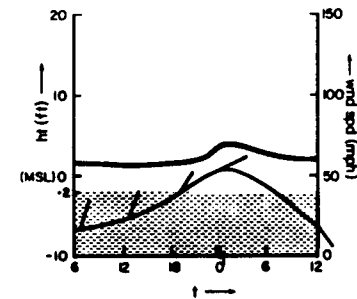
6. CORPUS CHRISTI (12,53)



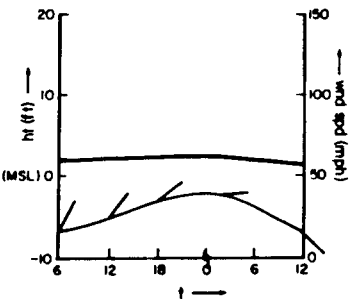
7. INGLESIDE (21,55)



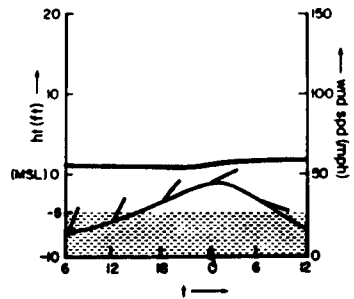
8. ARANSAS PASS (28,57)



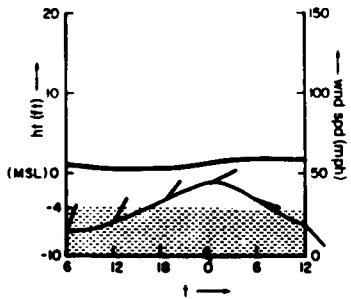
9. PORT ARANSAS (31,53)



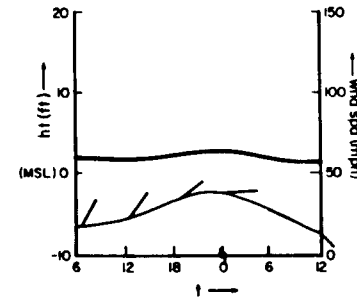
10. COPANO BRIDGE (35,63)



11. BAYSIDE (28,66)

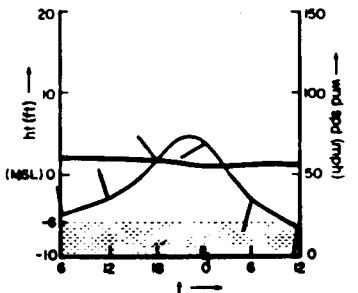


12. MATAGORDA IS. (45,61)

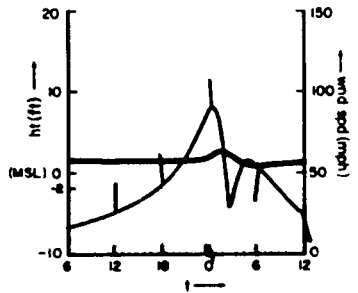




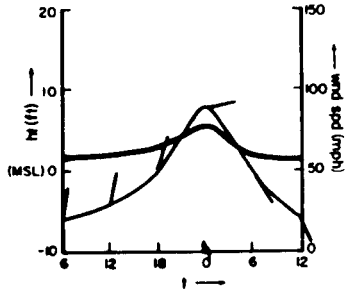
1. PORT MANSFIELD (48,8)



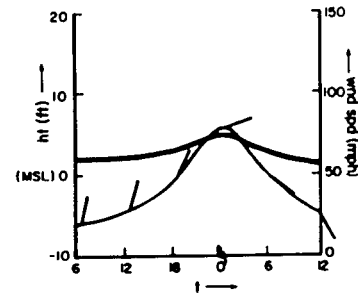
2. BAFFIN BAY (19,3)



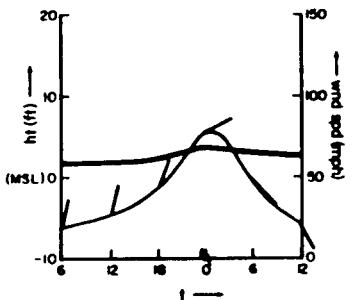
3. PADRI IS. RANGER STA. (24,35)



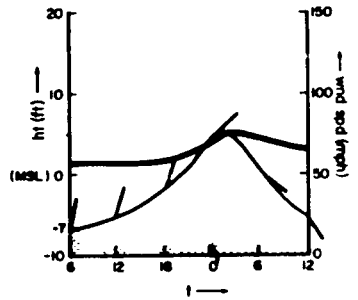
4. MUSTANG PASS (25,45)



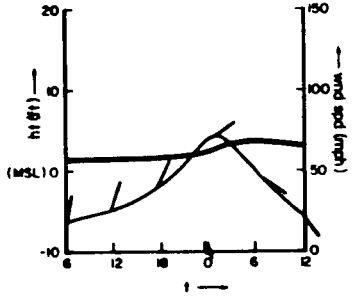
5. NAVAL AIR STA. (20,46)



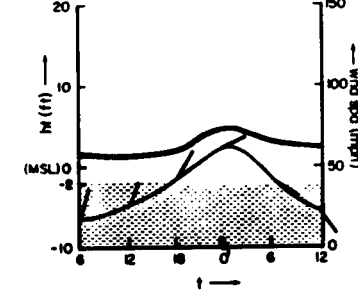
6. CORPUS CHRISTI (12,53)



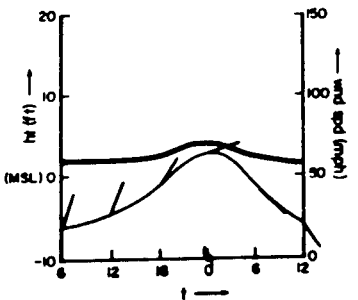
7. INGLESIDE (21,55)



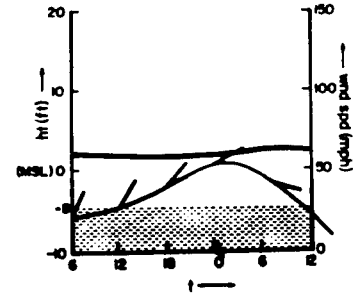
8. ARANSAS PASS (28,57)



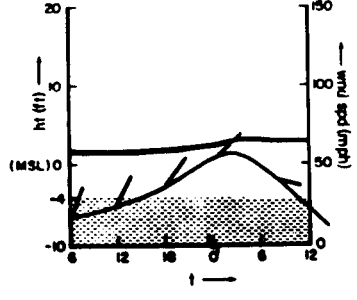
9. PORT ARANSAS (31,53)



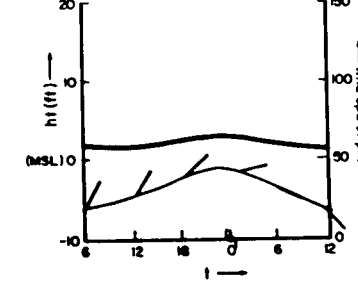
10. COPANO BRIDGE (35,63)



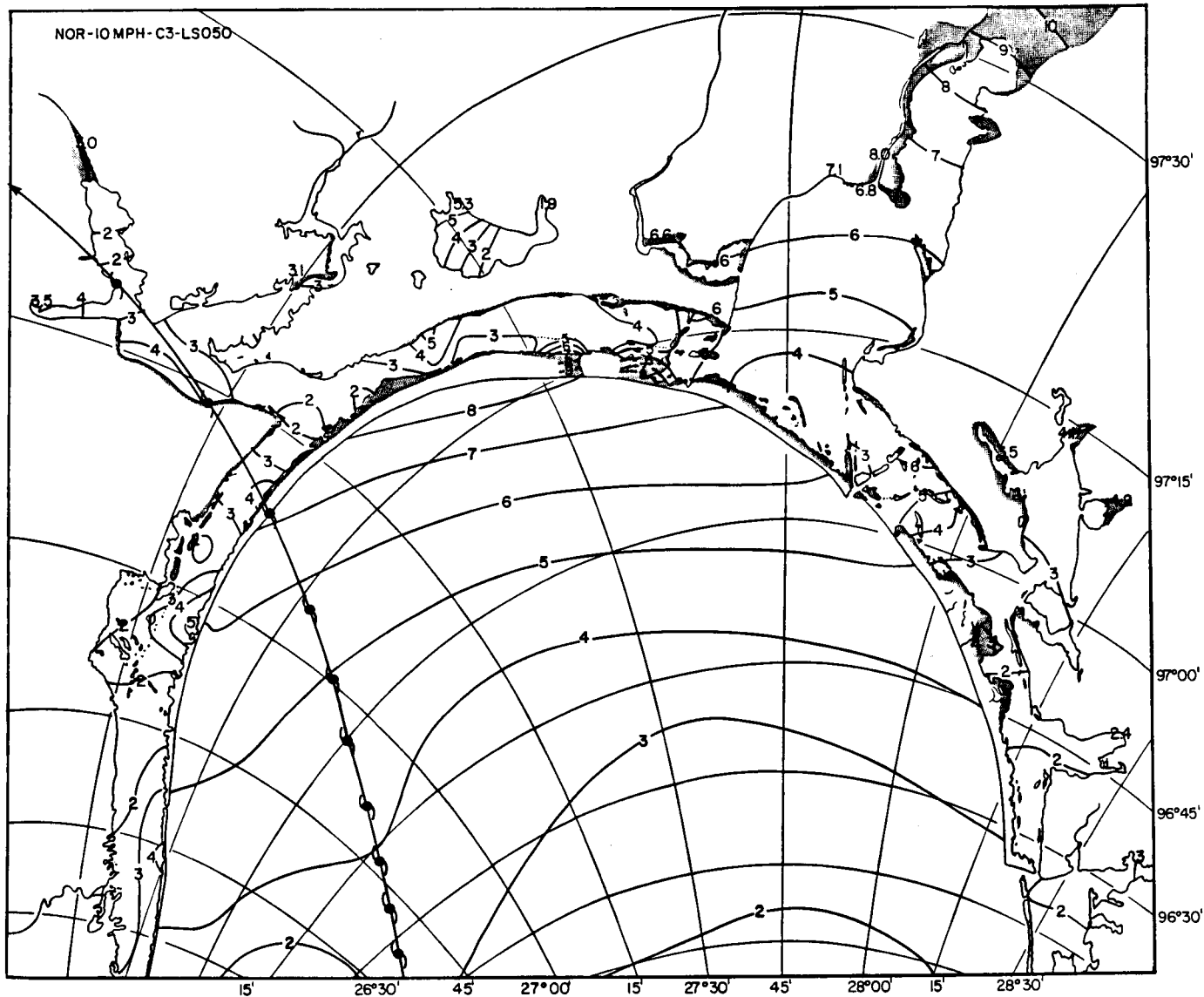
11. BAYSIDE (28,66)



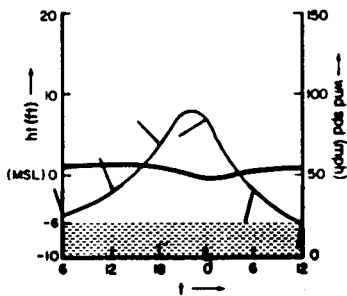
12. MATAGORDA IS. (45,61)



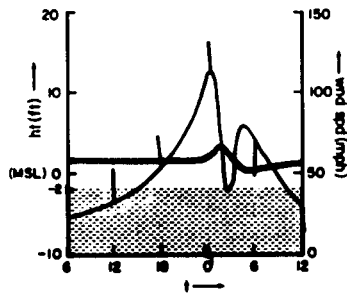
NOR-10 MPH - C3-LS050



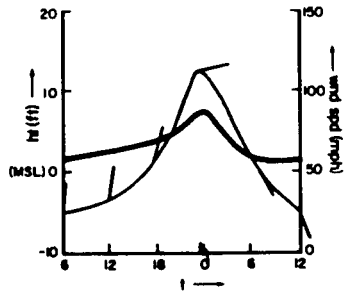
1. PORT MANSFIELD (48, 8)



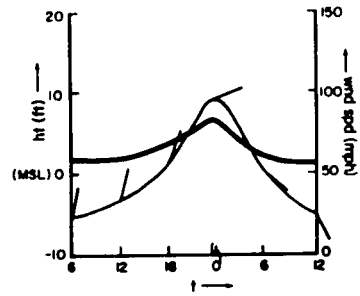
2. BAFFIN BAY (19, 3)



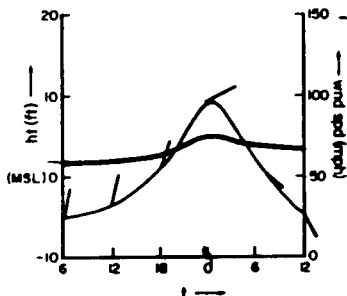
3. PADRI IS. RANGER STA. (24, 35)



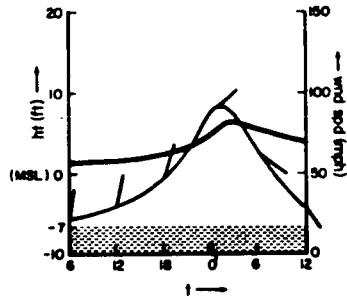
4. MUSTANG PASS (25, 45)



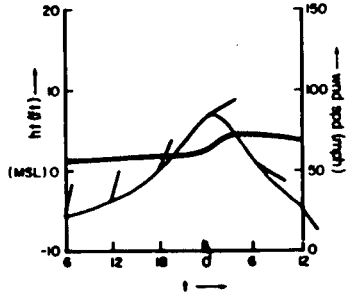
5. NAVAL AIR STA. (20, 46)



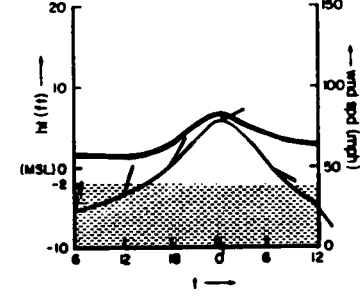
6. CORPUS CHRISTI (12, 53)



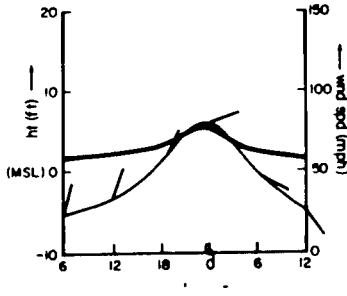
7. INGLESIDE (21, 55)



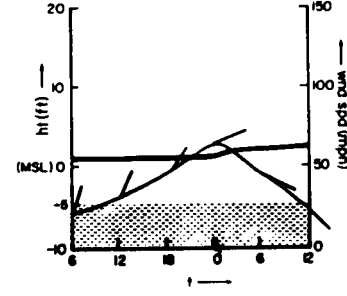
8. ARANSAS PASS (28, 57)



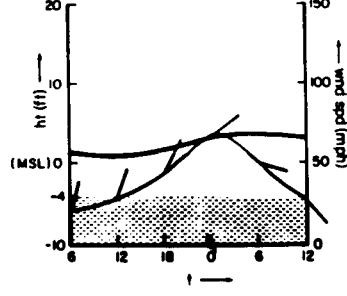
9. PORT ARANSAS (31, 53)



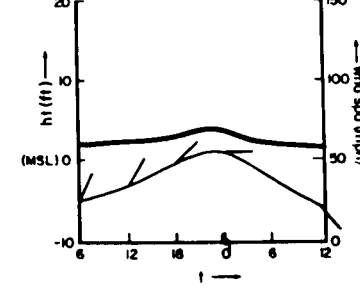
10. COPANO BRIDGE (35, 63)



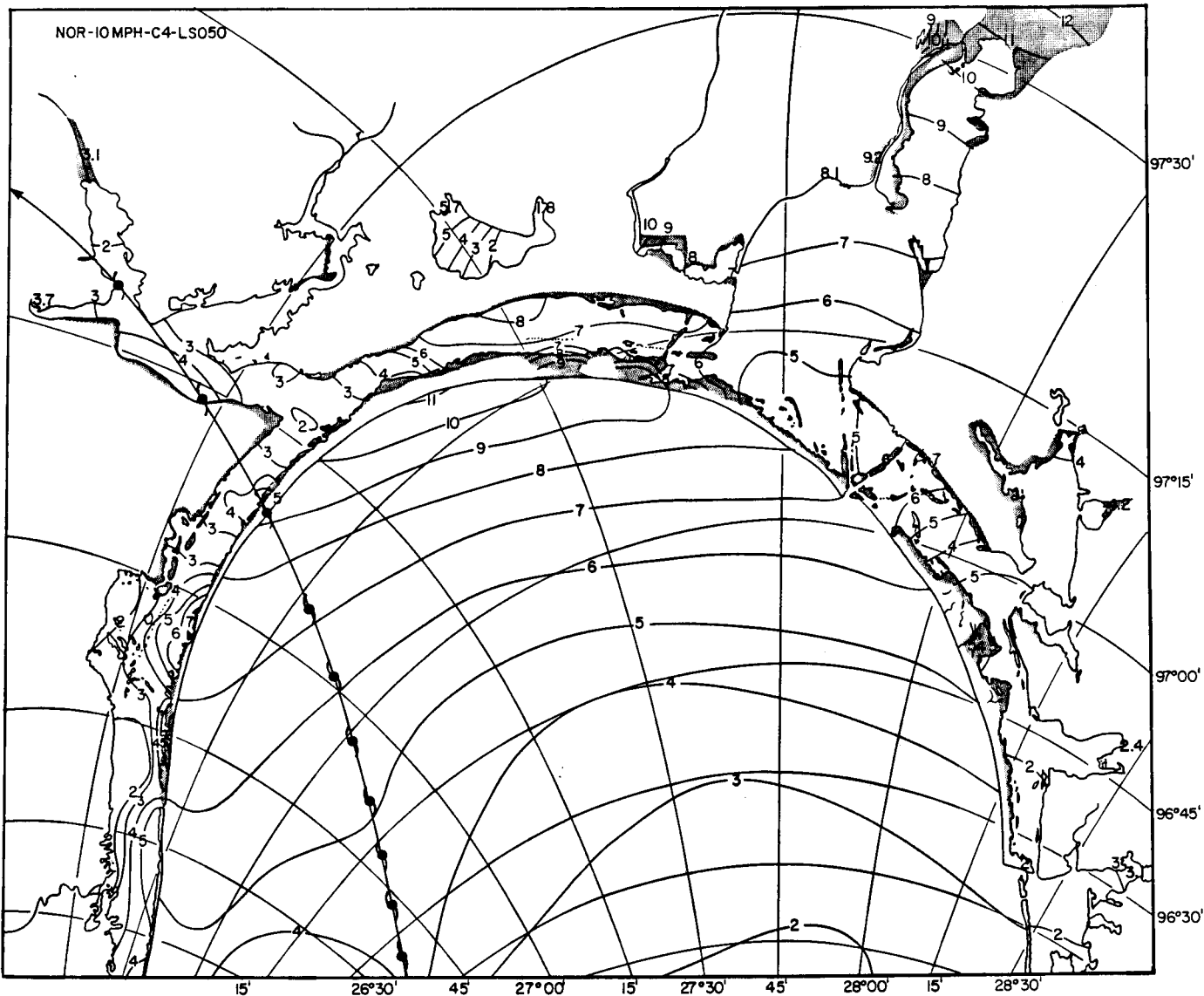
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

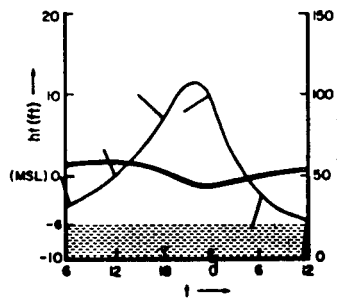


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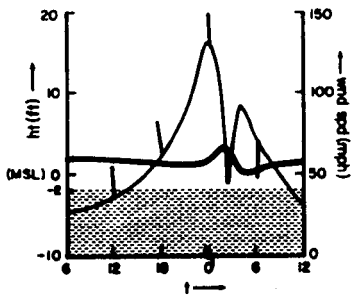




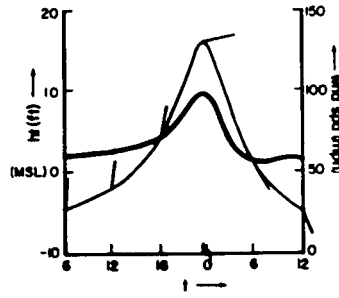
1. PORT MANSFIELD (48,8)



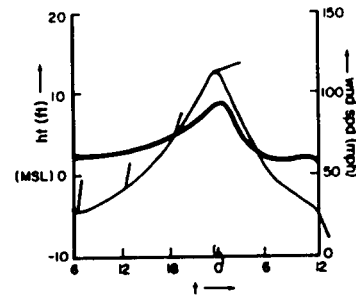
2. BAFFIN BAY (19,3)



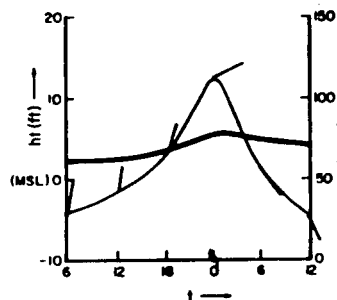
3. PADRI IS. RANGER STA. (24,35)



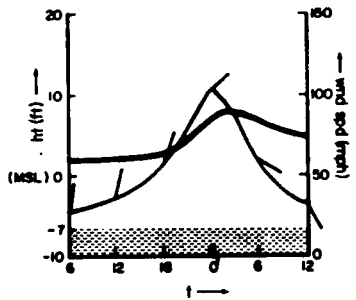
4. MUSTANG PASS (25,45)



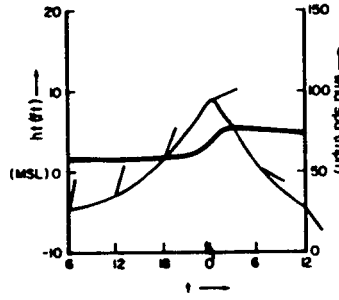
5. NAVAL AIR STA. (20,46)



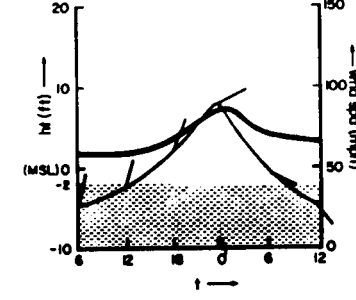
6. CORPUS CHRISTI (22,53)



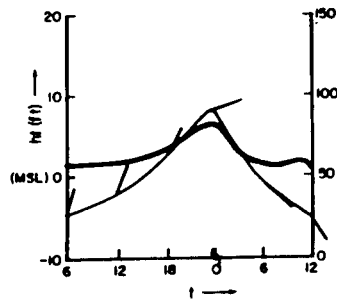
7. INGLESIDE (21,55)



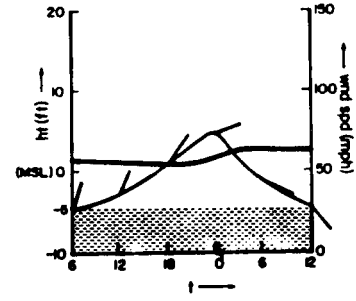
8. ARANSAS PASS (28,57)



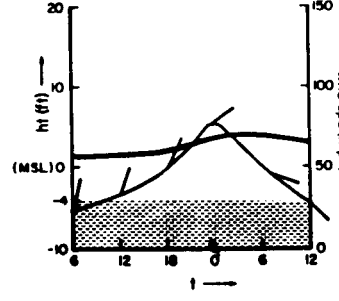
9. PORT ARANSAS (31,53)



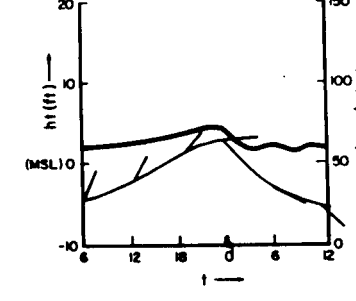
10. COPANO BRIDGE (35,63)



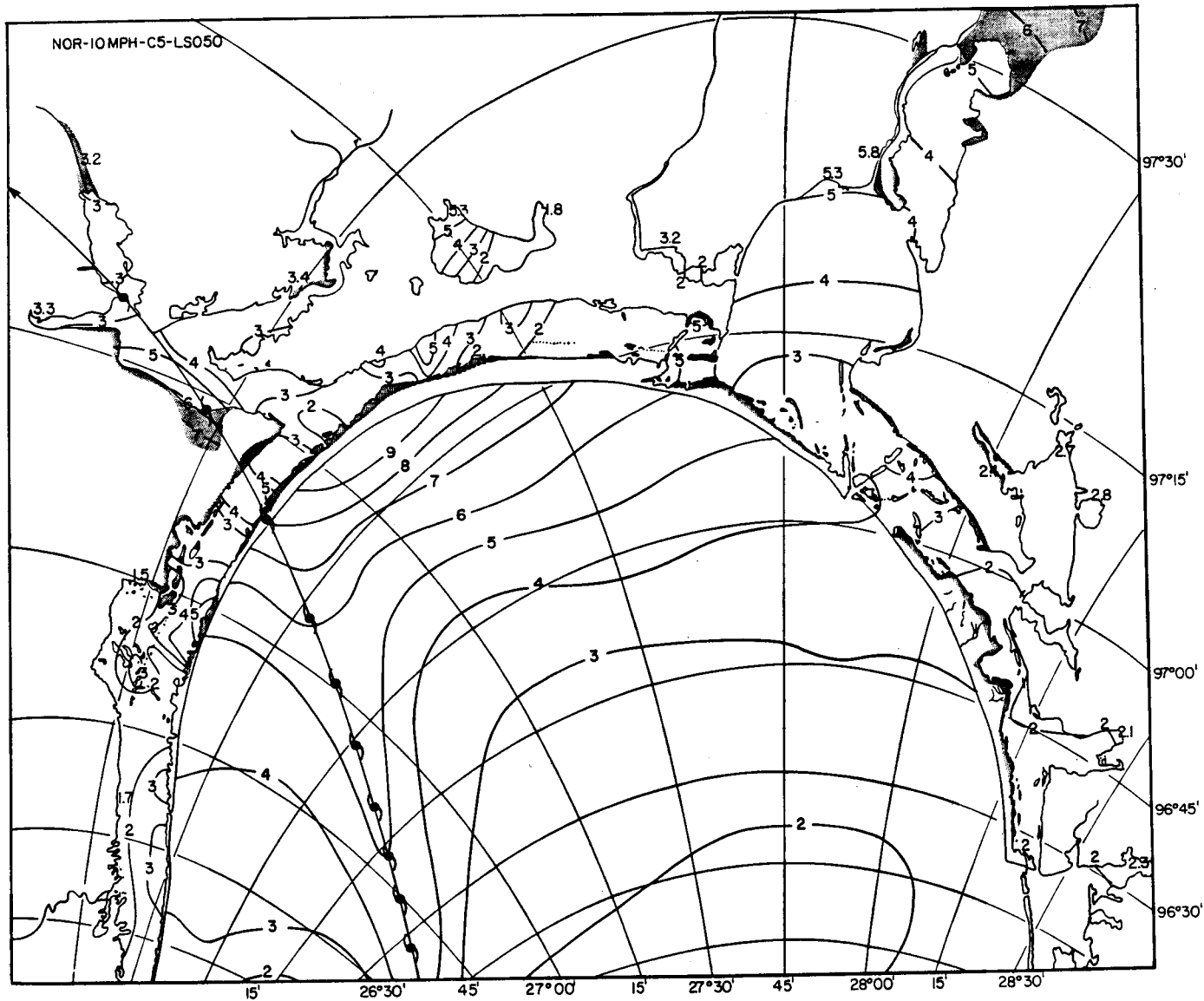
11. BAYSIDE (28,66)



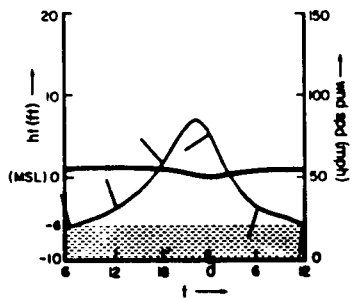
12. MATAGORDA IS. (45,61)



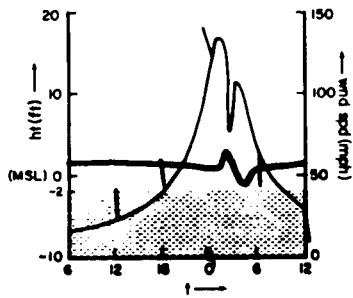
NOR-10MPH-C5-LS050



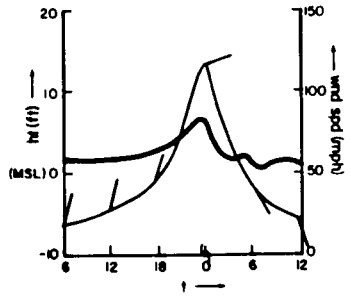
1. PORT MANSFIELD (48, 8)



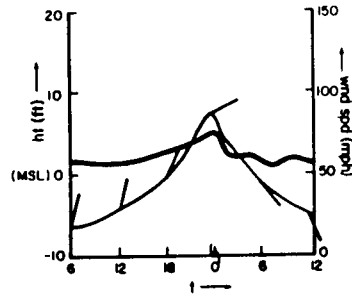
2. BAFFIN BAY (19, 3)



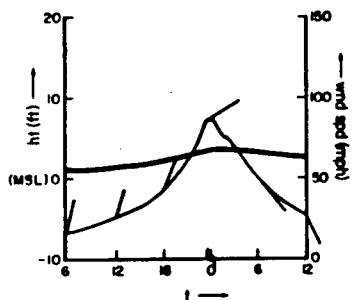
3. PADRI IS. RANGER STA. (24, 35)



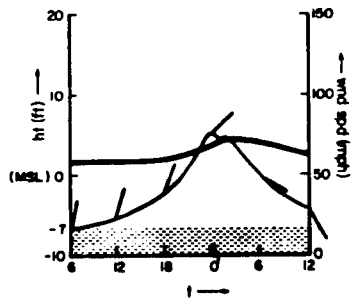
4. MUSTANG PASS (25, 45)



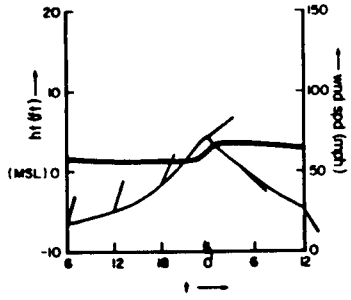
5. NAVAL AIR STA. (20, 46)



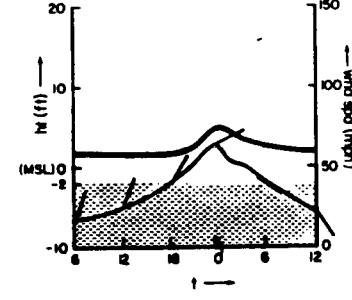
6. CORPUS CHRISTI (12, 53)



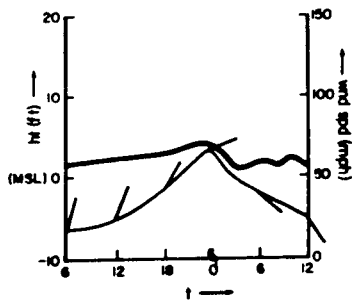
7. INGLESIDE (21, 55)



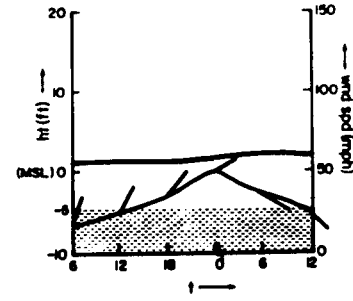
8. ARANSAS PASS (28, 57)



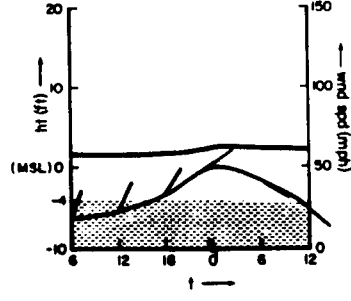
9. PORT ARANSAS (31, 53)



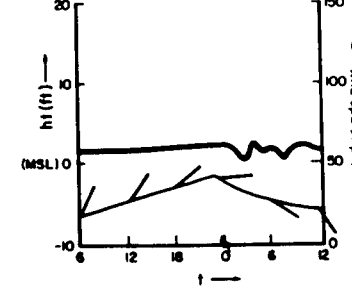
10. COPANO BRIDGE (35, 63)

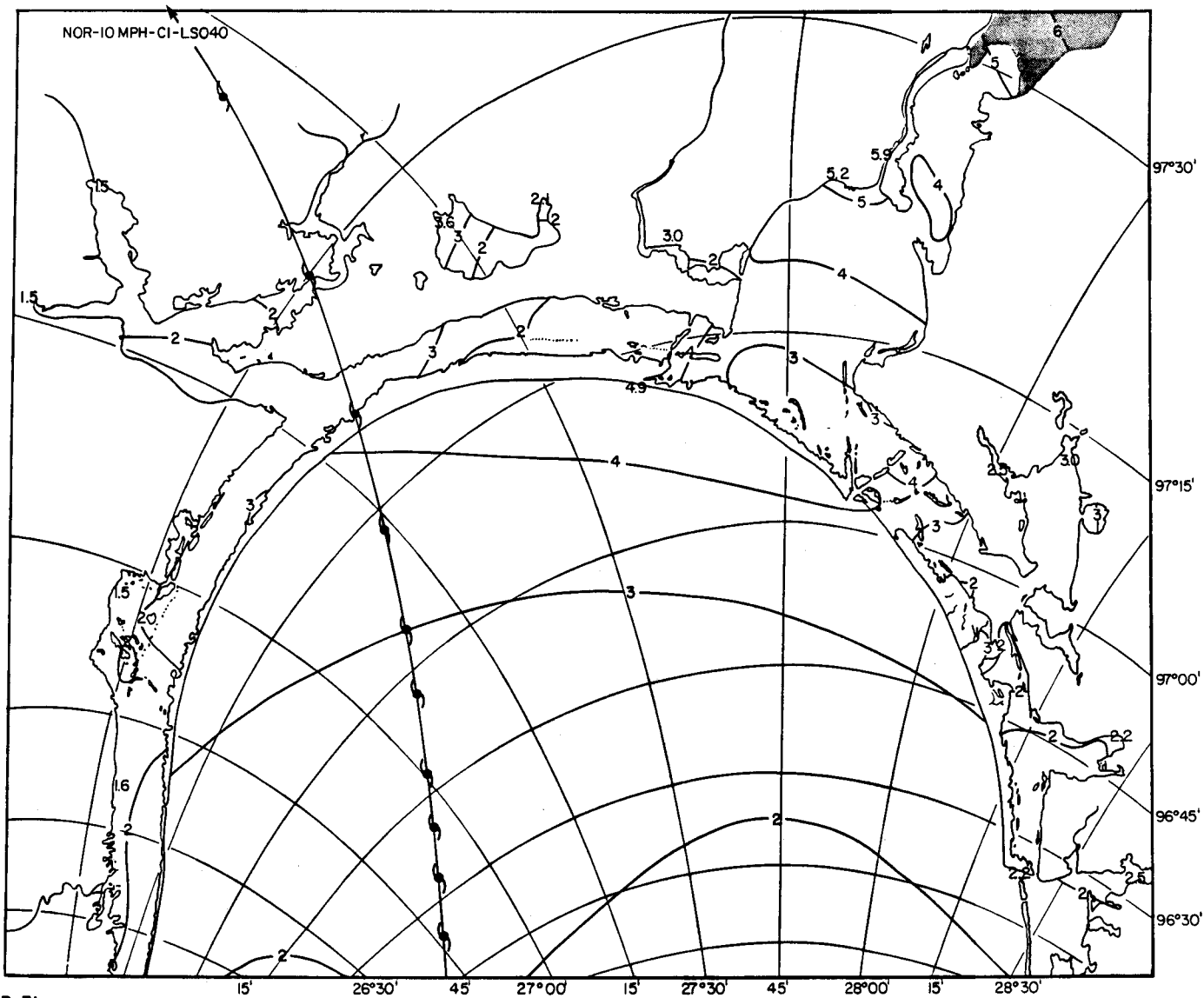


11. BAYSIDE (28, 66)

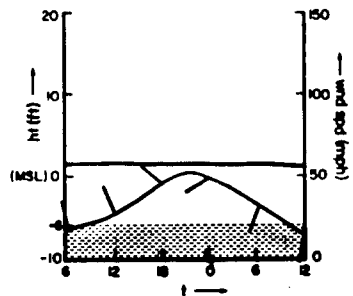


12. MATAGORDA IS. (45, 61)

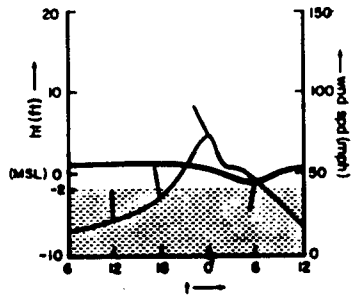




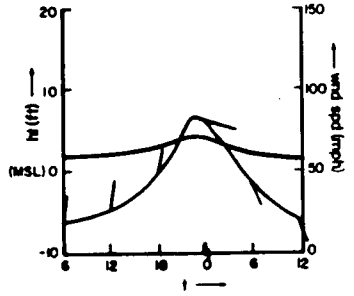
1. PORT MANSFIELD (48, 8)



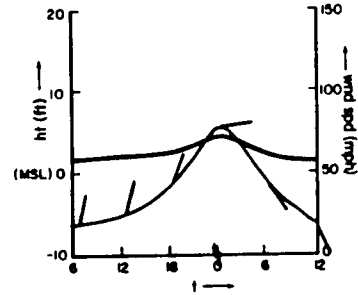
2. BAFFIN BAY (19, 3)



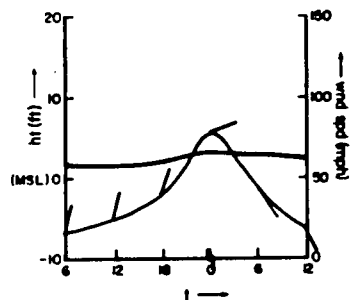
3. PADRI IS. RANGER STA. (24, 35)



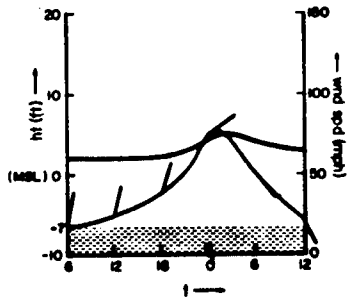
4. MUSTANG PASS (25, 45)



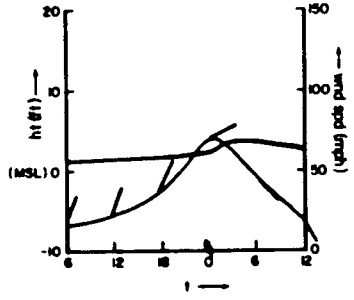
5. NAVAL AIR STA. (20, 46)



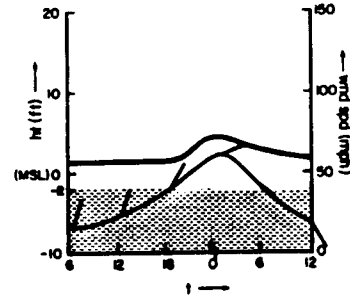
6. CORPUS CHRISTI (22, 53)



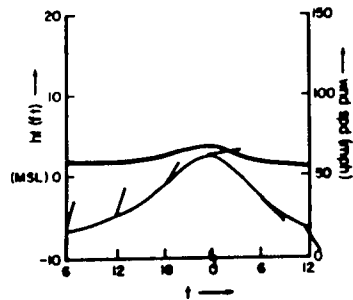
7. INGLESIDE (21, 55)



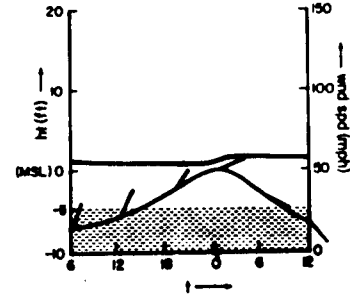
8. ARANSAS PASS (28, 57)



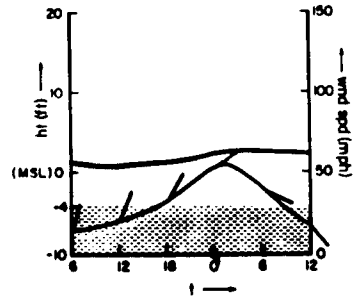
9. PORT ARANSAS (31, 53)



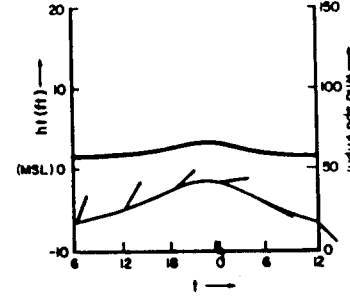
10. COPANO BRIDGE (35, 63)

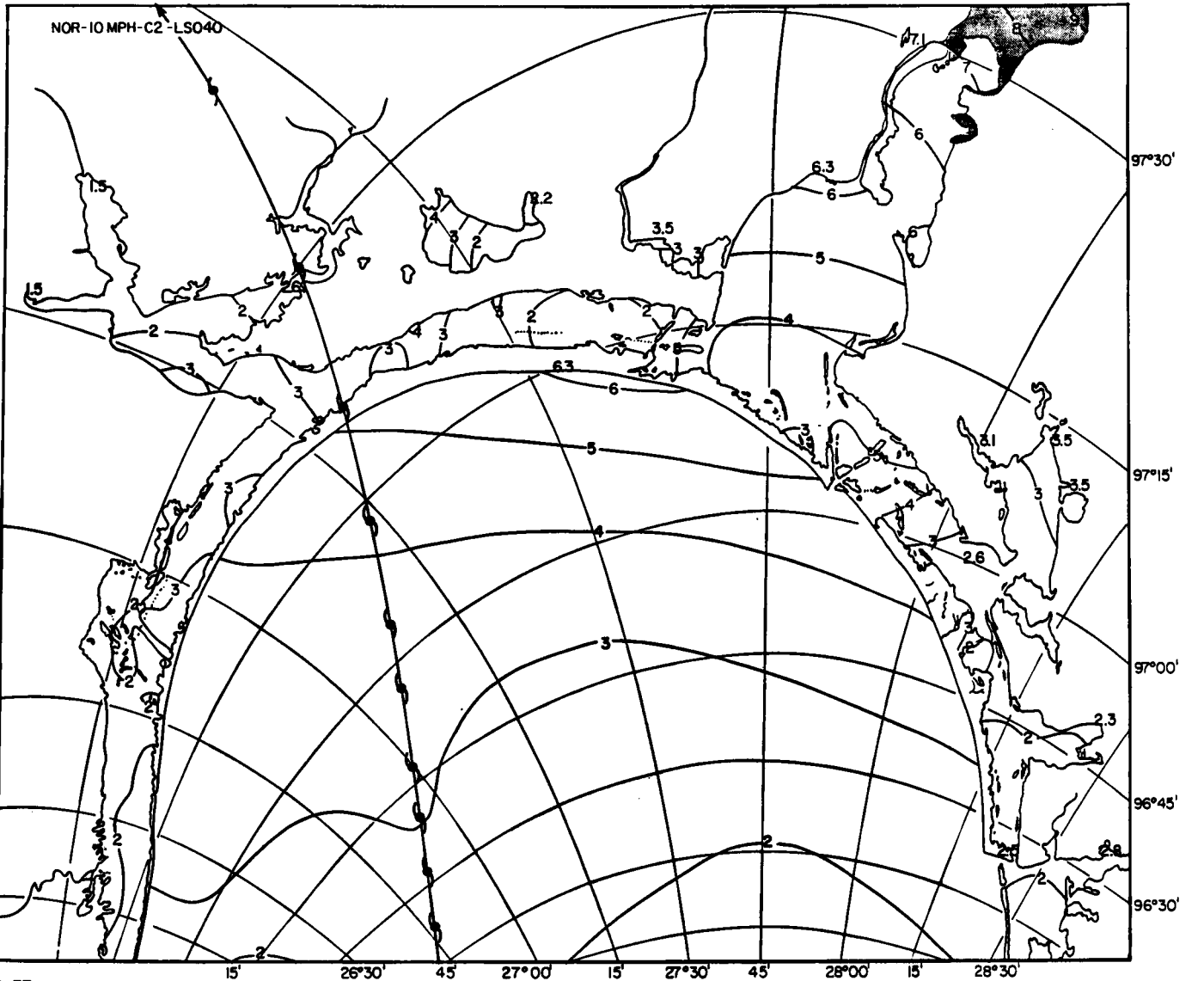


11. BAYSIDE (28, 66)

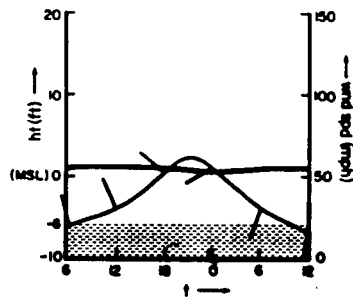


12. MATAGORDA IS. (45, 61)

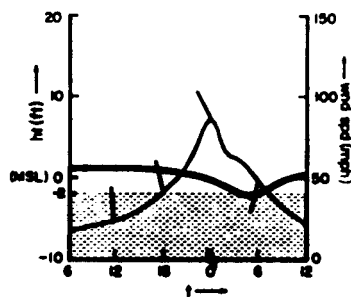




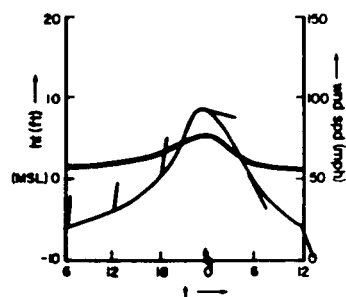
1. PORT MANSFIELD (48, 8)



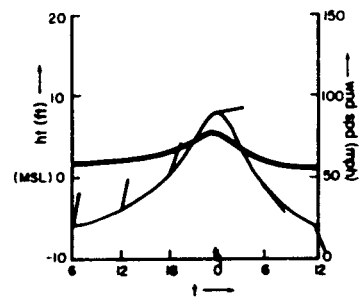
2. BAFFIN BAY (19, 3)



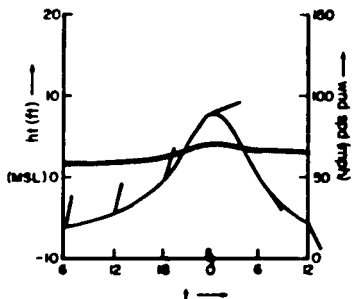
3. PADRI IS. RANGE STA. (24, 35)



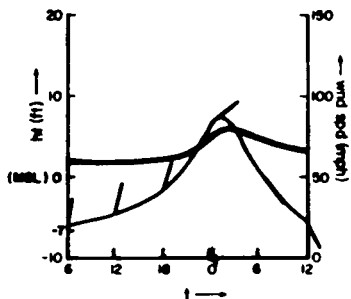
4. MUSTANG PASS (25, 45)



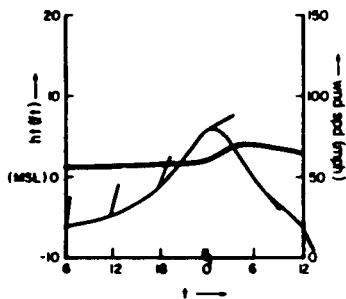
5. NAVAL AIR STA. (20, 46)



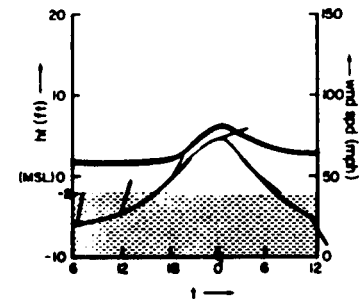
6. CORPUS CHRISTI (22, 53)



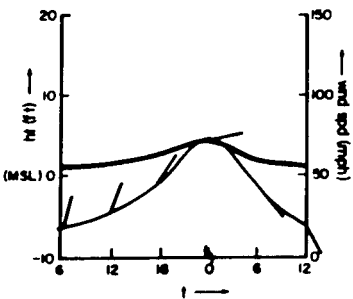
7. INGLESIDE (21, 55)



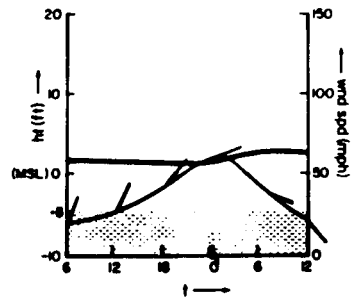
8. ARANSAS PASS (28, 57)



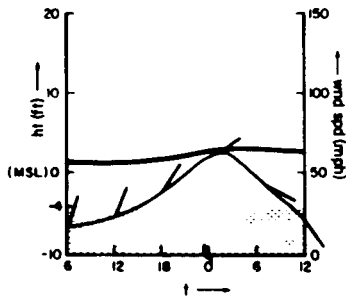
9. PORT ARANSAS (31, 53)



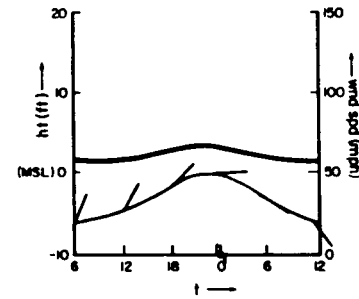
10. COPANO BRIDGE (35, 63)

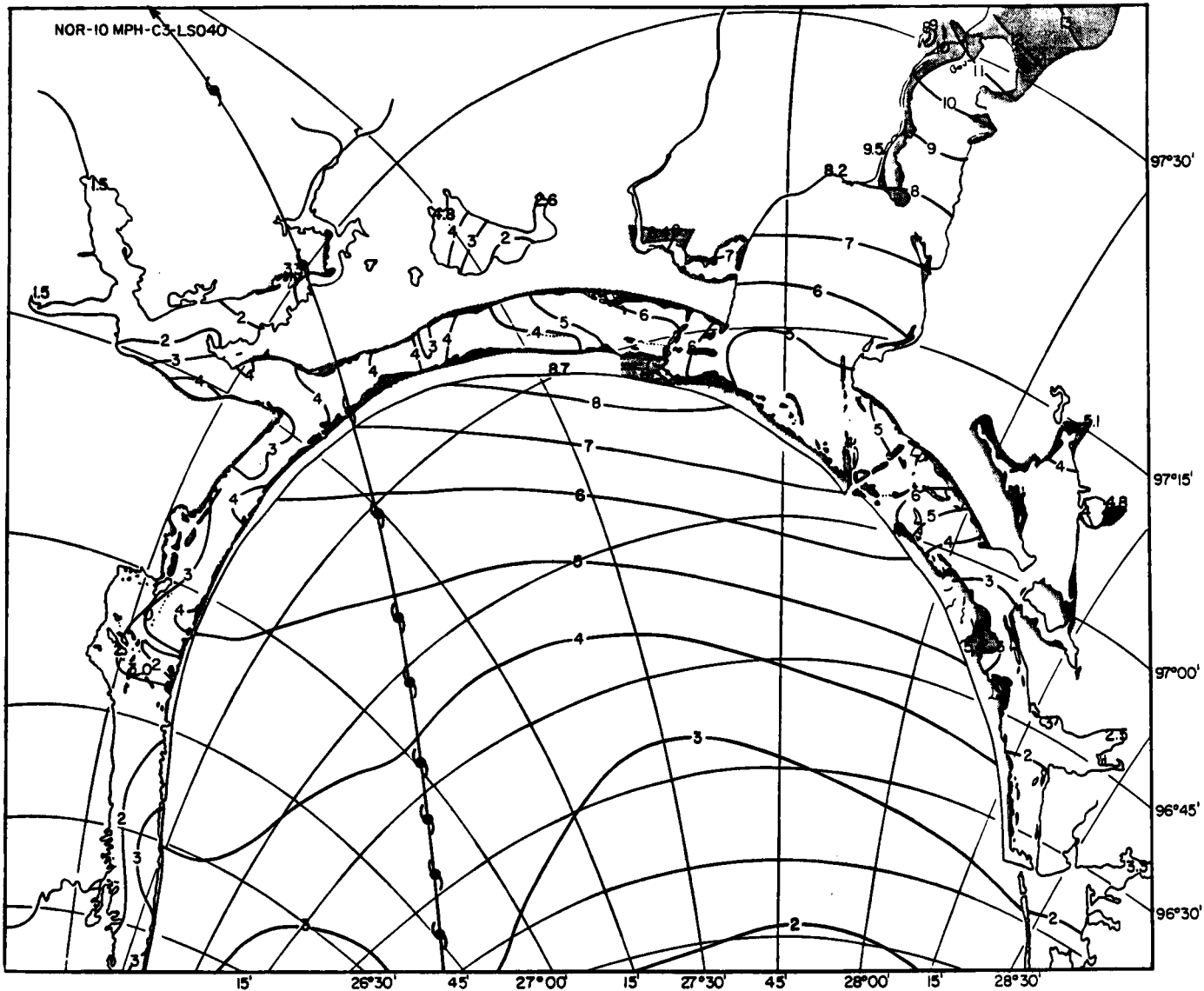


11. BAYSIDE (28, 66)



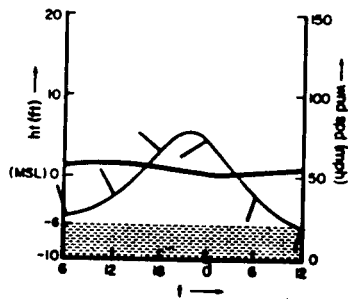
12. MATAGORDA IS. (45, 61)



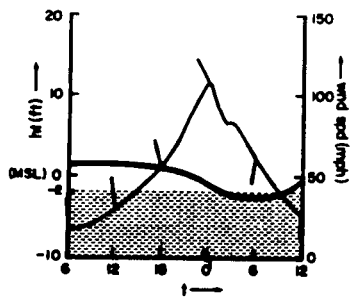




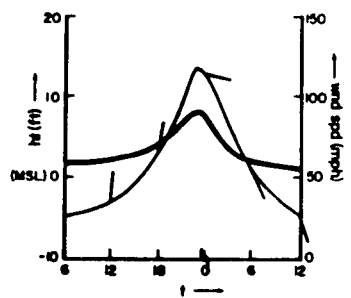
1. PORT MANSFIELD (48, 8)



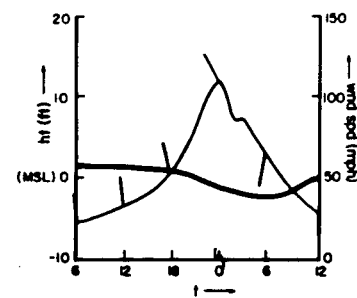
2. BAFFIN BAY (19, 3)



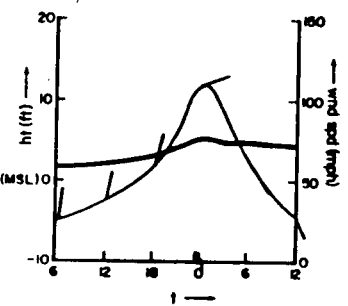
3. PADRI IS. RANGER STA. (24, 35)



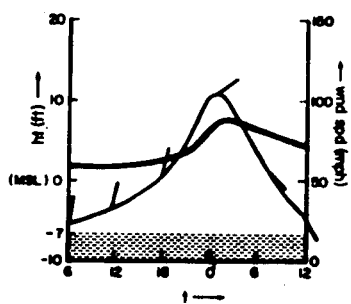
4. MUSTANG PASS (25, 45)



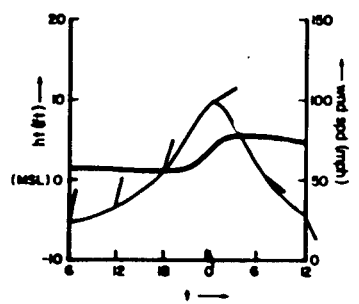
5. NAVAL AIR STA. (20, 46)



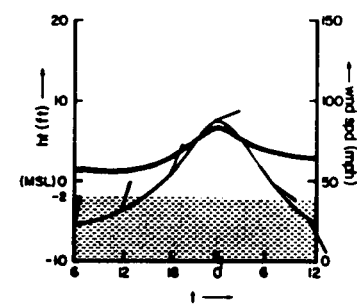
6. CORPUS CHRISTI (2, 53)



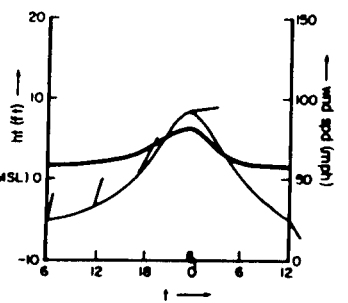
7. INGLESIDE (21, 55)



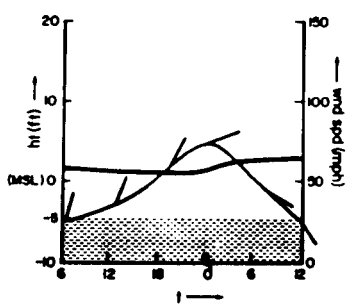
8. ARANSAS PASS (28, 57)



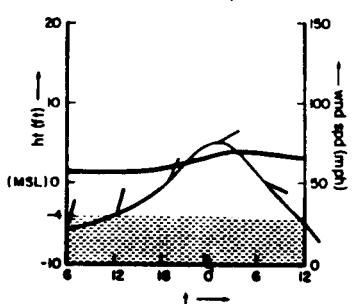
9. PORT ARANSAS (31, 53)



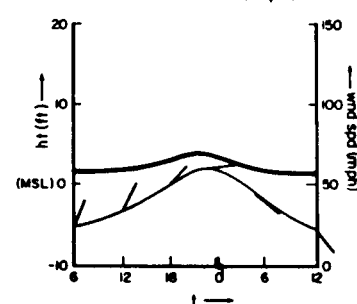
10. COPANO BRIDGE (35, 63)

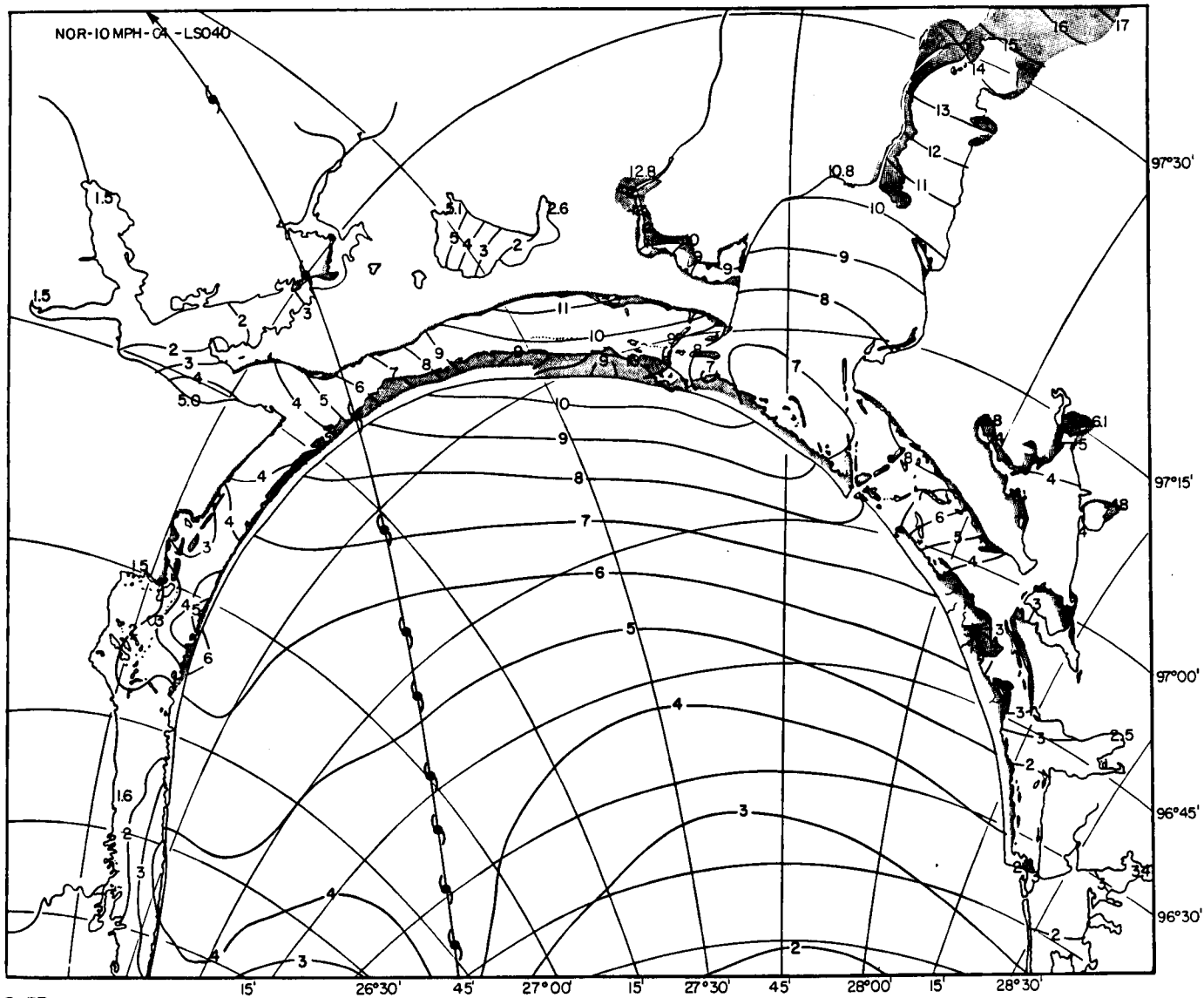


11. BAYSIDE (28, 66)

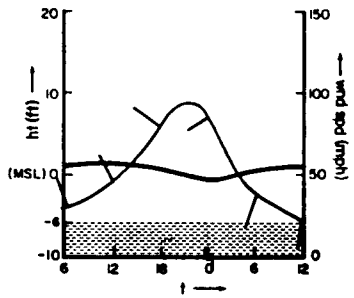


12. MATAGORDA IS. (45, 61)

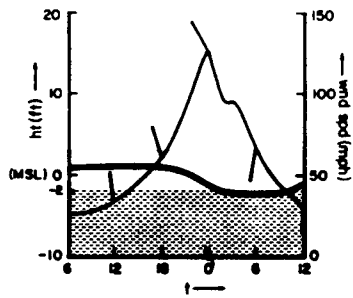




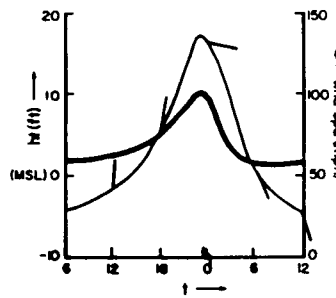
1. PORT MANSFIELD (48, 8)



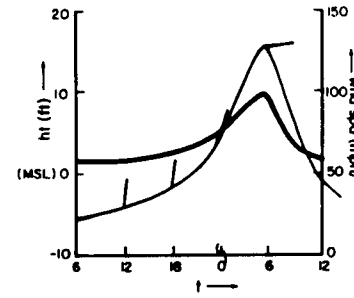
2. BAFFIN BAY (19, 3)



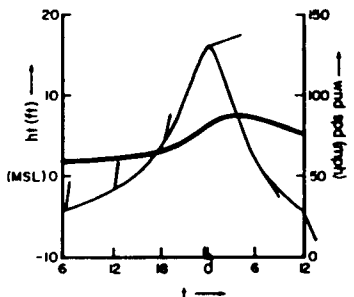
3. PADRI IS. RANGER STA. (24, 35)



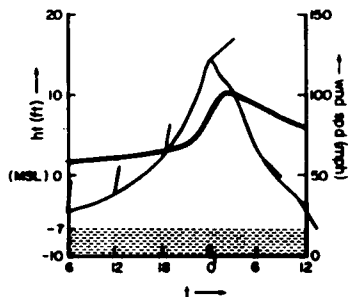
4. MUSTANG PASS (25, 45)



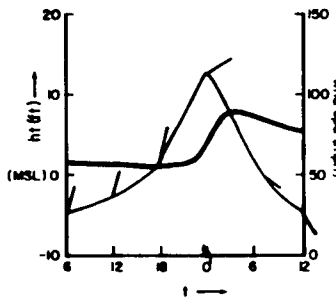
5. NAVAL AIR STA. (20, 46)



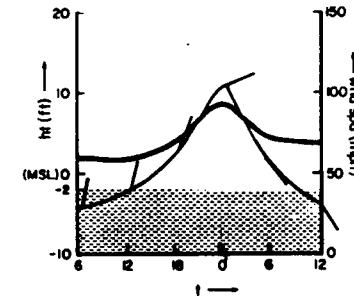
6. CORPUS CHRISTI (02, 53)



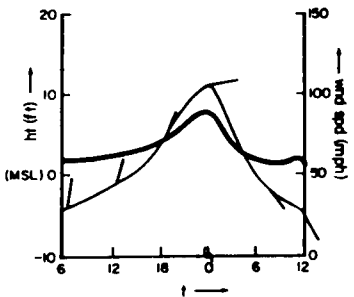
7. INGLESIDE (21, 55)



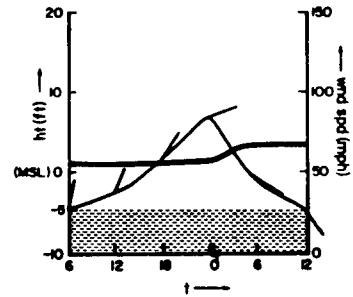
8. ARANSAS PASS (28, 57)



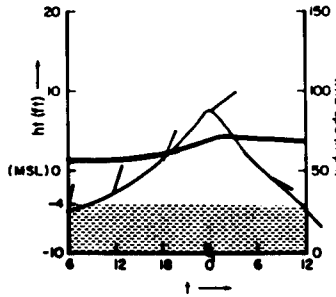
9. PORT ARANSAS (31, 53)



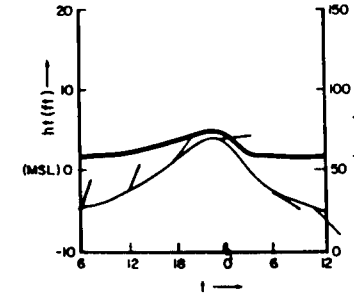
10. COPANO BRIDGE (35, 63)



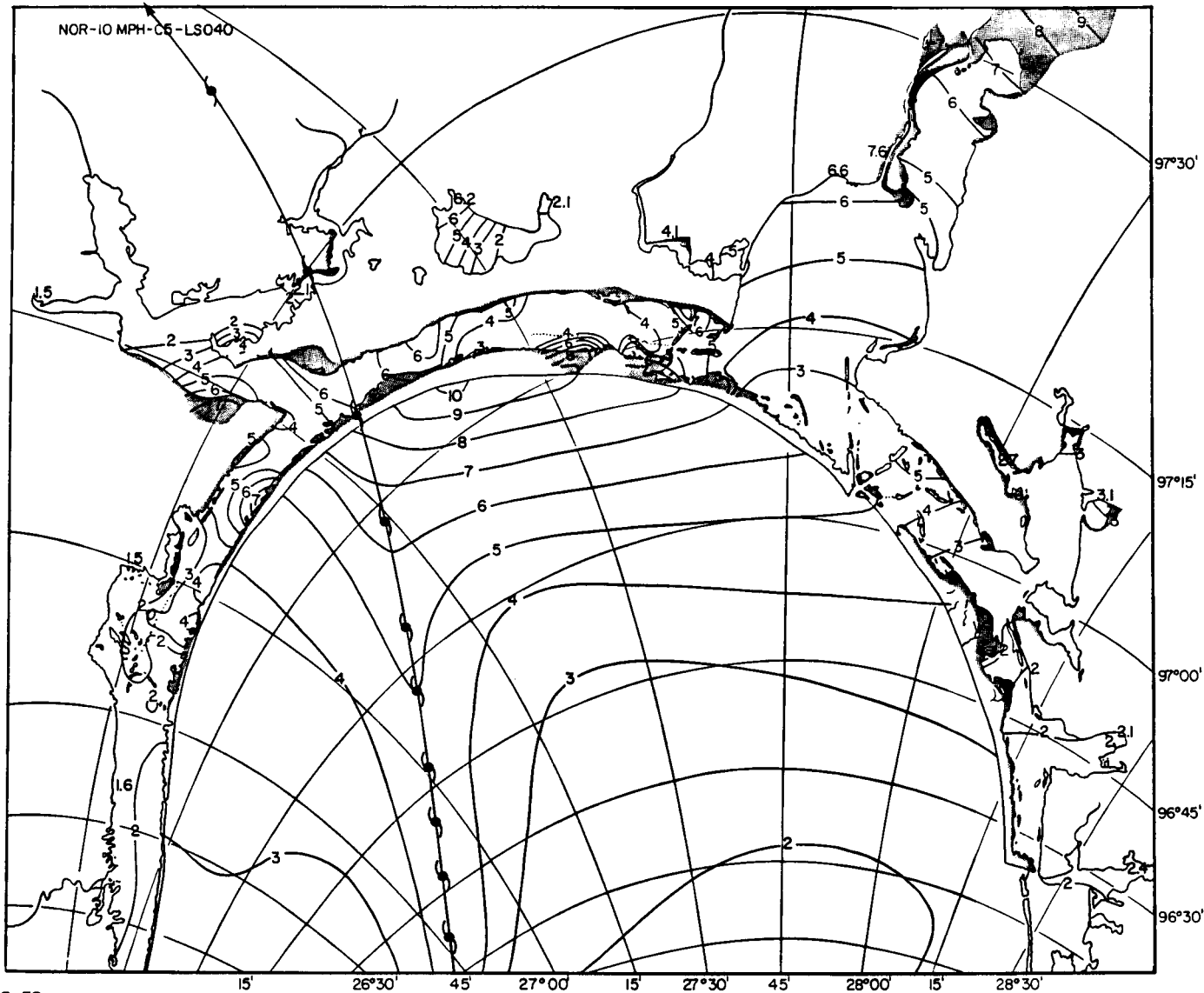
11. BAYSIDE (28, 66)

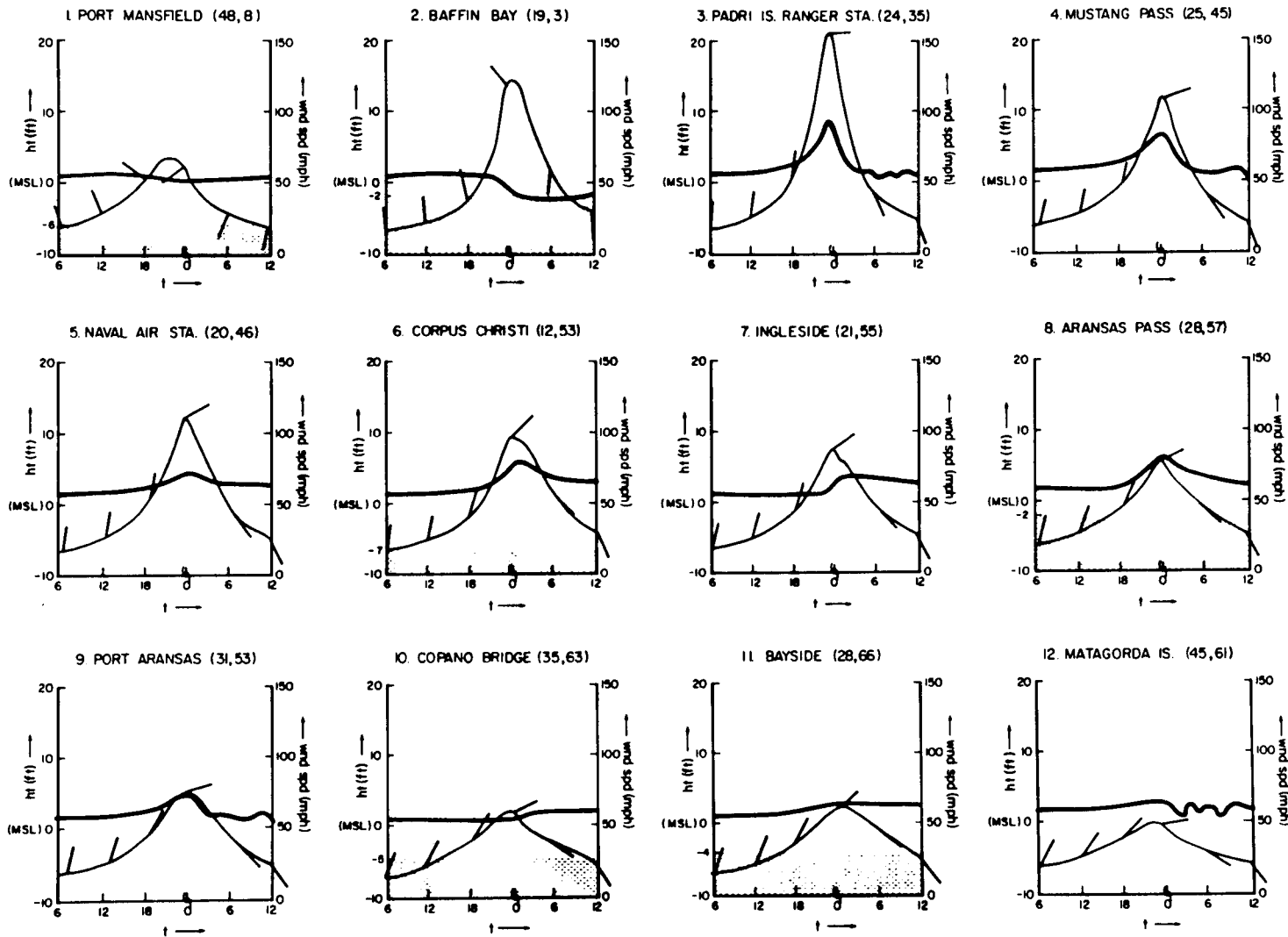


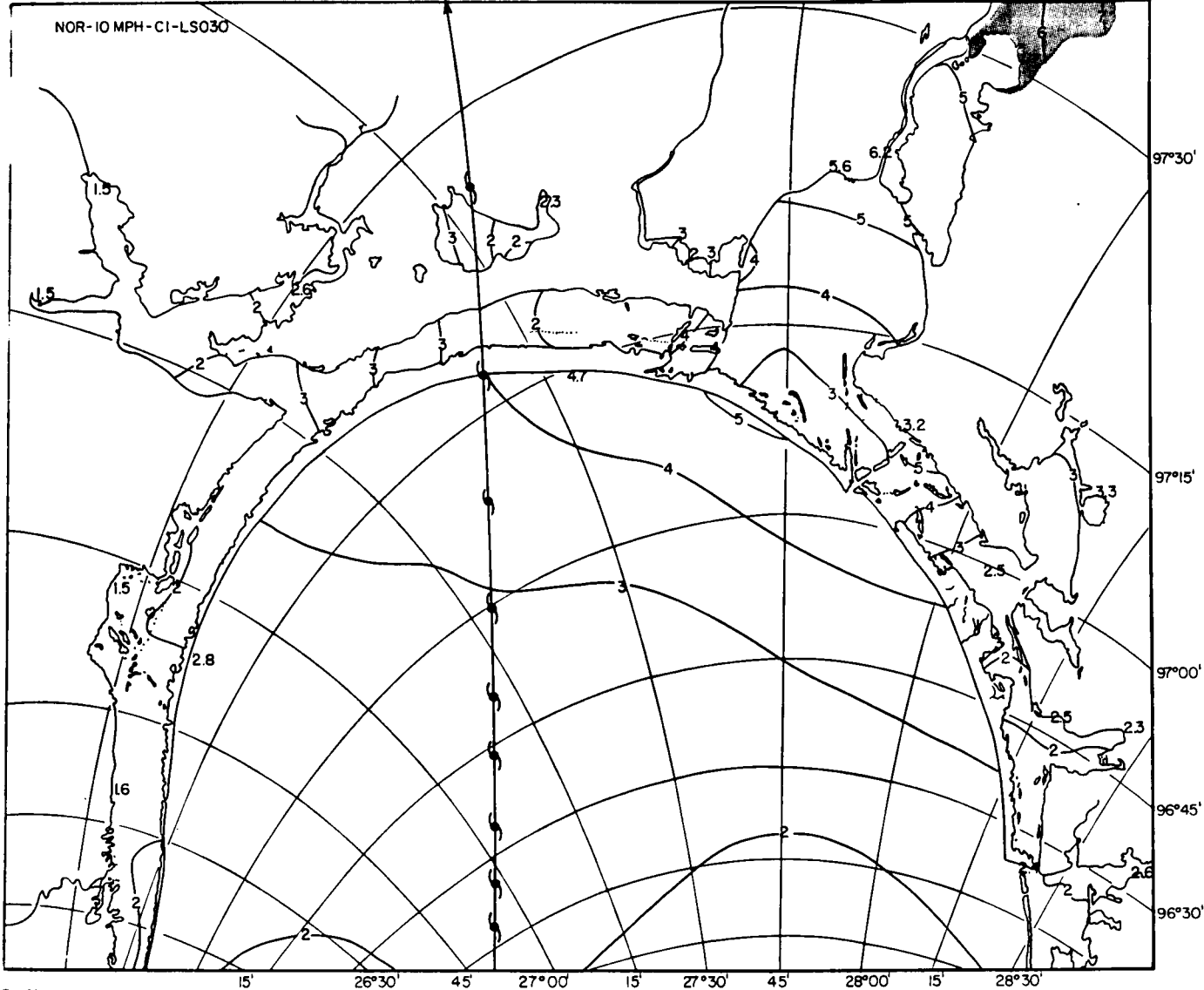
12. MATAGORDA IS. (45, 61)

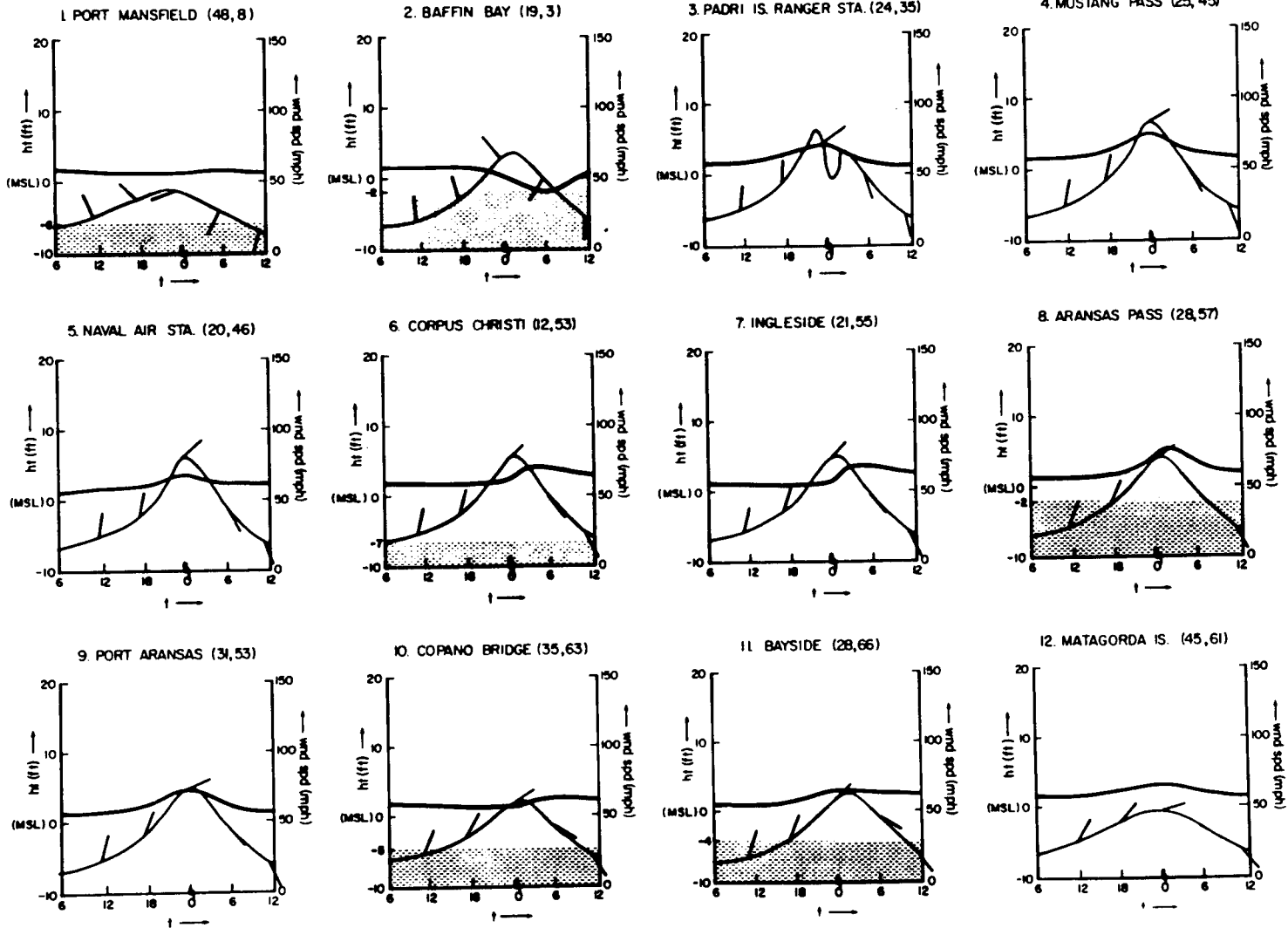


NOR-10 MPH-C6-LS040

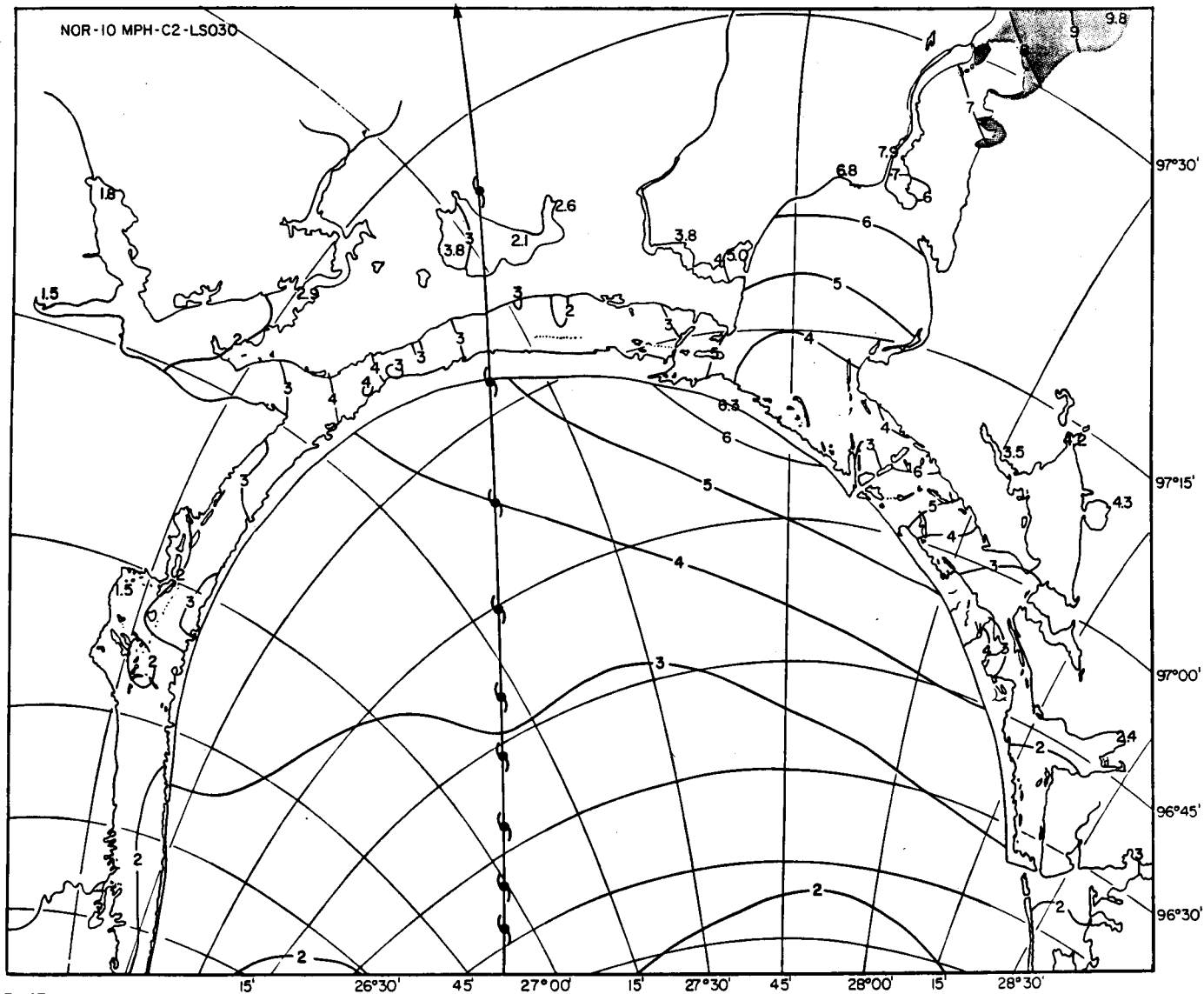






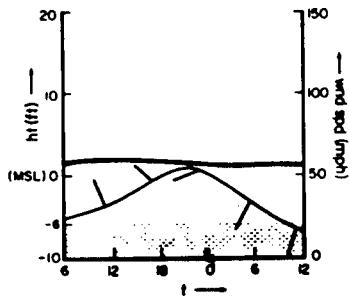


NOR-10 MPH-C2-LSO30

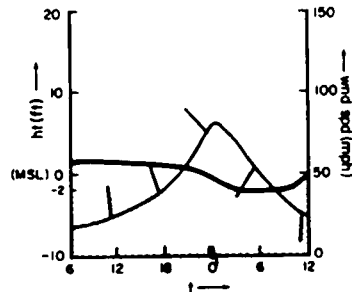




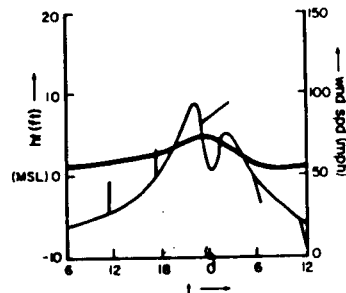
1. PORT MANSFIELD (48, 8)



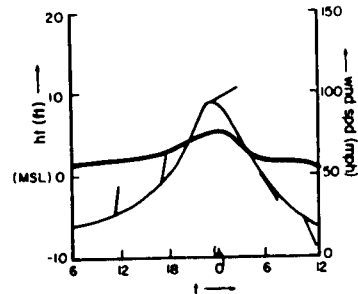
2. BAFFIN BAY (19, 3)



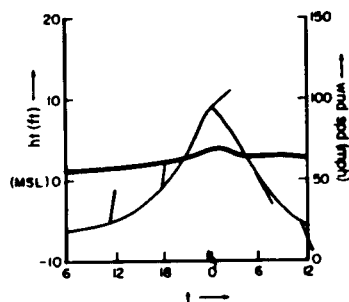
3. PADRI IS. RANGER STA. (24, 35)



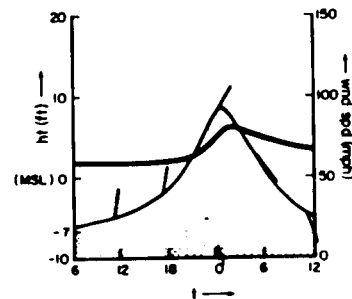
4. MUSTANG PASS (25, 45)



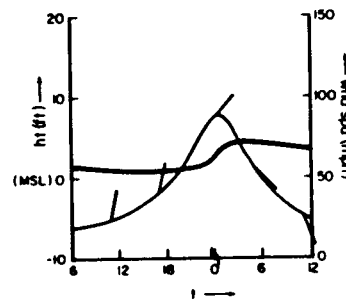
5. NAVAL AIR STA. (20, 46)



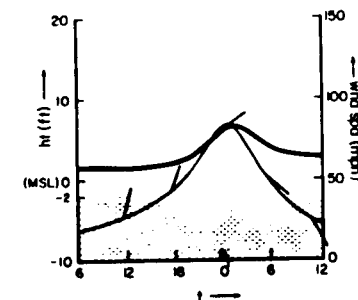
6. CORPUS CHRISTI (12, 53)



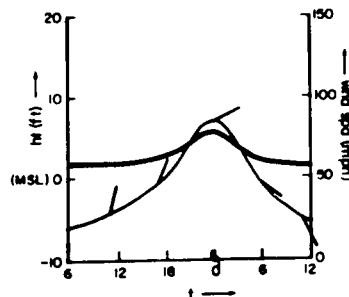
7. INGLESIDE (21, 55)



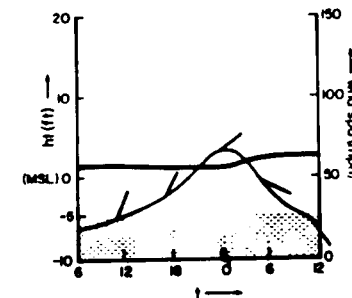
8. ARANSAS PASS (28, 57)



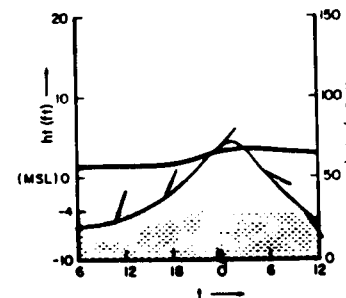
9. PORT ARANSAS (34, 53)



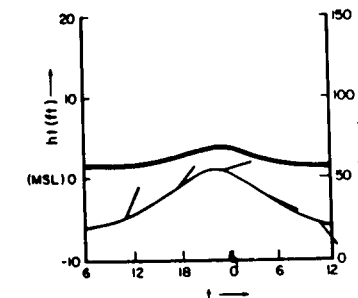
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)

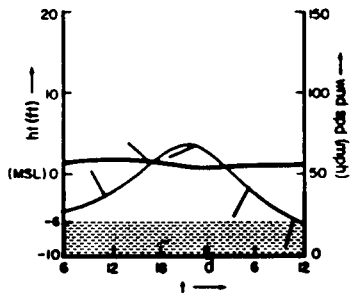


12. MATAGORDA IS. (45, 61)

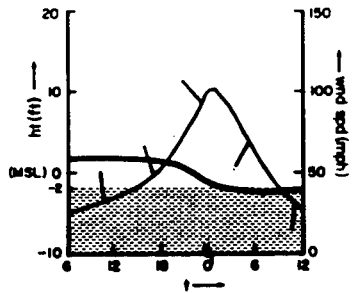




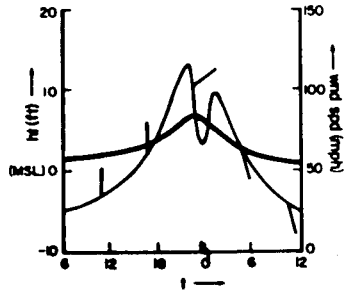
1. PORT MANSFIELD (48,8)



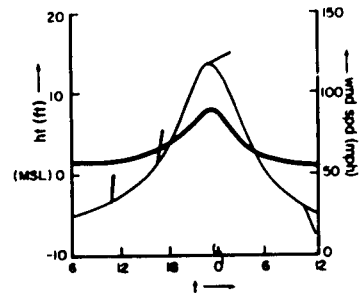
2. BAFFIN BAY (19,3)



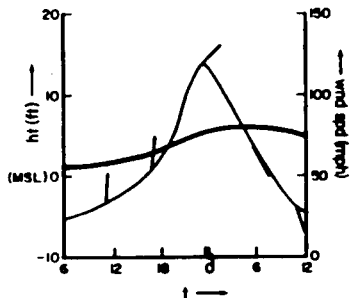
3. PADRI IS. RANGER STA. (24,35)



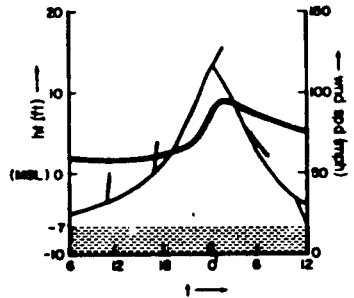
4. MUSTANG PASS (25,45)



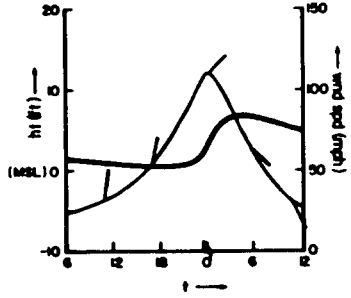
5. NAVAL AIR STA. (20,46)



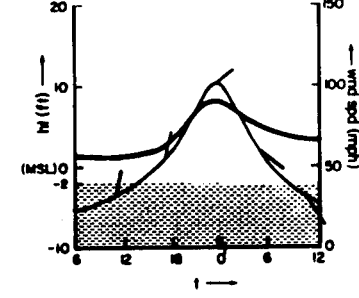
6. CORPUS CHRISTI (22,53)



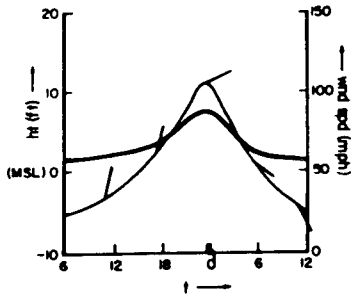
7. INGLESIDE (21,55)



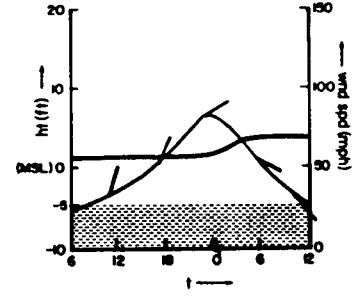
8. ARANSAS PASS (28,57)



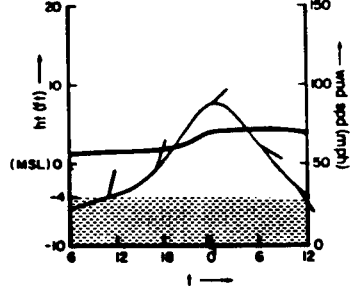
9. PORT ARANSAS (31,53)



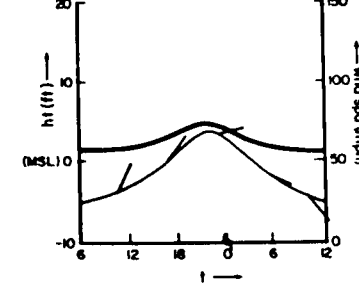
10. COPANO BRIDGE (35,63)



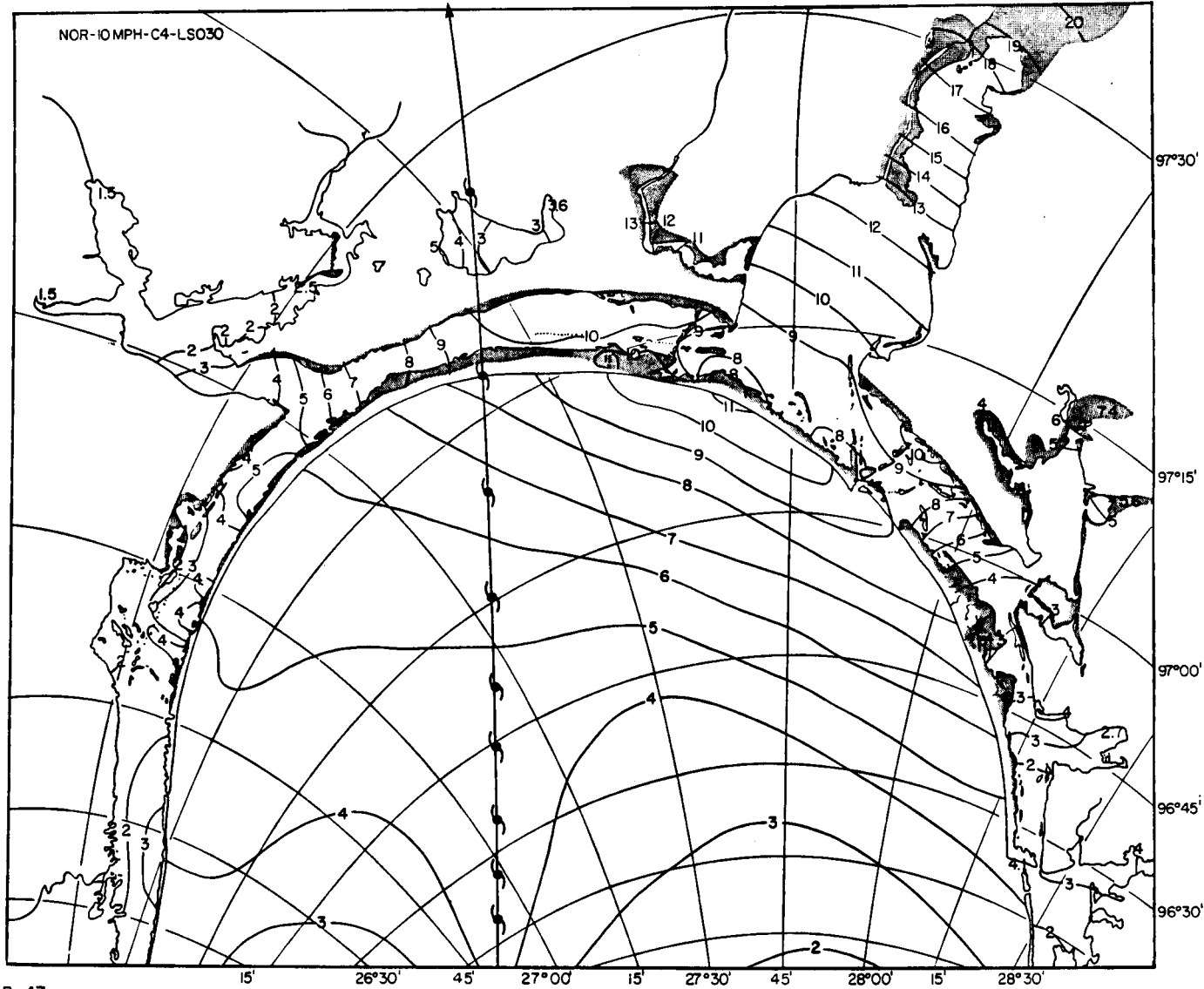
11. BAYSIDE (28,66)

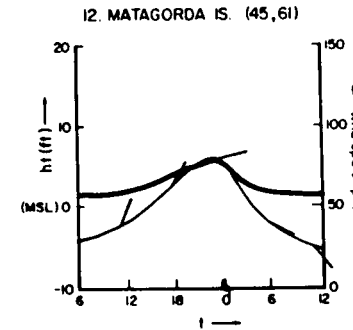
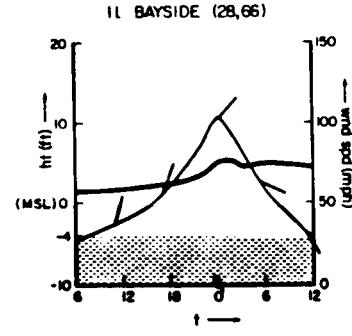
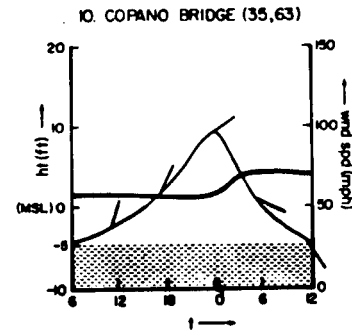
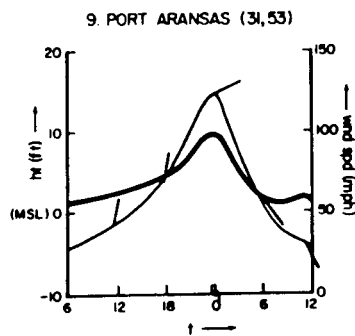
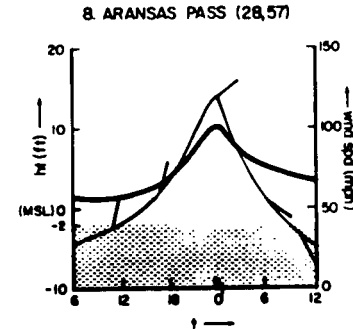
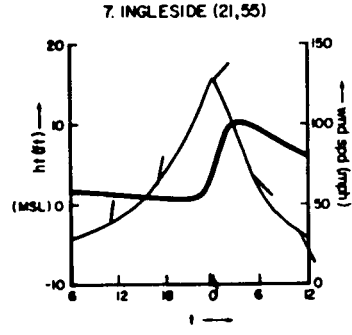
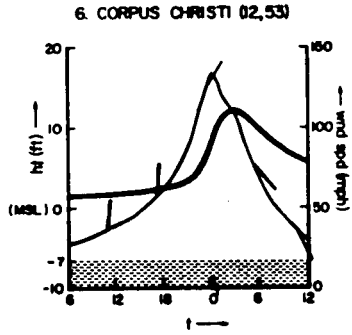
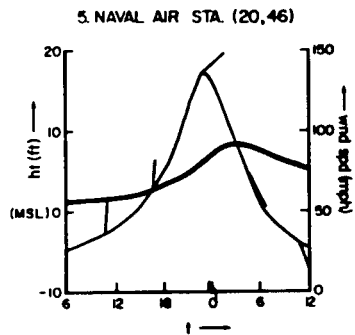
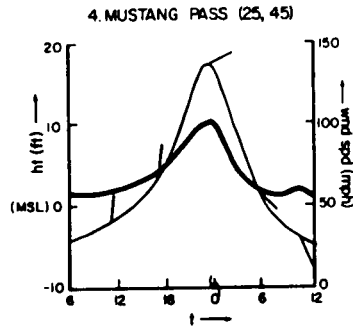
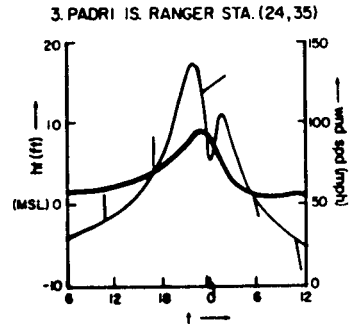
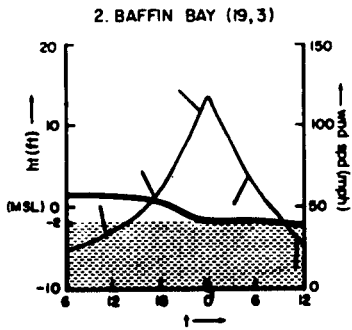
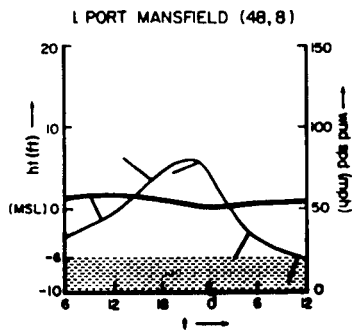


12. MATAGORDA IS. (45,61)

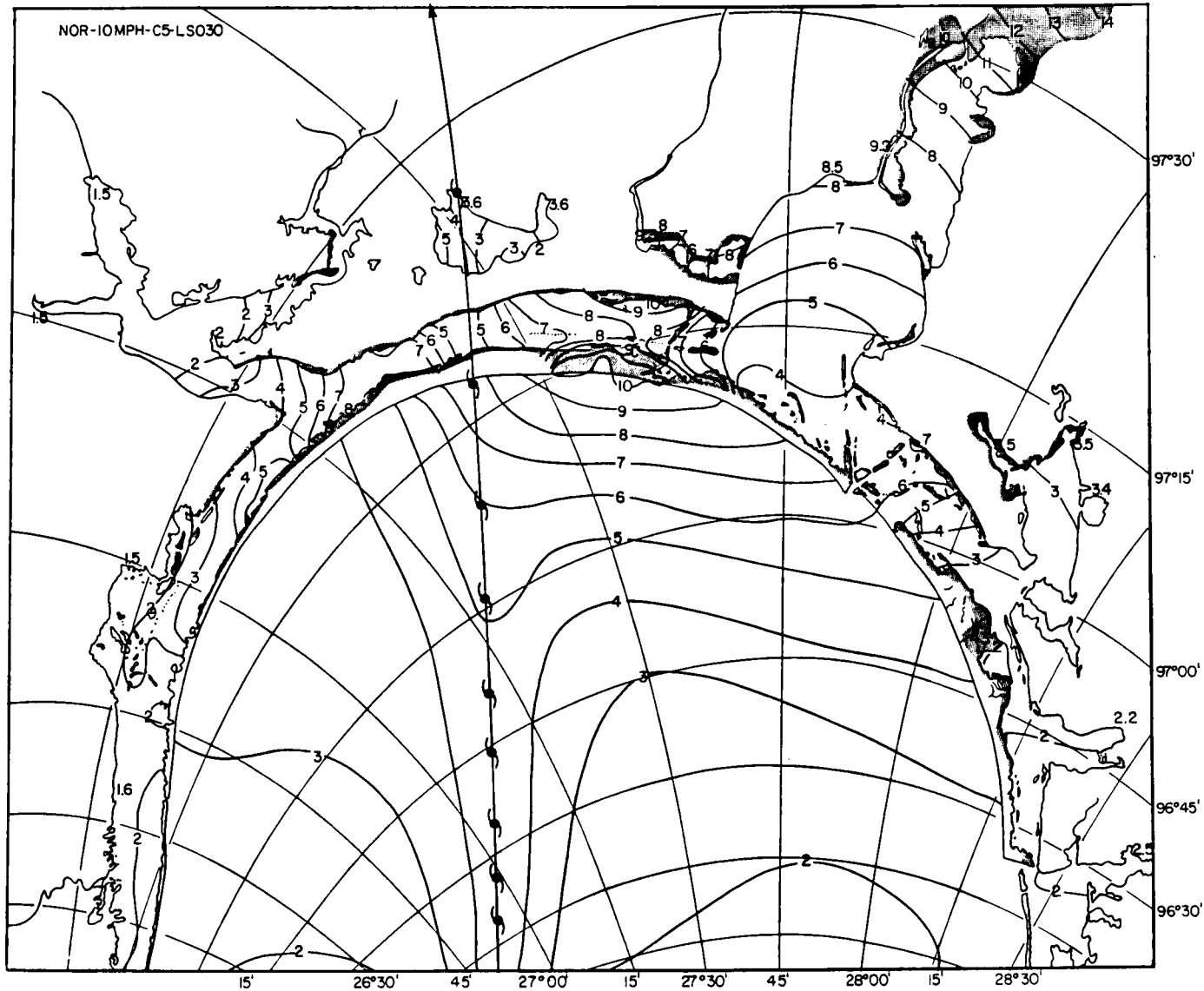


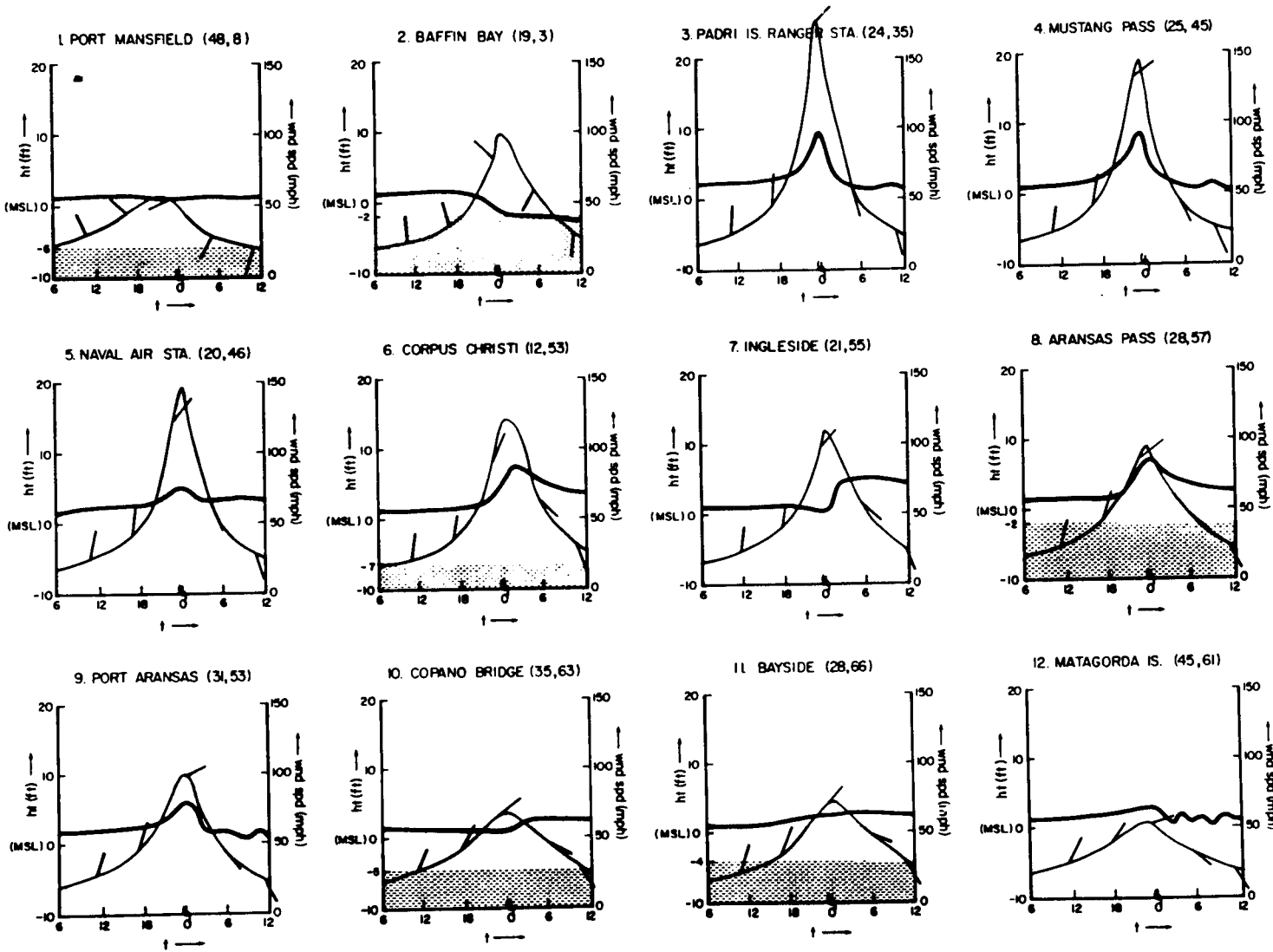
NOR-10MPH-C4-LS030



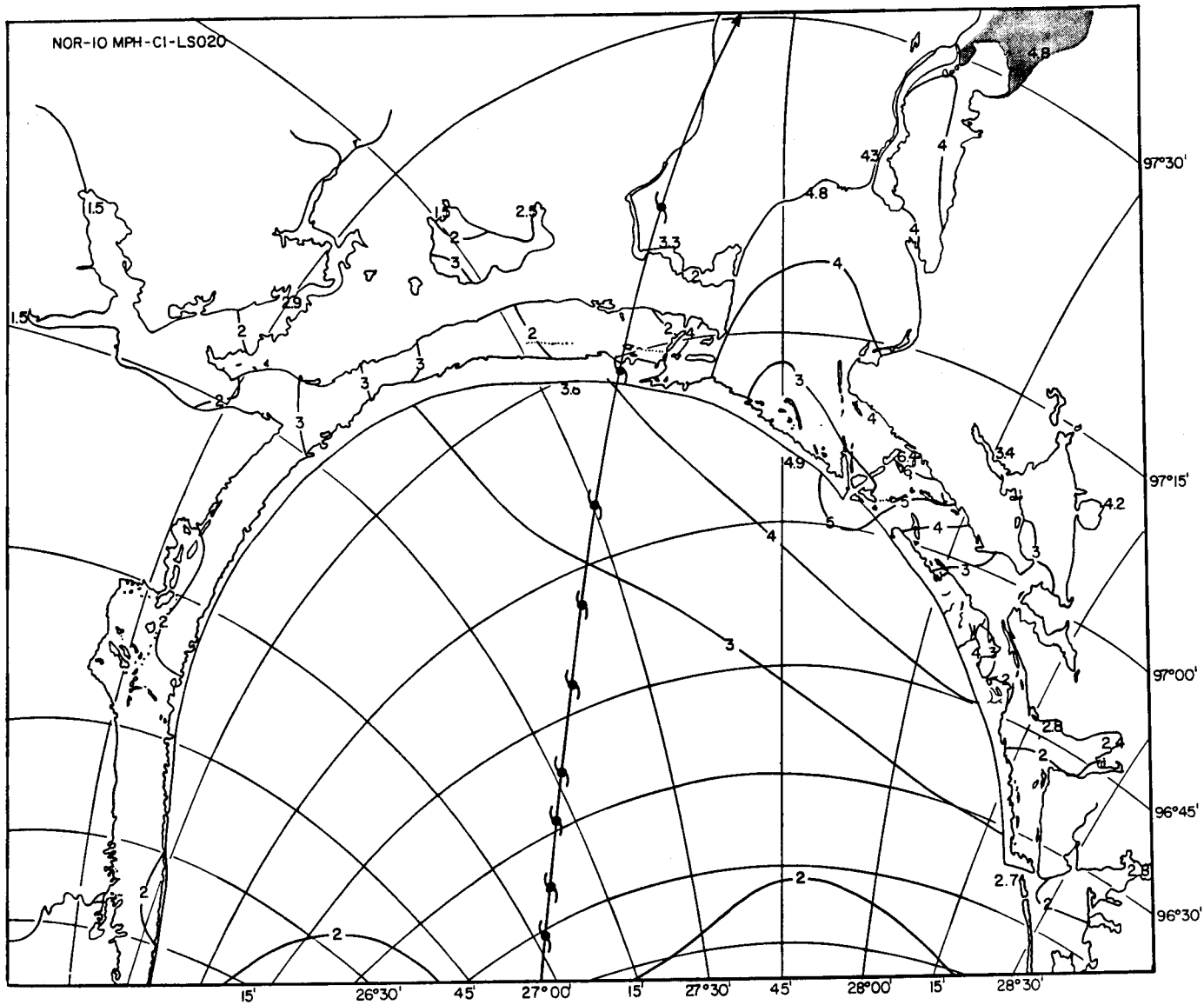


NOR-10MPH-C5-LS030



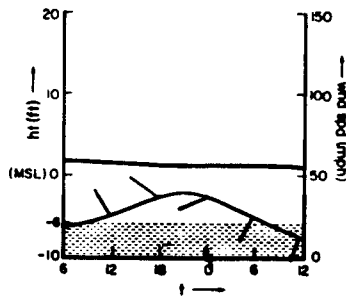


NOR-10 MPH-CI-LS020

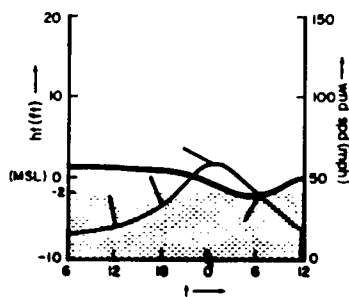




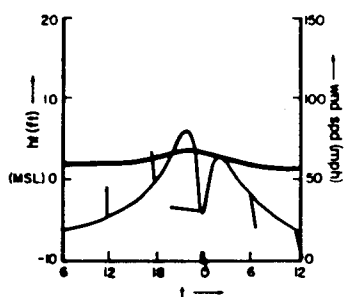
1. PORT MANSFIELD (48,8)



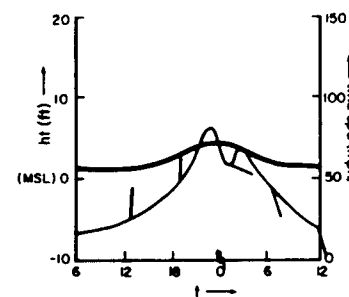
2. BAFFIN BAY (19,3)



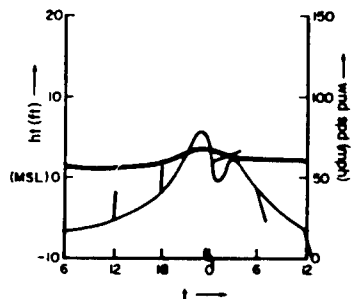
3. PADRI IS. RANGER STA. (24,35)



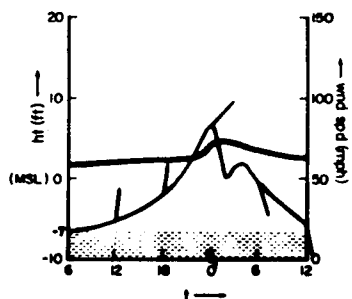
4. MUSTANG PASS (25,45)



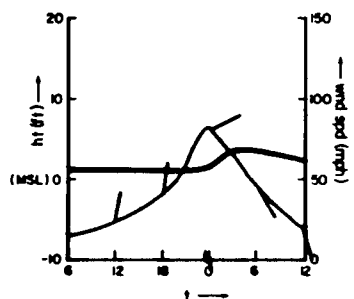
5. NAVAL AIR STA. (20,46)



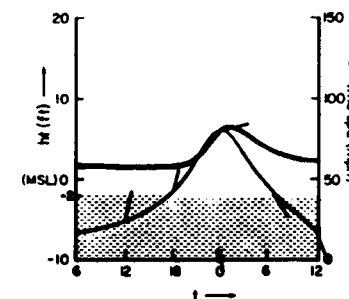
6. CORPUS CHRISTI (12,53)



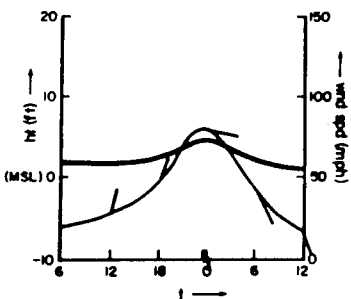
7. INGLESIDE (21,55)



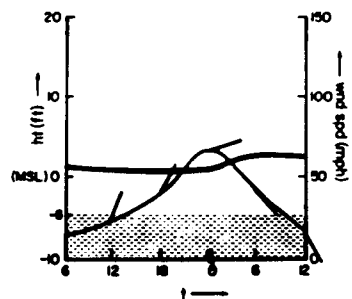
8. ARANSAS PASS (28,57)



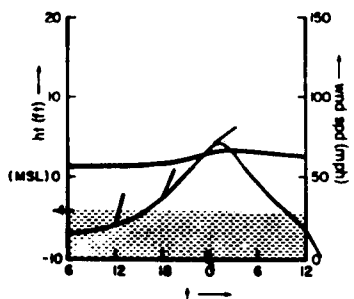
9. PORT ARANSAS (31,53)



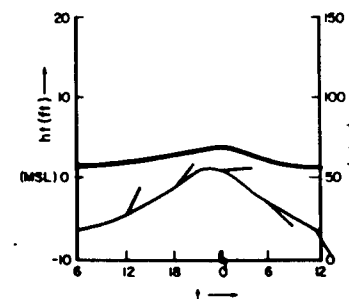
10. COPANO BRIDGE (35,63)

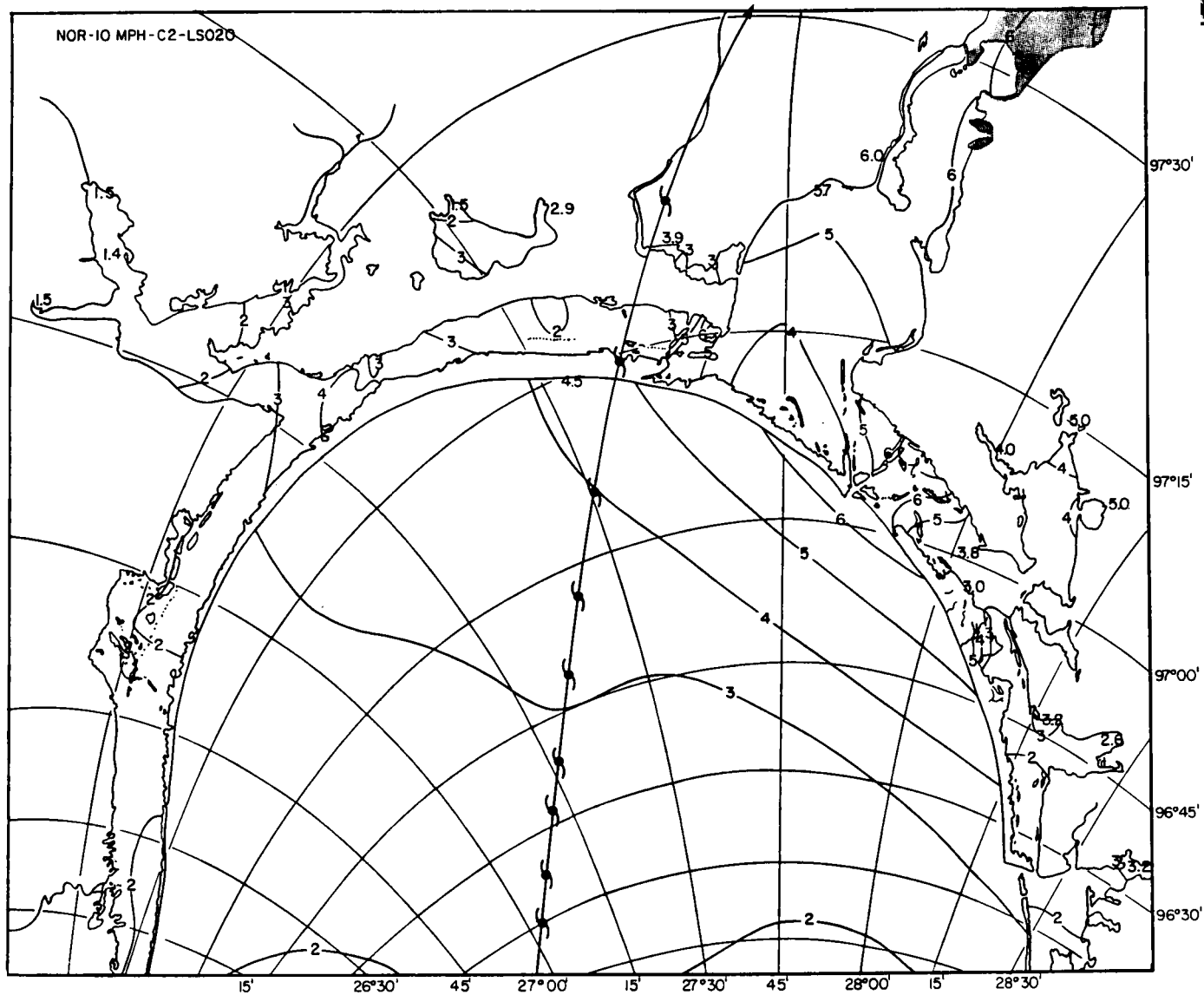


11. BAYSIDE (28,66)

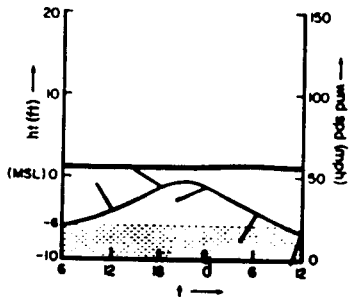


12. MATAGORDA IS. (45,61)

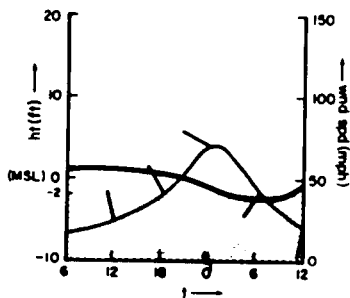




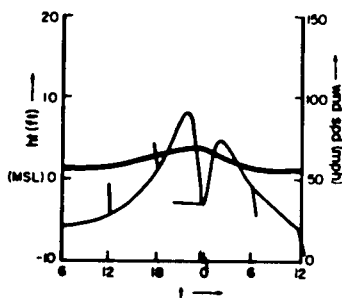
1. PORT MANSFIELD (48, 8)



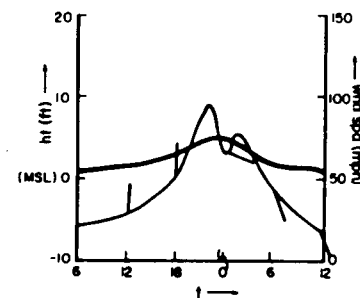
2. BAFFIN BAY (19, 3)



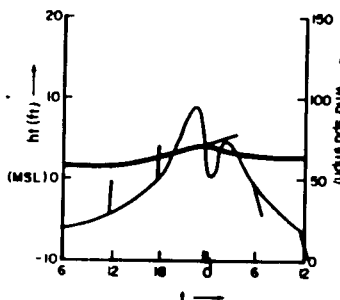
3. PADRI IS. RANGER STA. (24, 35)



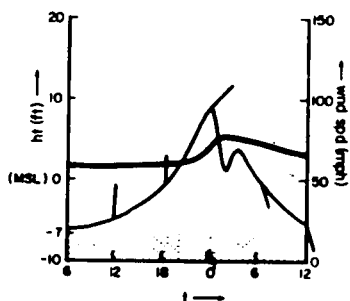
4. MUSTANG PASS (25, 45)



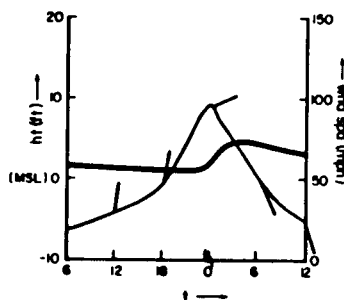
5. NAVAL AIR STA. (20, 46)



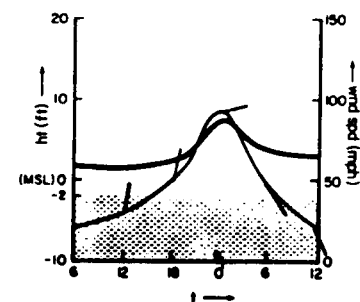
6. CORPUS CHRISTI (12, 53)



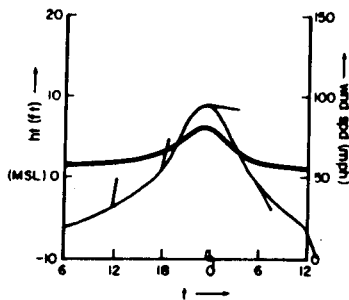
7. INGLESIDE (21, 55)



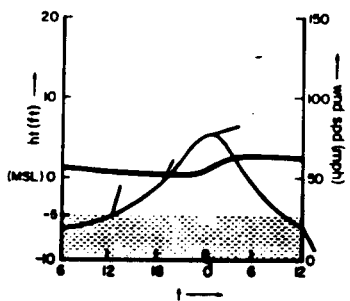
8. ARANSAS PASS (28, 57)



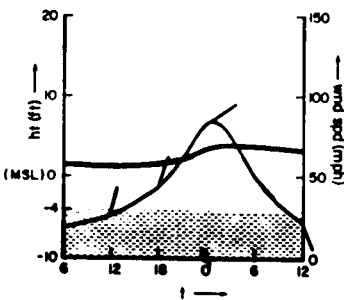
9. PORT ARANSAS (31, 53)



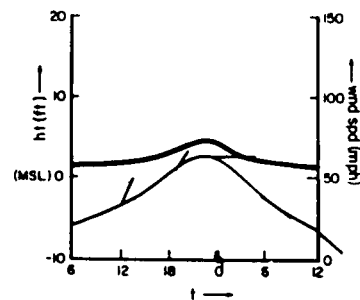
10. COPANO BRIDGE (35, 63)



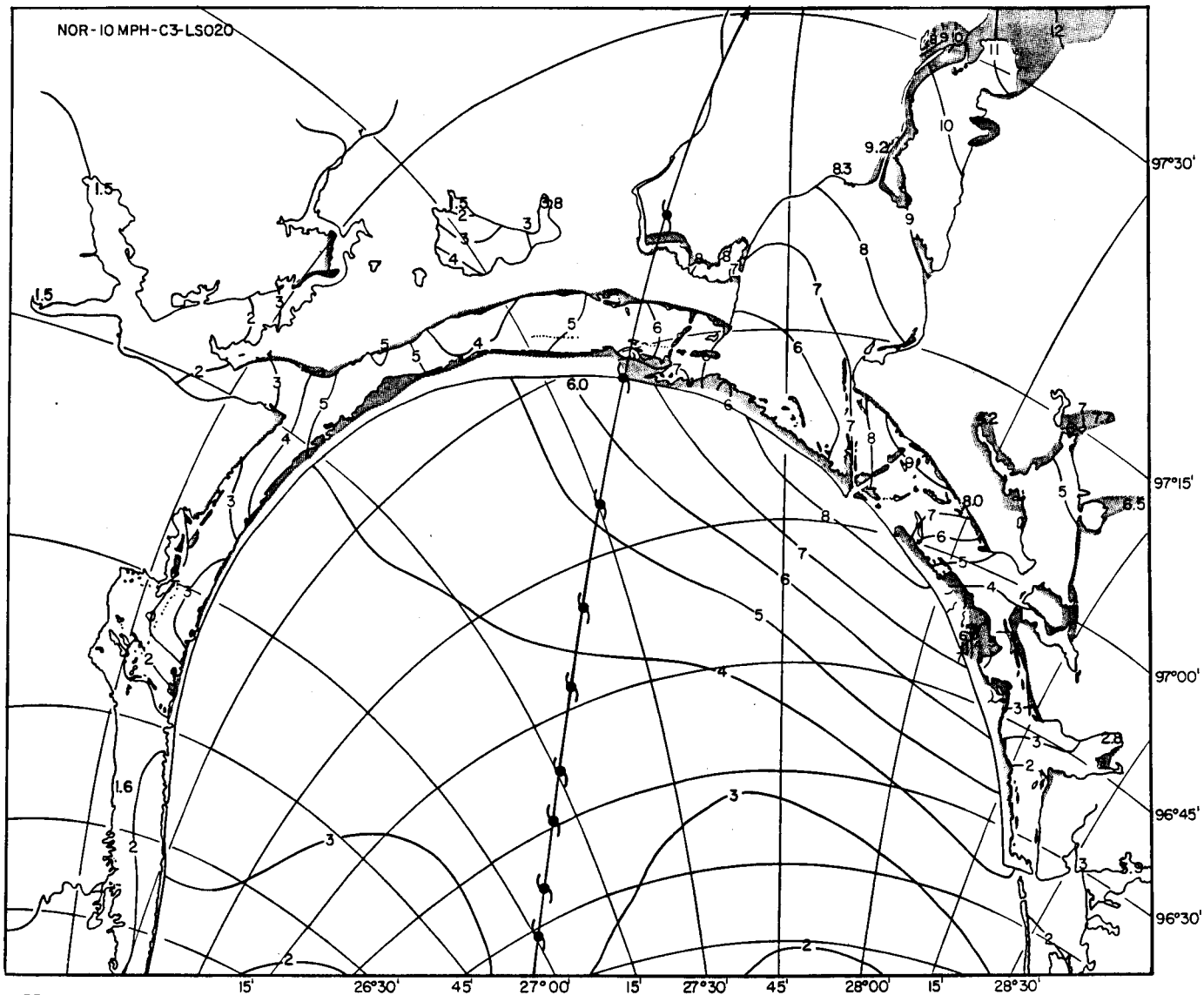
11. BAYSIDE (28, 66)



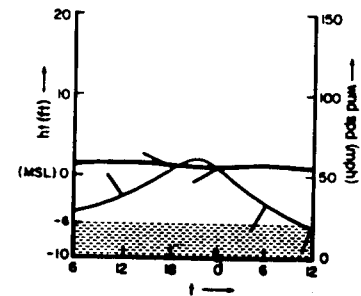
12. MATAGORDA IS. (45, 61)



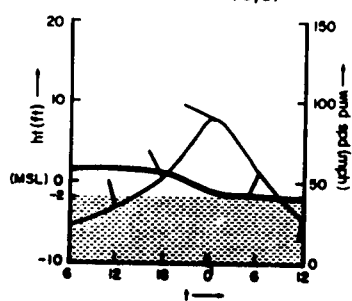
NOR - 10 MPH - C3-LS020



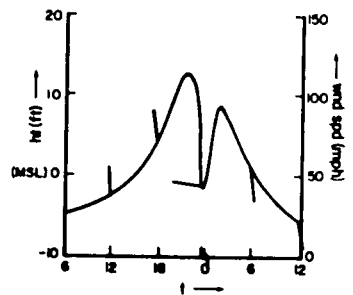
1. PORT MANSFIELD (48, 8)



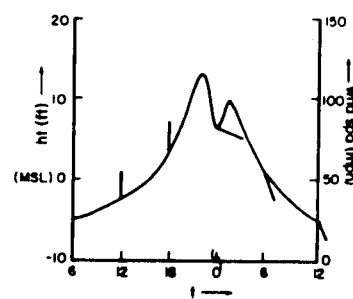
2. BAFFIN BAY (19, 3)



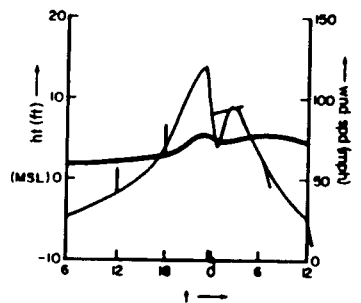
3. PADRI IS. RANGER STA. (24, 35)



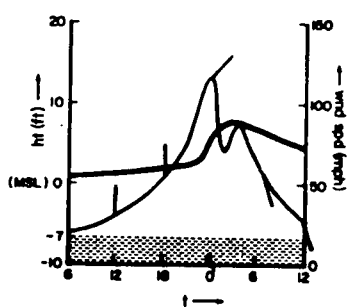
4. MUSTANG PASS (25, 45)



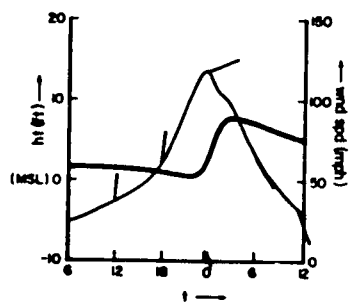
5. NAVAL AIR STA. (20, 46)



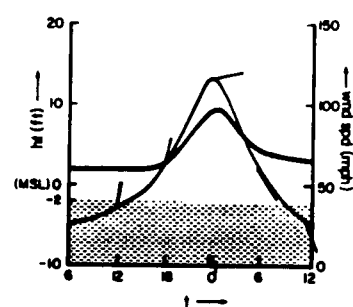
6. CORPUS CHRISTI (22, 53)



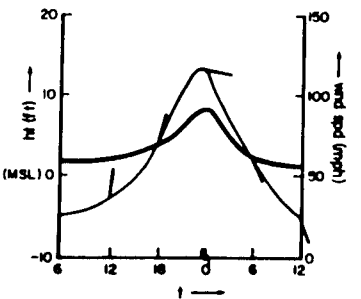
7. INGLESIDE (21, 55)



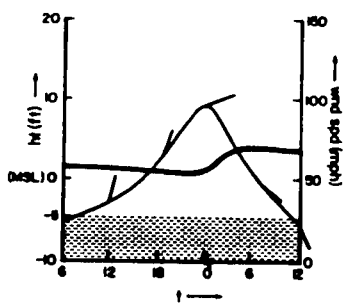
8. ARANSAS PASS (28, 57)



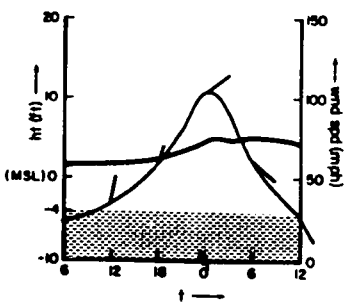
9. PORT ARANSAS (31, 53)



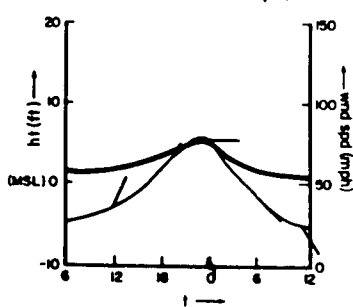
10. COPANO BRIDGE (35, 63)

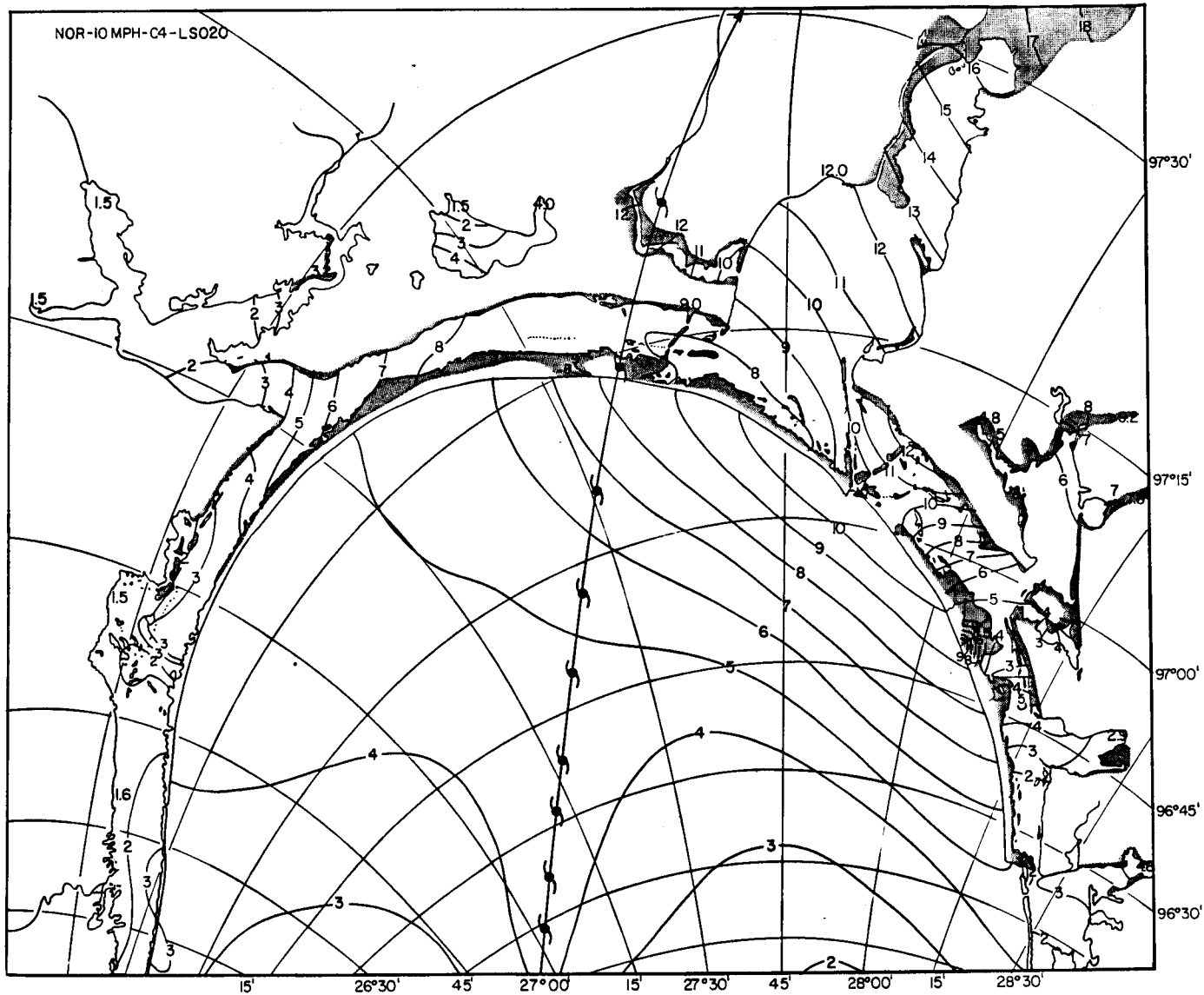


11. BAYSIDE (28, 66)

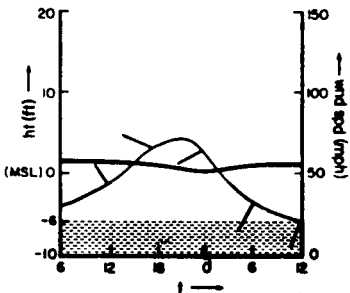


12. MATAGORDA IS. (45, 61)

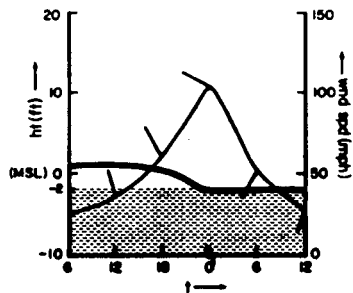




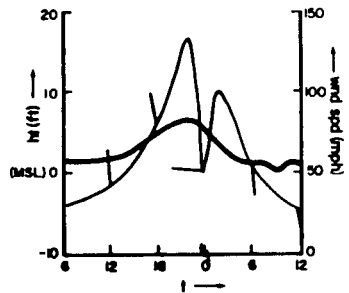
1. PORT MANSFIELD (48, 8)



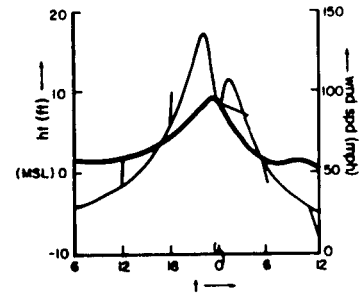
2. BAFFIN BAY (19, 3)



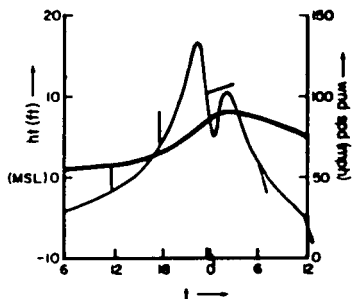
3. PADRI IS. RANGER STA. (24, 35)



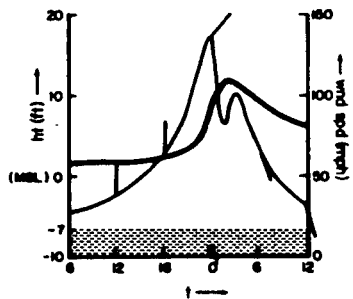
4. MUSTANG PASS (25, 45)



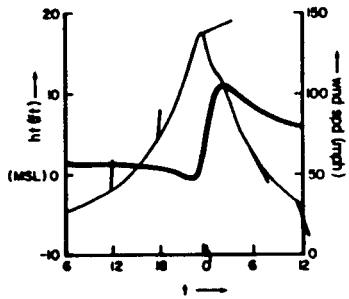
5. NAVAL AIR STA. (20, 46)



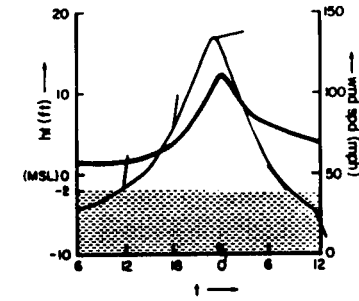
6. CORPUS CHRISTI (22, 53)



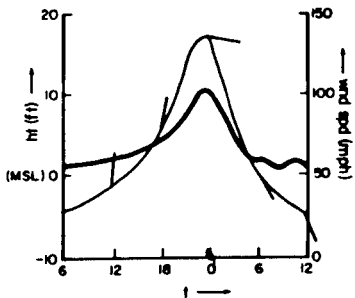
7. INGLESIDE (21, 55)



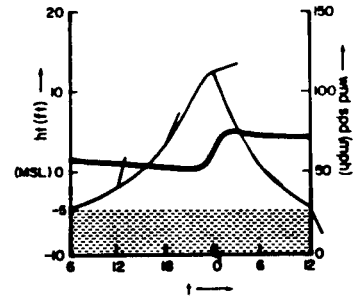
8. ARANSAS PASS (28, 57)



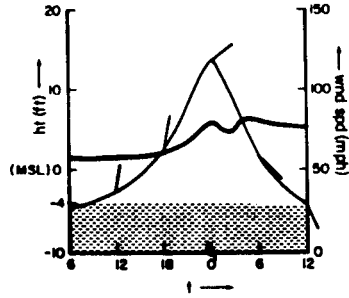
9. PORT ARANSAS (31, 53)



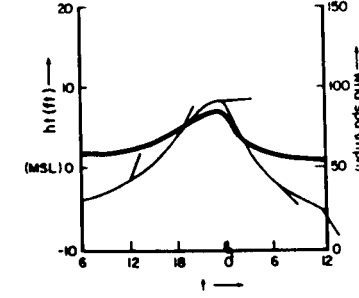
10. COPANO BRIDGE (35, 63)



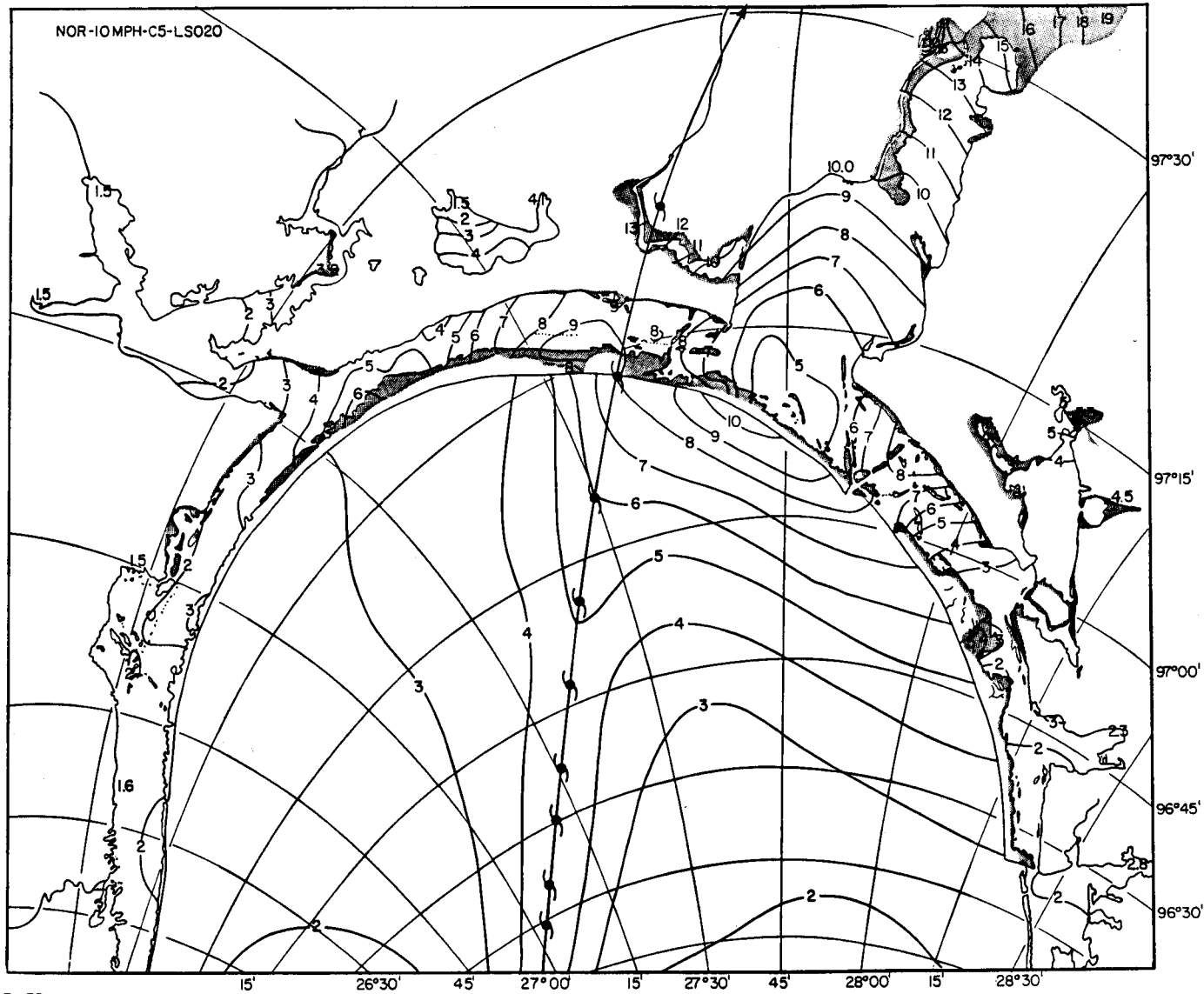
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

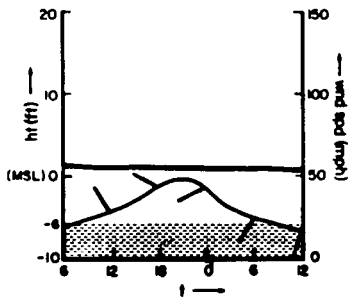


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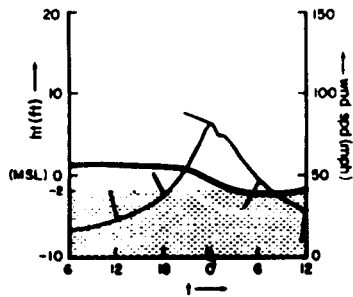




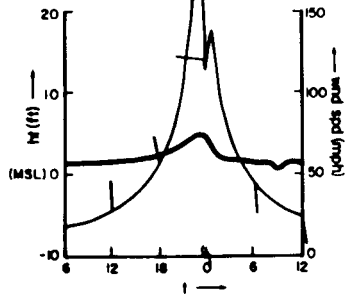
1. PORT MANSFIELD (48, 8)



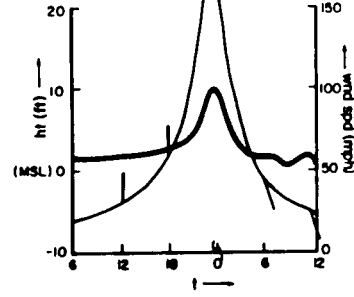
2. BAFFIN BAY (19, 3)



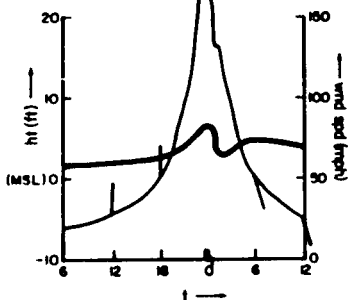
3. PADRI IS. RANGER STA. (24, 35)



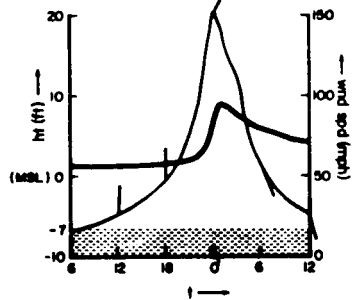
4. MUSTANG PASS (25, 45)



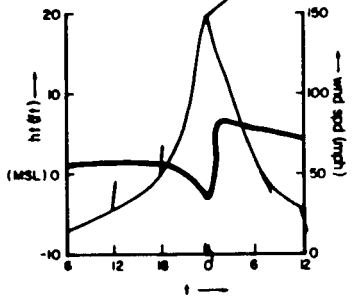
5. NAVAL AIR STA. (20, 46)



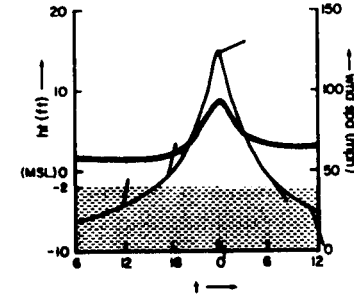
6. CORPUS CHRISTI (12, 53)



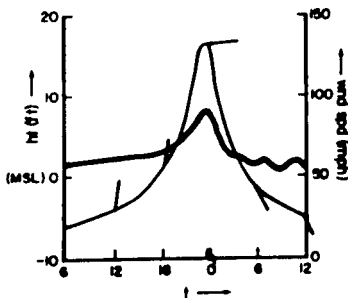
7. INGLESIDE (21, 55)



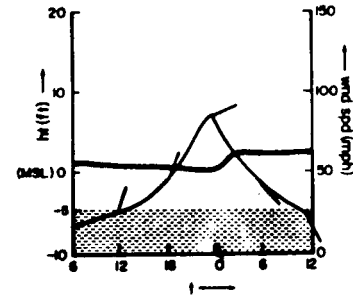
8. ARANSAS PASS (28, 57)



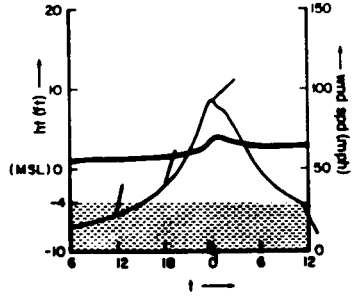
9. PORT ARANSAS (31, 53)



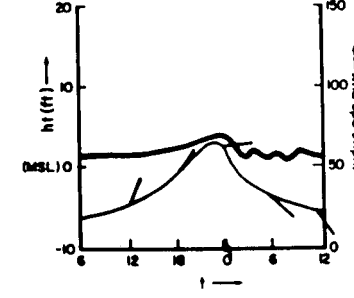
10. COPANO BRIDGE (35, 63)



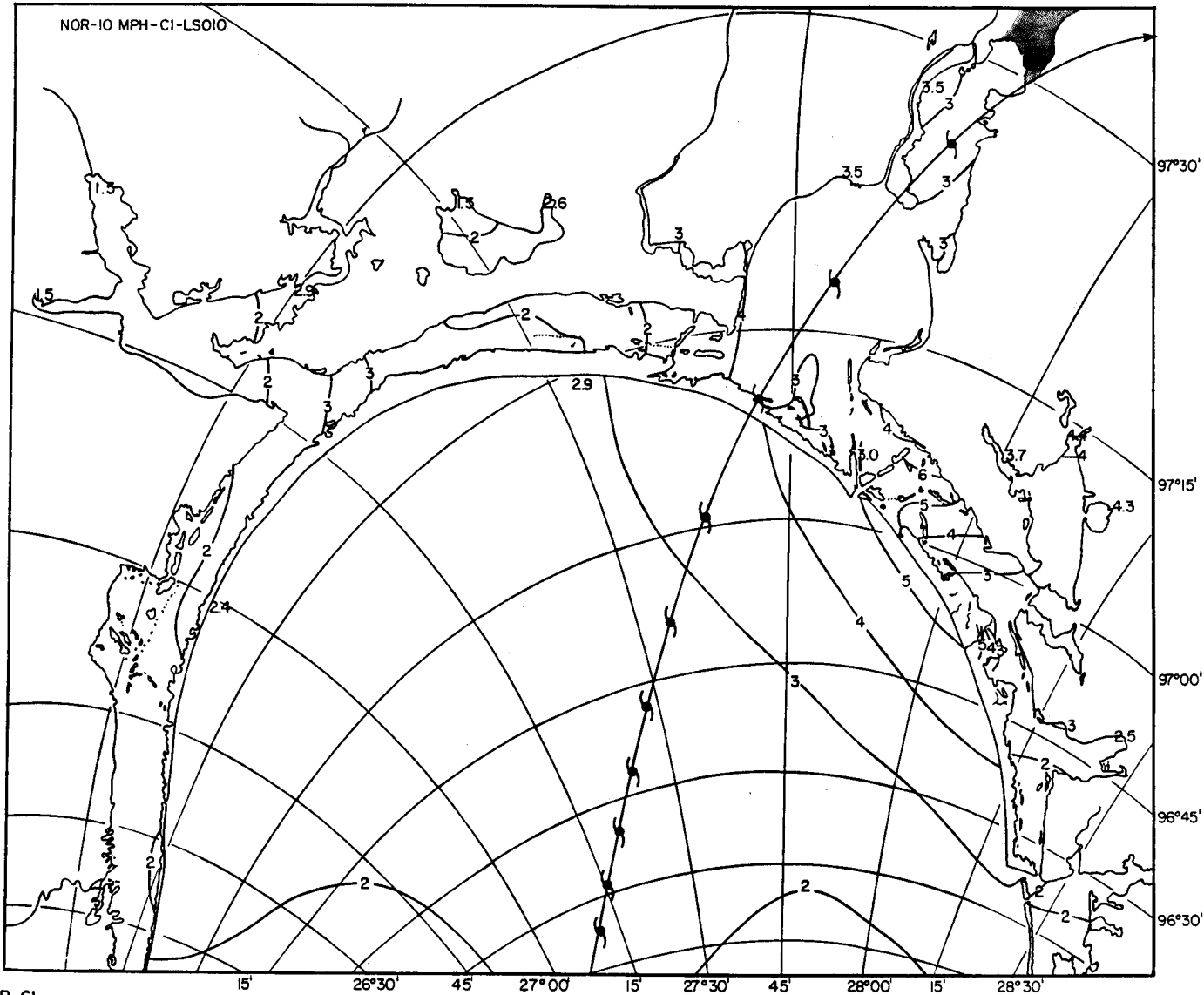
11. BAYSIDE (28, 66)



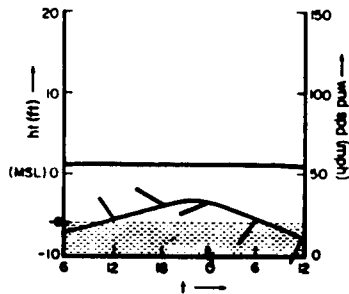
12. MATAGORDA IS. (45, 61)



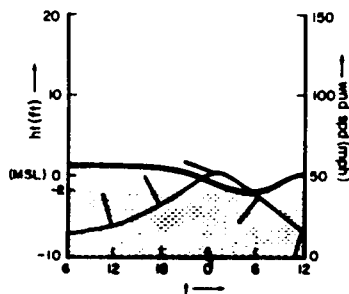
NOR-10 MPH-CI-LSO10



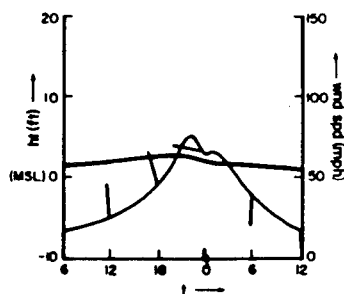
1. PORT MANSFIELD (48,8)



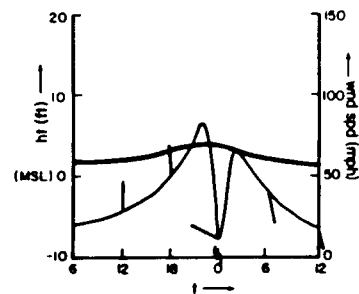
2. BAFFIN BAY (19,3)



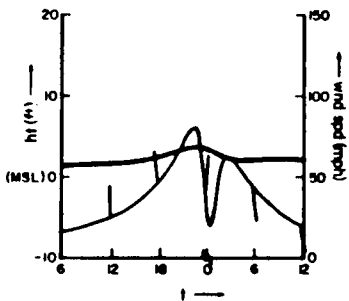
3. PADRI IS. RANGER STA. (24,35)



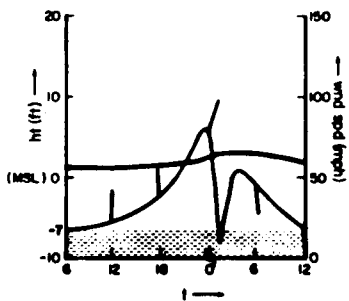
4. MUSTANG PASS (25,45)



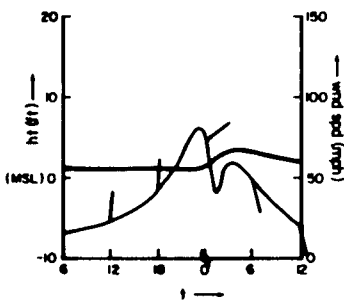
5. NAVAL AIR STA. (20,46)



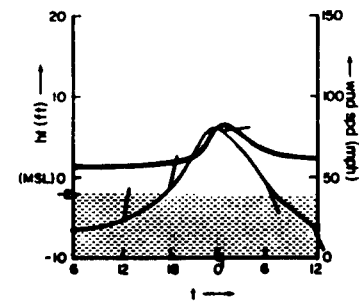
6. CORPUS CHRISTI (12,53)



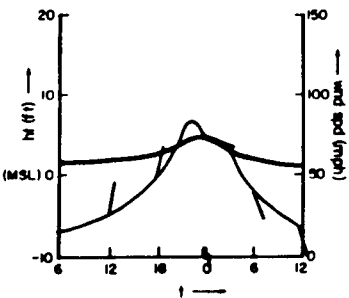
7. INGLESIDE (21,55)



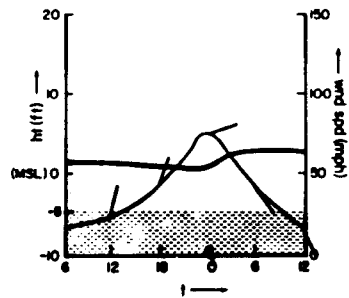
8. ARANSAS PASS (28,57)



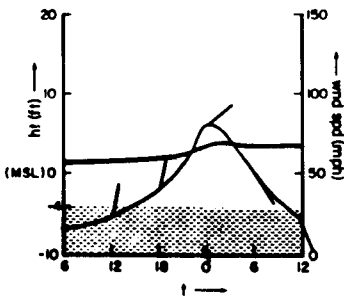
9. PORT ARANSAS (31,53)



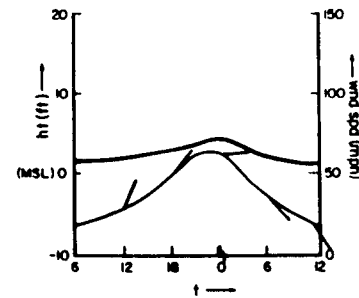
10. COPANO BRIDGE (35,63)



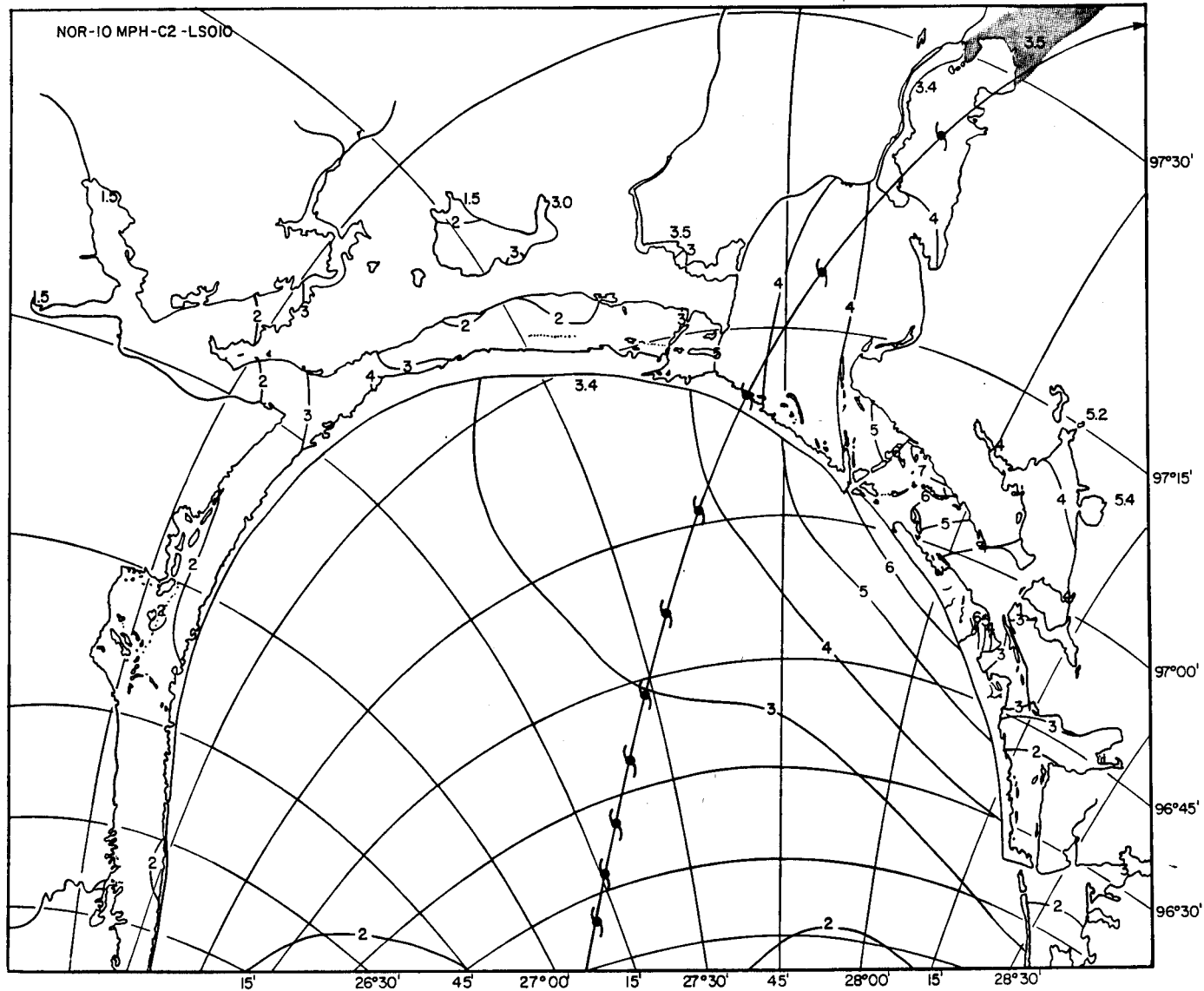
11. BAYSIDE (28,66)



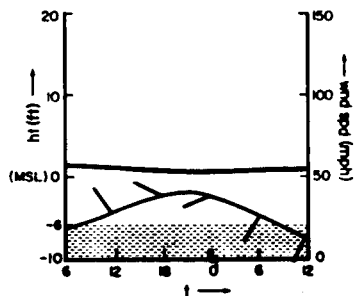
12. MATAGORDA IS. (45,61)



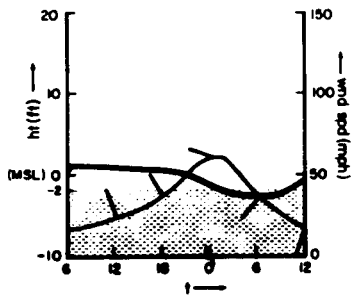
NOR-10 MPH-C2 -LS010



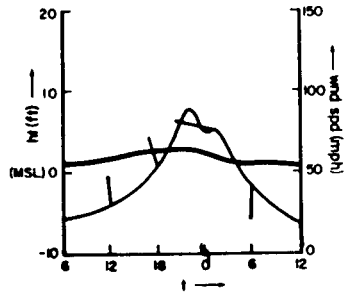
1. PORT MANSFIELD (48, 8)



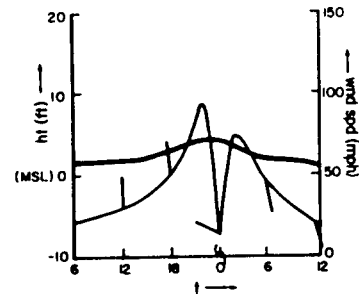
2. BAFFIN BAY (19, 3)



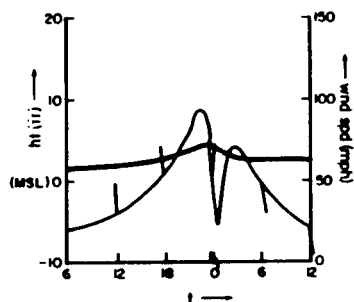
3. PADRI IS. RANGER STA. (24, 35)



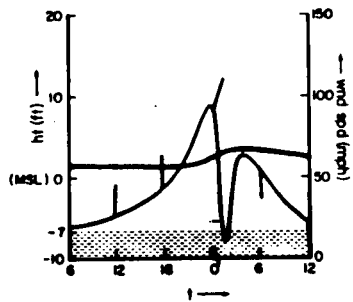
4. MUSTANG PASS (25, 45)



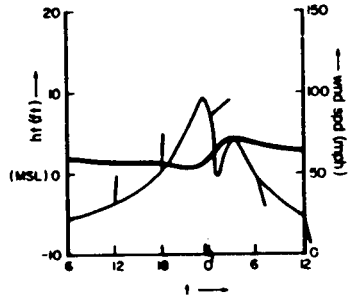
5. NAVAL AIR STA. (20, 46)



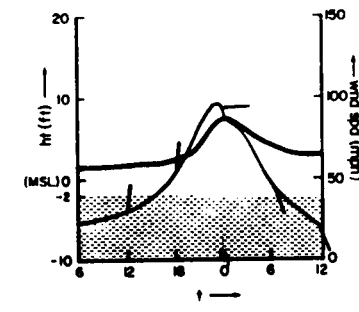
6. CORPUS CHRISTI (12, 53)



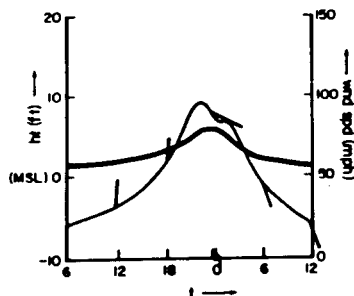
7. INGLESIDE (21, 55)



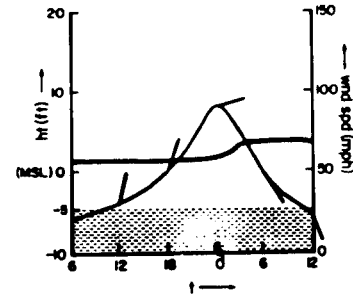
8. ARANSAS PASS (28, 57)



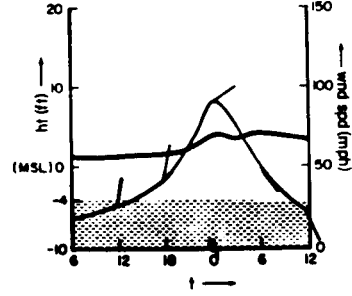
9. PORT ARANSAS (31, 53)



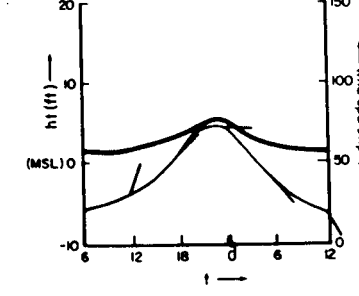
10. COPANO BRIDGE (35, 63)



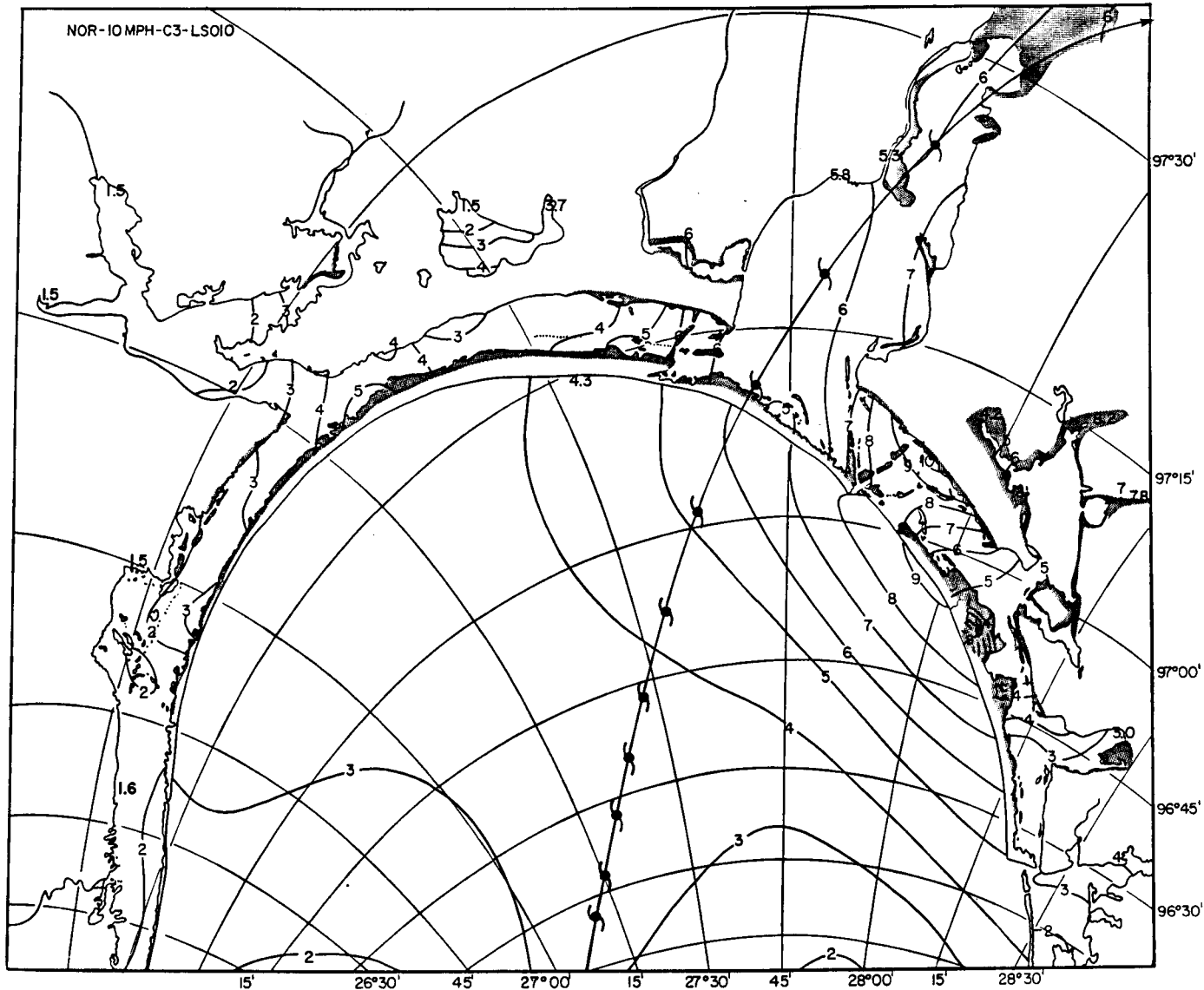
11. BAYSIDE (28, 66)



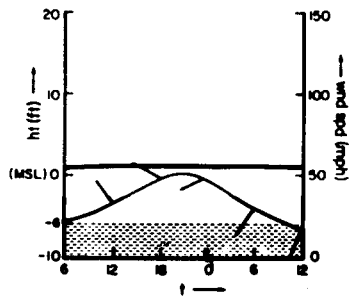
12. MATAGORDA IS. (45, 61)



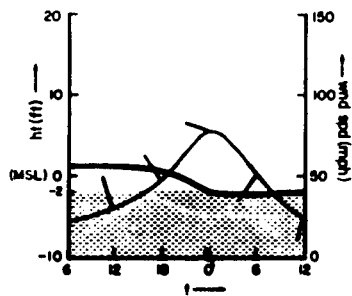
NOR-10 MPH-C3-LSO10



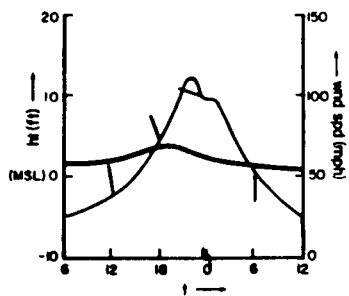
1. PORT MANSFIELD (48, 8)



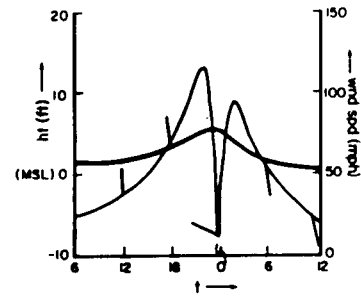
2. BAFFIN BAY (19, 3)



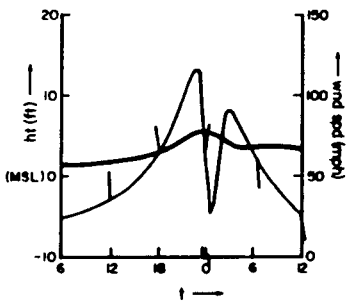
3. PADRI IS. RANGER STA. (24, 35)



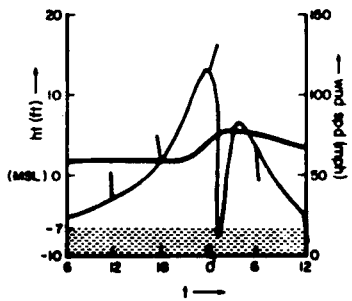
4. MUSTANG PASS (25, 45)



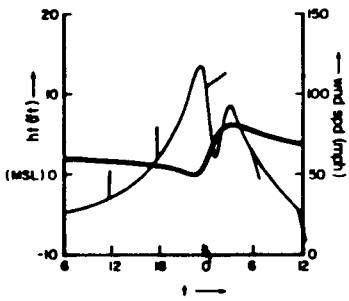
5. NAVAL AIR STA. (20, 46)



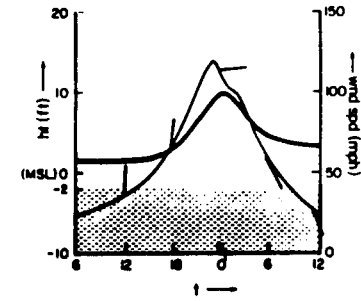
6. CORPUS CHRISTI (12, 53)



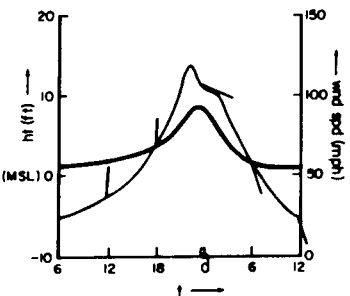
7. INGLESIDE (21, 55)



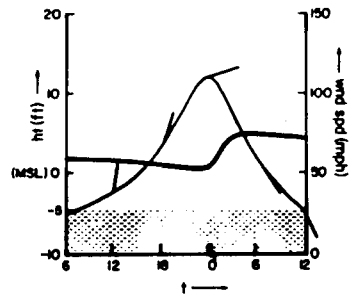
8. ARANSAS PASS (28, 57)



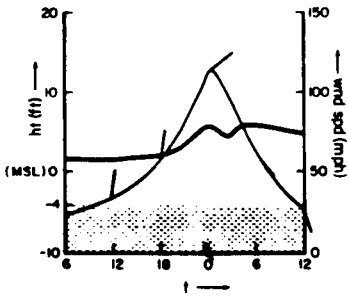
9. PORT ARANSAS (31, 53)



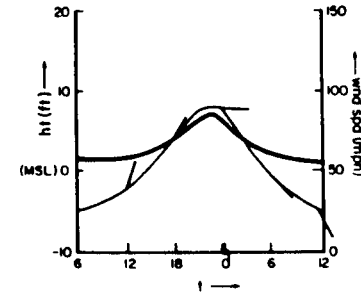
10. COPANO BRIDGE (35, 63)



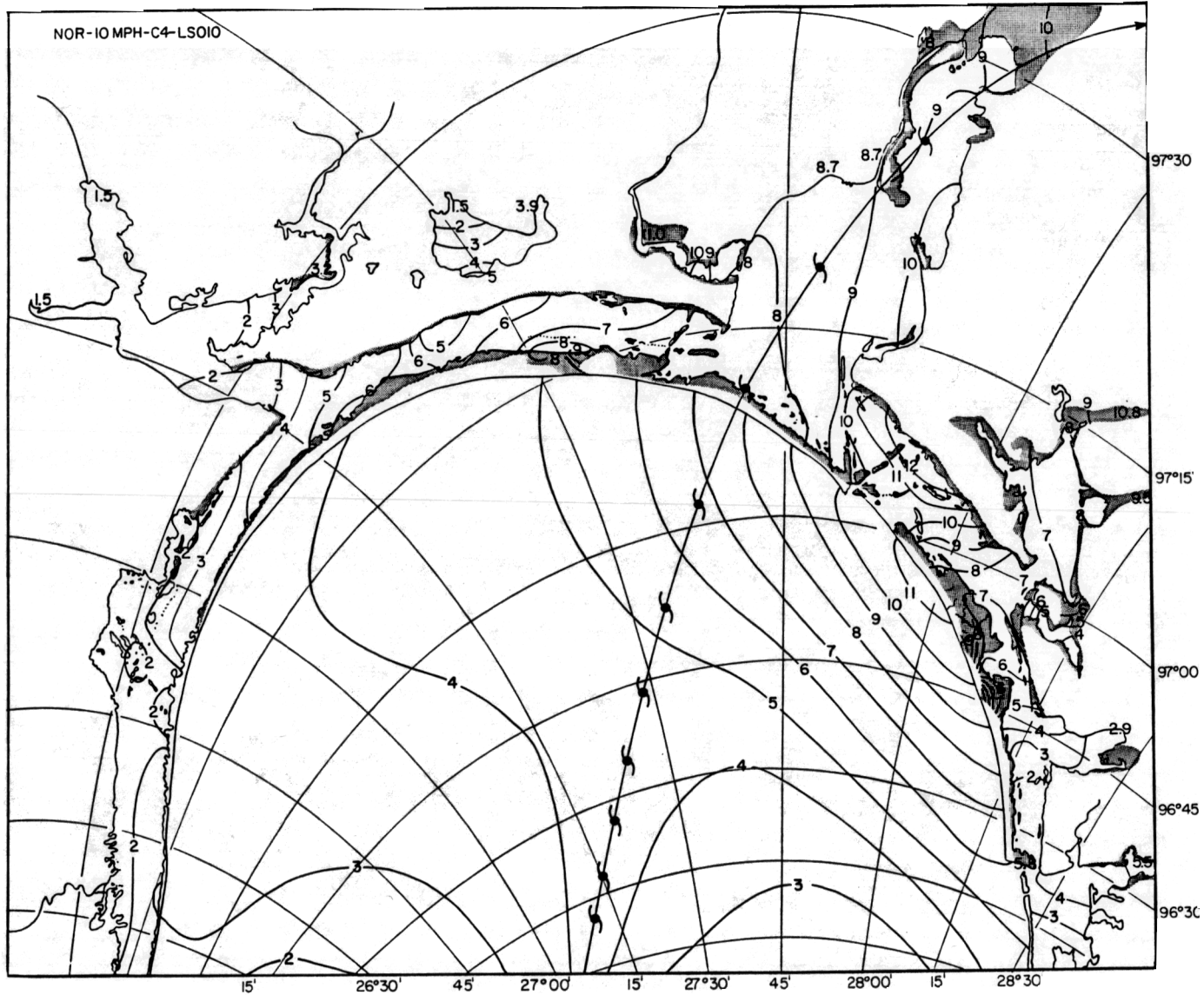
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

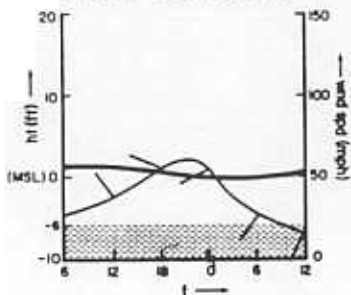


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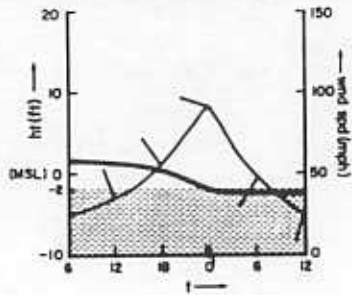




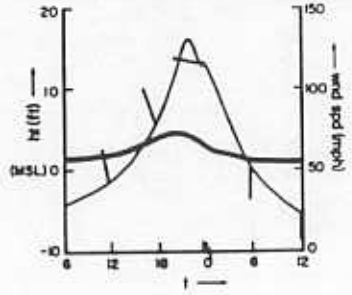
1. PORT MANSFIELD (48,8)



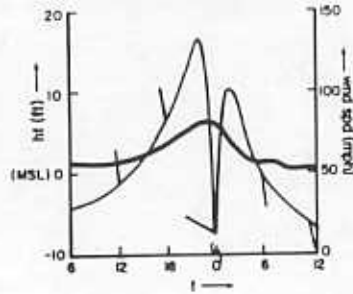
2. BAFFIN BAY (19,3)



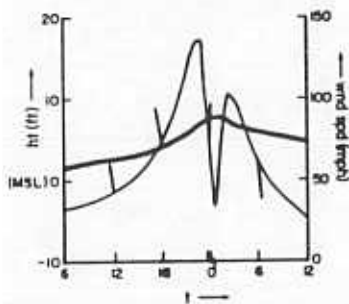
3. PADRI IS. RANGER STA. (24,35)



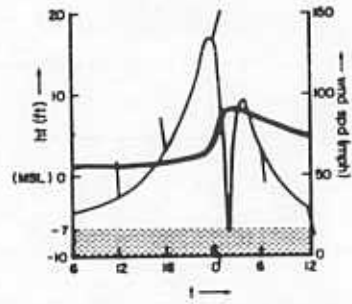
4. MUSTANG PASS (25,45)



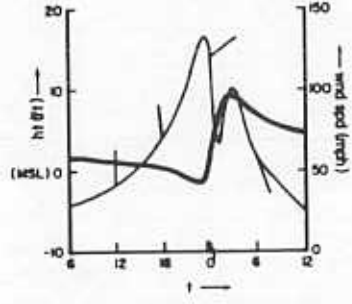
5. NAVAL AIR STA. (20,46)



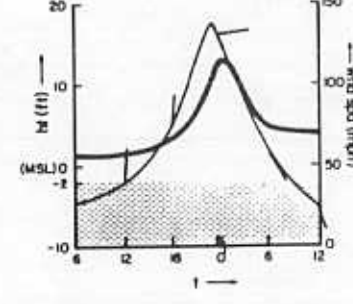
6. CORPUS CHRISTI (2,53)



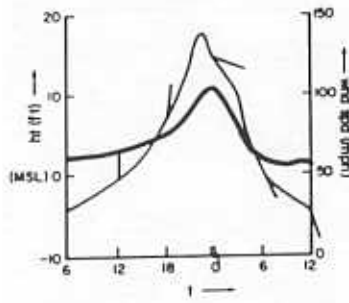
7. INGLESIDE (21,55)



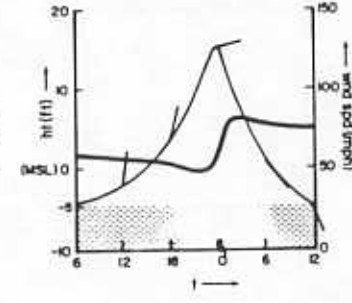
8. ARANSAS PASS (28,57)



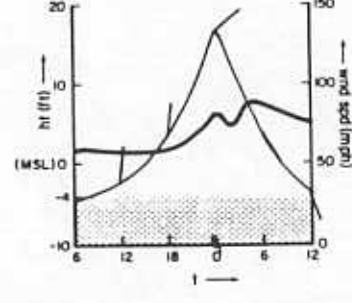
9. PORT ARANSAS (31,53)



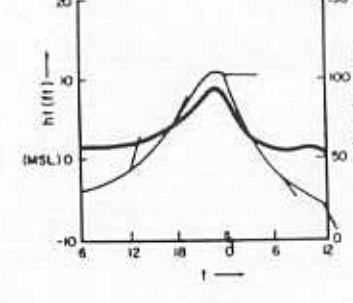
10. CORPANO BRIDGE (35,63)



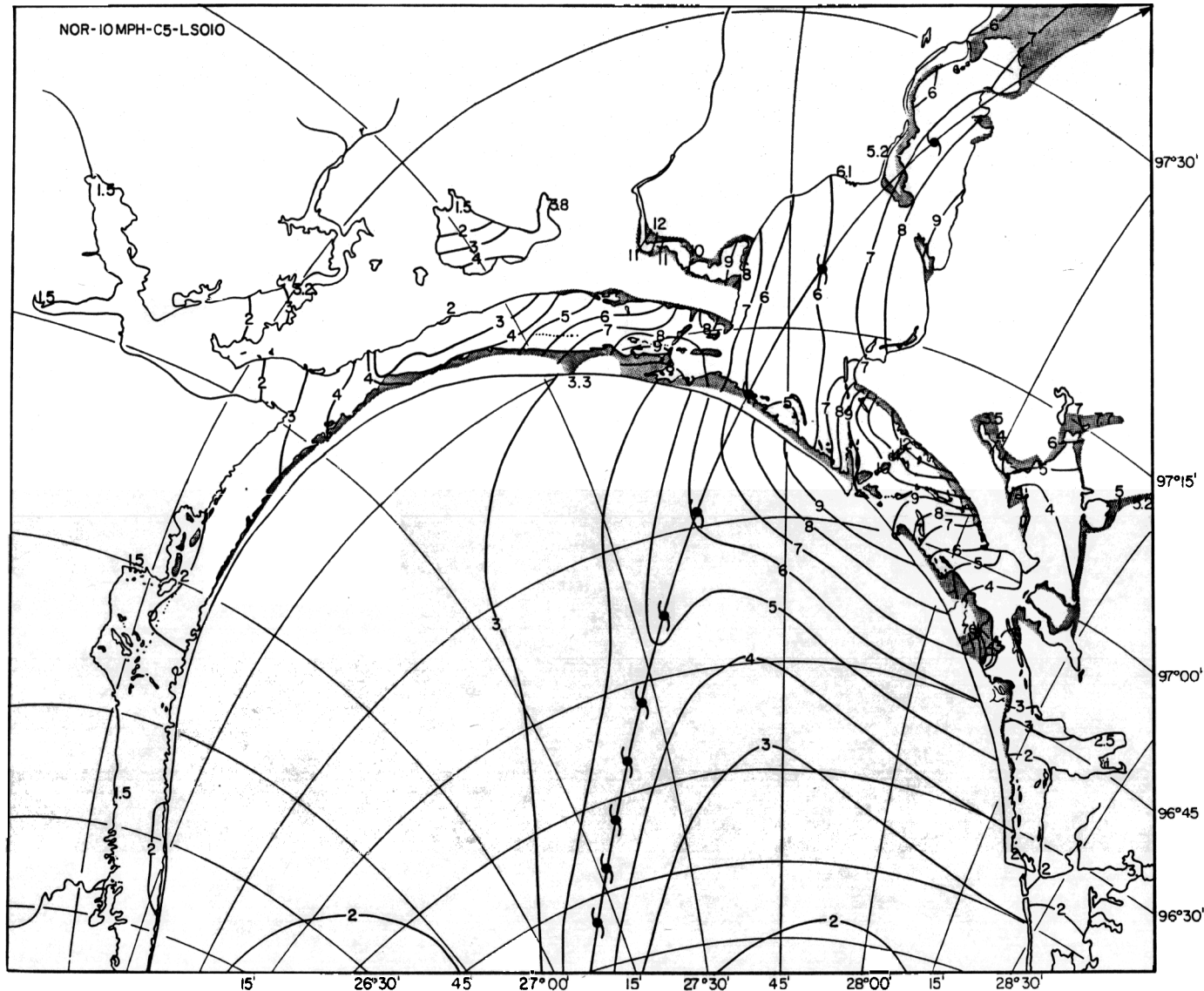
11. BAYSIDE (28,66)



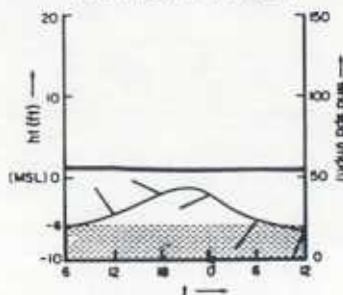
12. MATAGORDA IS. (45,61)



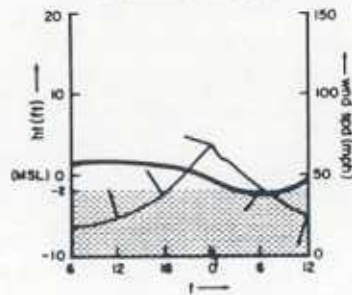
NOR-10MPH-C5-LSO10



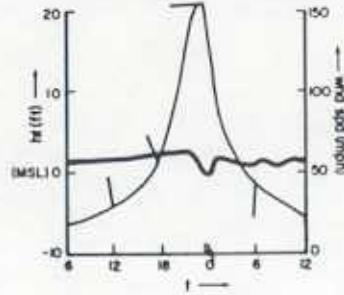
1. PORT MANSFIELD (48, 8)



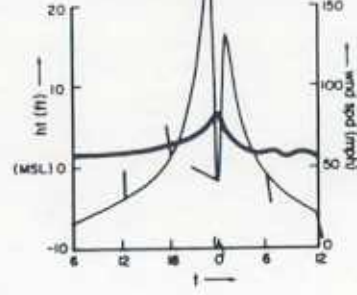
2. BAFFIN BAY (19, 3)



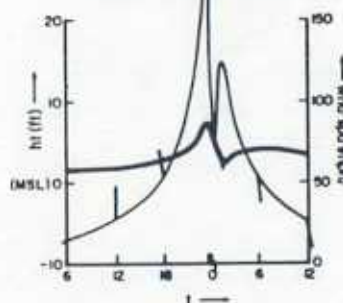
3. PADRI IS. RANGER STA. (24, 35)



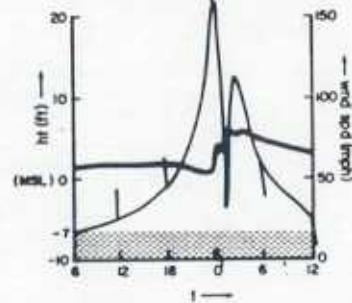
4. MUSTANG PASS (25, 45)



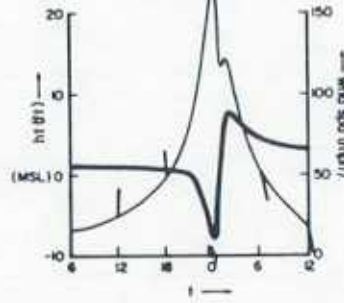
5. NAVAL AIR STA. (20, 46)



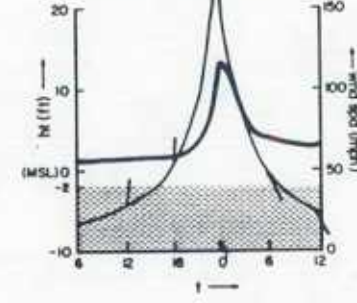
6. CORPUS CHRISTI (12, 53)



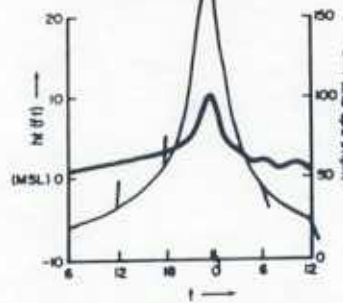
7. INGLESIDE (21, 55)



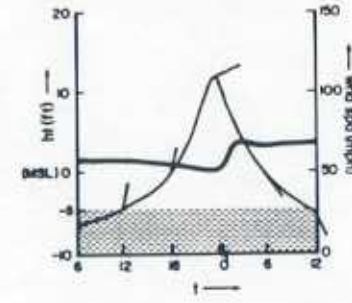
8. ARANSAS PASS (28, 57)



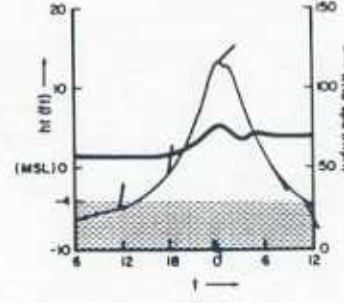
9. PORT ARANSAS (31, 53)



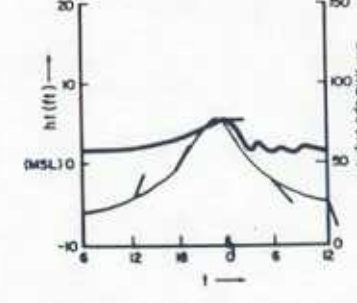
10. COPRANO BRIDGE (35, 63)



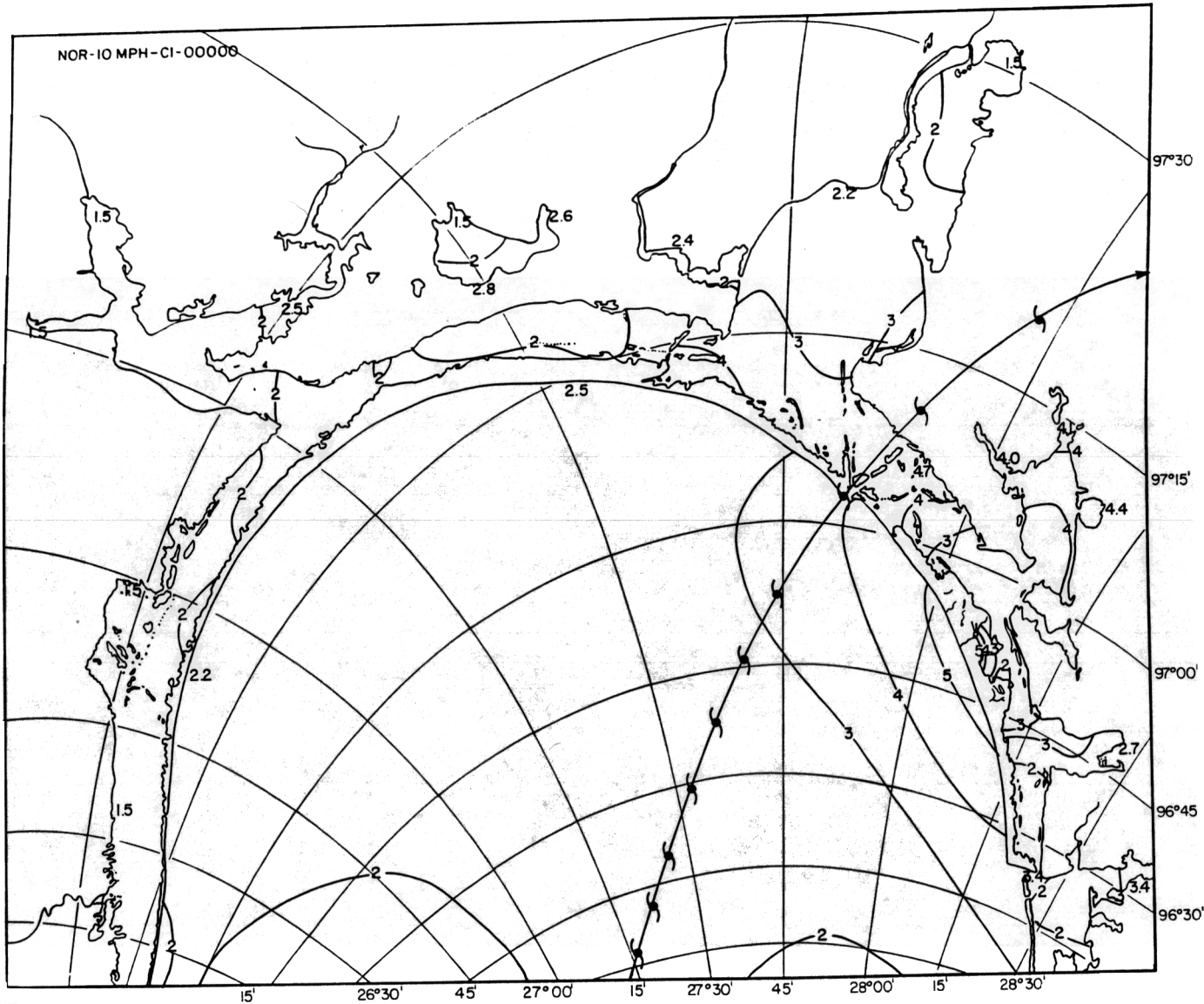
11. BAYSIDE (28, 66)



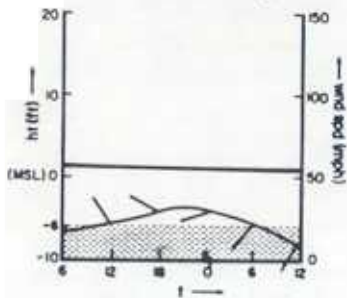
12. MATAGORDA IS. (45, 61)



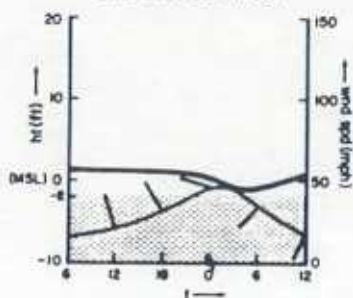
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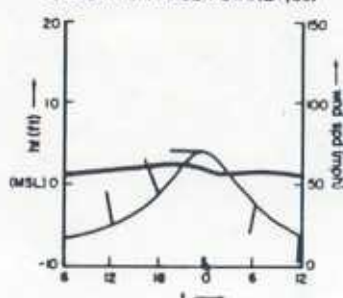
1. PORT MANSFIELD (48, 8)



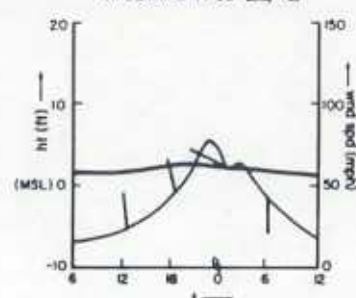
2. BAFFIN BAY (19, 3)



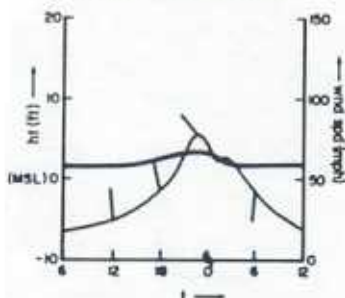
3. PADRI IS. RANGER STA. (24, 35)



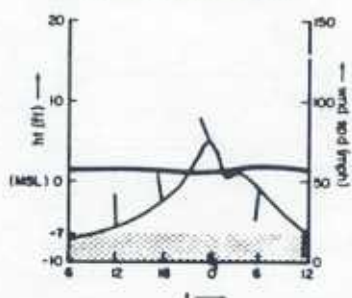
4. MUSTANG PASS (25, 45)



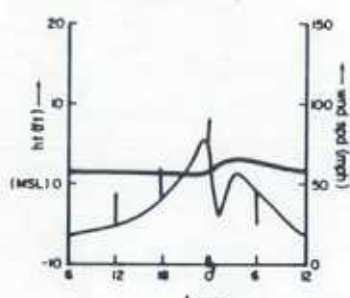
5. NAVAL AIR STA. (20, 46)



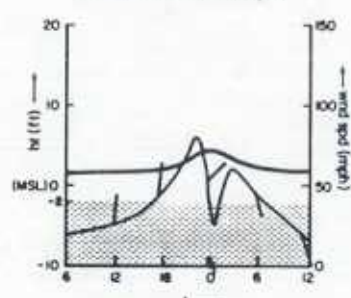
6. CORPUS CHRISTI (12, 53)



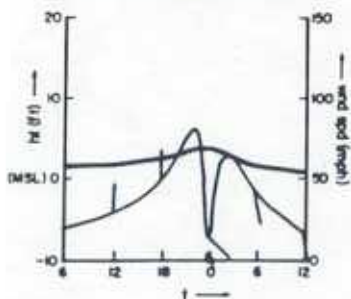
7. INGLESIDE (21, 55)



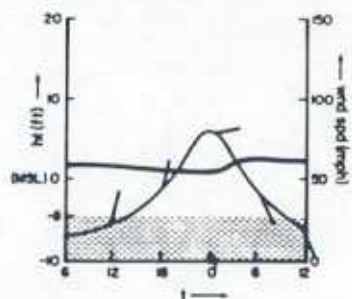
8. ARANSAS PASS (28, 57)



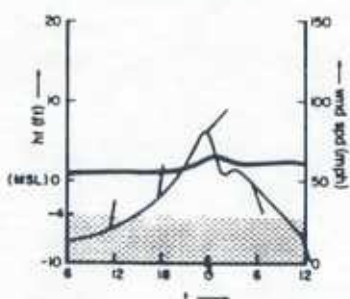
9. PORT ARANSAS (31, 53)



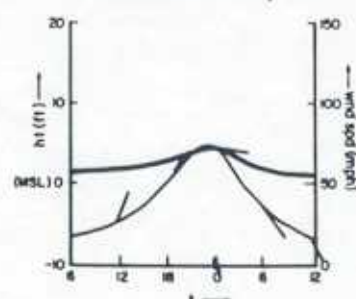
10. COPLAND BRIDGE (35, 63)

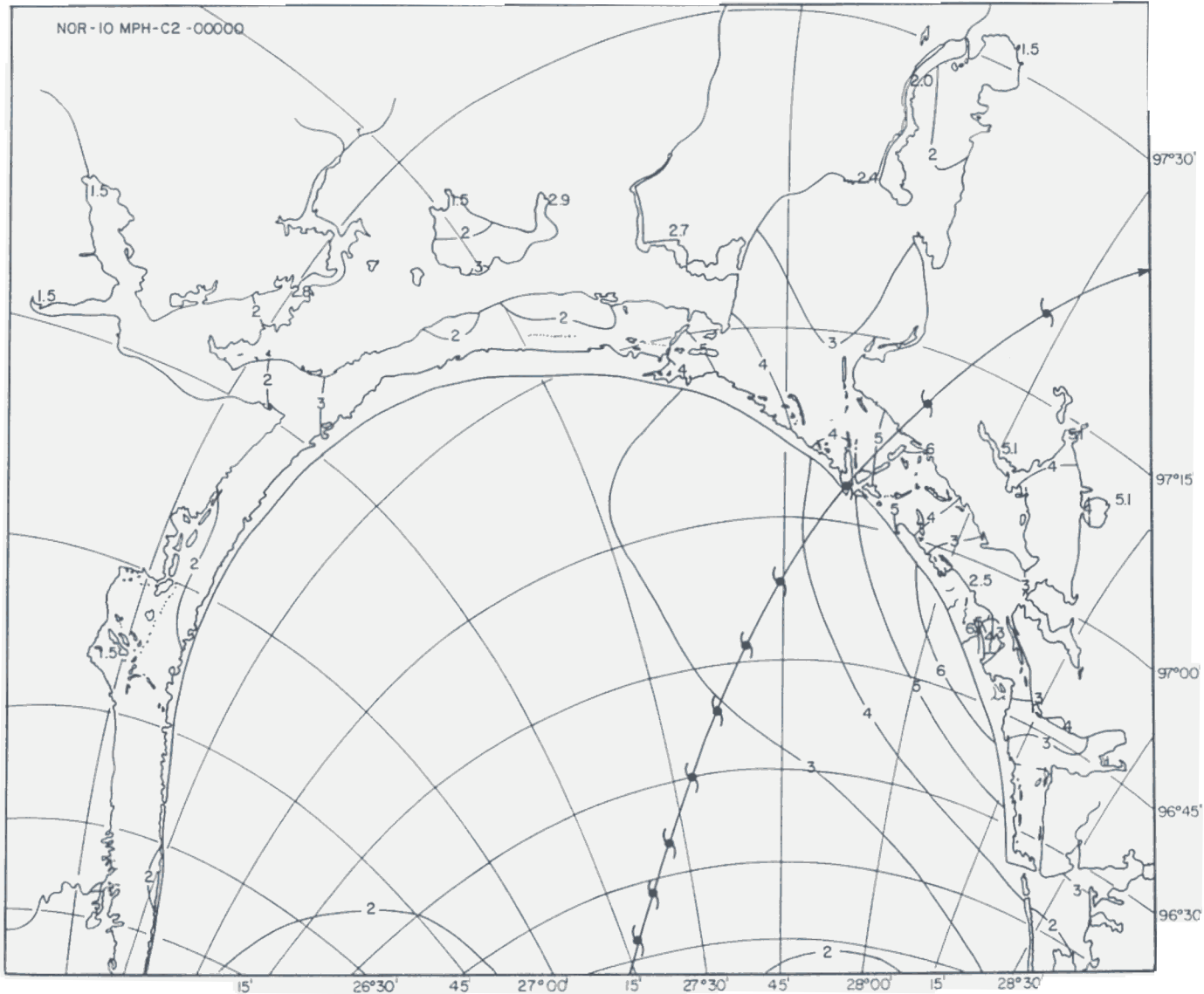


11. BAYSIDE (28, 66)

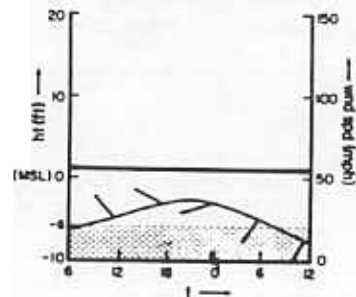


12. MATAGORDA IS. (45, 61)

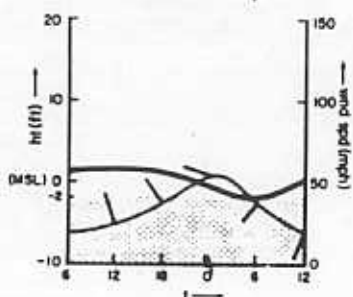




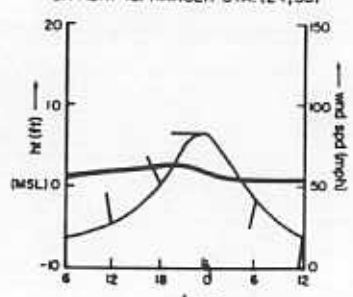
1. PORT MANSFIELD (48, 8)



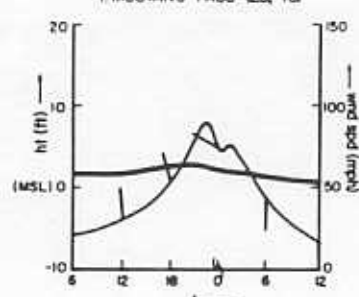
2. BAFFIN BAY (19, 3)



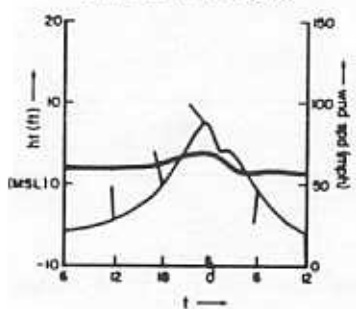
3. PADRI IS. RANGER STA. (24, 35)



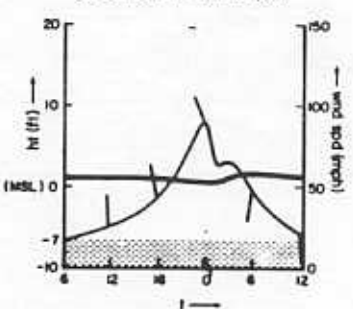
4. MUSTANG PASS (25, 45)



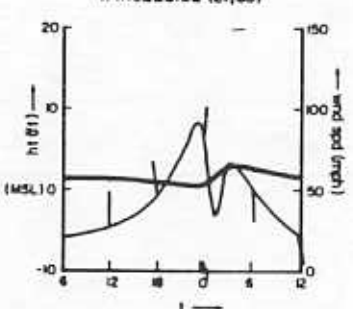
5. NAVAL AIR STA. (20, 46)



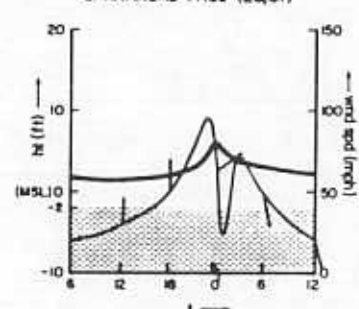
6. CORPUS CHRISTI (12, 53)



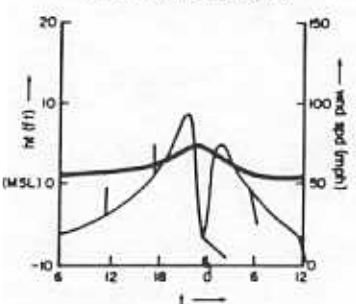
7. INGLESIDE (21, 55)



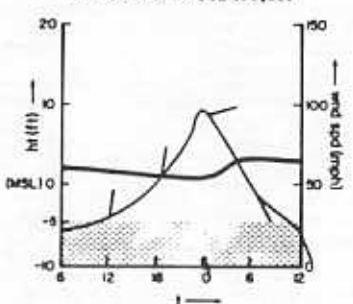
8. ARANSAS PASS (28, 57)



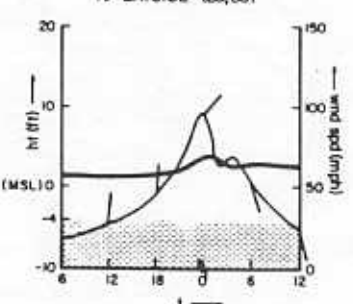
9. PORT ARANSAS (31, 53)



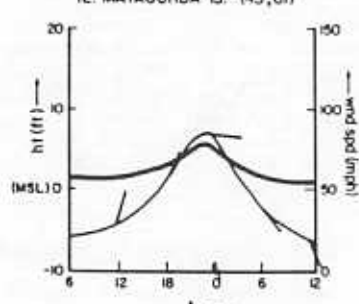
10. COPANO BRIDGE (35, 63)



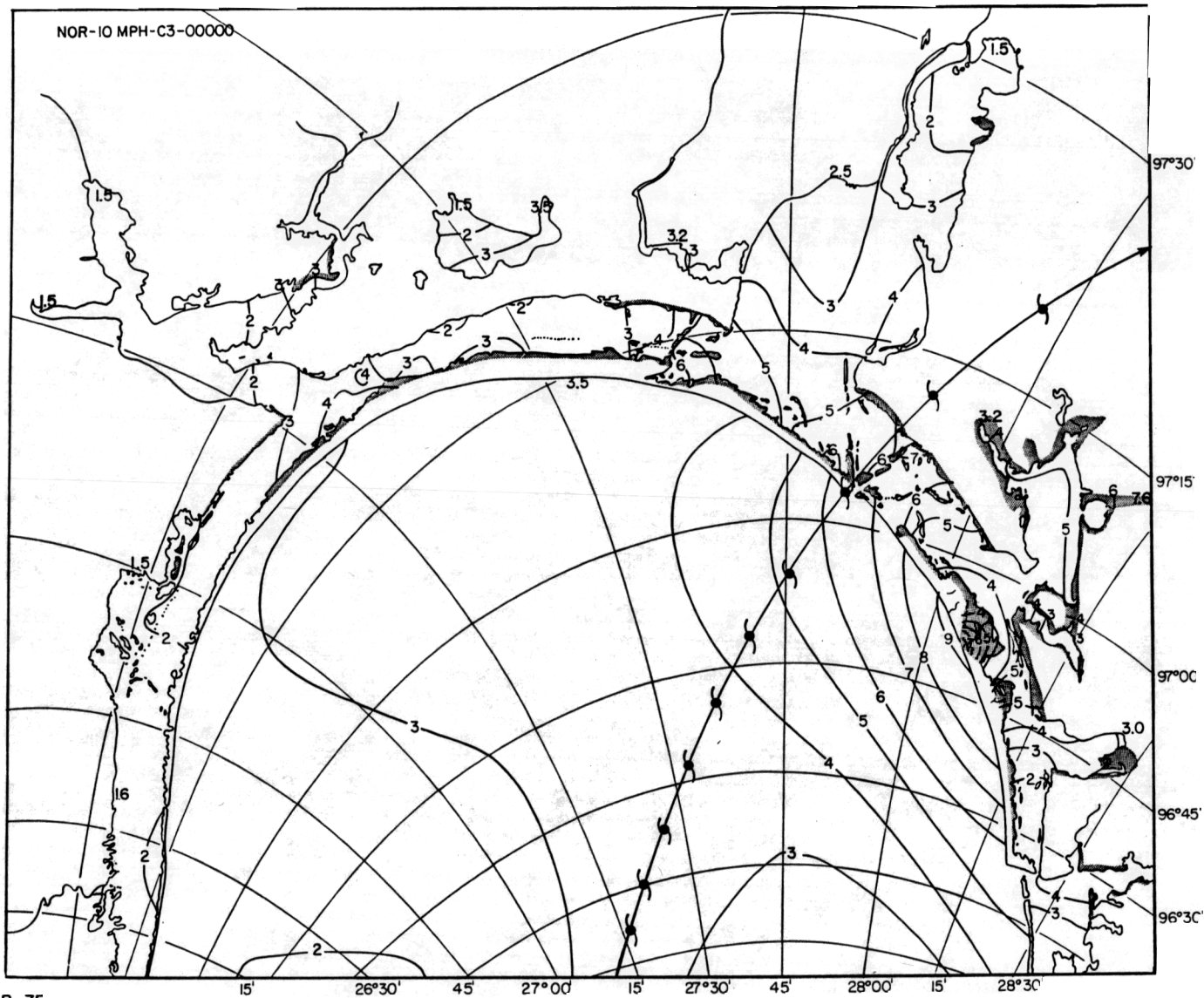
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

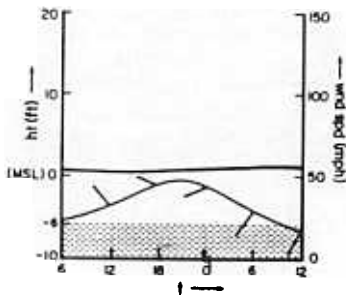


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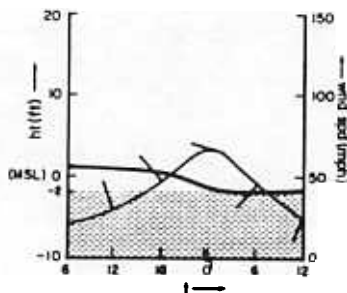




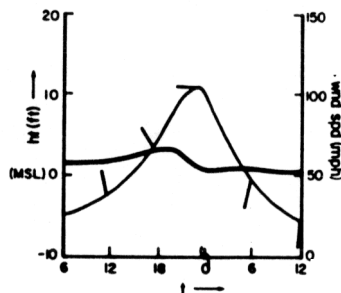
1. PORT MANSFIELD (48, 8)



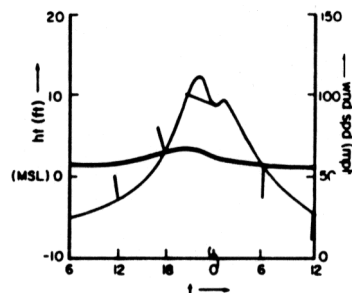
2. BAFFIN BAY (19, 3)



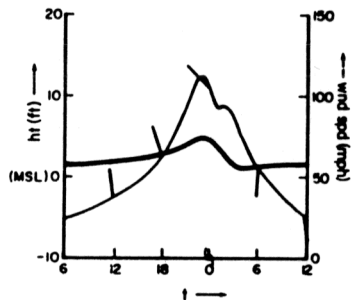
3. PADRI IS. RANGER STA. (24, 35)



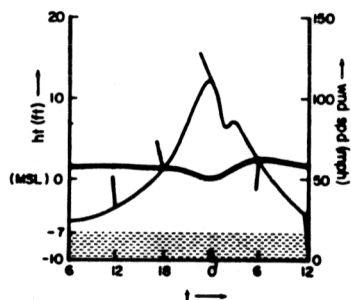
4. MUSTANG PASS (25, 45)



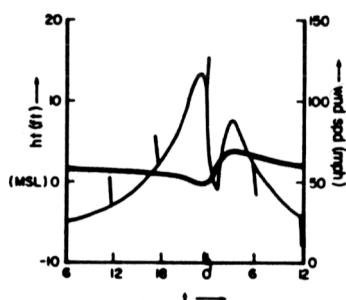
5. NAVAL AIR STA. (20, 46)



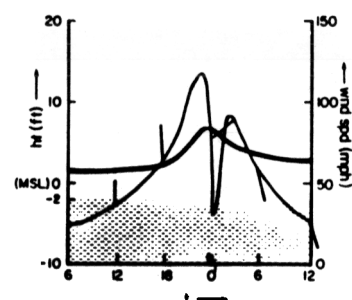
6. CORPUS CHRISTI (12, 53)



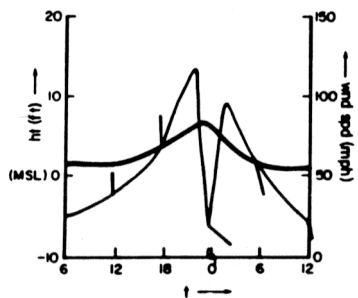
7. INGLESIDE (21, 55)



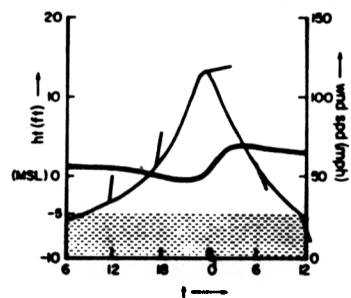
8. ARANSAS PASS (28, 57)



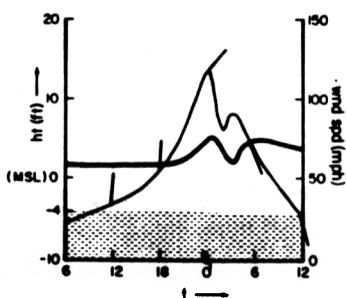
9. PORT ARANSAS (31, 53)



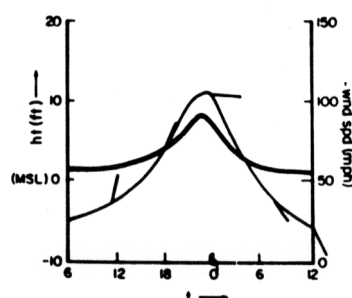
10. COPANO BRIDGE (35, 63)



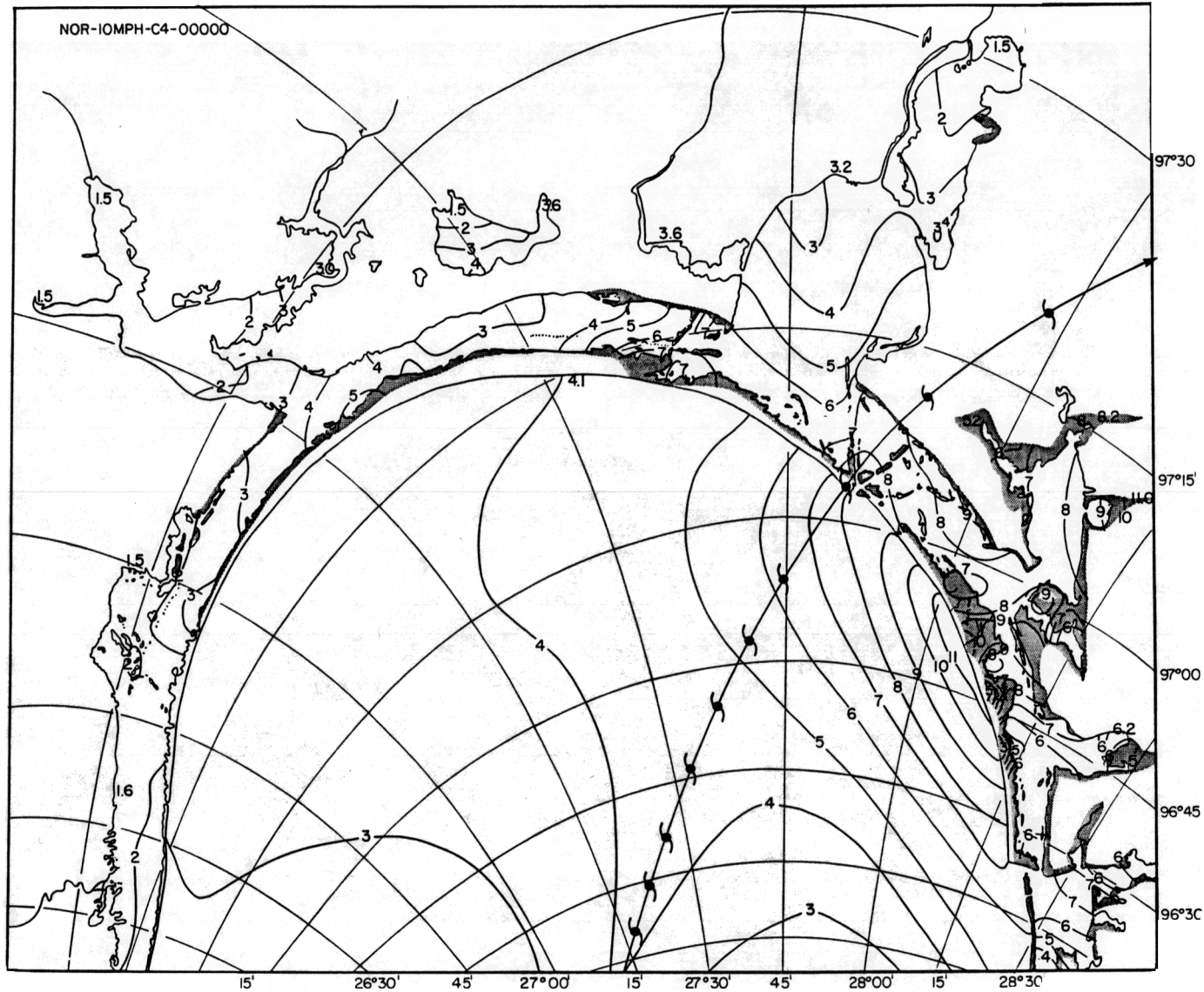
11. BAYSIDE (28, 66)



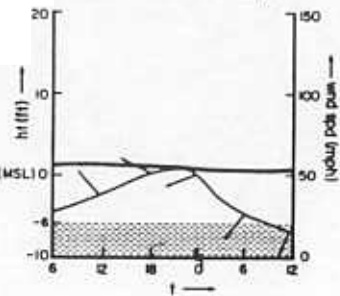
12. MATAGORDA IS. (45, 61)



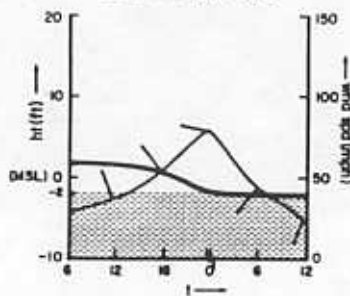
NOR-IOMPH-C4-00000



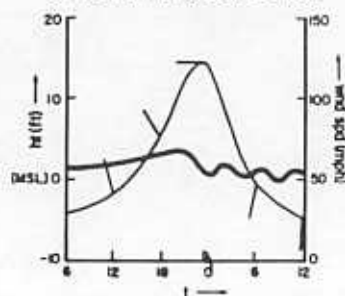
1. PORT MANSFIELD (48, 8)



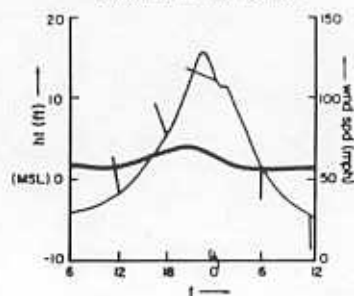
2. BAFFIN BAY (19, 3)



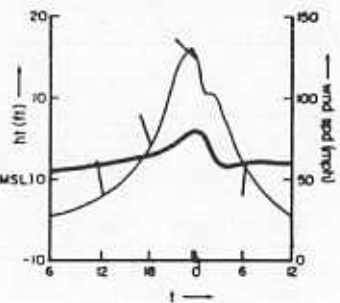
3. PADRI IS. RANGER STA. (24, 35)



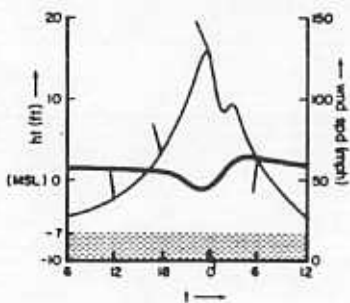
4. MUSTANG PASS (25, 45)



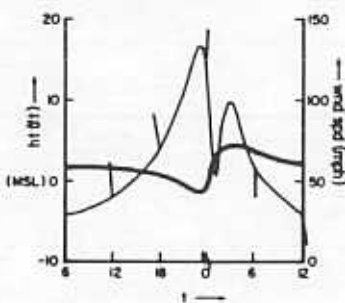
5. NAVAL AIR STA. (20, 46)



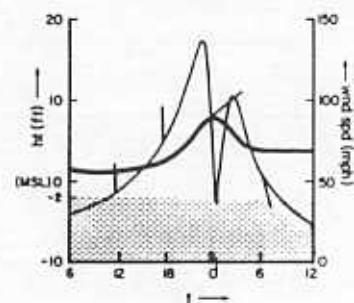
6. CORPUS CHRISTI (02, 53)



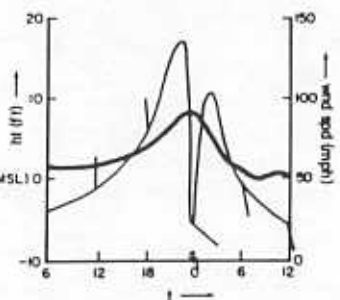
7. INGLESIDE (21, 55)



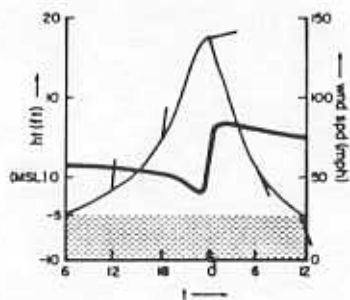
8. ARANSAS PASS (28, 57)



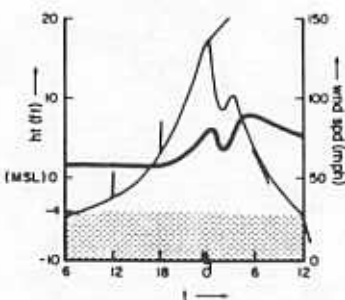
9. PORT ARANSAS (31, 53)



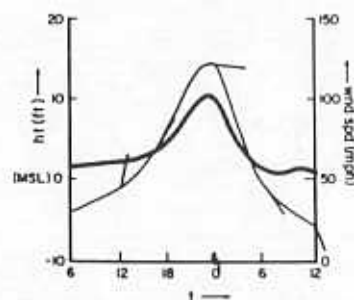
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)

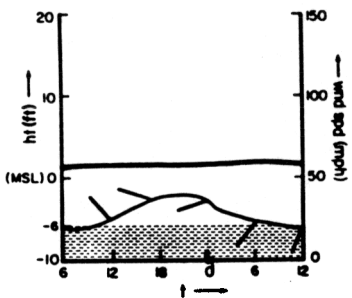


12. MATAGORDA IS (45, 61)

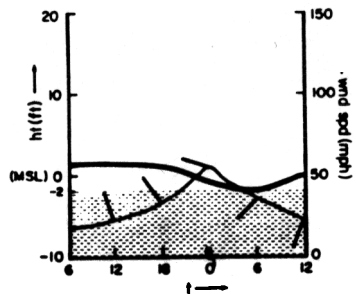




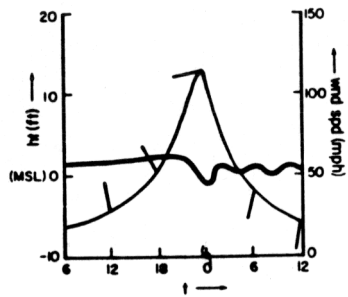
1. PORT MANSFIELD (48,8)



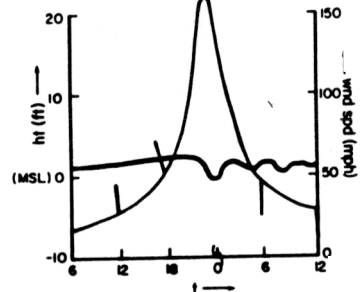
2. BAFFIN BAY (19,3)



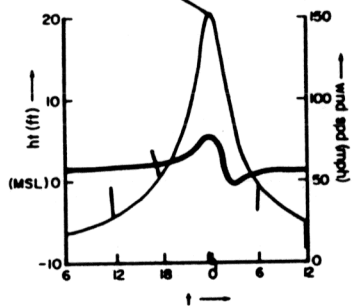
3. PADRI IS. RANGER STA. (24,35)



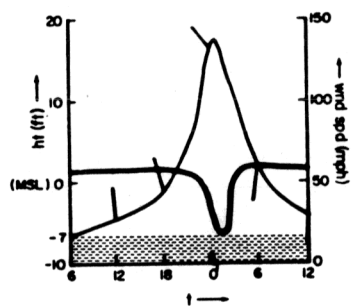
4. MUSTANG PASS (25,45)



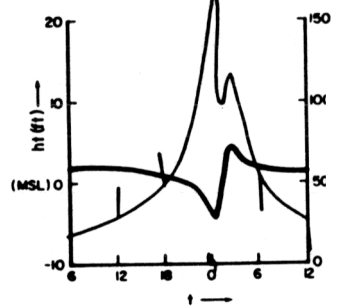
5. NAVAL AIR STA. (20,46)



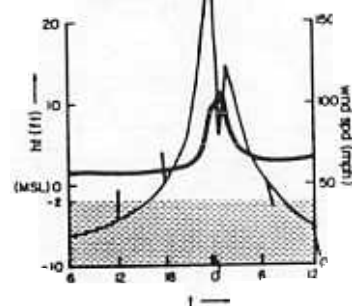
6. CORPUS CHRISTI (12,53)



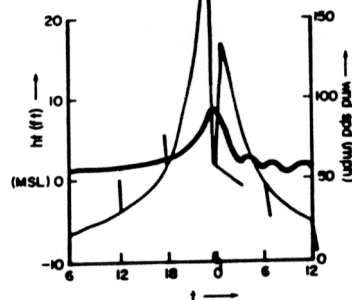
7. INGLESIDE (21,55)



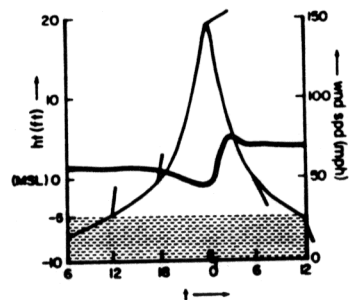
8. ARANSAS PASS (26,57)



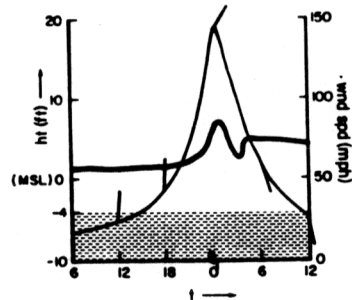
9. PORT ARANSAS (31,53)



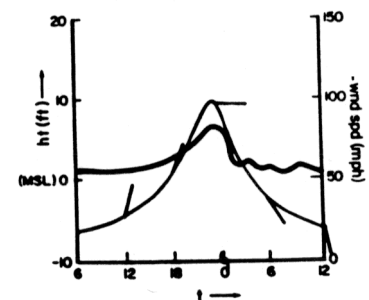
10. COPANO BRIDGE (35,63)



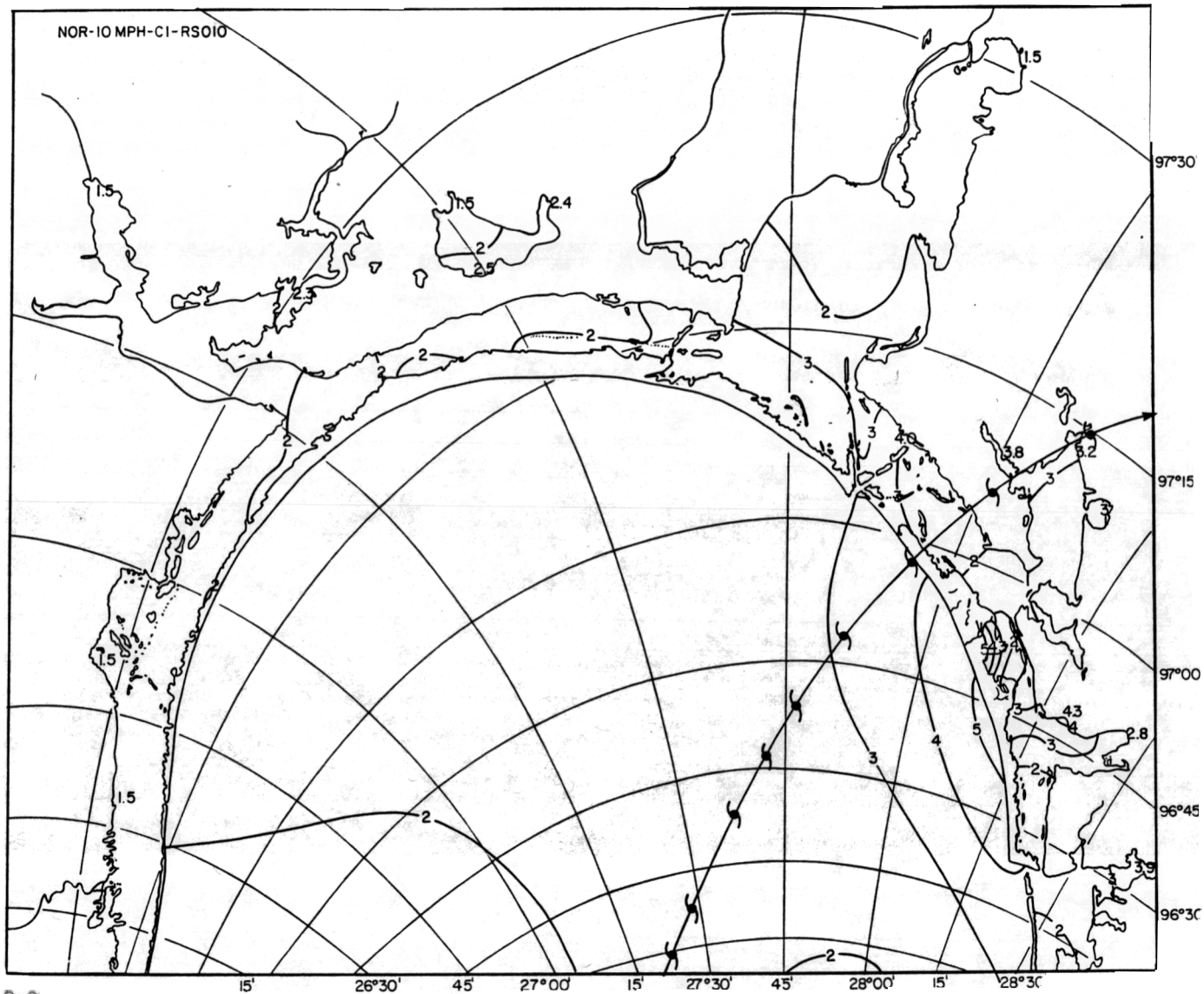
11. BAYSIDE (28,66)



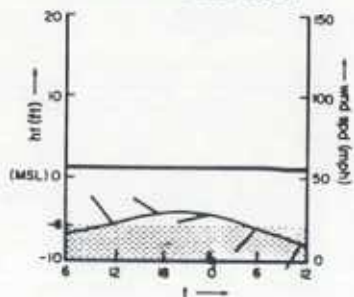
12. MATAGORDA IS. (45,61)



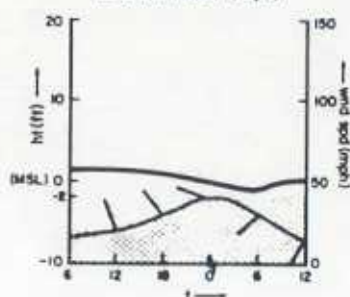
NOR-10 MPH-CI-RSO10



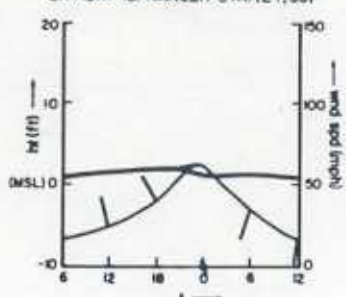
1. PORT MANSFIELD (48, 8)



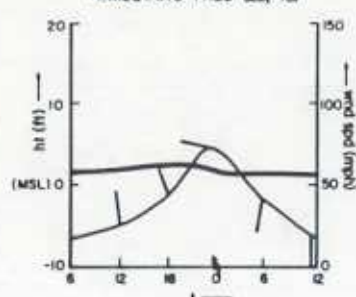
2. BAFFIN BAY (19, 3)



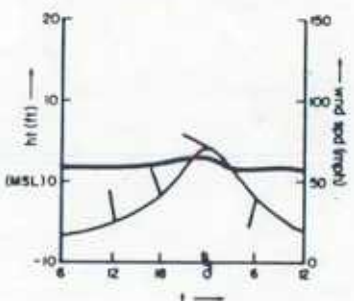
3. PADRI IS. RANGER STA. (24, 35)



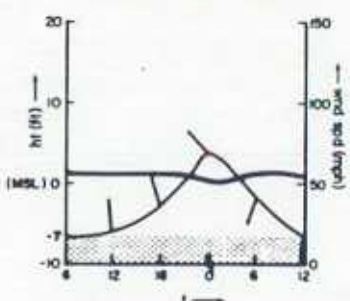
4. MUSTANG PASS (25, 45)



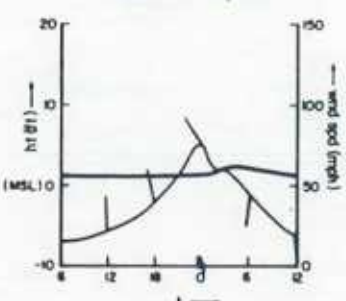
5. NAVAL AIR STA. (20, 46)



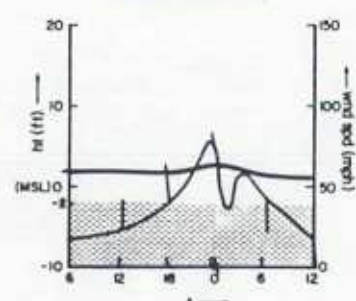
6. CORPUS CHRISTI (02, 53)



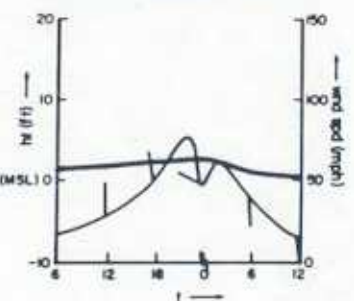
7. INGLESIDE (21, 55)



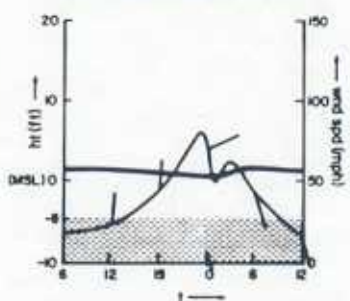
8. ARANSAS PASS (28, 57)



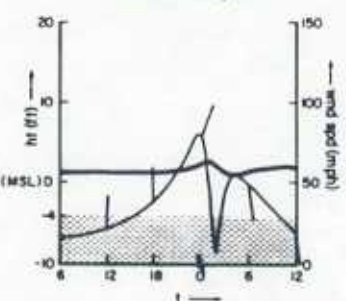
9. PORT ARANSAS (31, 53)



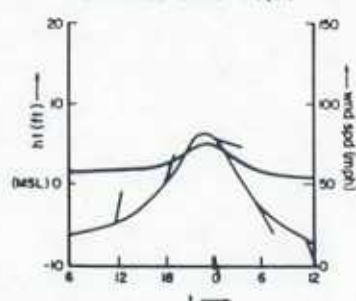
10. COPANO BRIDGE (35, 63)

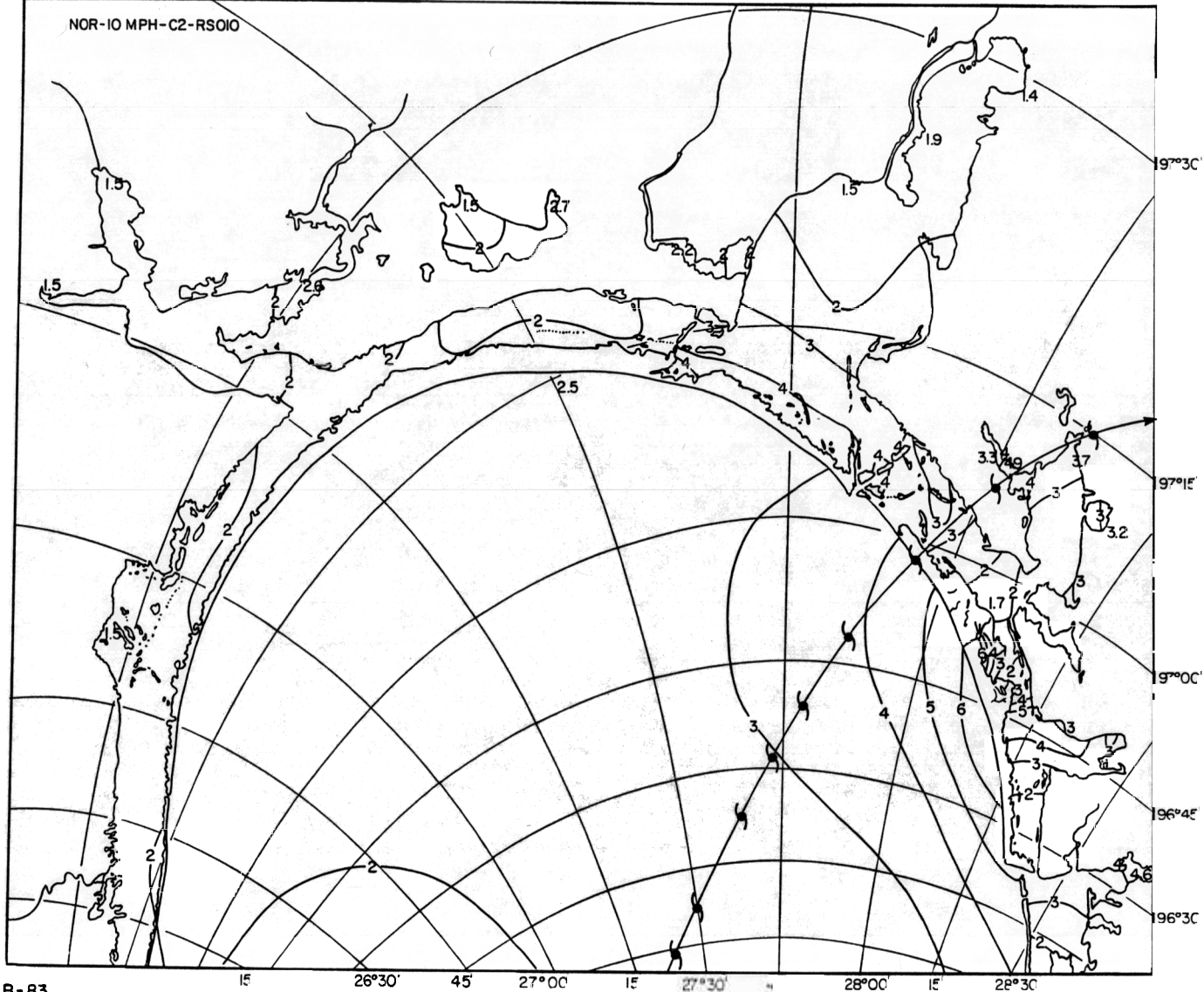


11. BAYSIDE (28, 66)



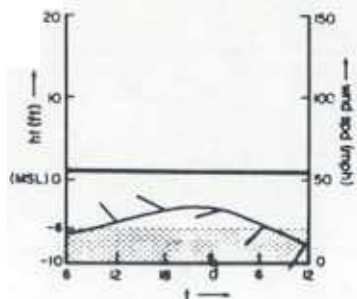
12. MATAGORDA IS. (45, 61)



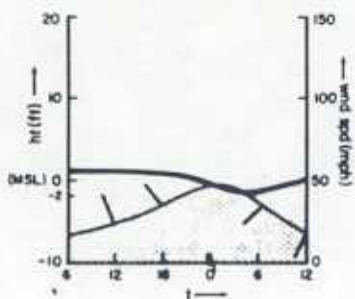




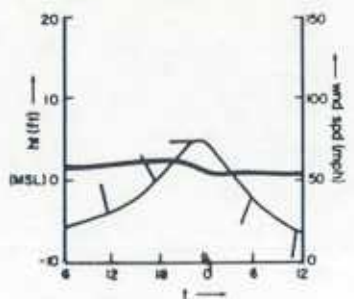
1. PORT MANSFIELD (48, 8)



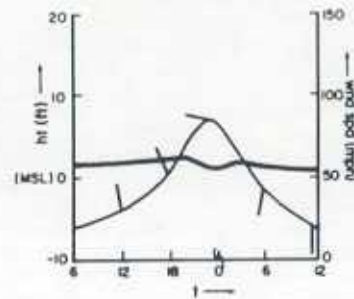
2. BAFFIN BAY (19, 3)



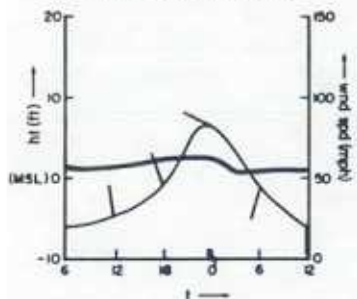
3. PADRI IS. RANGER STA. (24, 35)



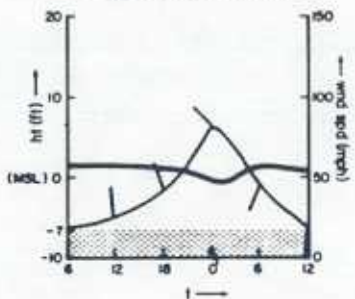
4. MUSTANG PASS (25, 45)



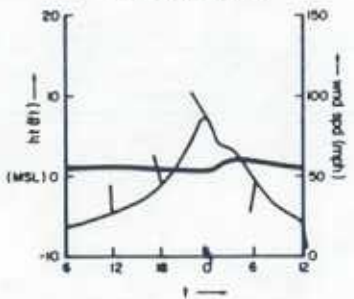
5. NAVAL AIR STA. (20, 46)



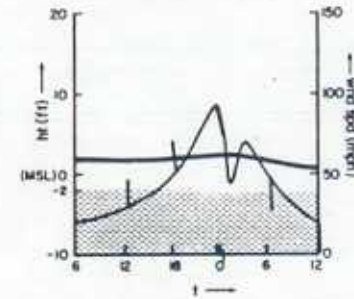
6. CORPUS CHRISTI (02, 53)



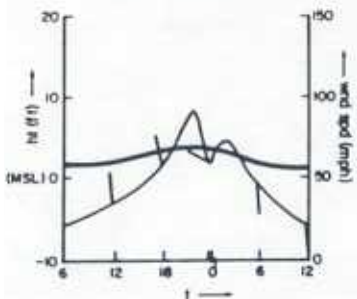
7. INGLESIDE (21, 55)



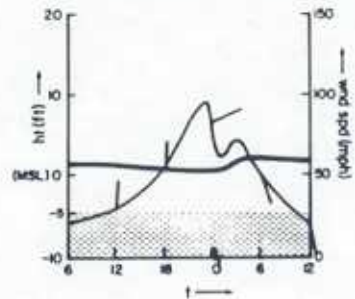
8. ARANSAS PASS (28, 57)



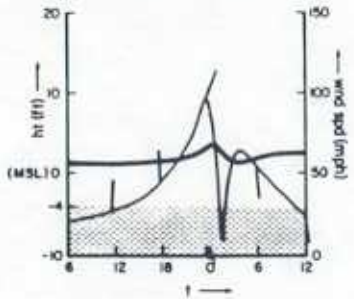
9. PORT ARANSAS (31, 53)



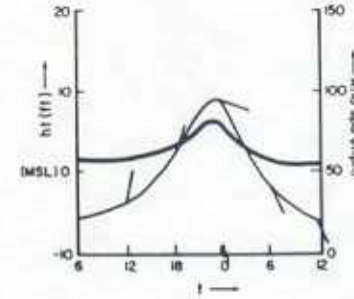
10. COPANO BRIDGE (35, 63)



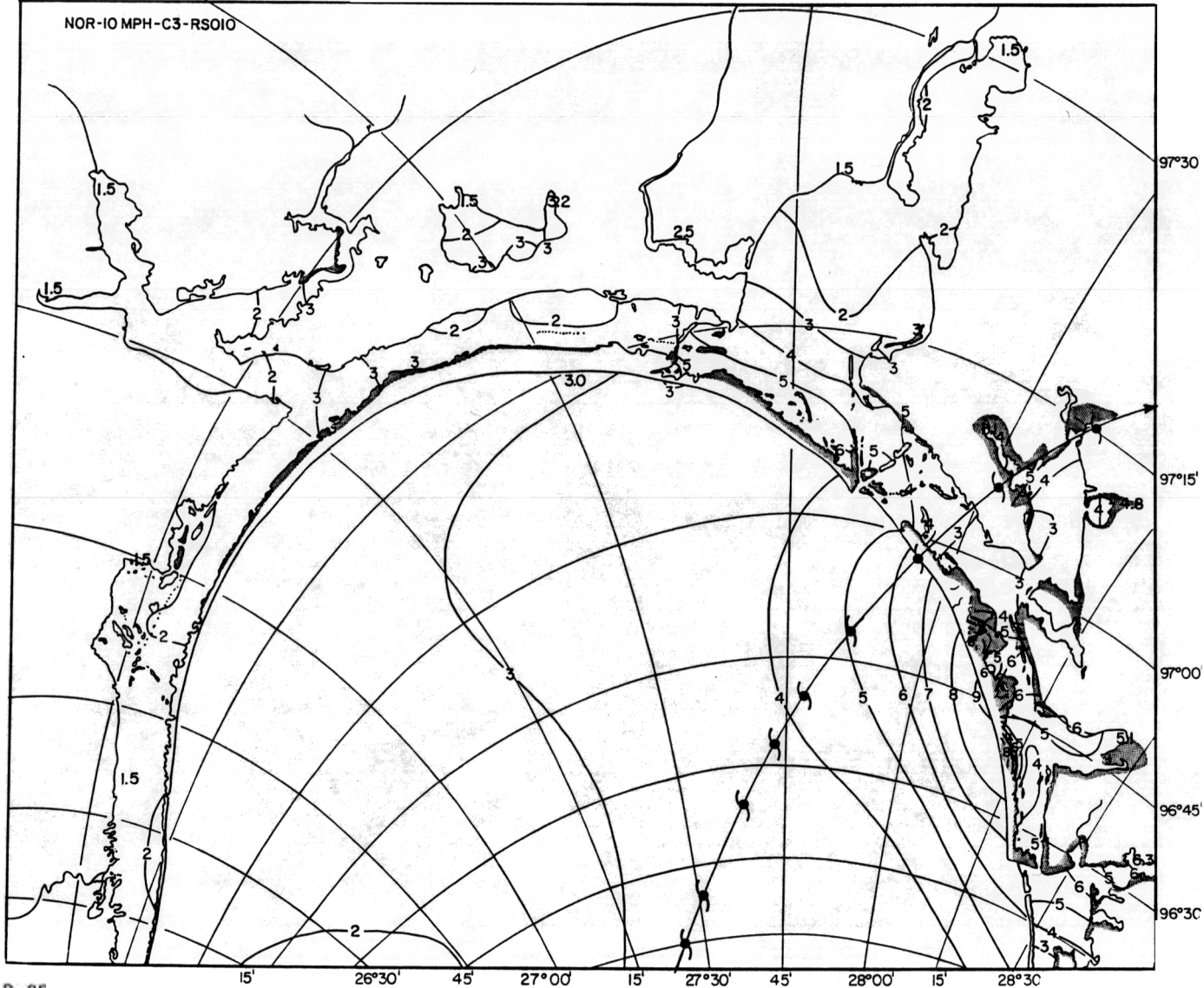
11. BAYSIDE (28, 66)



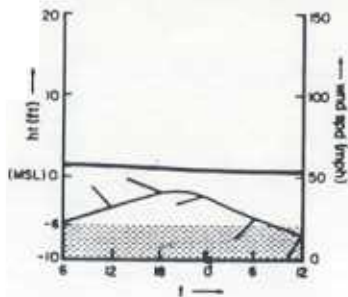
12. MATAGORDA IS. (45, 61)



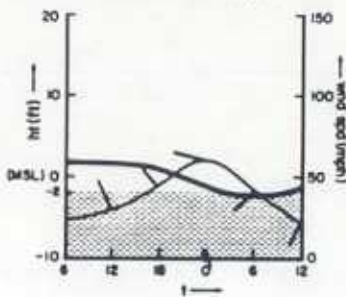
NOR-10 MPH-C3-RSO10



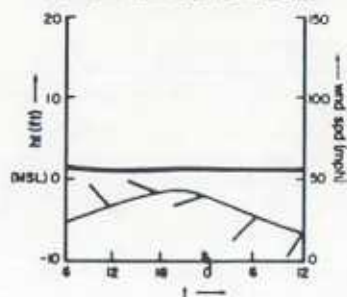
1. PORT MANSFIELD (48, 8)



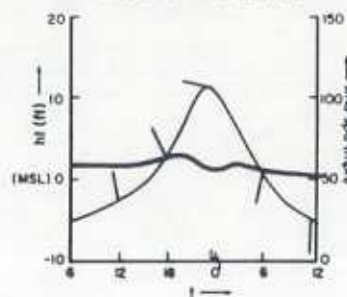
2. BAFFIN BAY (19, 3)



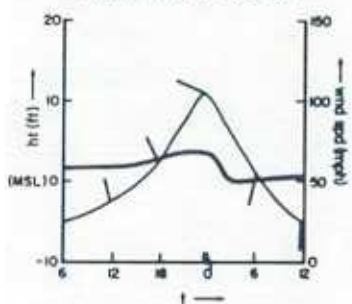
3. PADRI IS. RANGER STA. (24, 35)



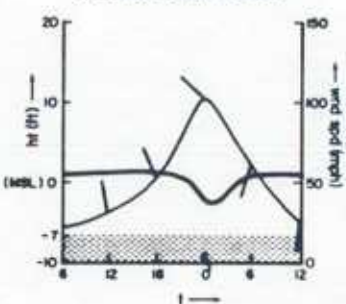
4. MUSTANG PASS (25, 45)



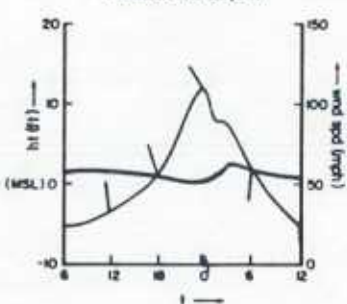
5. NAVAL AIR STA. (20, 46)



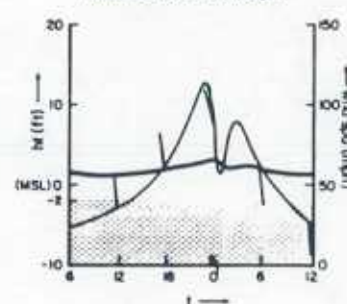
6. CORPUS CHRISTI (22, 53)



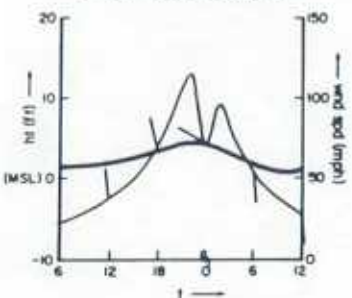
7. INGLESIDE (21, 55)



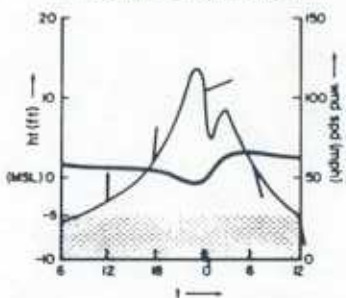
8. ARANSAS PASS (28, 57)



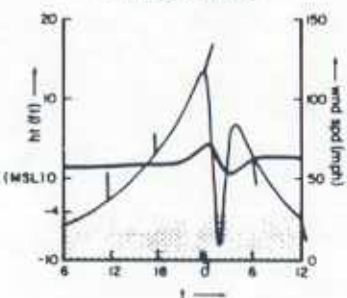
9. PORT ARANSAS (31, 53)



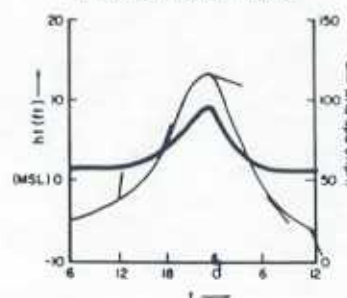
10. COPANO BRIDGE (35, 63)



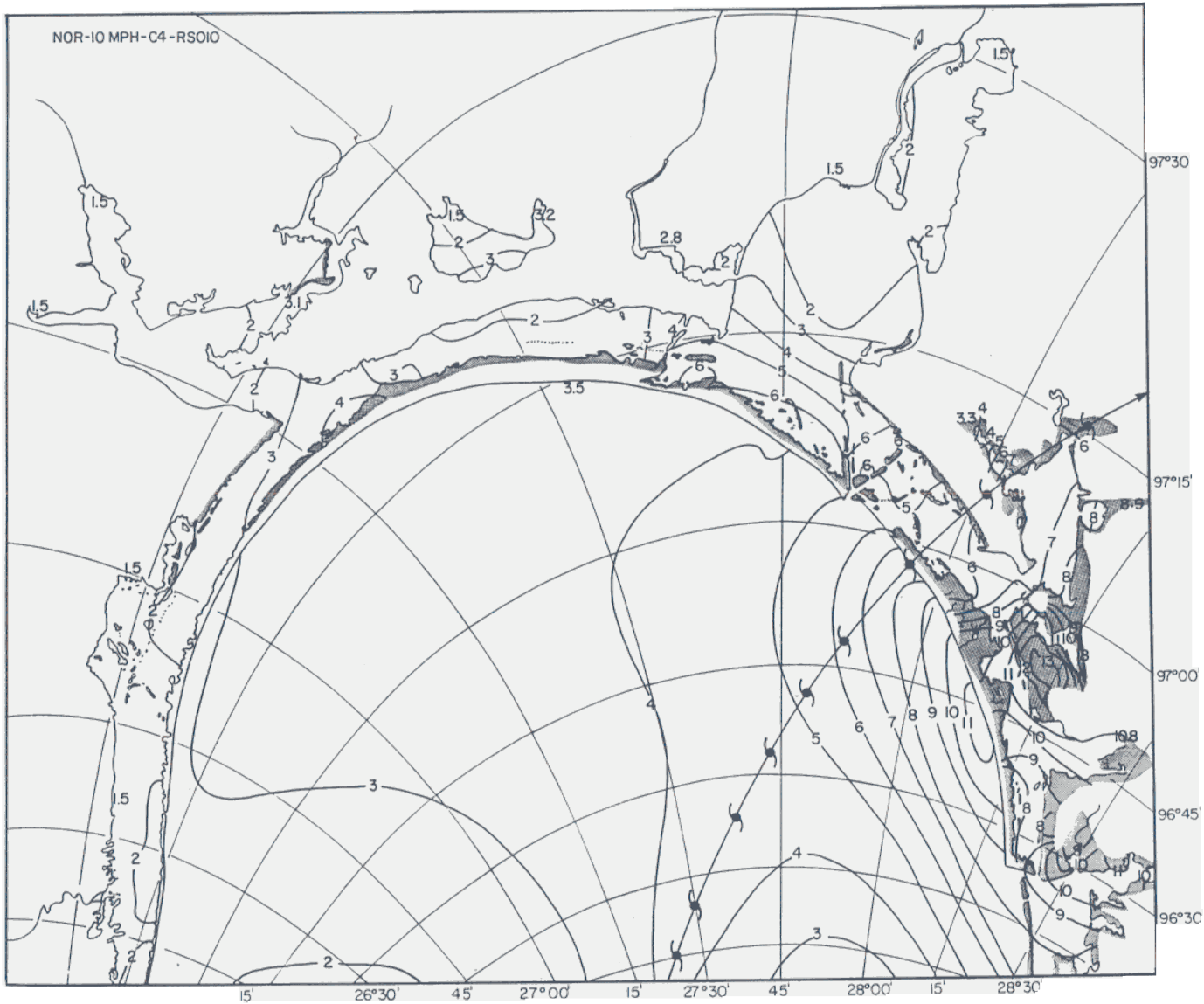
11. BAYSIDE (28, 65)



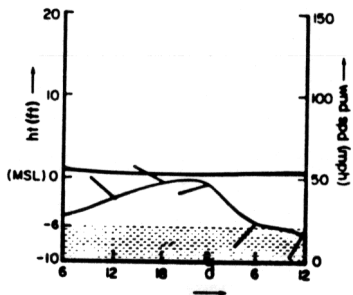
12. MATAGORDA IS. (45, 61)



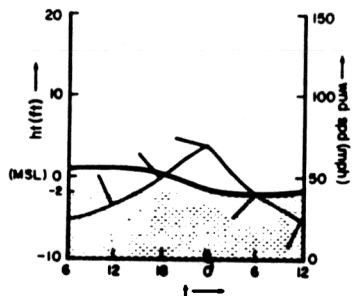
NOR-10 MPH-C4-RS010



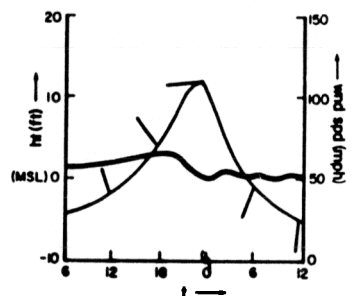
1. PORT MANSFIELD (48, 8)



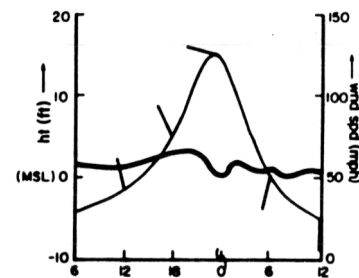
2. BAFFIN BAY (19, 3)



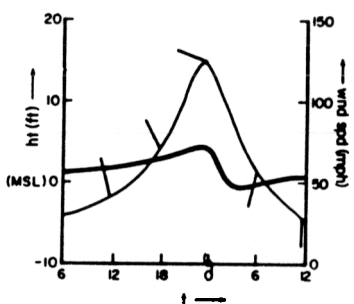
3. PADRI IS. RANGER STA. (24, 35)



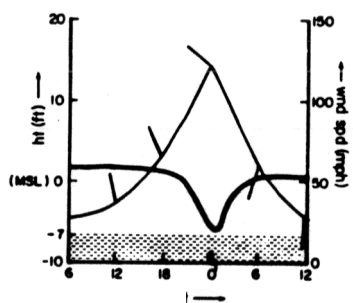
4. MUSTANG PASS (25, 45)



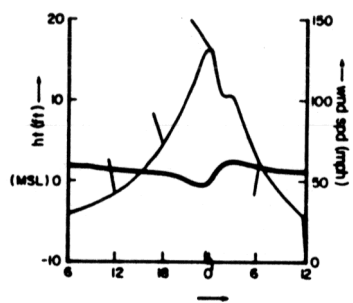
5. NAVAL AIR STA. (20, 46)



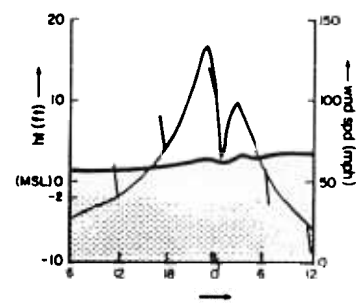
6. CORPUS CHRISTI (12, 53)



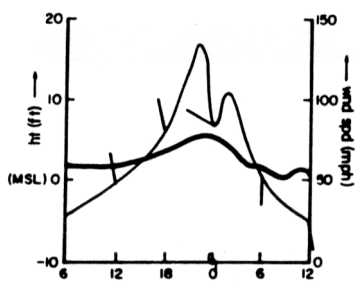
7. INGLESIDE (21, 55)



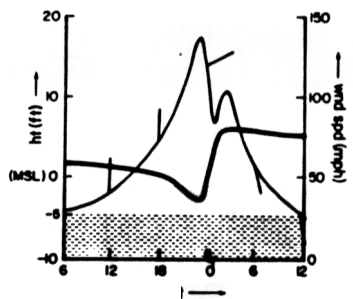
8. ARANSAS PASS (28, 57)



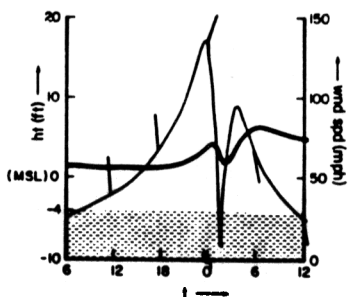
9. PORT ARANSAS (31, 53)



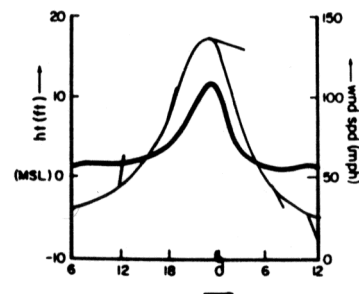
10. COPANO BRIDGE (35, 63)



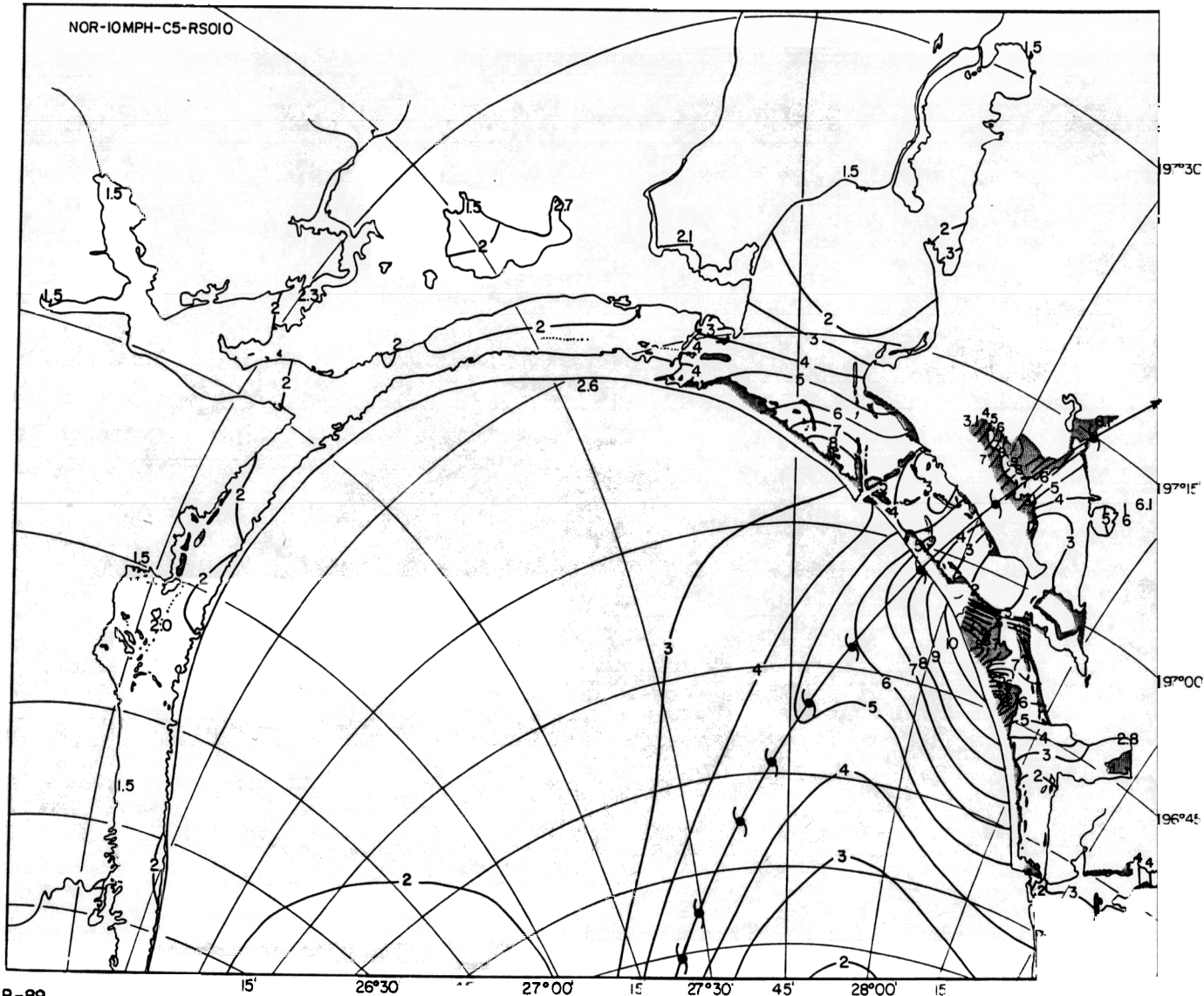
11. BAYSIDE (28, 66)



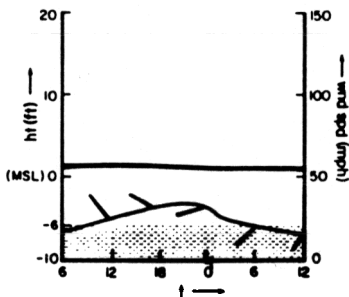
12. MATAGORDA IS. (45, 61)



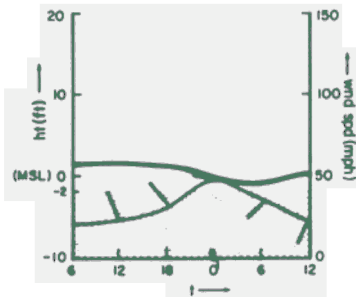
NOR-10MPH-C5-RS010



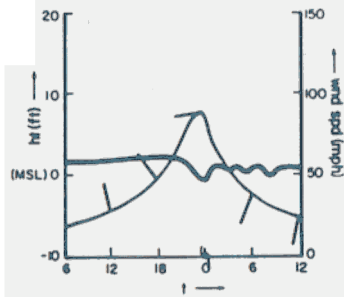
1. PORT MANSFIELD (48, 8)



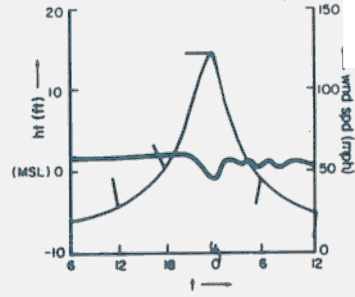
2. BAFFIN BAY (19, 3)



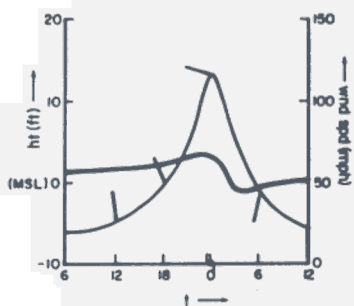
3. PADRI IS. RANGER STA. (24, 35)



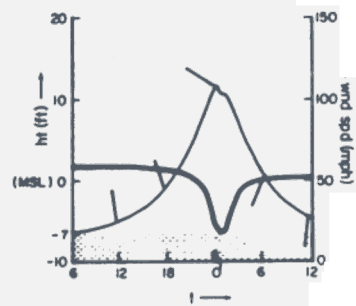
4. MUSTANG PASS (25, 45)



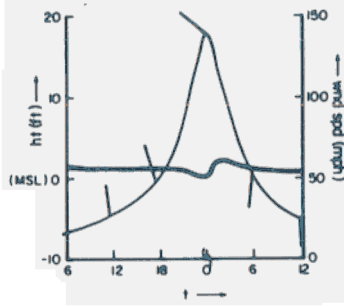
5. NAVAL AIR STA. (20, 46)



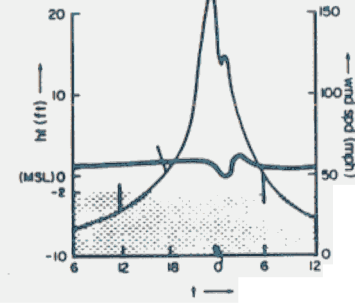
6. CORPUS CHRISTI (12, 53)



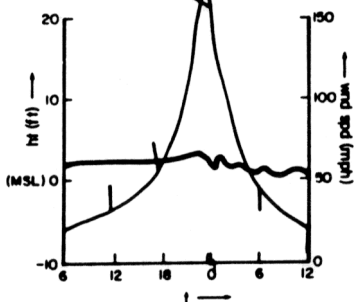
7. INGLESIDE (21, 55)



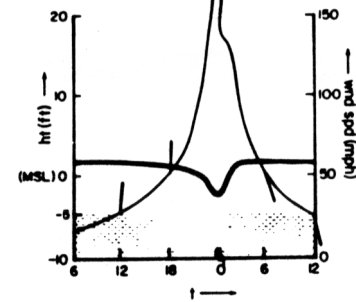
8. ARANSAS PASS (28, 57)



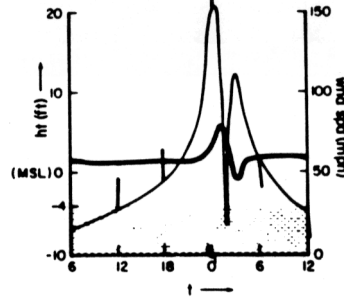
9. PORT ARANSAS (31, 53)



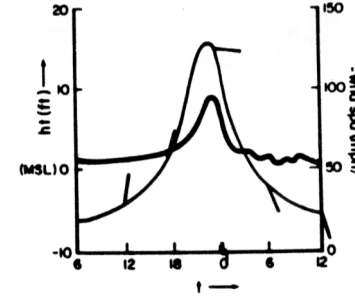
10. COPANO BRIDGE (35, 63)

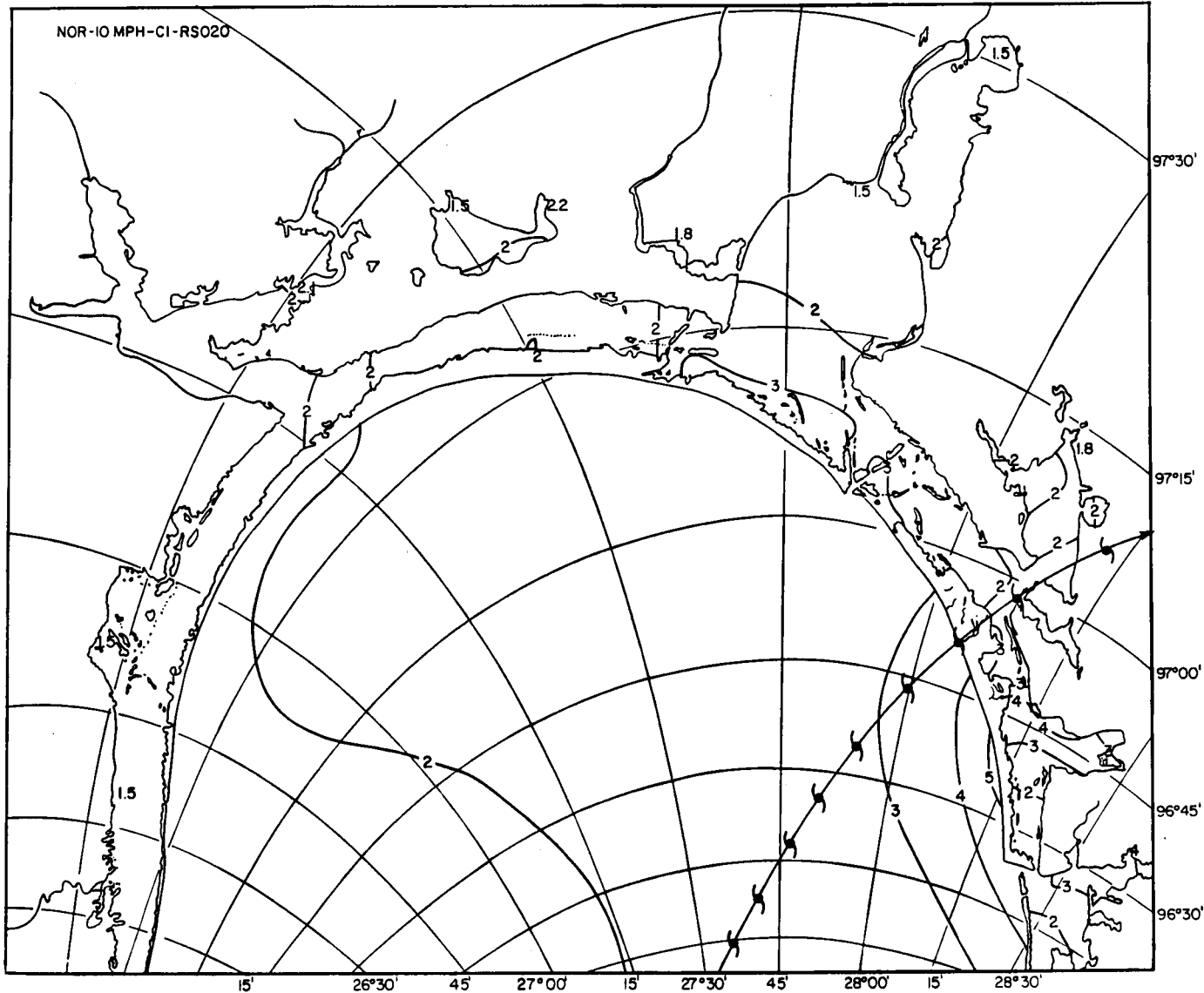


11. BAYSIDE



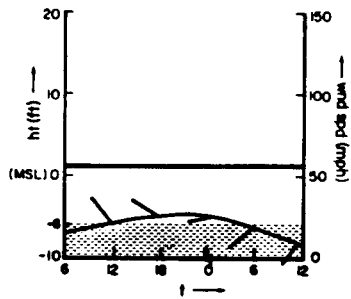
12. MATAGORDA IS. (45, 61)



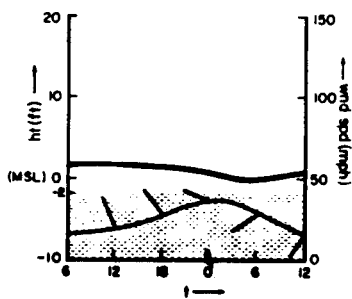




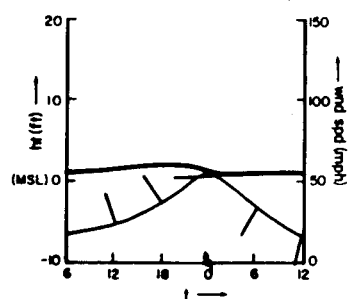
1. PORT MANSFIELD (48, 8)



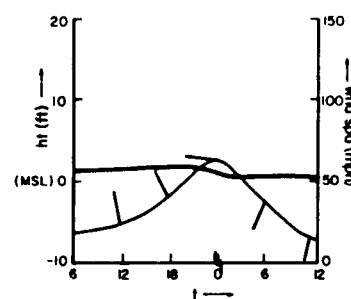
2. BAFFIN BAY (19, 3)



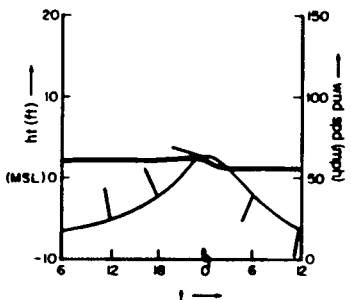
3. PADRI IS. RANGER STA. (24, 35)



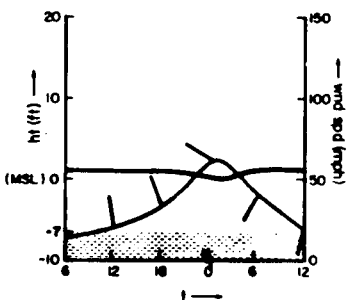
4. MUSTANG PASS (25, 45)



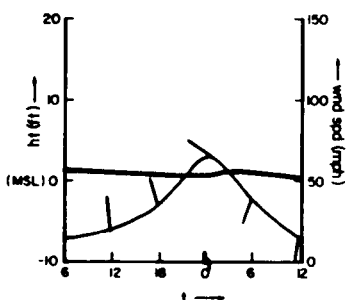
5. NAVAL AIR STA. (20, 46)



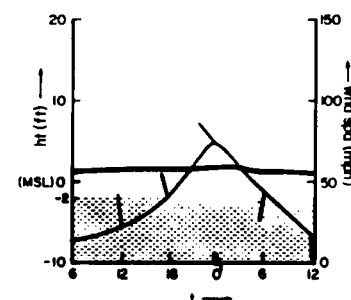
6. CORPUS CHRISTI (12, 53)



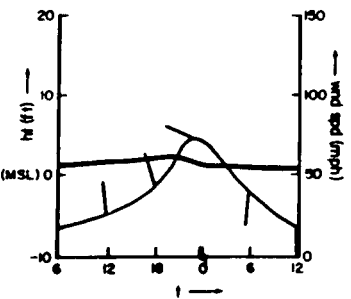
7. INGLESIDE (21, 55)



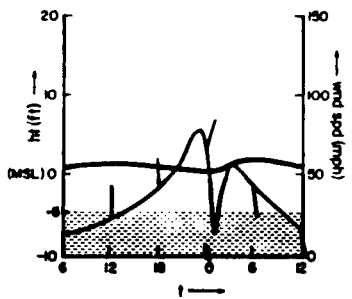
8. ARANSAS PASS (28, 57)



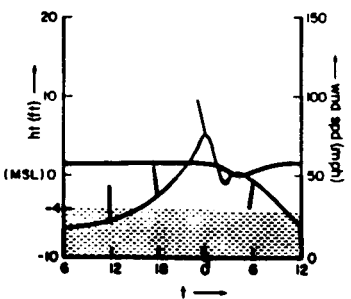
9. PORT ARANSAS (31, 53)



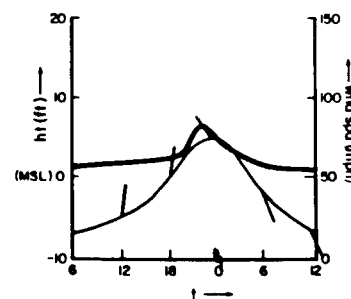
10. COPANO BRIDGE (35, 63)

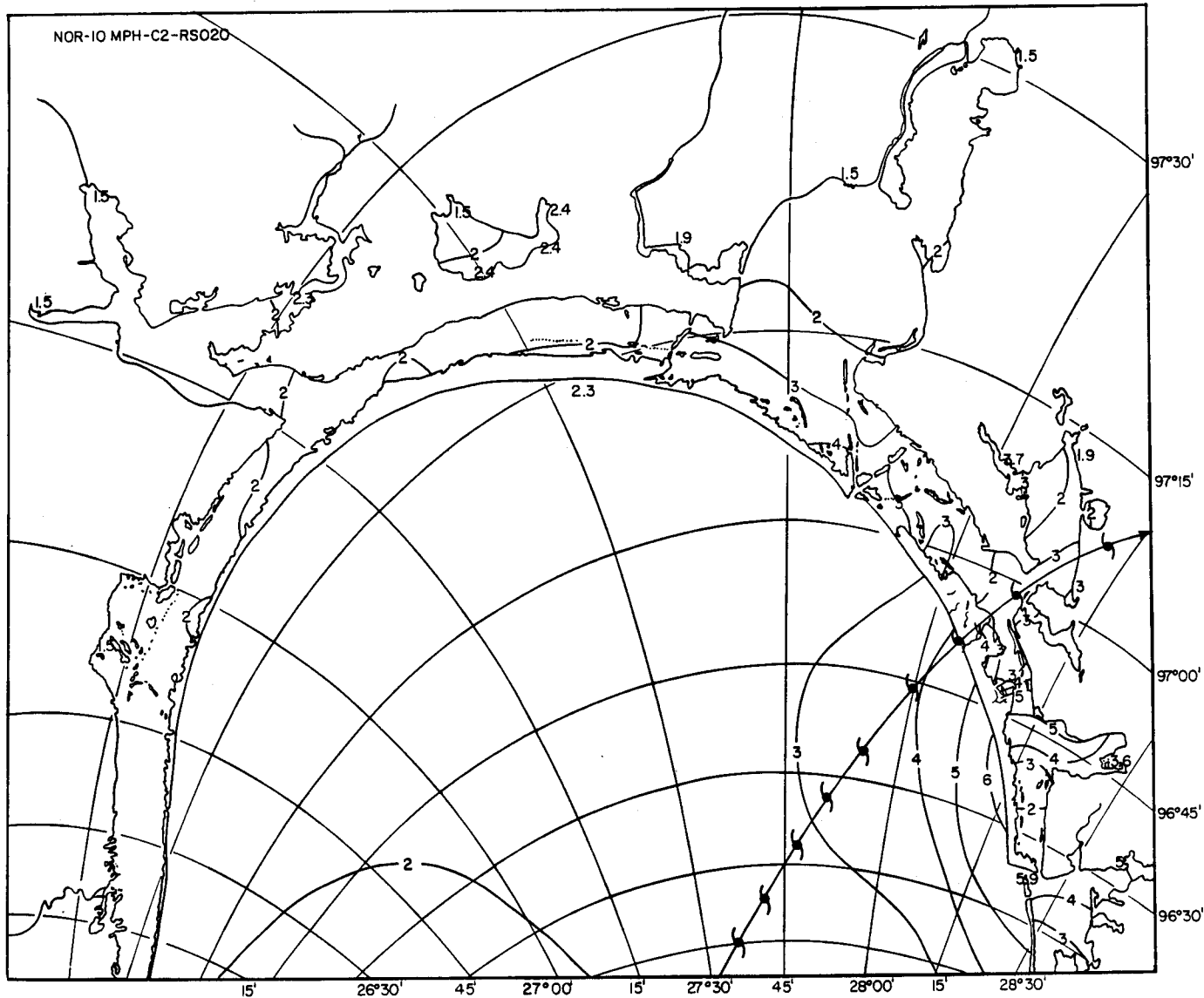


11. BAYSIDE (28, 66)

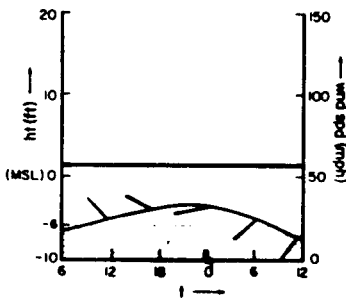


12. MATAGORDA IS. (45, 61)

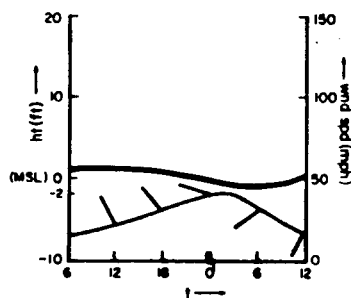




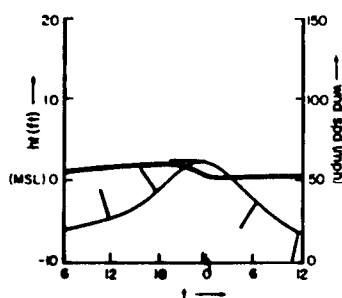
1. PORT MANSFIELD (48, 8)



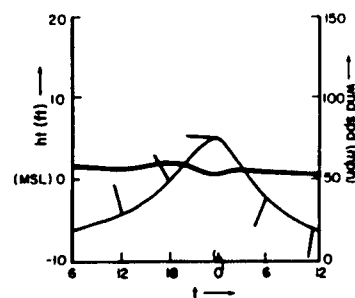
2. BAFFIN BAY (19, 3)



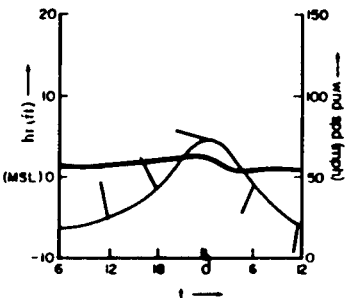
3. PADRI IS. RANGER STA. (24, 35)



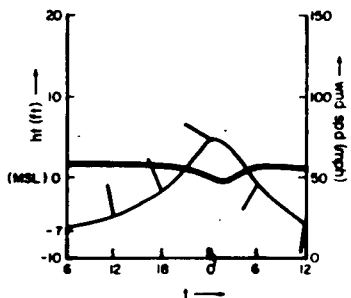
4. MUSTANG PASS (25, 45)



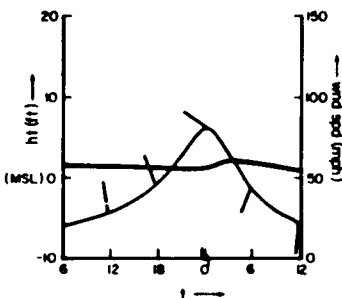
5. NAVAL AIR STA. (20, 46)



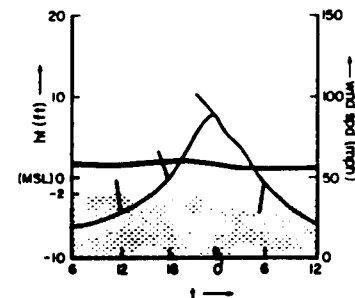
6. CORPUS CHRISTI (12, 53)



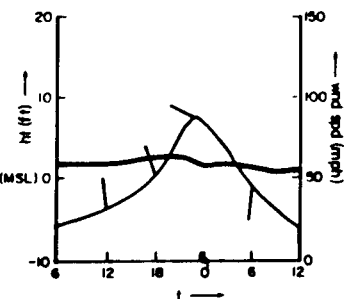
7. INGLESIDE (21, 55)



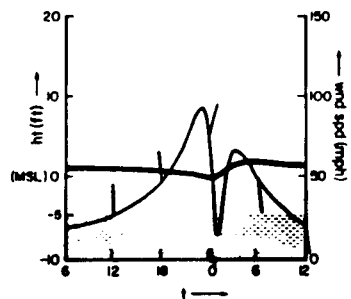
8. ARANSAS PASS (28, 57)



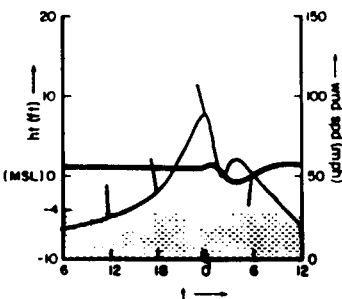
9. PORT ARANSAS (31, 53)



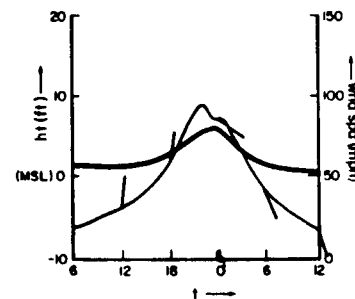
10. COPANO BRIDGE (35, 63)



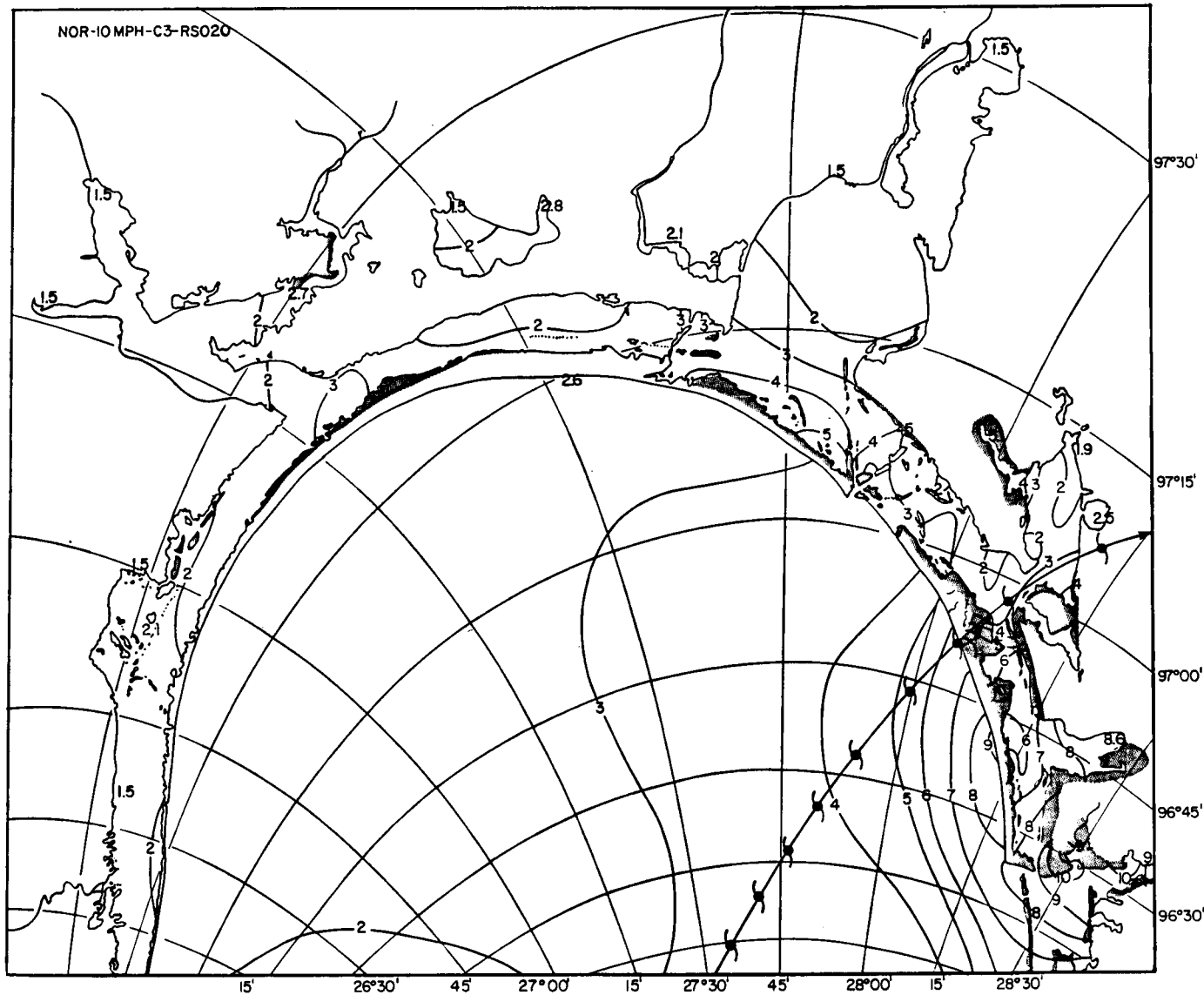
11. BAYSIDE (28, 66)



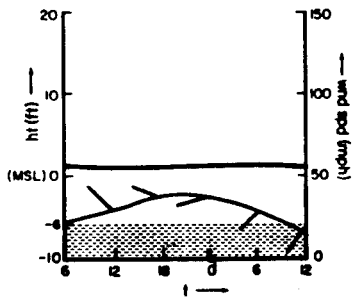
12. MATAGORDA IS. (45, 61)



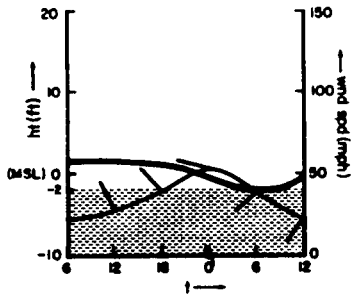
NOR-10 MPH-C3-R5020



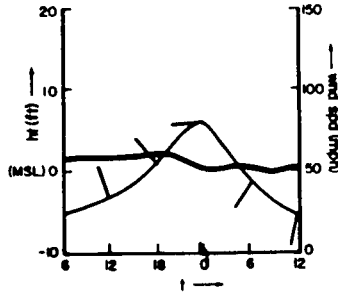
1. PORT MANSFIELD (48,8)



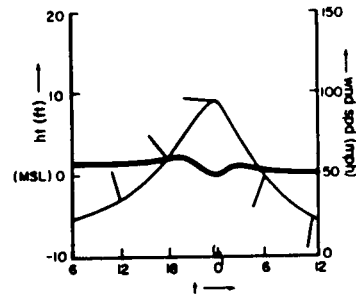
2. BAFFIN BAY (19,3)



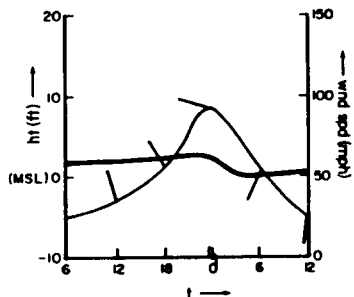
3. PADRI IS. RANGER STA. (24,35)



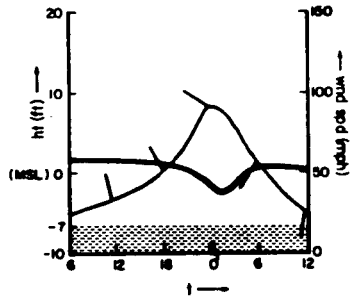
4. MUSTANG PASS (25,45)



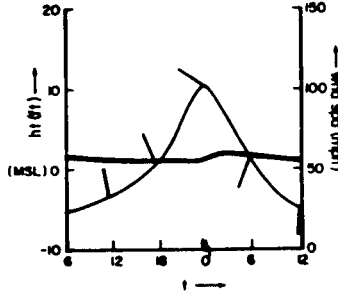
5. NAVAL AIR STA. (20,46)



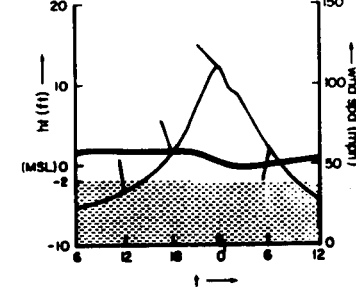
6. CORPUS CHRISTI (2,53)



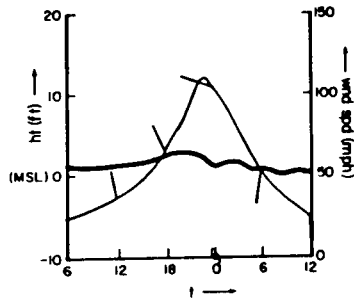
7. INGLESIDE (21,55)



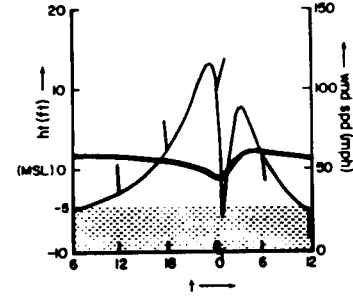
8. ARANSAS PASS (28,57)



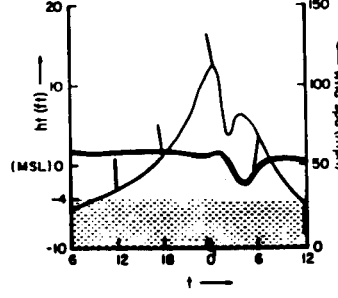
9. PORT ARANSAS (31,53)



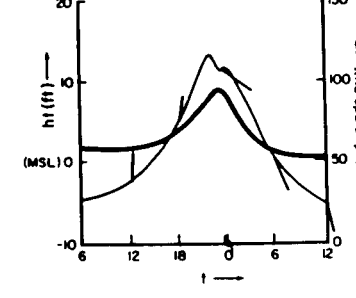
10. COPANO BRIDGE (35,63)



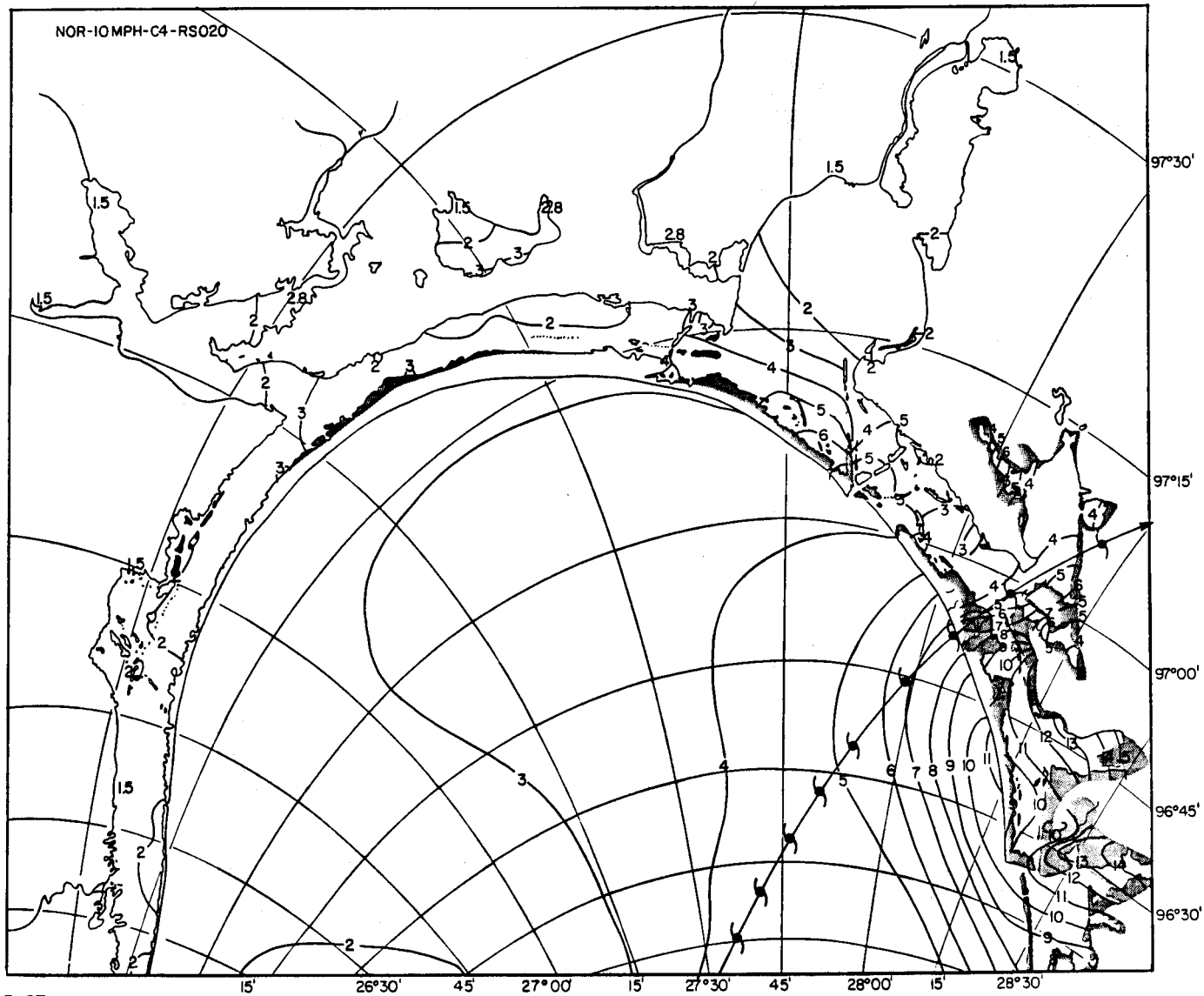
11. BAYSIDE (28,66)



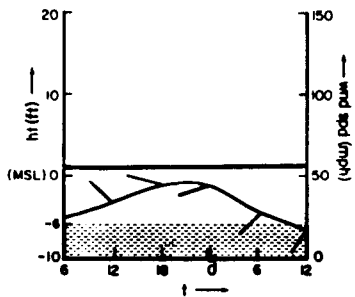
12. MATAGORDA IS. (45,61)



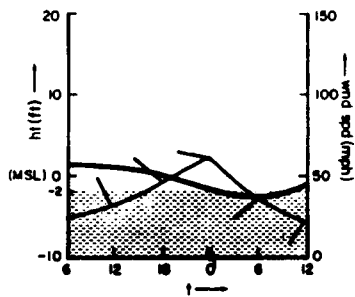
NOR-10MPH-C4-RS020



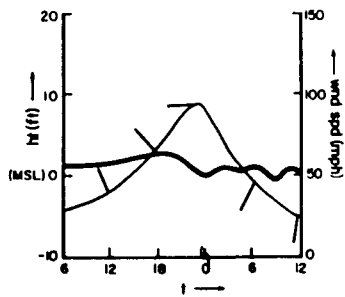
1. PORT MANSFIELD (48, 8)



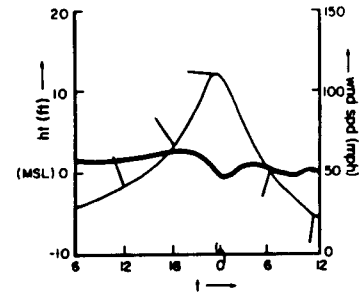
2. BAFFIN BAY (19, 3)



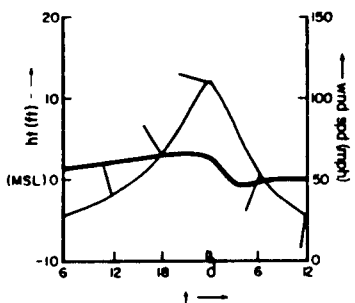
3. PADRI IS. RANGER STA. (24, 35)



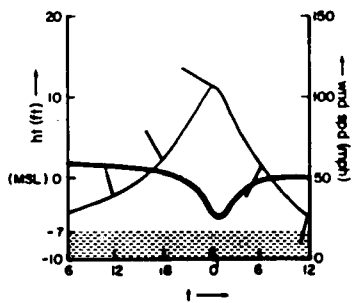
4. MUSTANG PASS (25, 45)



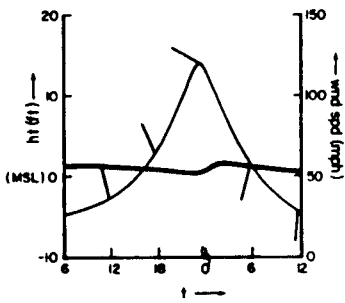
5. NAVAL AIR STA. (20, 46)



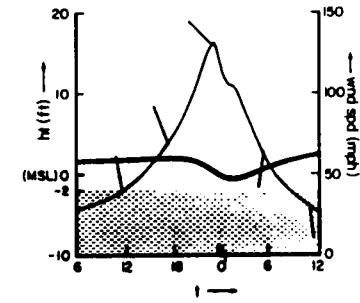
6. CORPUS CHRISTI (12, 53)



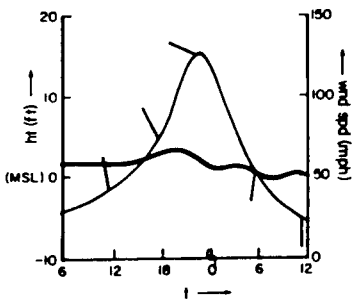
7. INGLESIDE (21, 55)



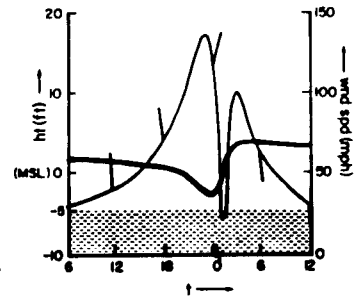
8. ARANSAS PASS (28, 57)



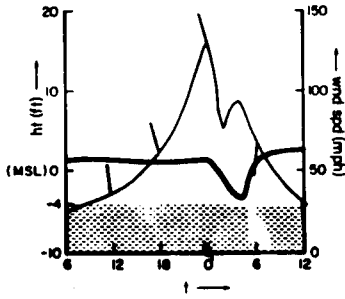
9. PORT ARANSAS (31, 53)



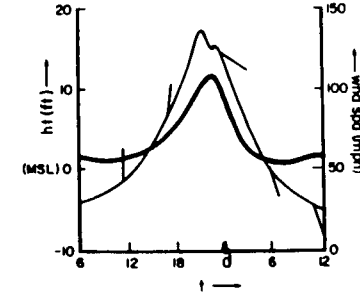
10. COPANO BRIDGE (35, 63)



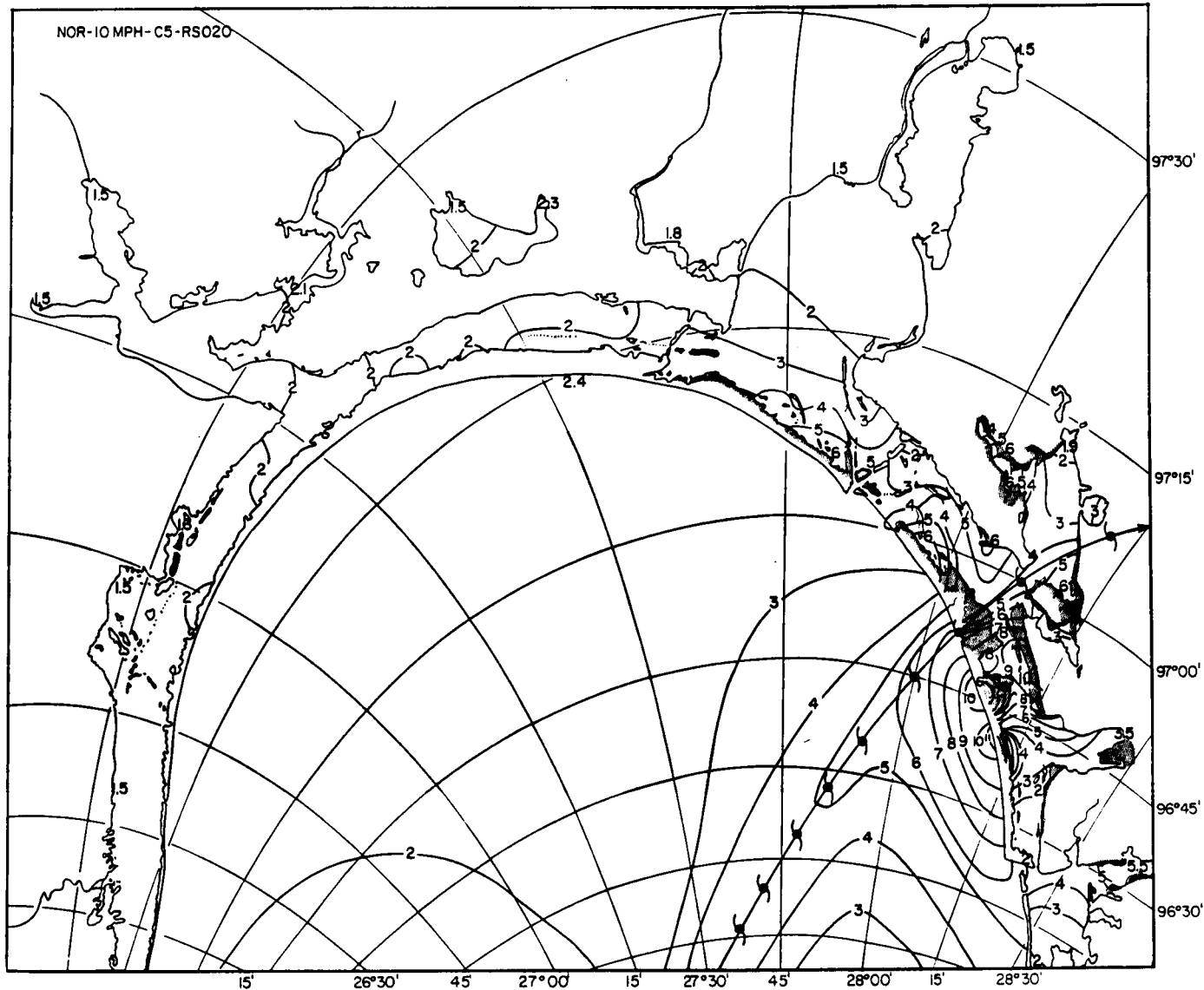
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

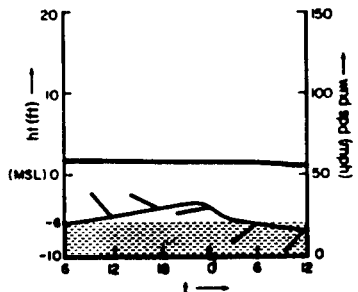


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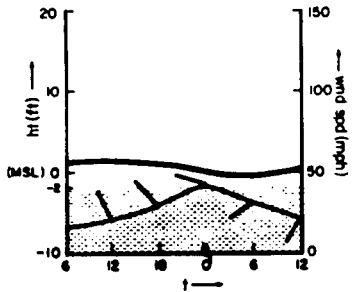




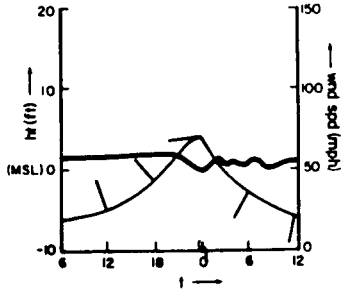
1. PORT MANSFIELD (48, 8)



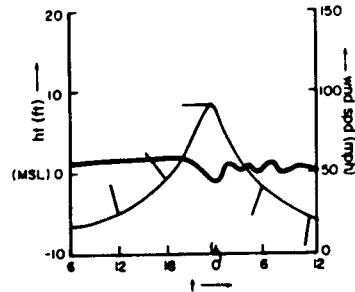
2. BAFFIN BAY (19, 3)



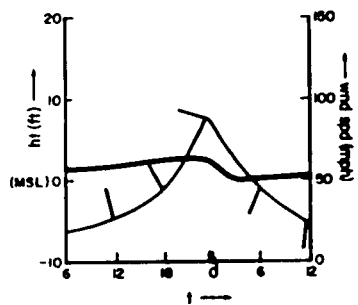
3. PADRI IS. RANGER STA. (24, 35)



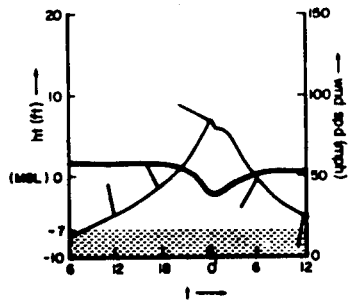
4. MUSTANG PASS (25, 45)



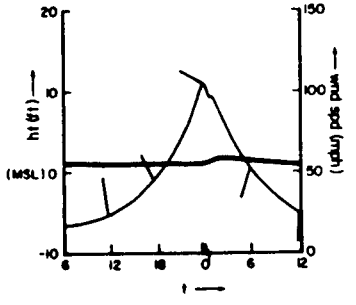
5. NAVAL AIR STA. (20, 46)



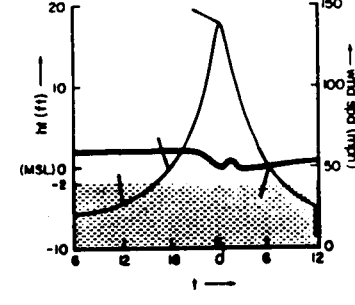
6. CORPUS CHRISTI (12, 53)



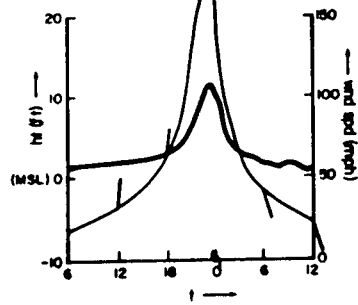
7. INGLESIDE (21, 55)



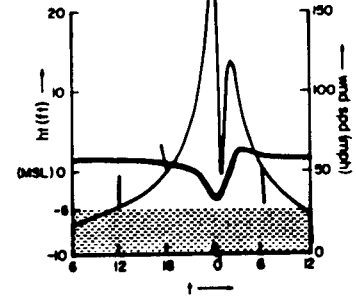
8. ARANSAS PASS (28, 57)



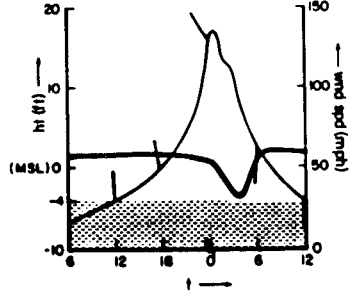
9. PORT ARANSAS (31, 53)



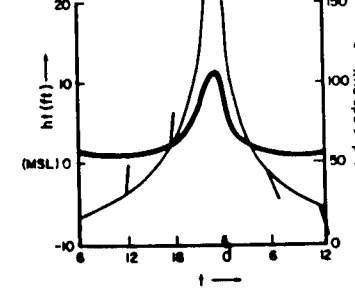
10. COPANO BRIDGE (35, 63)



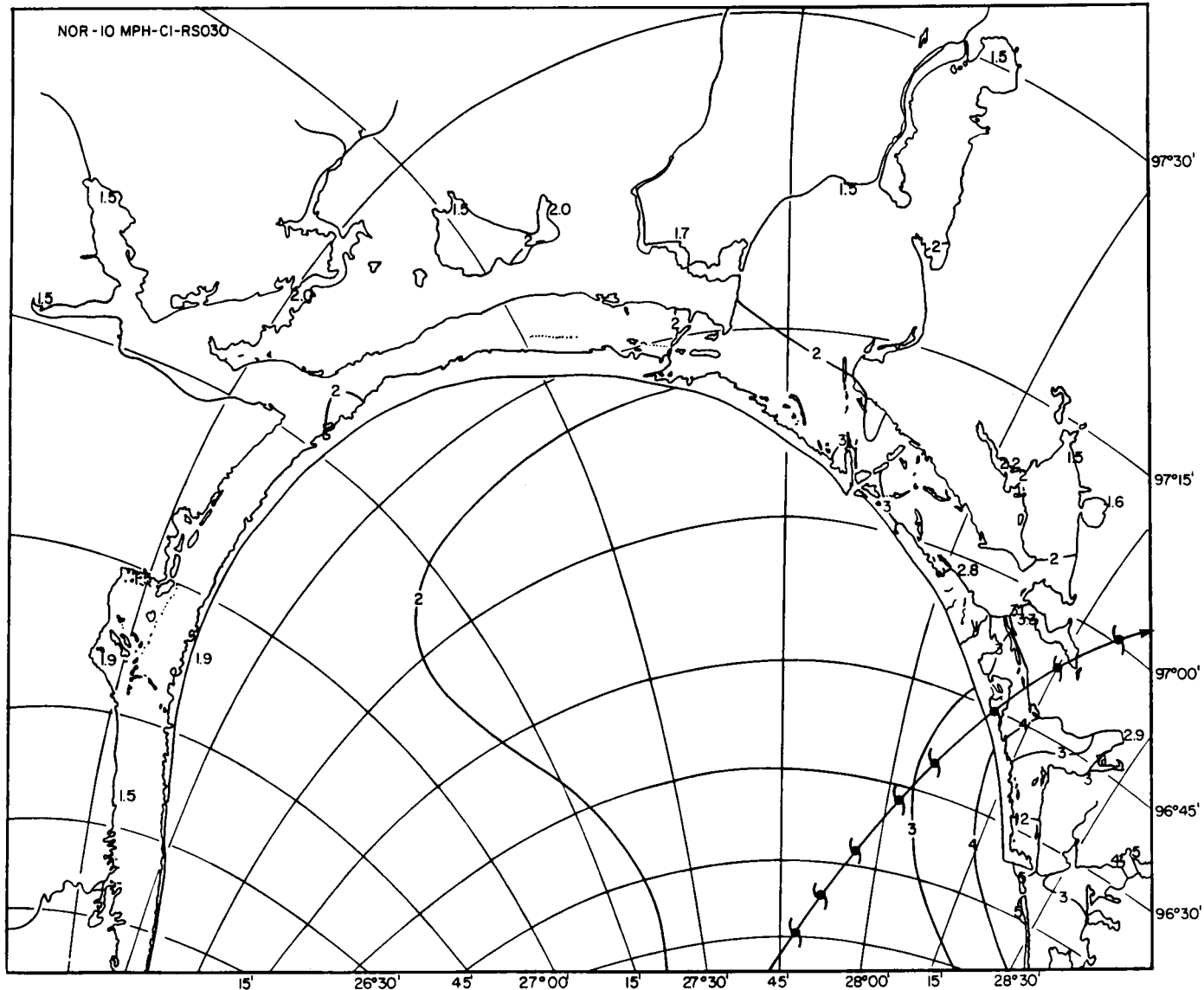
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

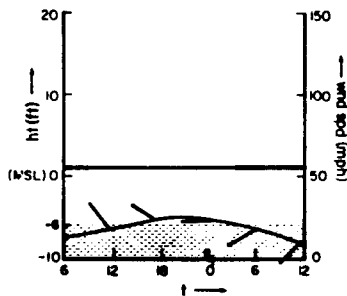


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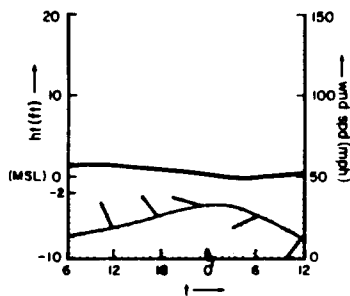


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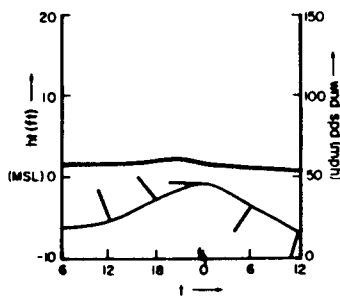
1. PORT MANSFIELD (48, 8)



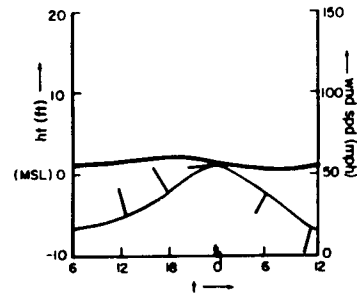
2. BAFFIN BAY (19, 3)



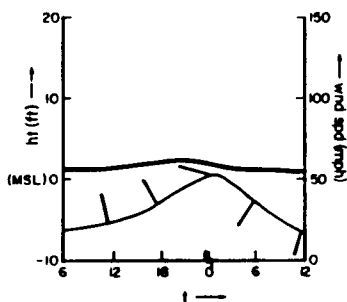
3. PADRI IS. RANGER STA. (24, 35)



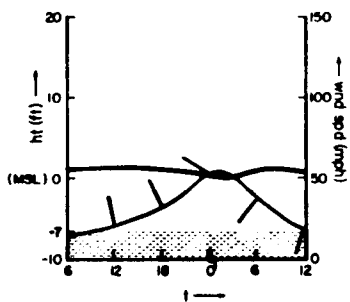
4. MUSTANG PASS (25, 45)



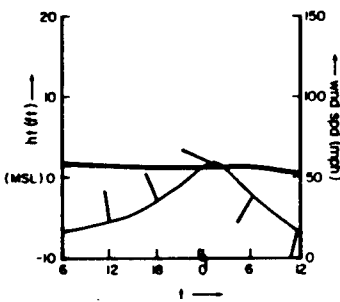
5. NAVAL AIR STA. (20, 46)



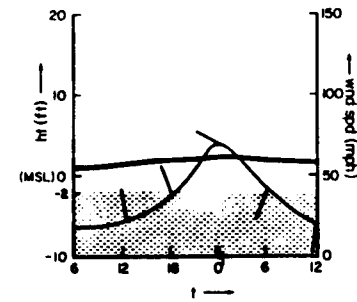
6. CORPUS CHRISTI (12, 53)



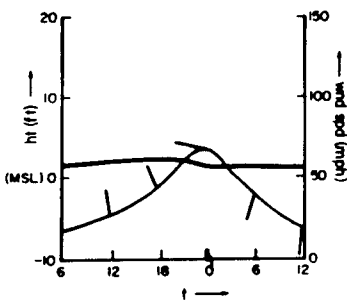
7. INGLESIDE (21, 55)



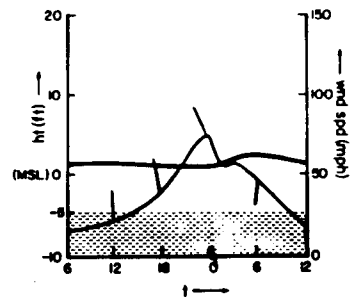
8. ARANSAS PASS (28, 57)



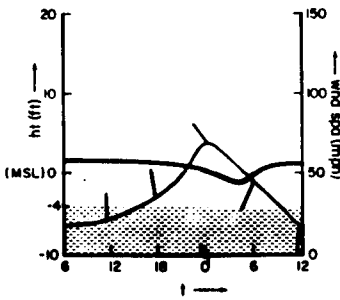
9. PORT ARANSAS (31, 53)



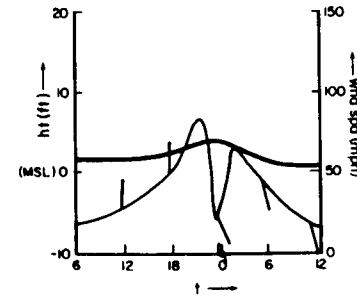
10. COPANO BRIDGE (35, 63)



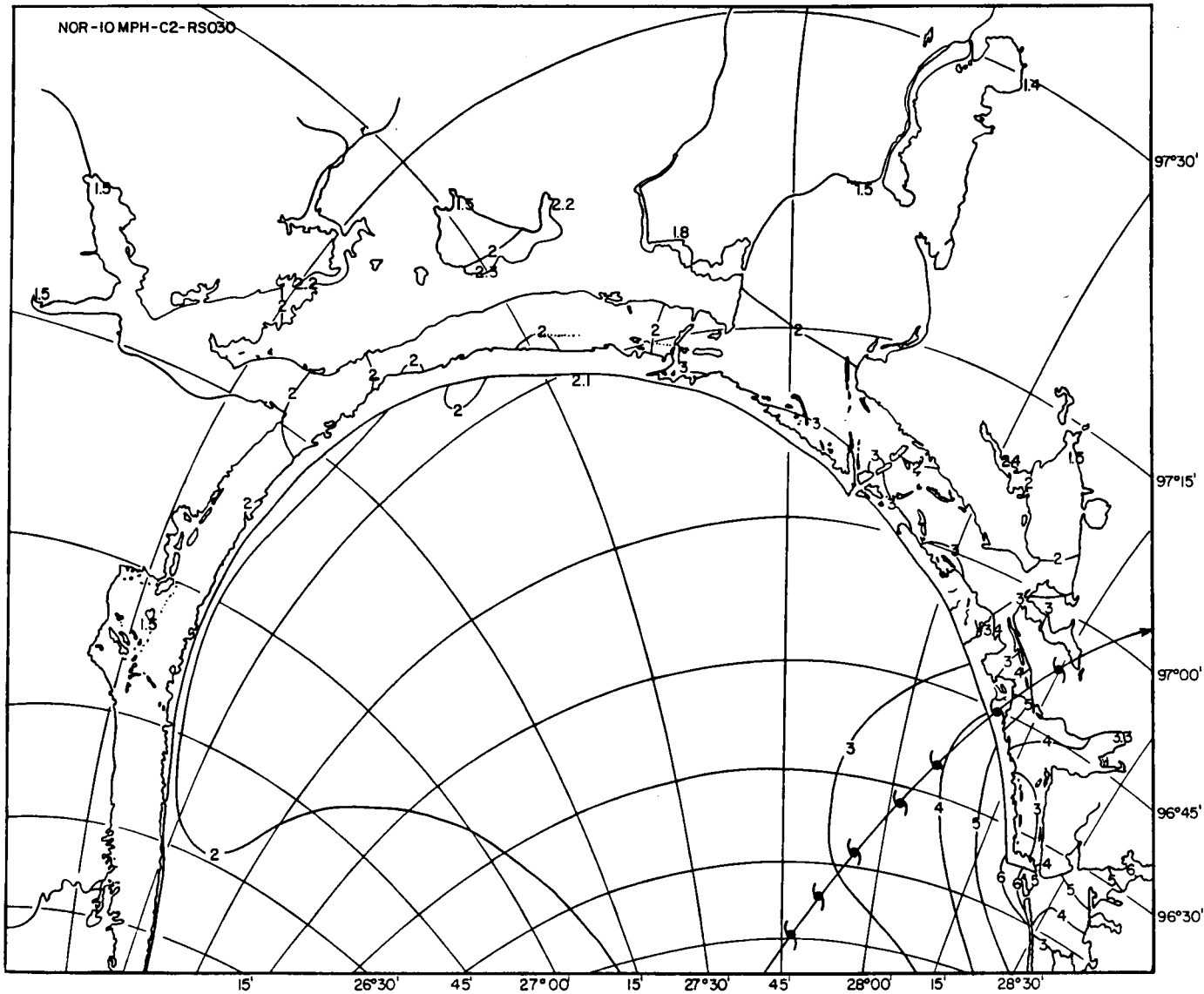
11. BAYSIDE (28, 66)



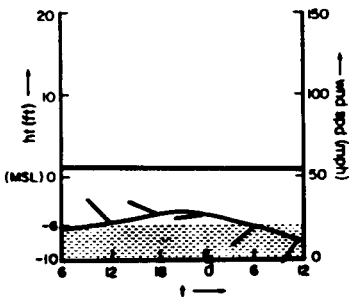
12. MATAGORDA IS. (45, 61)



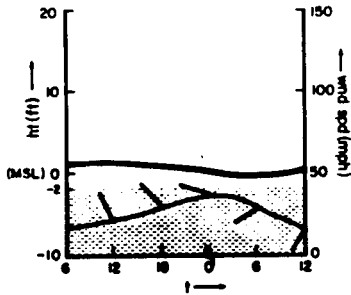
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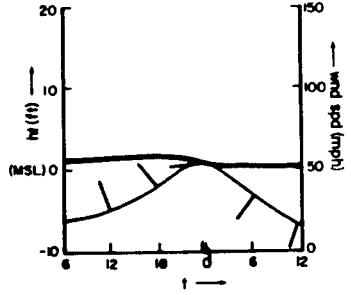
1. PORT MANSFIELD (48, 8)



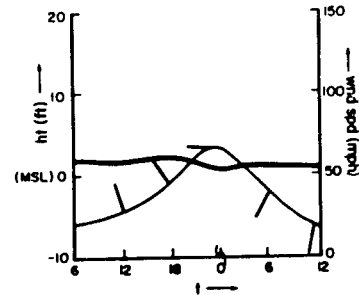
2. BAFFIN BAY (19, 3)



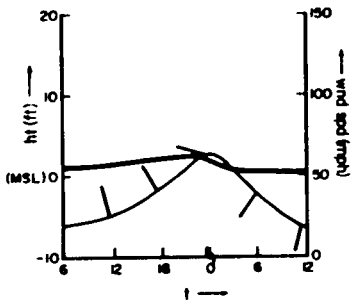
3. PADRI IS. RANGER STA. (24, 35)



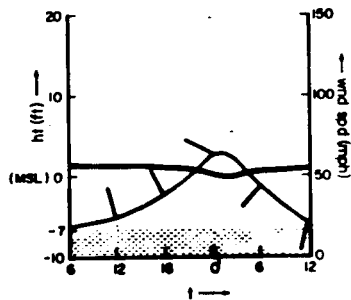
4. MUSTANG PASS (25, 45)



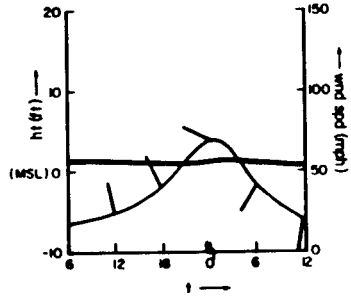
5. NAVAL AIR STA. (20, 46)



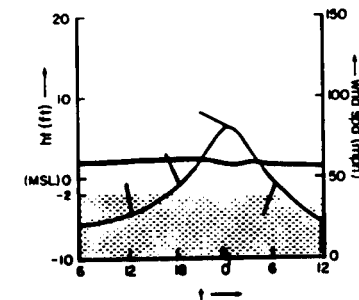
6. CORPUS CHRISTI (12, 53)



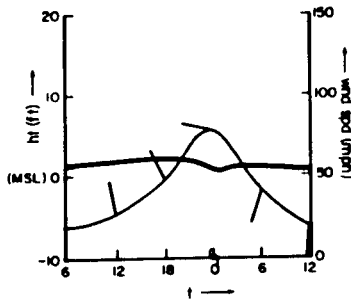
7. INGLESIDE (21, 55)



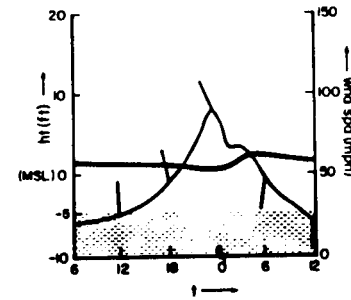
8. ARANSAS PASS (28, 57)



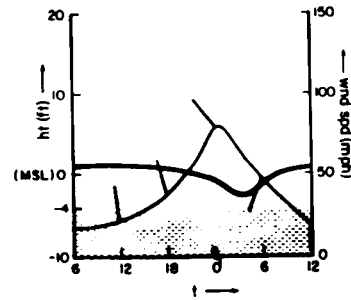
9. PORT ARANSAS (31, 53)



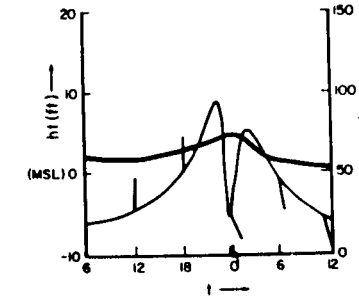
10. COPANO BRIDGE (35, 63)

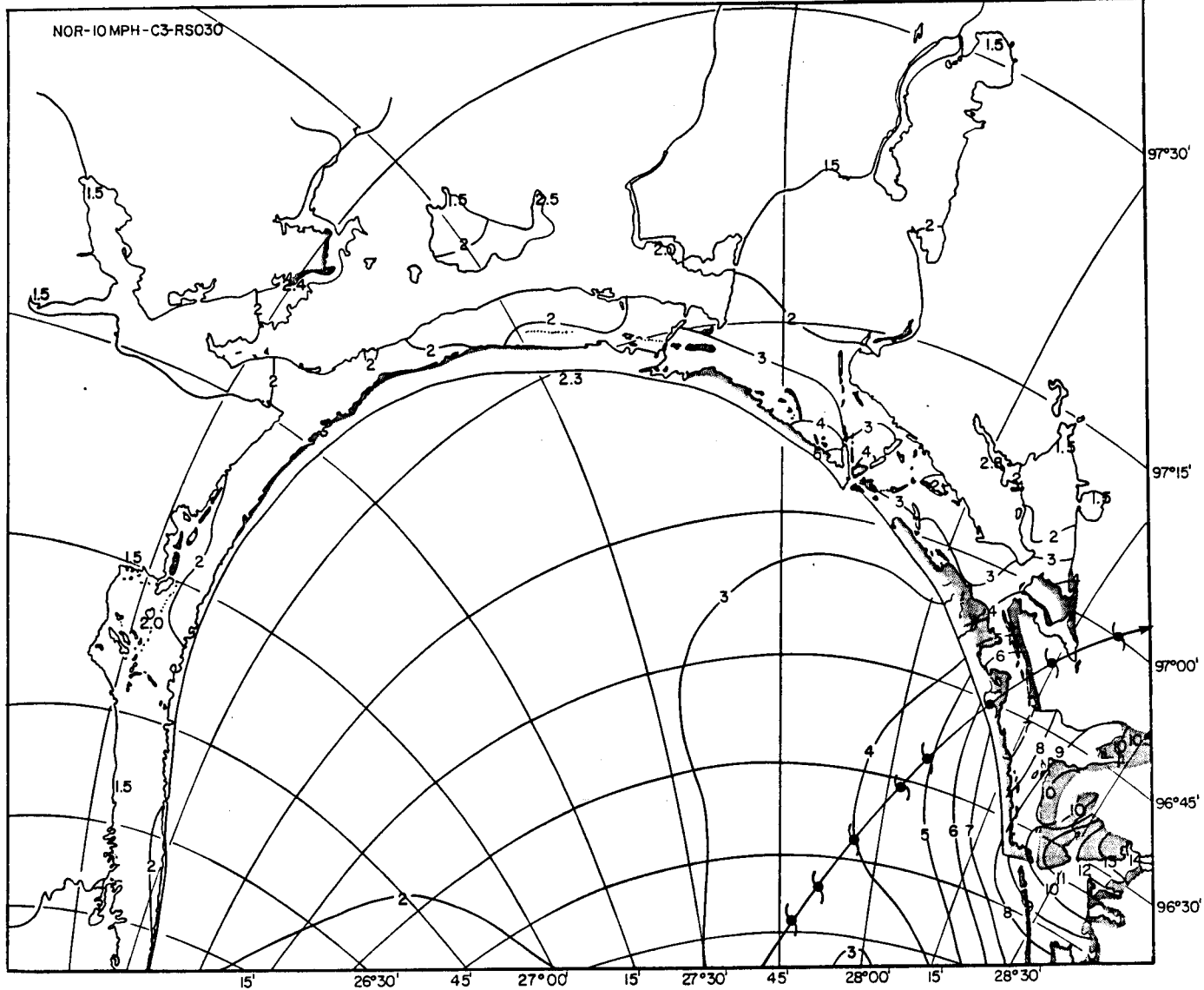


11. BAYSIDE (28, 66)

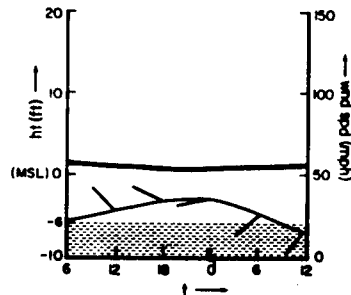


12. MATAGORDA IS. (45, 61)

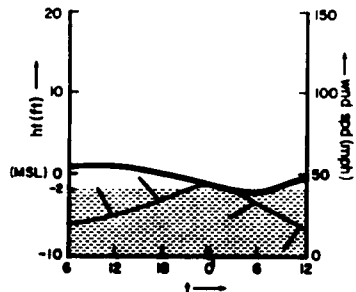




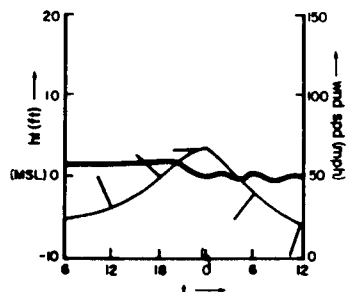
1. PORT MANSFIELD (48, 8)



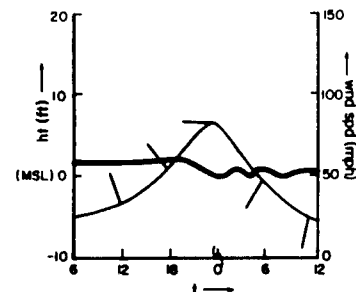
2. BAFFIN BAY (19, 3)



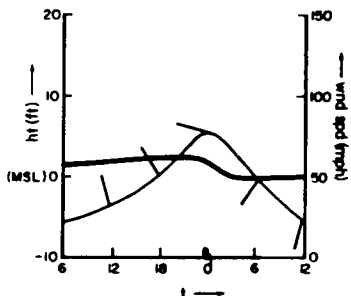
3. PADRI IS. RANGER STA. (24, 35)



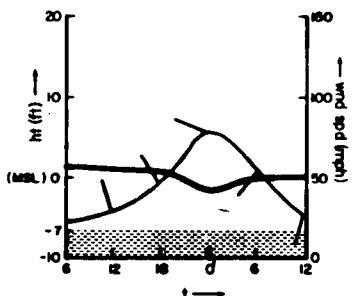
4. MUSTANG PASS (25, 45)



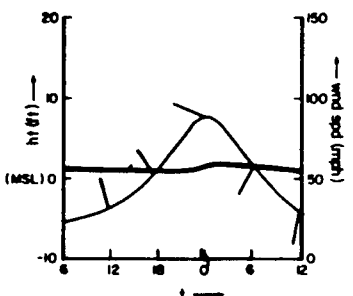
5. NAVAL AIR STA. (20, 46)



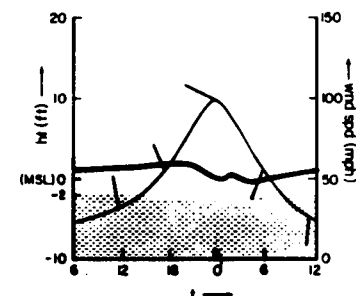
6. CORPUS CHRISTI (22, 53)



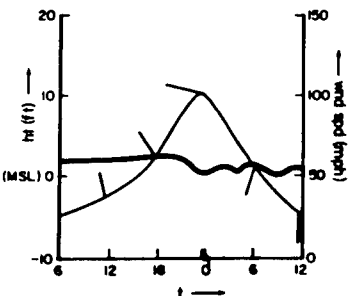
7. INGLESIDE (21, 55)



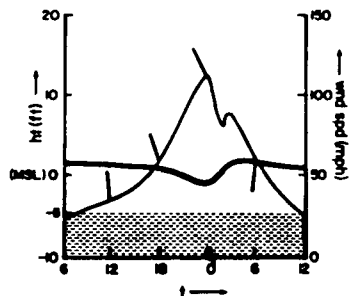
8. ARANSAS PASS (28, 57)



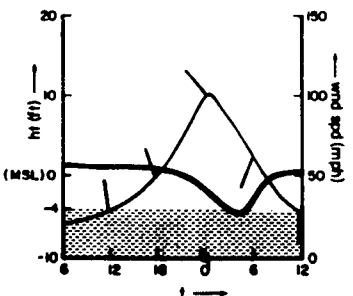
9. PORT ARANSAS (31, 53)



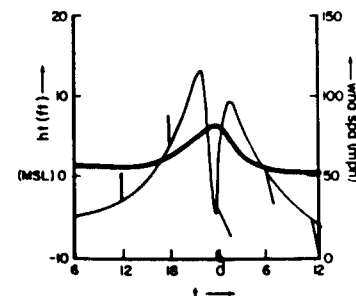
10. COPANO BRIDGE (35, 63)

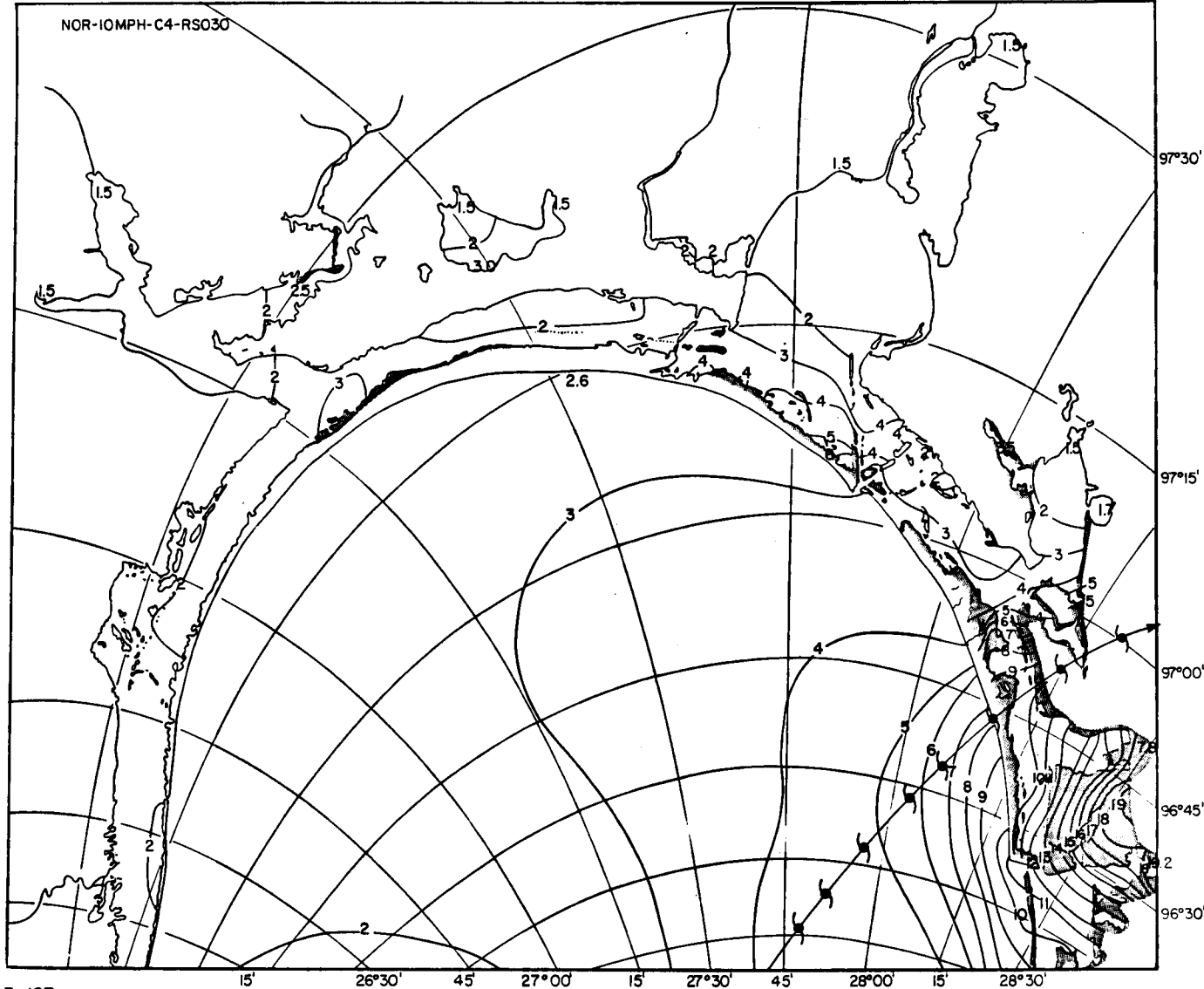


11. BAYSIDE (28, 66)



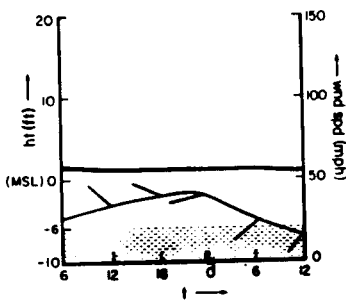
12. MATAGORDA IS. (45, 61)



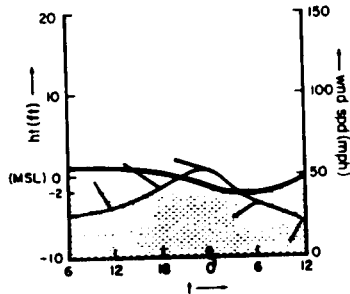




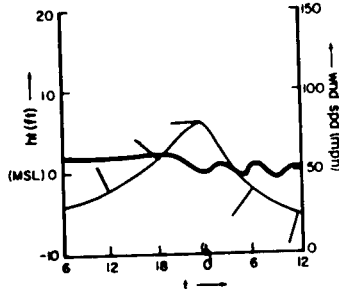
1. PORT MANSFIELD (48, 8)



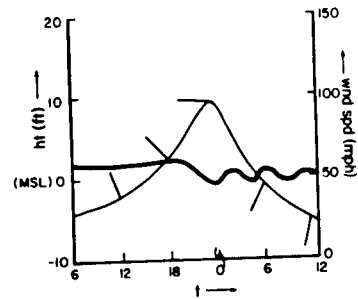
2. BAFFIN BAY (19, 3)



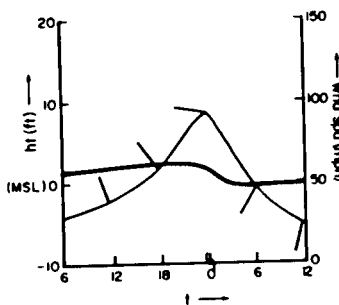
3. PADRI IS. RANGER STA. (24, 35)



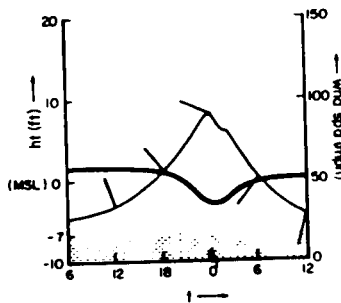
4. MUSTANG PASS (25, 45)



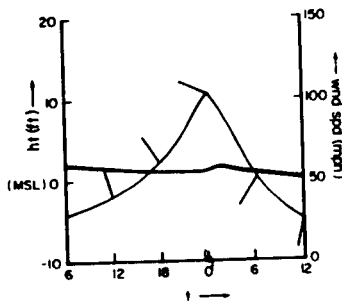
5. NAVAL AIR STA. (20, 46)



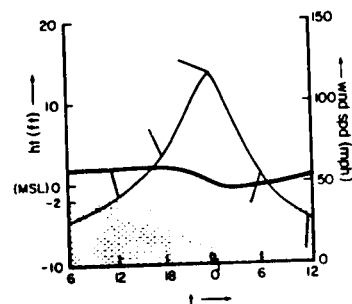
6. CORPUS CHRISTI (12, 53)



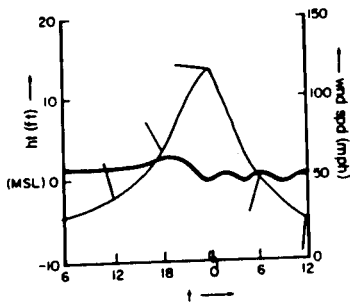
7. INGLESIDE (21, 55)



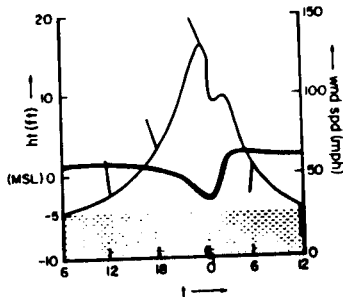
8. ARANSAS PASS (28, 57)



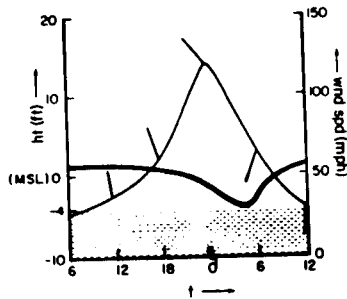
9. PORT ARANSAS (31, 53)



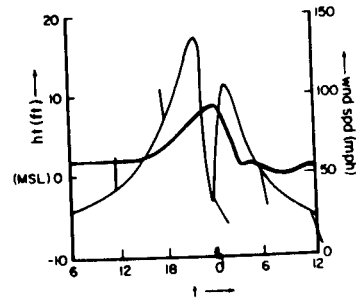
10. COPANO BRIDGE (35, 63)



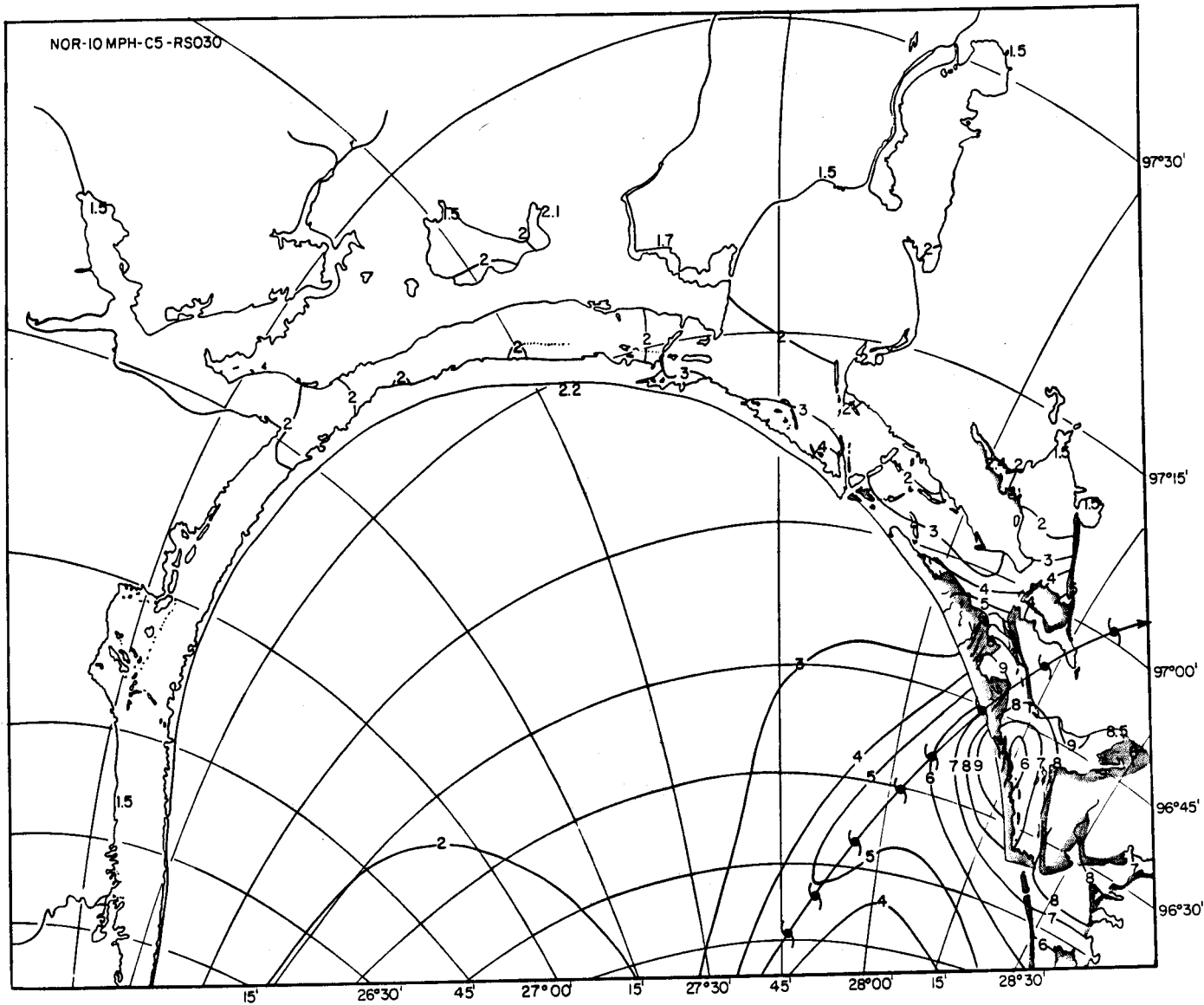
11. BAYSIDE (28, 66)



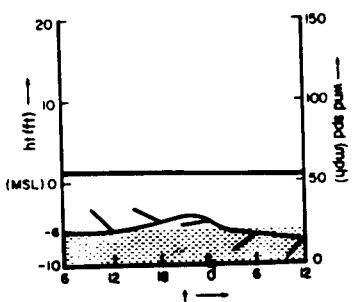
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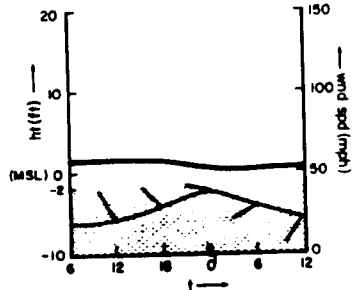
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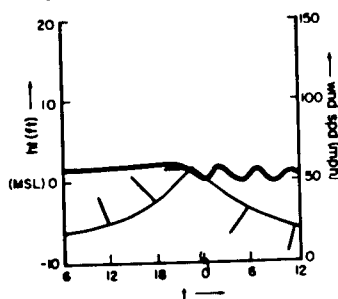
1. PORT MANSFIELD (48,8)



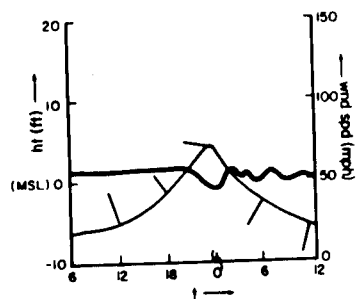
2. BAFFIN BAY (19,3)



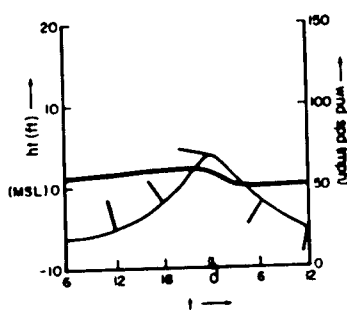
3. PADRI IS. RANGER STA. (24,35)



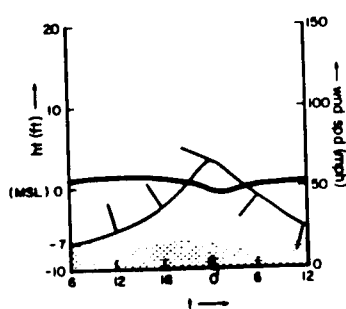
4. MUSTANG PASS (25,45)



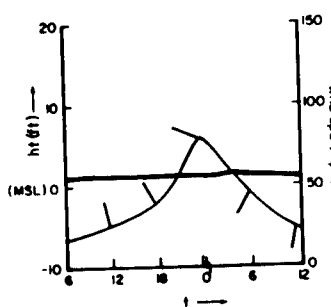
5. NAVAL AIR STA. (20,46)



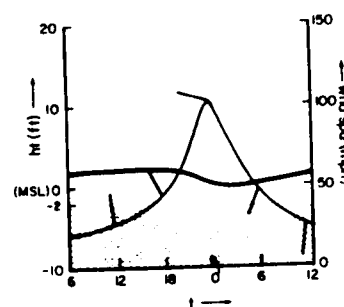
6. CORPUS CHRISTI (12,53)



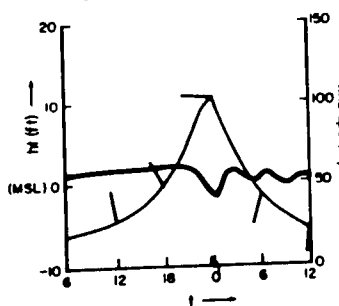
7. INGLESIDE (21,55)



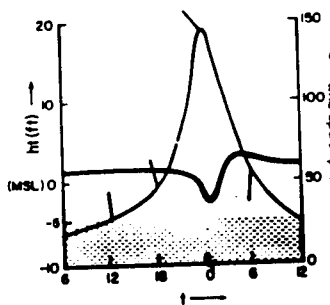
8. ARANSAS PASS (28,57)



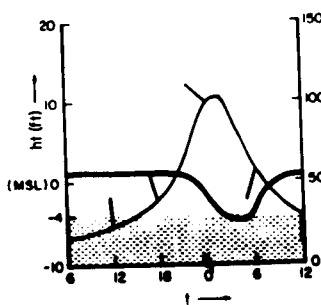
9. PORT ARANSAS (31,53)



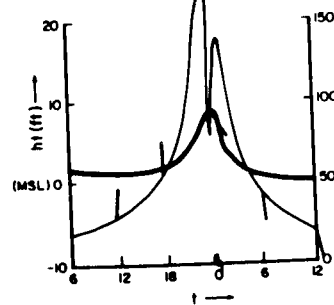
10. COPANO BRIDGE (35,63)



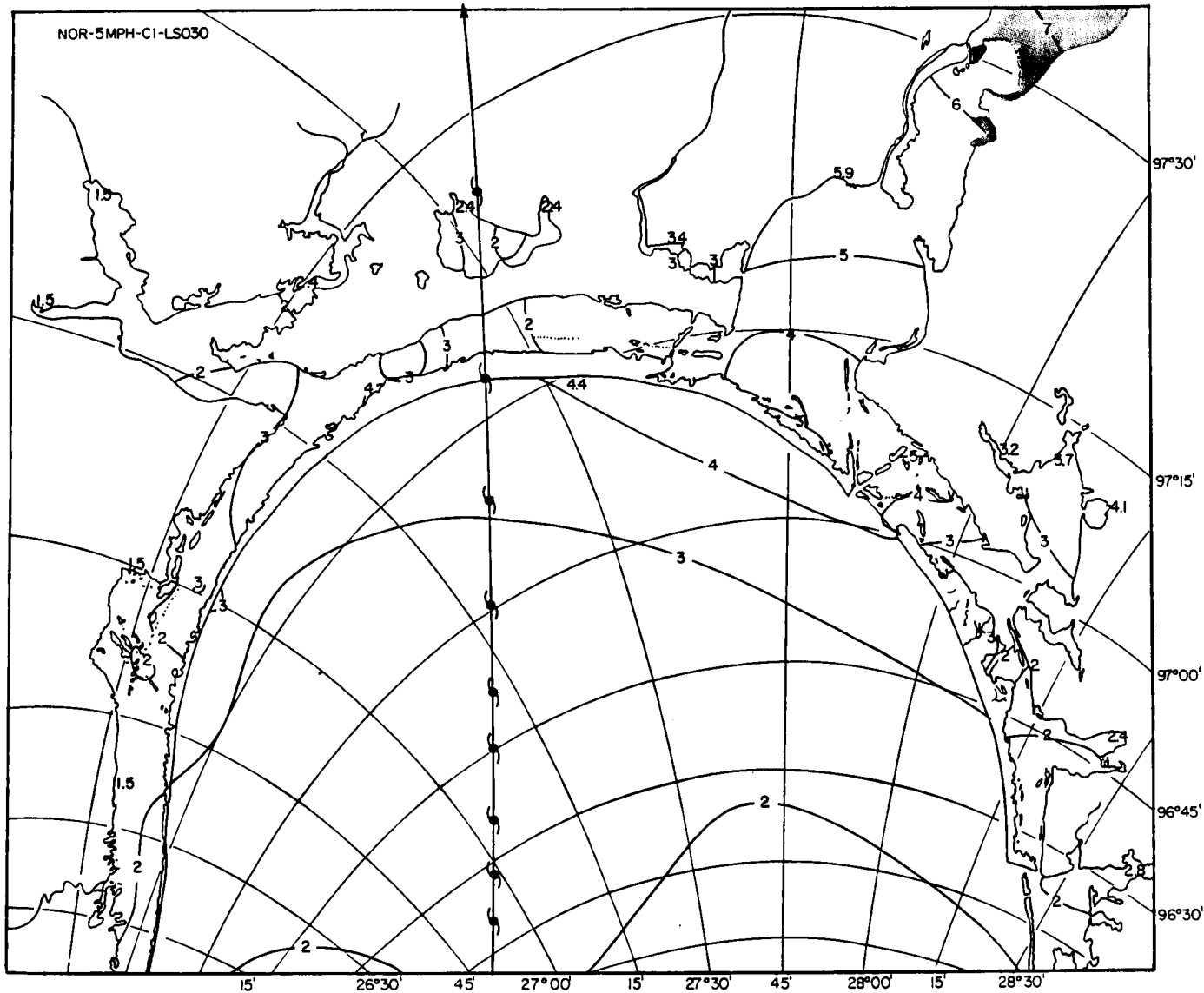
11. BAYSIDE (28,66)



12. MATAGORDA IS. (45,61)

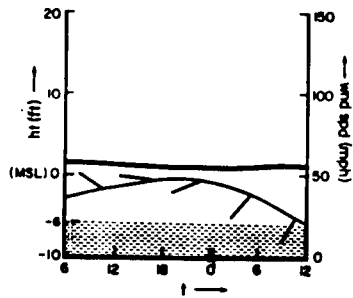


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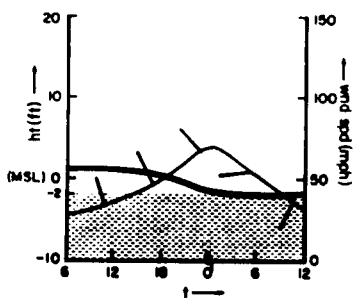


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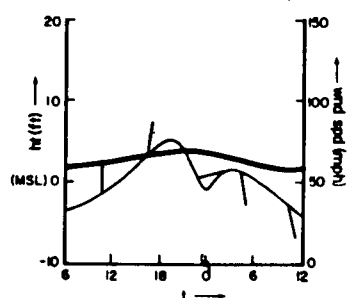
1. PORT MANSFIELD (48, 8)



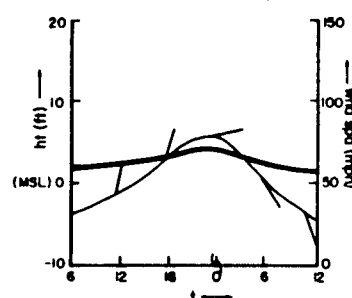
2. BAFFIN BAY (19, 3)



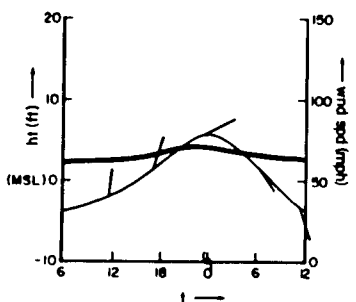
3. PADRI IS. RANGER STA. (24, 35)



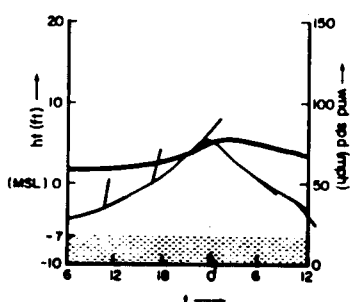
4. MUSTANG PASS (25, 45)



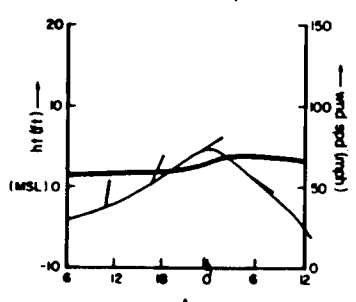
5. NAVAL AIR STA. (20, 46)



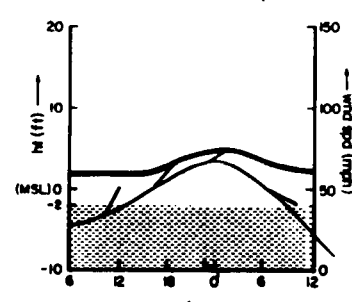
6. CORPUS CHRISTI (12, 53)



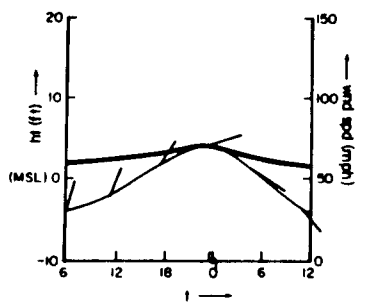
7. INGLESIDE (21, 55)



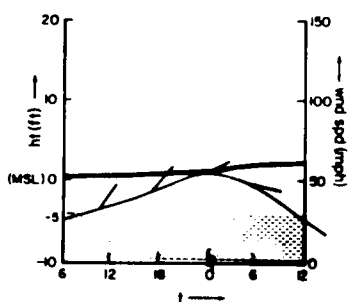
8. ARANSAS PASS (28, 57)



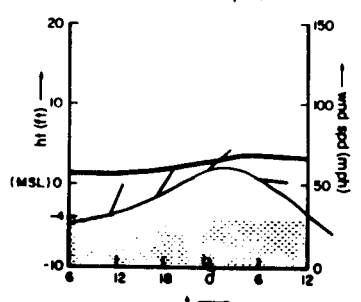
9. PORT ARANSAS (31, 53)



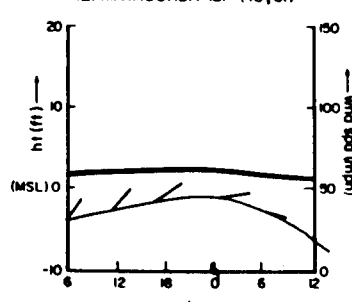
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)

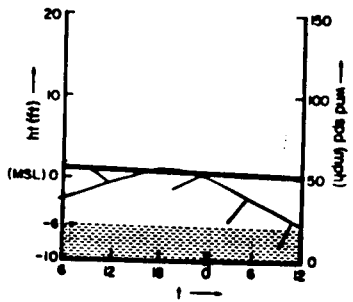


12. MATAGORDA IS. (45, 61)

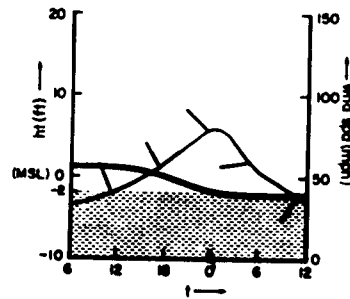




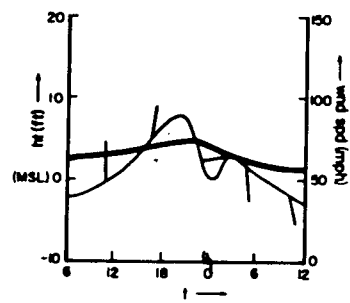
1. PORT MANSFIELD (48, 8)



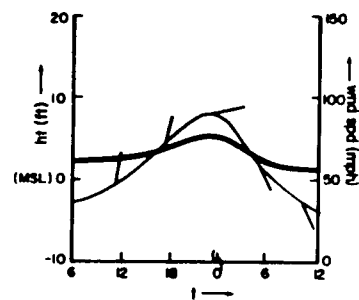
2. BAFFIN BAY (19, 3)



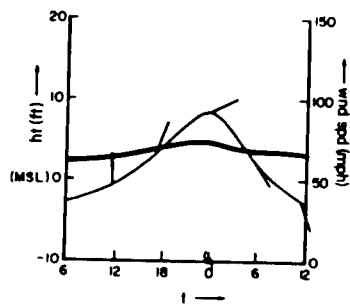
3. PADRI IS. RANGER STA. (24, 35)



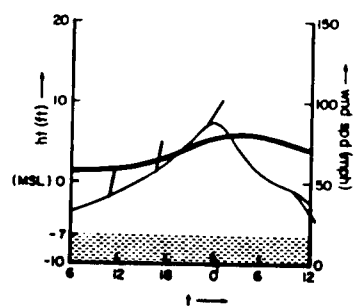
4. MUSTANG PASS (25, 45)



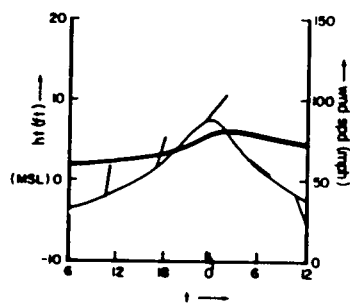
5. NAVAL AIR STA. (20, 46)



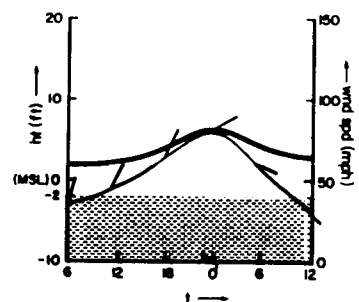
6. CORPUS CHRISTI (12, 53)



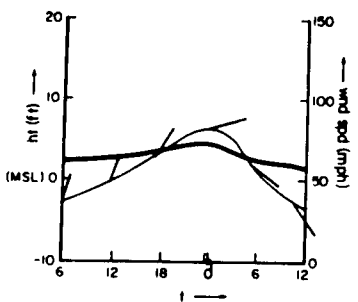
7. INGLESIDE (21, 55)



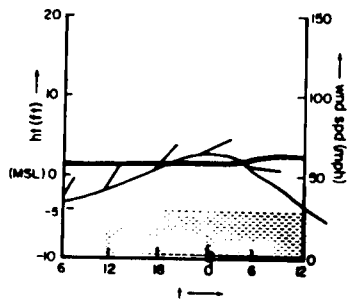
8. ARANSAS PASS (28, 57)



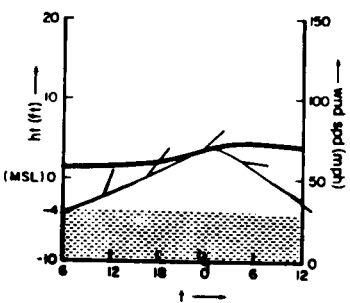
9. PORT ARANSAS (31, 53)



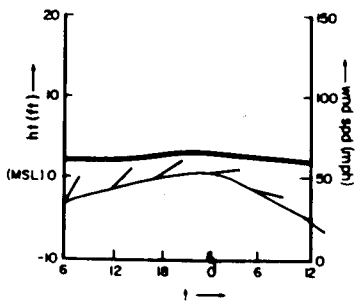
10. COPANO BRIDGE (35, 63)



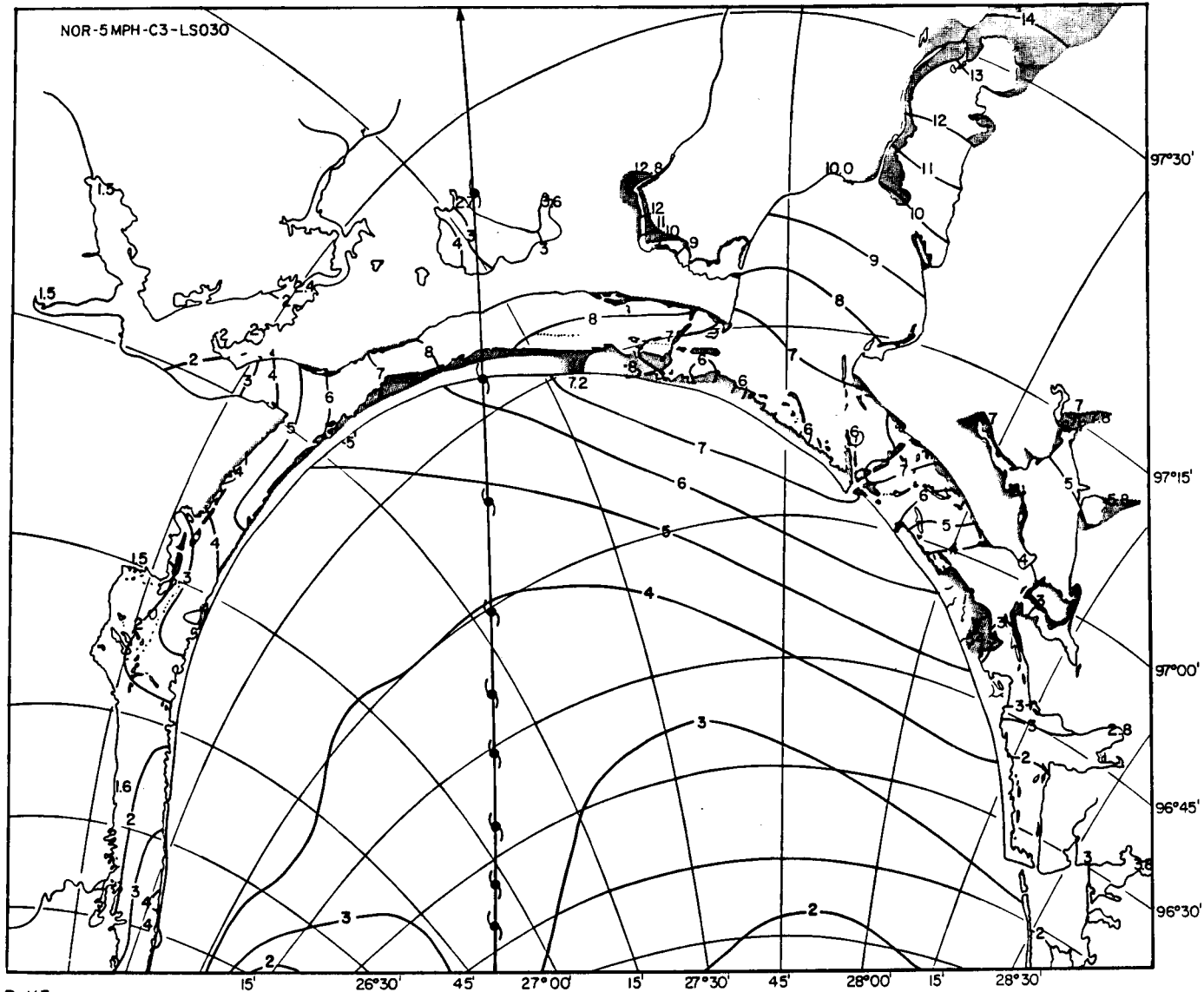
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

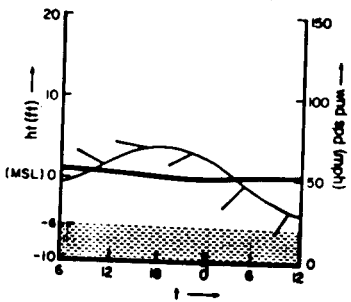


NOR-5MPH-C3-LS030

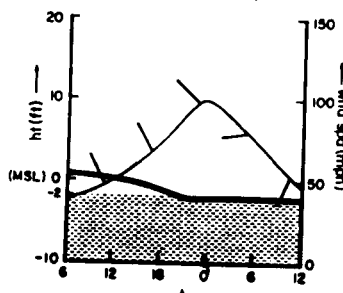




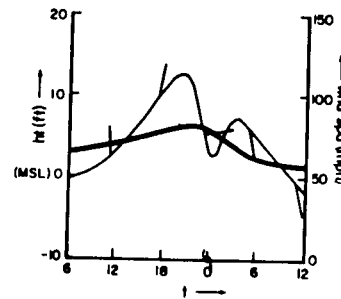
1. PORT MANSFIELD (48, 8)



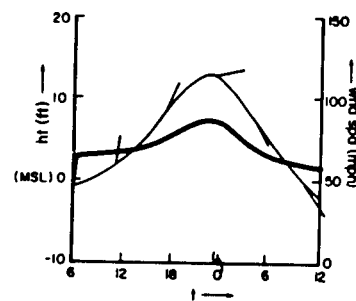
2. BAFFIN BAY (19, 3)



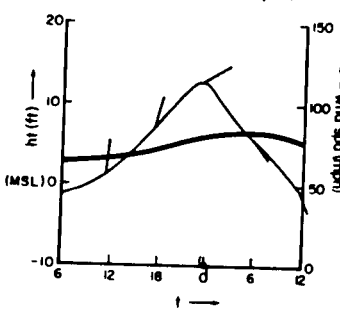
3. PADRI IS. RANGER STA. (24, 35)



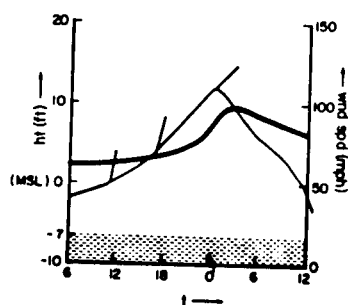
4. MUSTANG PASS (25, 45)



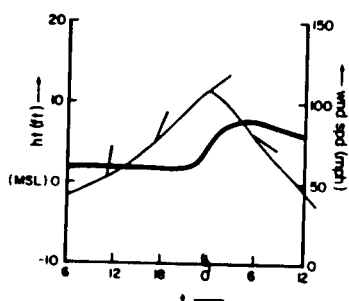
5. NAVAL AIR STA. (20, 46)



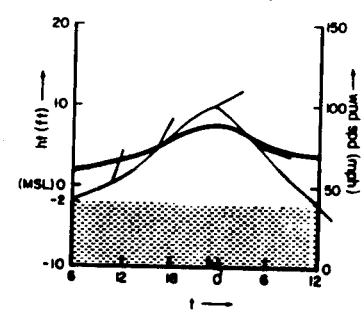
6. CORPUS CHRISTI (12, 53)



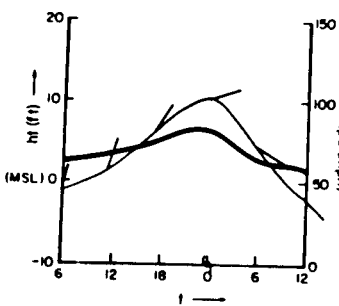
7. INGLESIDE (21, 55)



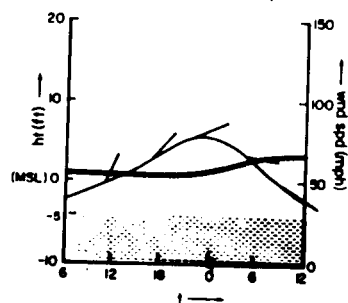
8. ARANSAS PASS (28, 57)



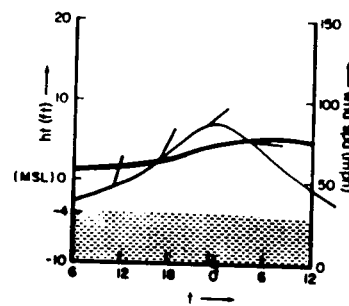
9. PORT ARANSAS (31, 53)



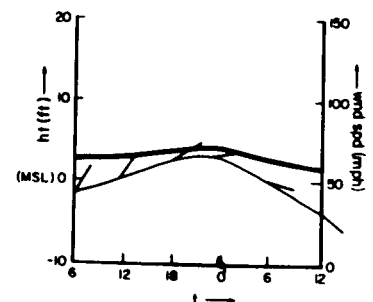
10. COPANO BRIDGE (35, 63)



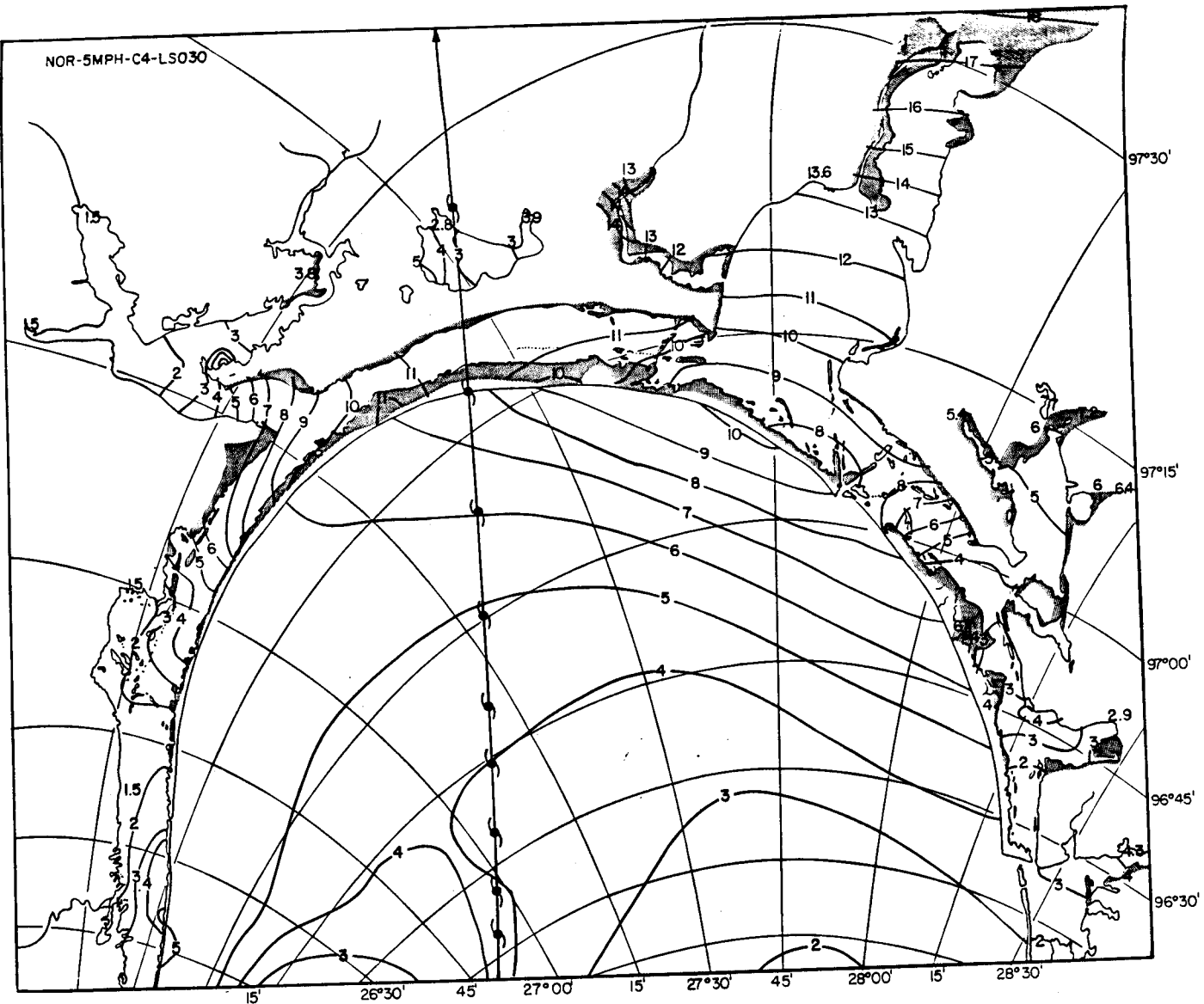
11. BAYSIDE (28, 66)



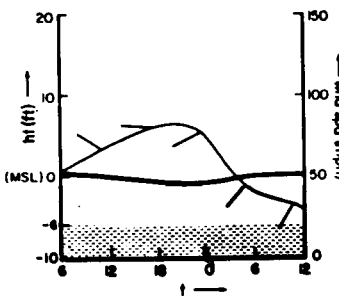
12. MATAGORDA IS. (45, 61)



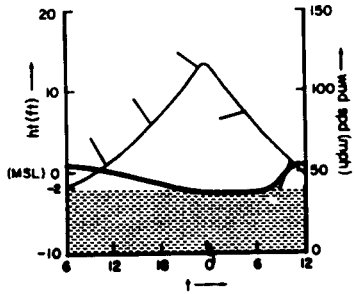
NOR-5MPH-C4-LS030



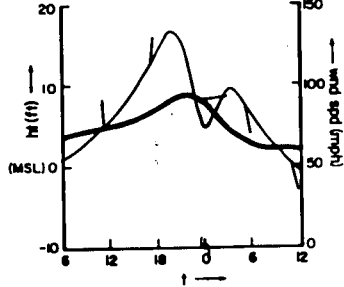
1. PORT MANSFIELD (48, 8)



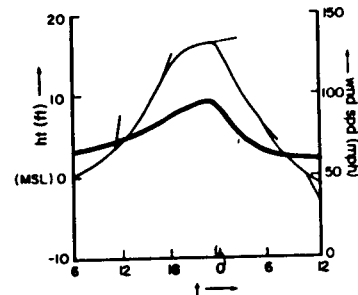
2. BAFFIN BAY (19, 3)



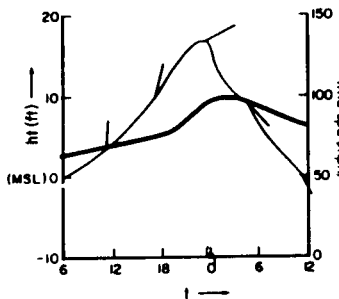
3. PADRI IS. RANGER STA. (24, 35)



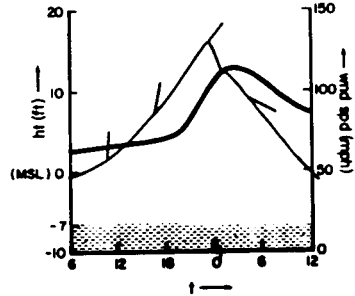
4. MUSTANG PASS (25, 45)



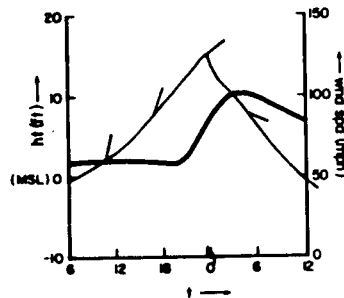
5. NAVAL AIR STA. (20, 46)



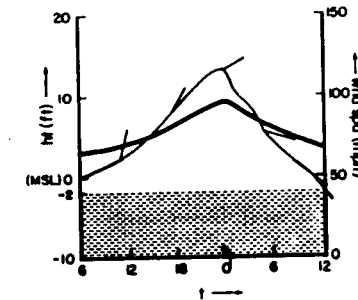
6. CORPUS CHRISTI (12, 53)



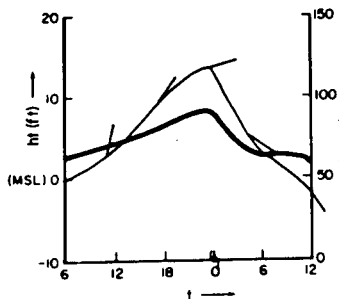
7. INGLESIDE (21, 55)



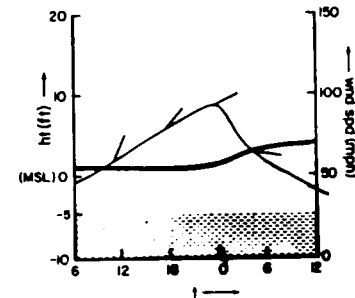
8. ARANSAS PASS (28, 57)



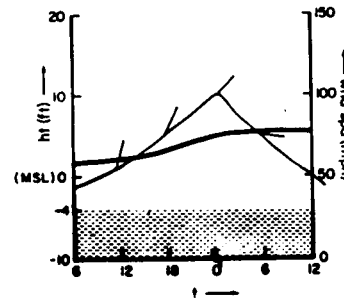
9. PORT ARANSAS (31, 53)



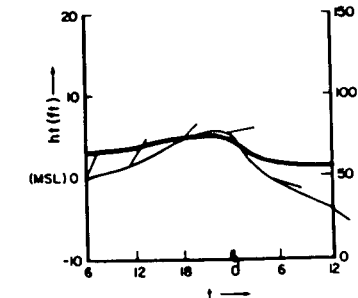
10. COPANO BRIDGE (35, 63)



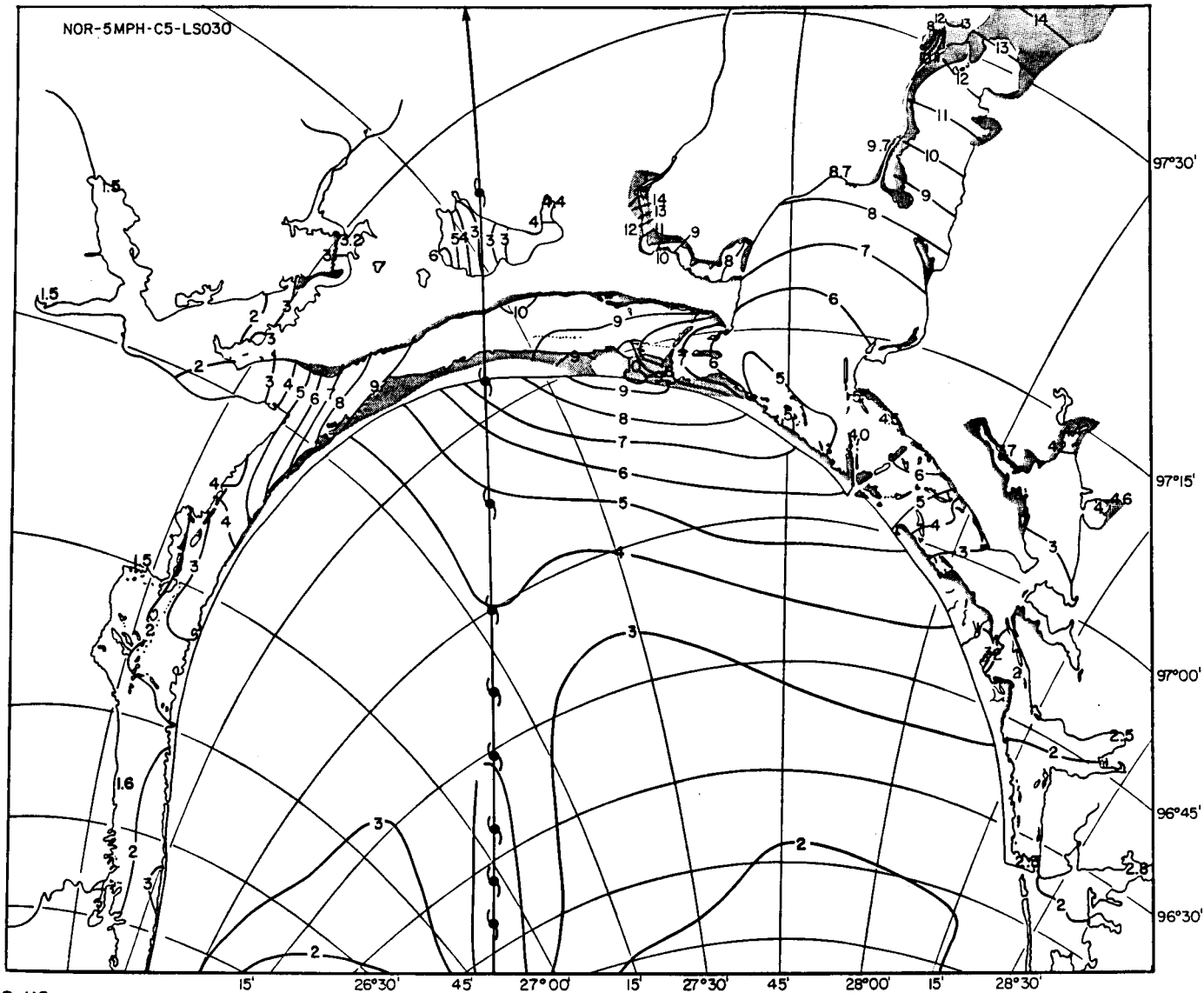
11. BAYSIDE (28, 66)



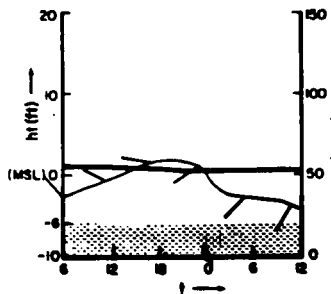
12. MATAGORDA IS. (45, 61)



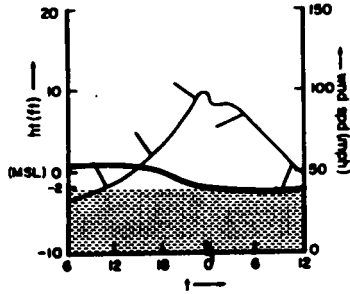
NOR-5MPH-C5-LS030



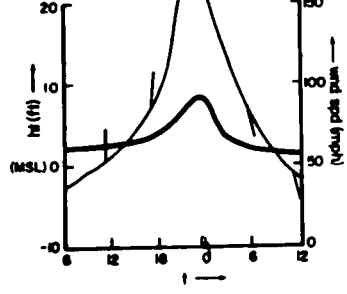
1. PORT MANSFIELD (48,8)



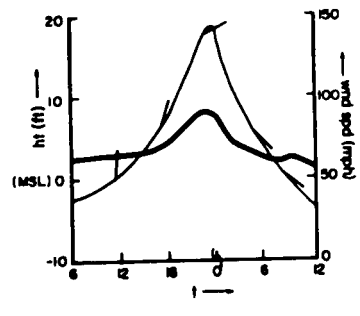
2. BAFFIN BAY (19,3)



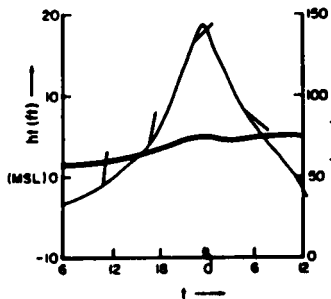
3. PADRI IS. RANGER STA. (24,35)



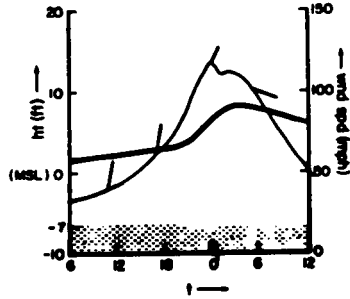
4. MUSTANG PASS (25,45)



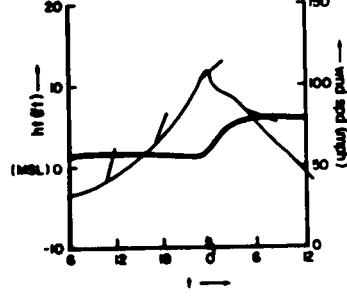
5. NAVAL AIR STA. (20,46)



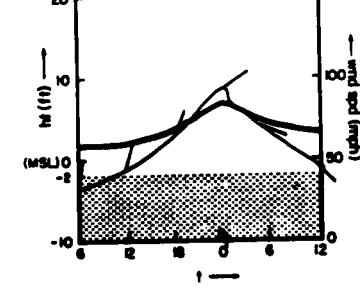
6. CORPUS CHRISTI (02,53)



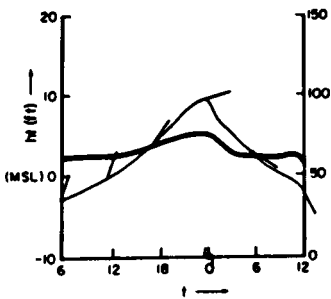
7. INGLESIDE (21,55)



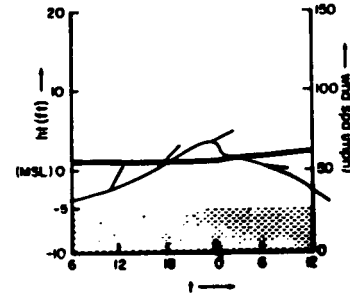
8. ARANSAS PASS (28,57)



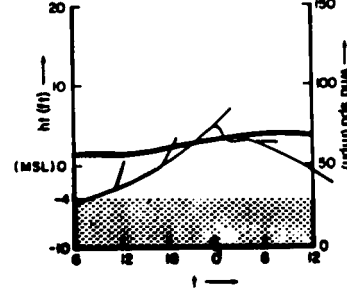
9. PORT ARANSAS (31,53)



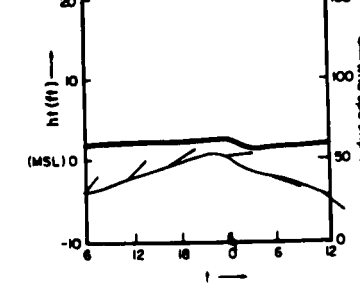
10. COPANO BRIDGE (35,63)



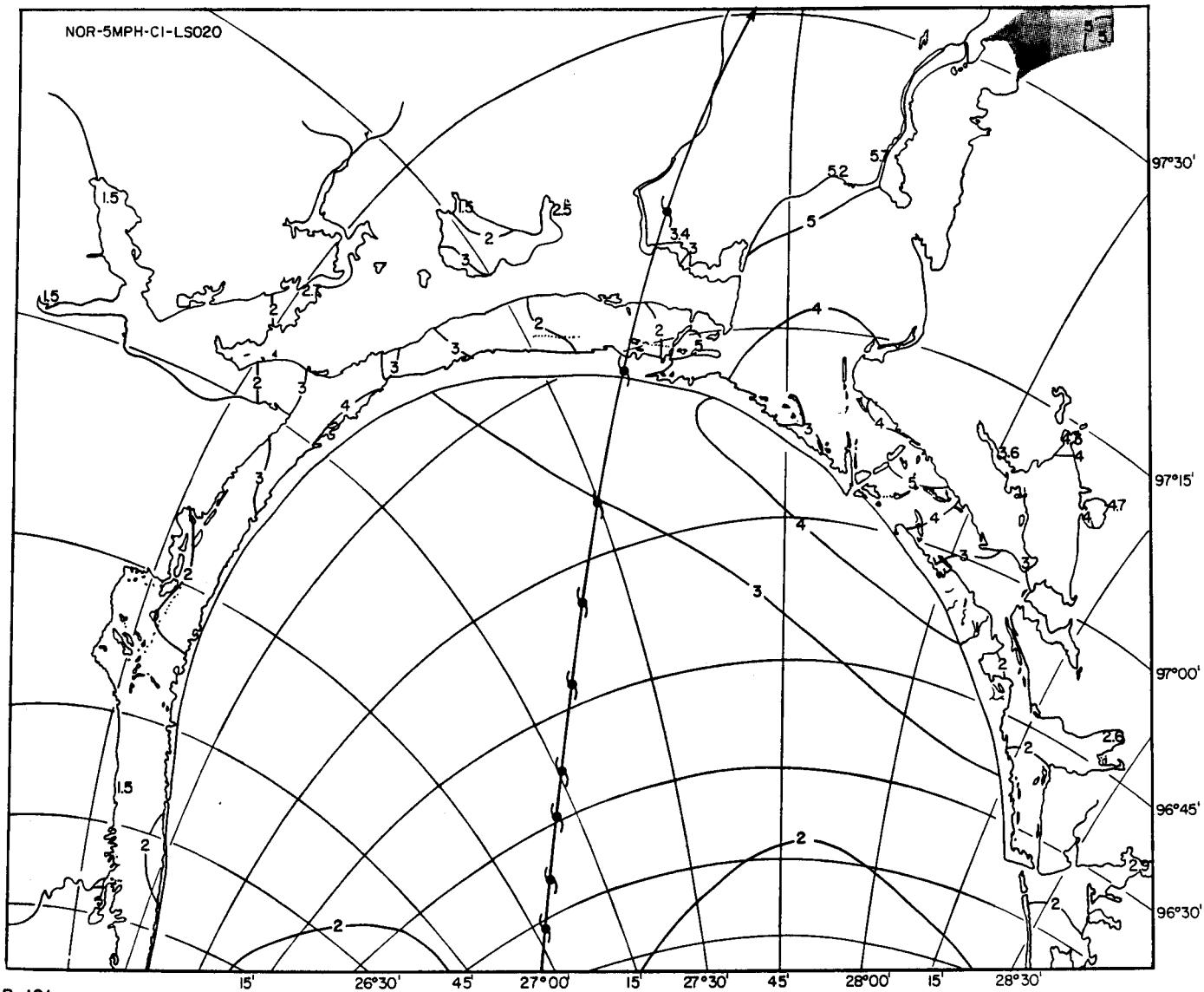
11. BAYSIDE (28,66)



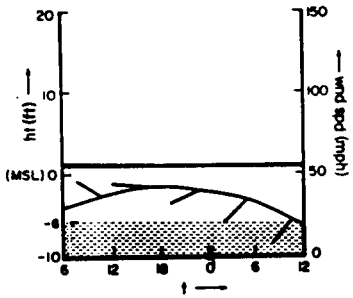
12. MATAGORDA IS. (45,61)



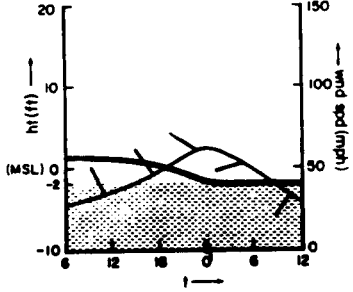
NOR-5MPH-CI-LS020



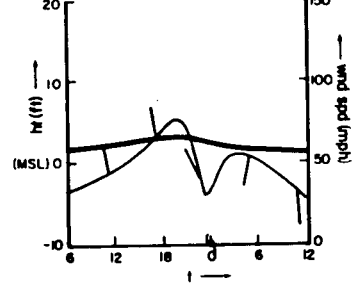
1. PORT MANSFIELD (48, 8)



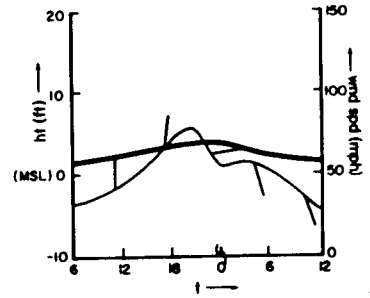
2. BAFFIN BAY (19, 3)



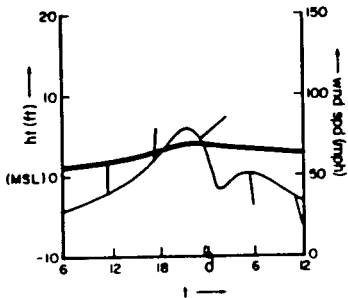
3. PADRI IS. RANGER STA. (24, 35)



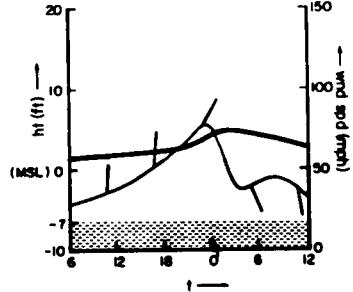
4. MUSTANG PASS (25, 45)



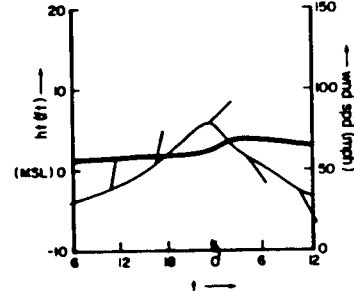
5. NAVAL AIR STA. (20, 46)



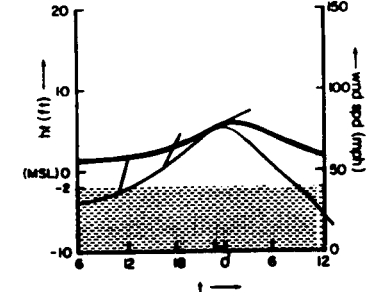
6. CORPUS CHRISTI (12, 53)



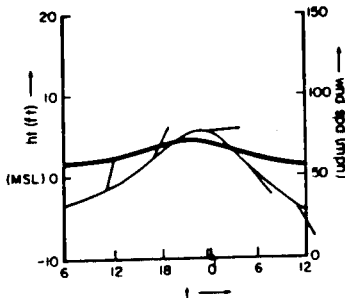
7. INGLESIDE (21, 55)



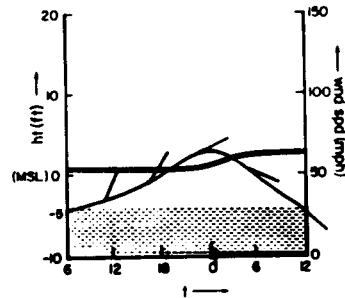
8. ARANSAS PASS (28, 57)



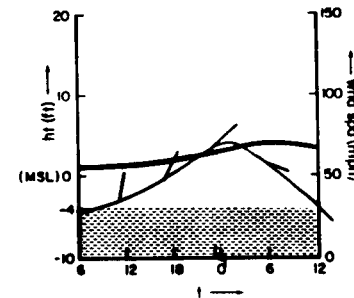
9. PORT ARANSAS (31, 53)



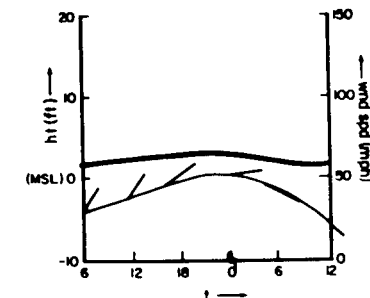
10. COPANO BRIDGE (35, 63)



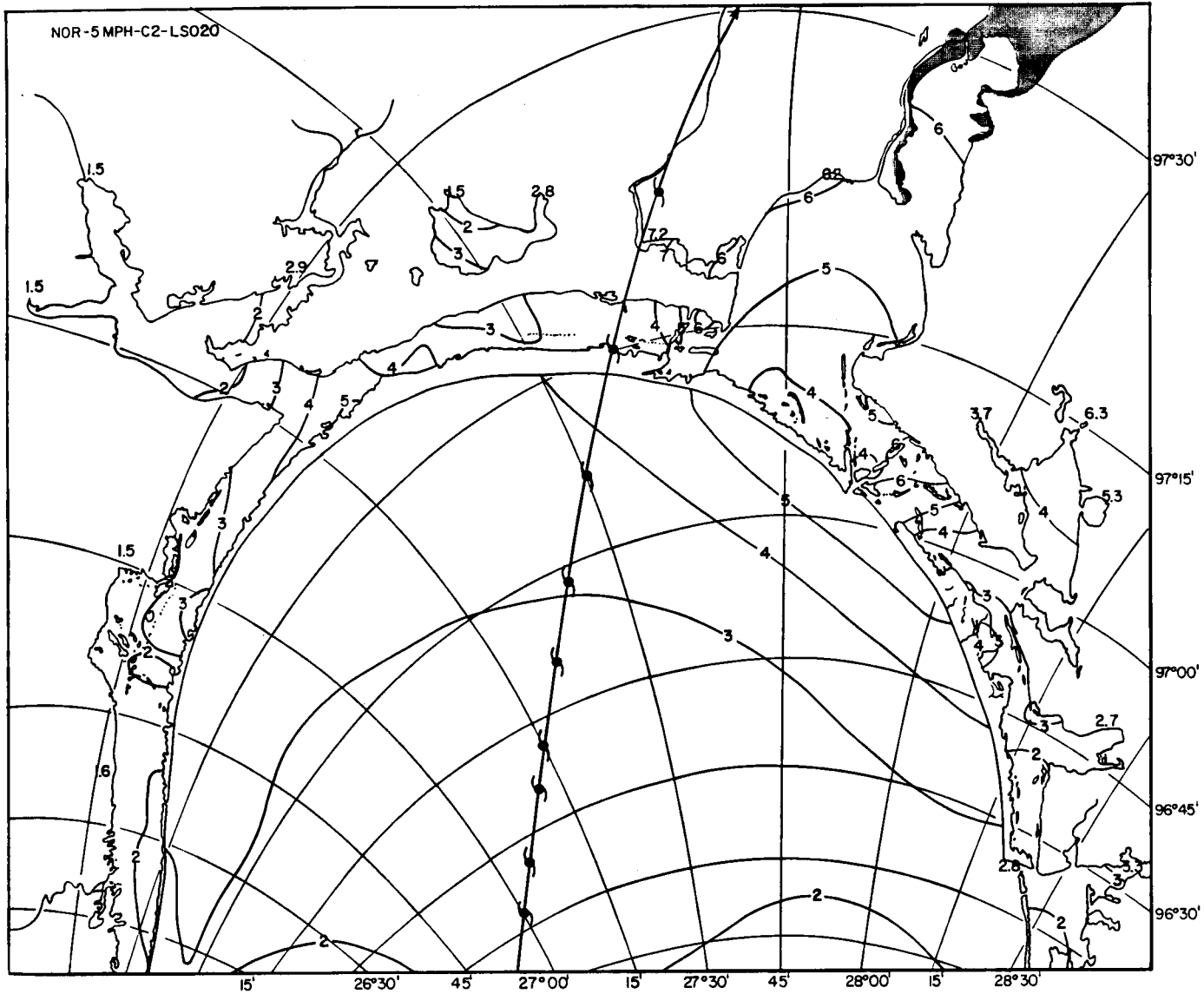
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

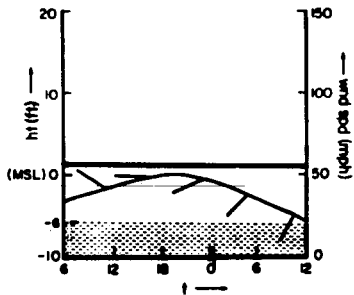


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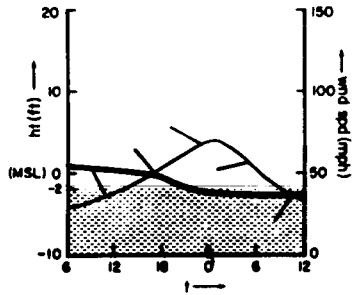




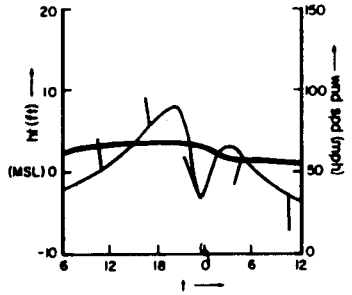
1. PORT MANSFIELD (48, 8)



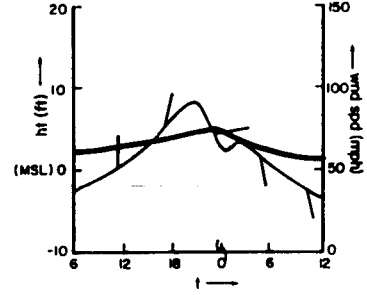
2. BAFFIN BAY (19, 3)



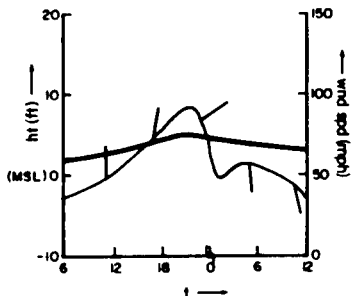
3. PADRI IS. RANGER STA. (24, 35)



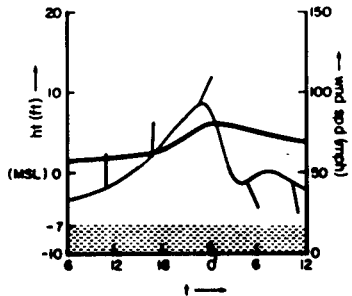
4. MUSTANG PASS (25, 45)



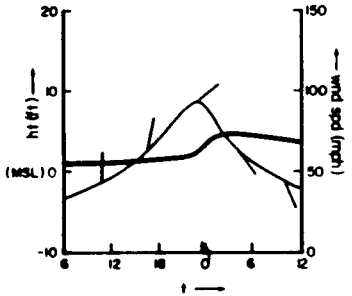
5. NAVAL AIR STA. (20, 46)



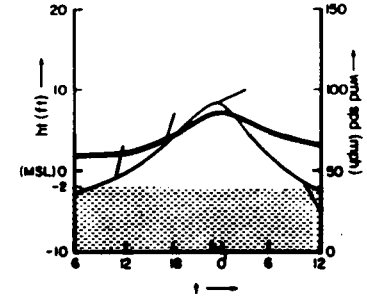
6. CORPUS CHRISTI (12, 53)



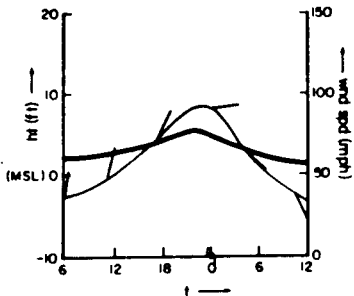
7. INGLESIDE (21, 55)



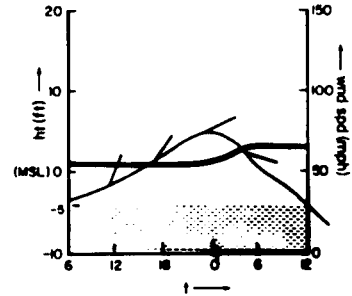
8. ARANSAS PASS (28, 57)



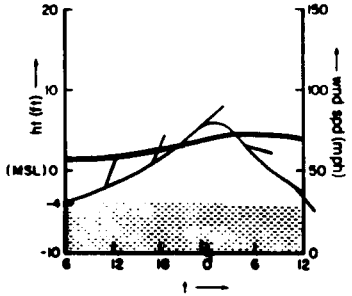
9. PORT ARANSAS (31, 53)



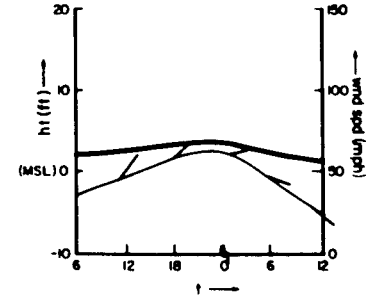
10. COPANO BRIDGE (35, 63)



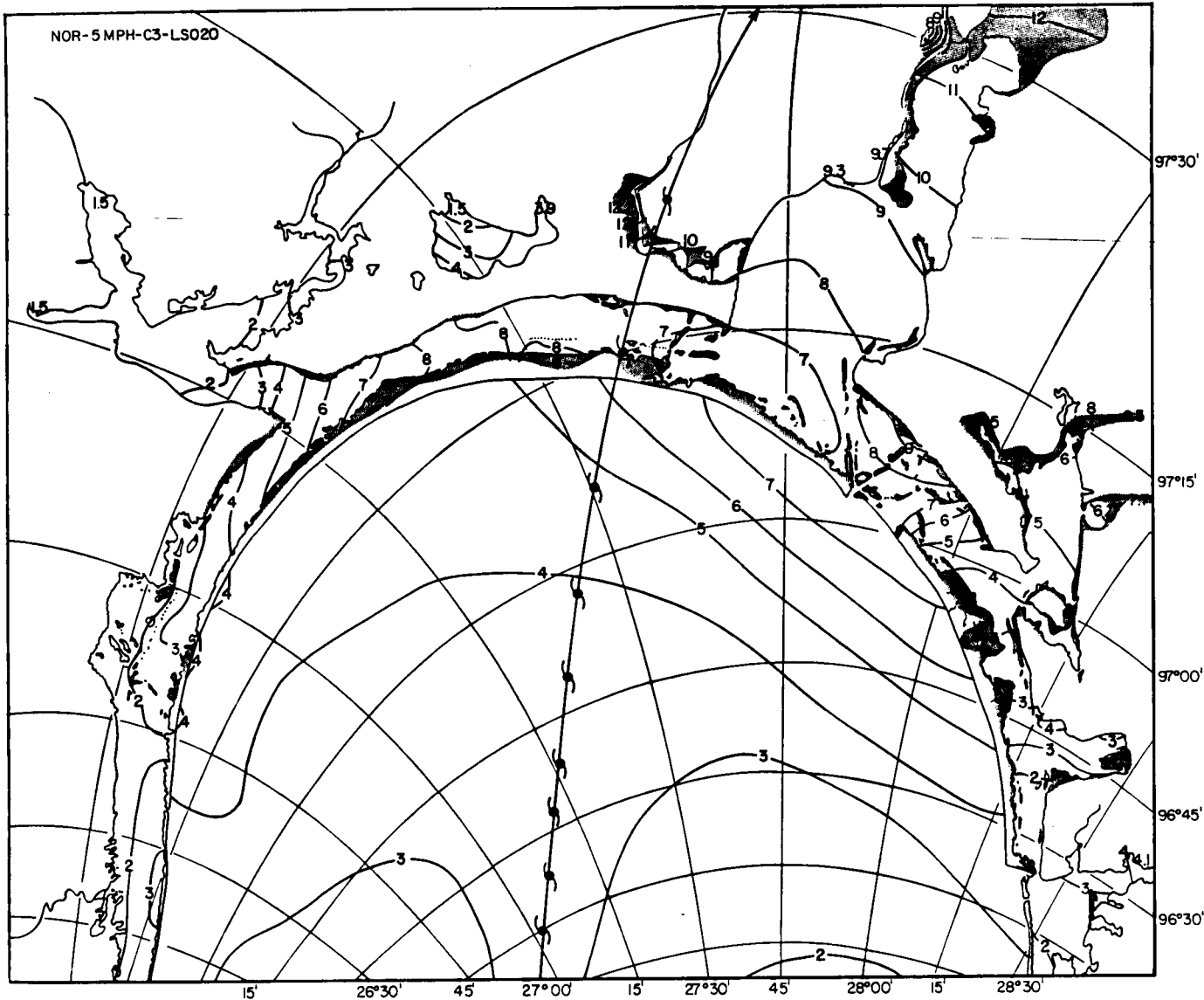
11. BAYSIDE (28, 66)



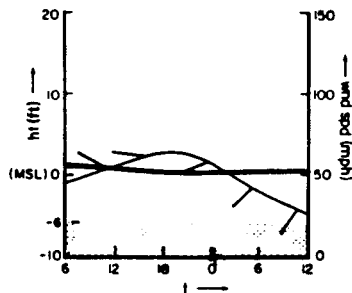
12. MATAGORDA IS. (45, 61)



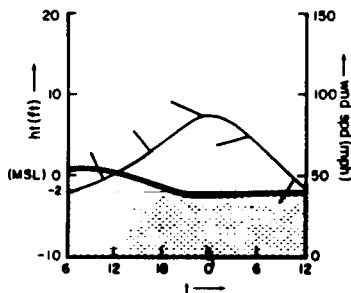
NOR-5 MPH-C3-LS020



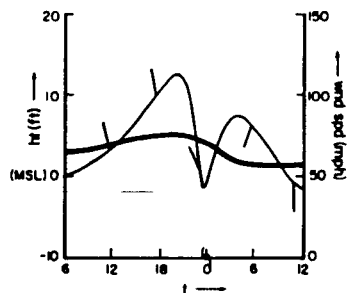
1. PORT MANSFIELD (48, 8)



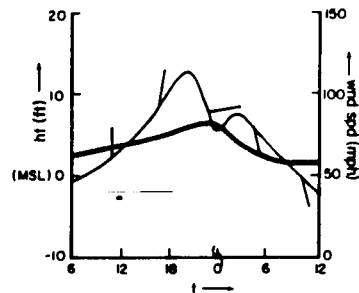
2. BAFFIN BAY (19, 3)



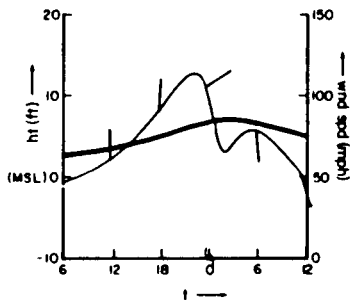
3. PADRI IS. RANGER STA. (24, 35)



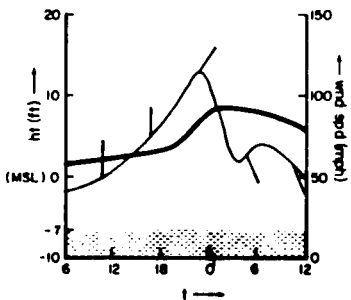
4. MUSTANG PASS (25, 45)



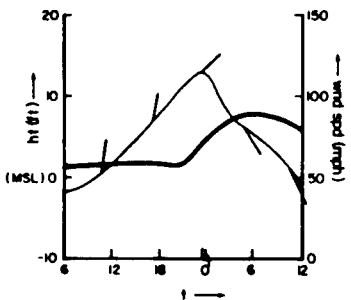
5. NAVAL AIR STA. (20, 46)



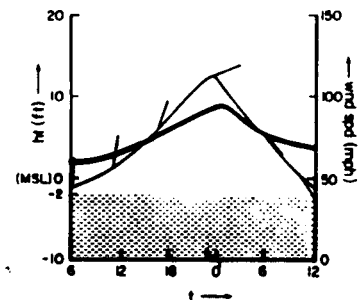
6. CORPUS CHRISTI (12, 53)



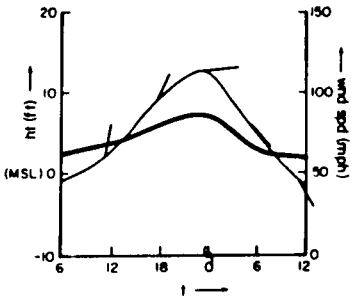
7. INGLESIDE (21, 55)



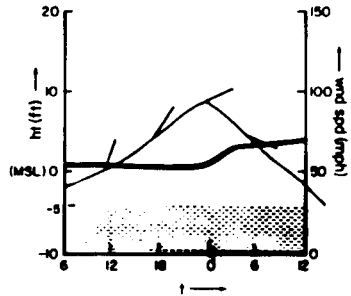
8. ARANSAS PASS (28, 57)



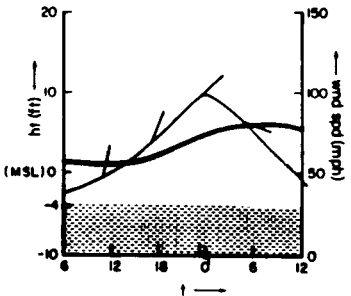
9. PORT ARANSAS (31, 53)



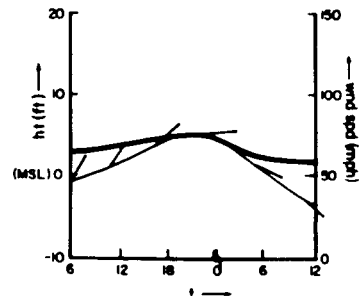
10. COPANO BRIDGE (35, 63)

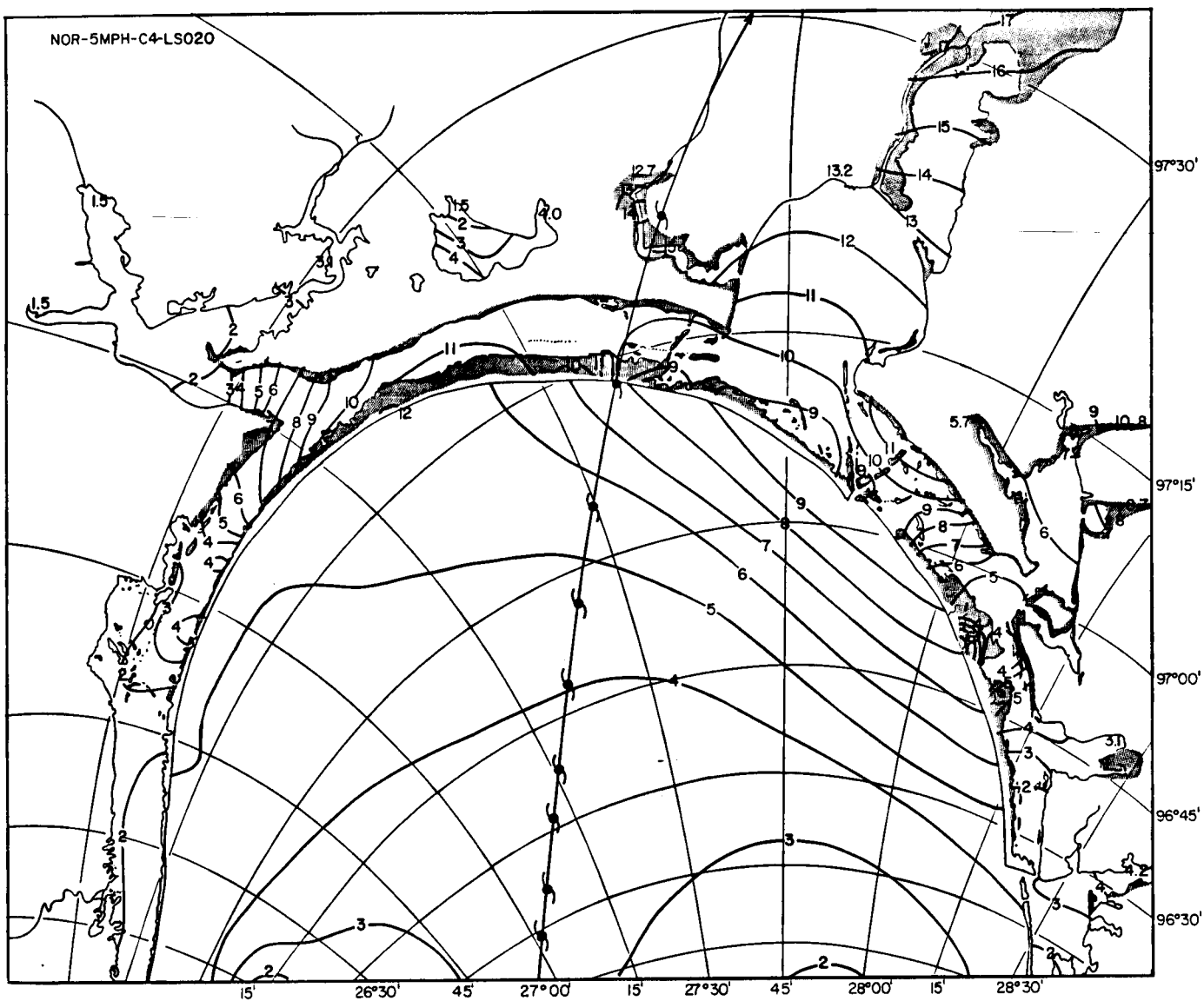


11. BAYSIDE (28, 66)

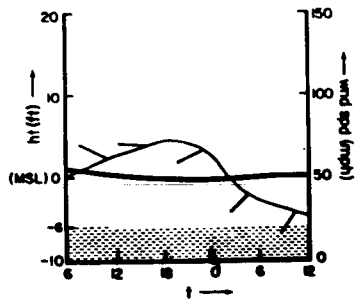


12. MATAGORDA IS. (45, 61)

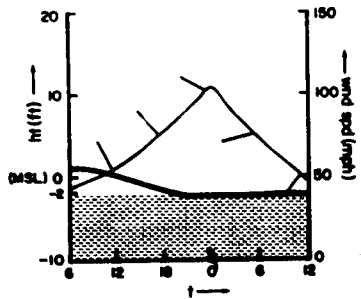




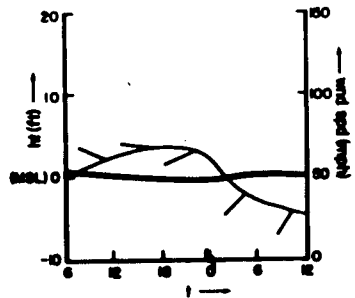
1. PORT MANSFIELD (48, 8)



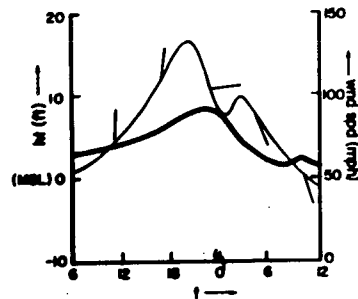
2. BAFFIN BAY (19, 3)



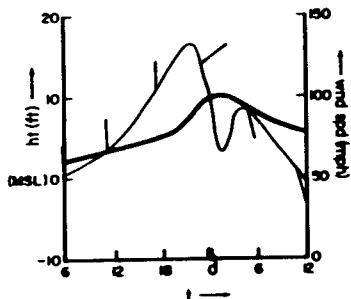
3. PADRI IS. RANGER STA. (24, 35)



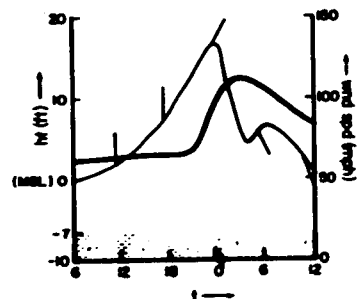
4. MUSTANG PASS (25, 45)



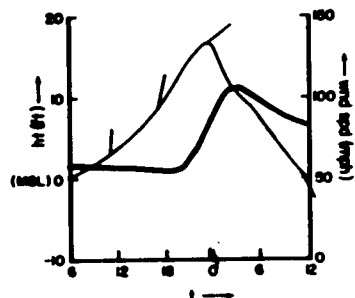
5. NAVAL AIR STA. (20, 46)



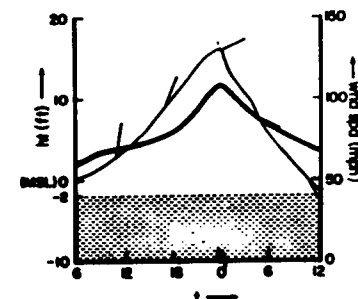
6. CORPUS CHRISTI (22, 53)



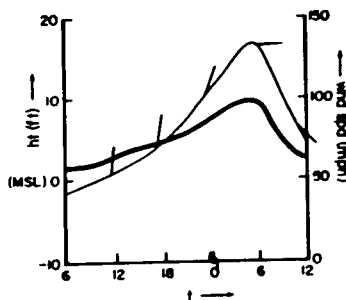
7. INGLESIDE (21, 55)



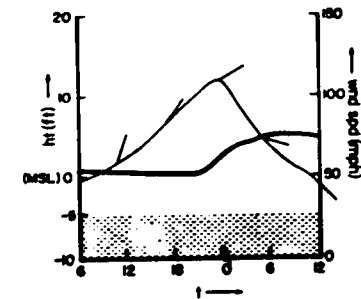
8. ARANSAS PASS (28, 57)



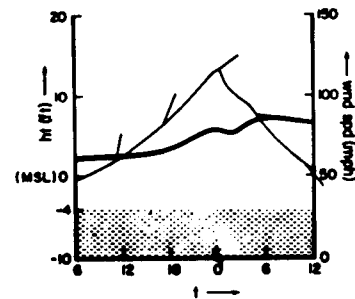
9. PORT ARANSAS (31, 53)



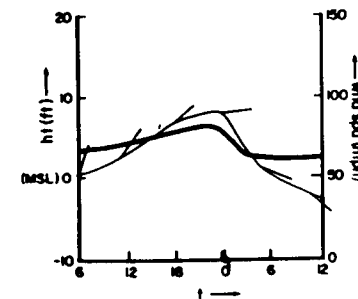
10. COPANO BRIDGE (35, 63)



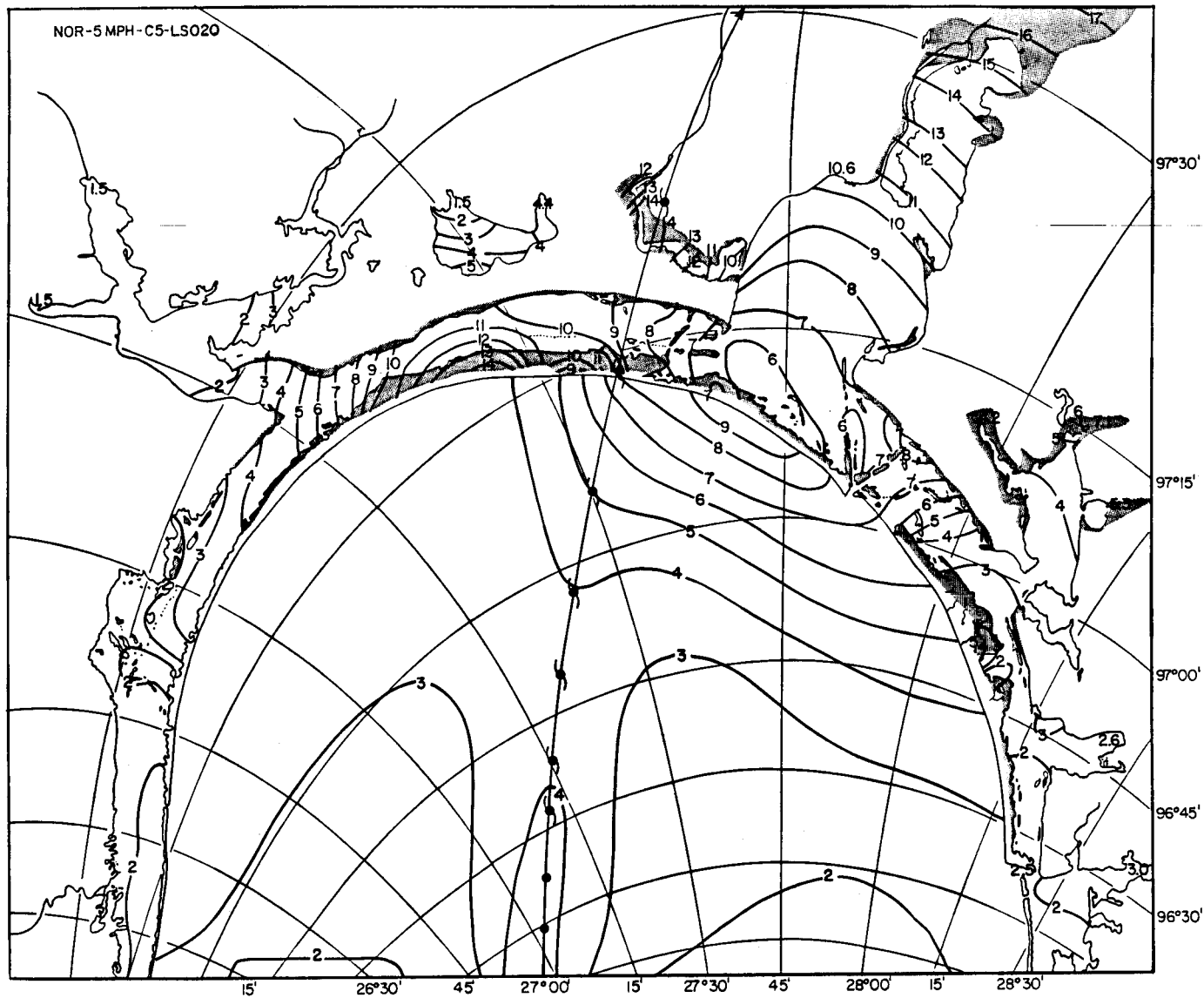
11. BAYSIDE (28, 66)



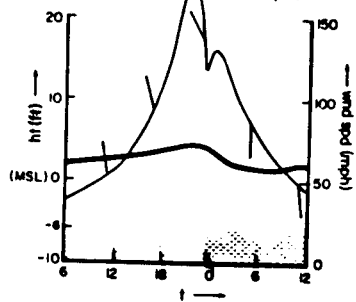
12. MATAGORDA IS. (45, 61)



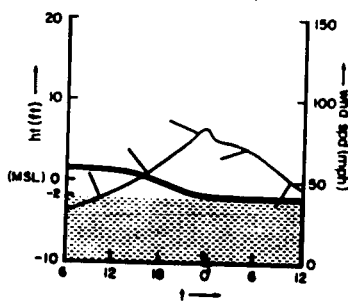
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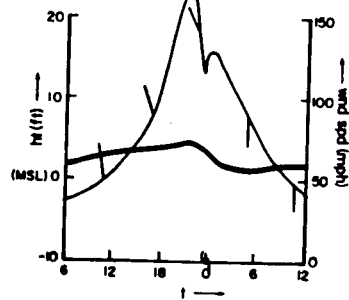
1. PORT MANSFIELD (48, 8)



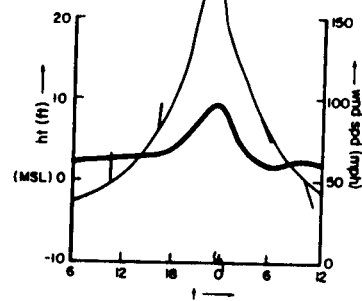
2. BAFFIN BAY (19, 3)



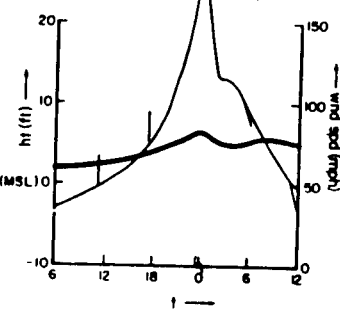
3. PADRI IS. RANGER STA. (24, 35)



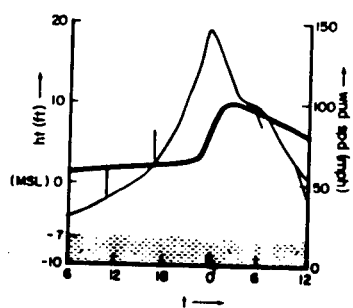
4. MUSTANG PASS (25, 45)



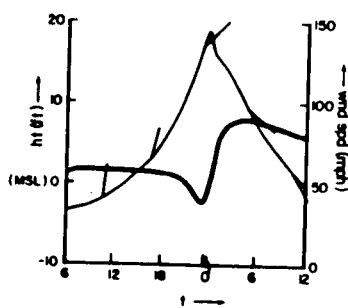
5. NAVAL AIR STA. (20, 46)



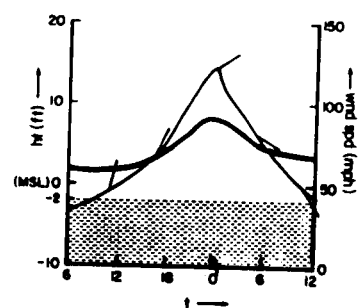
6. CORPUS CHRISTI (12, 53)



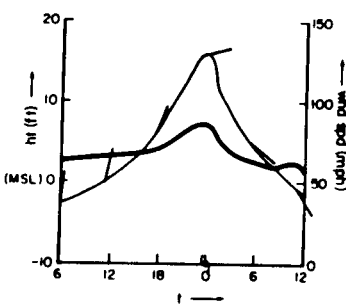
7. INGLESIDE (21, 55)



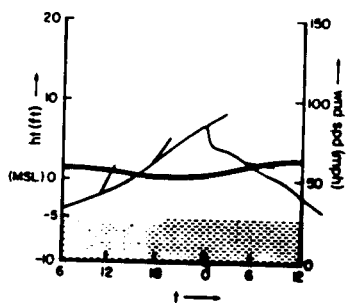
8. ARANSAS PASS (28, 57)



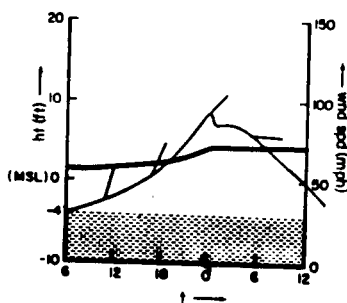
9. PORT ARANSAS (31, 53)



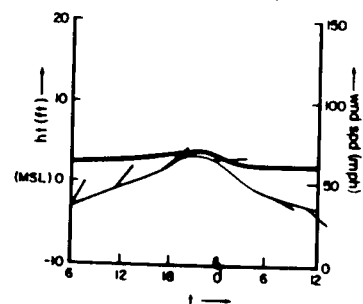
10. COPANO BRIDGE (35, 63)



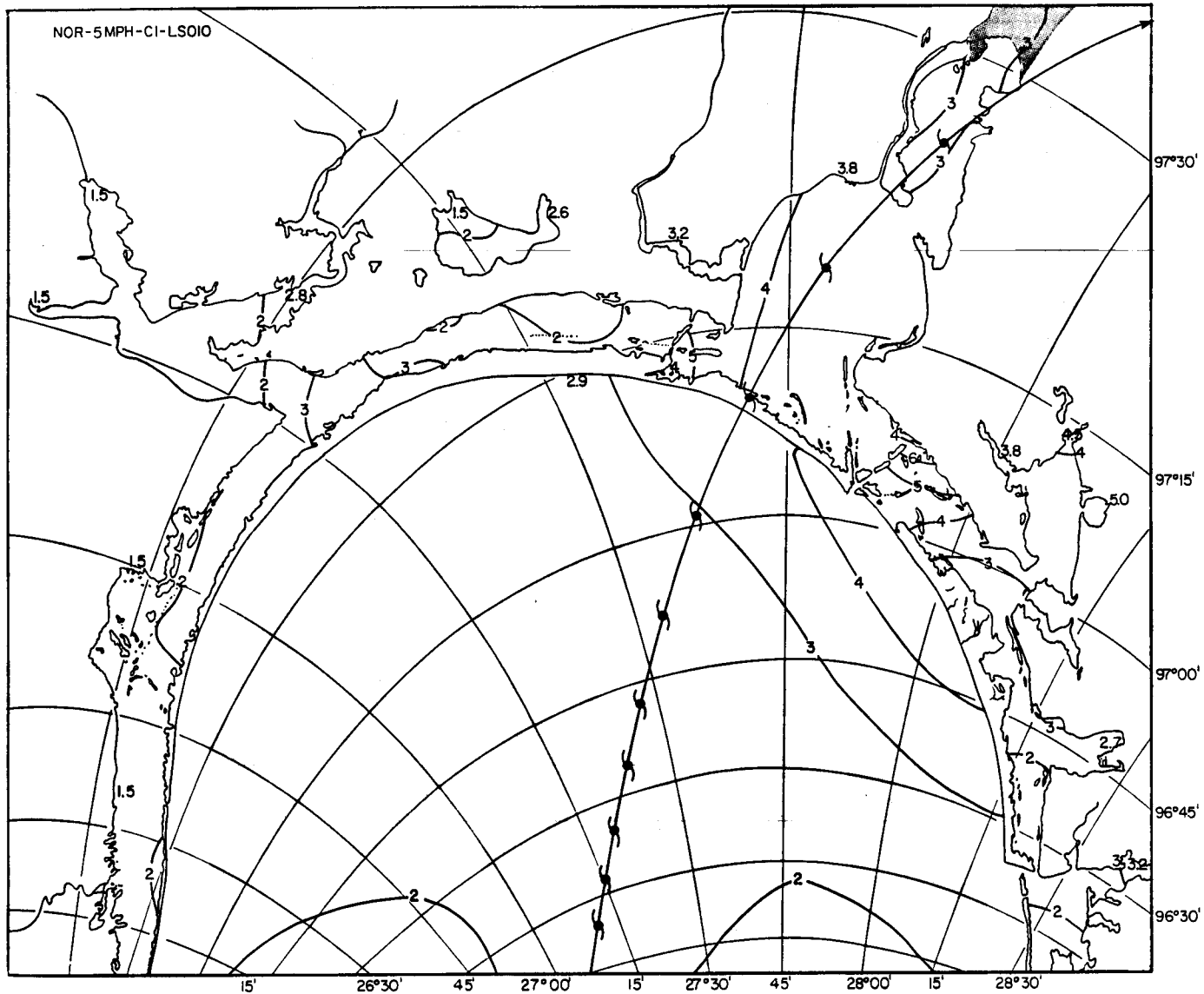
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

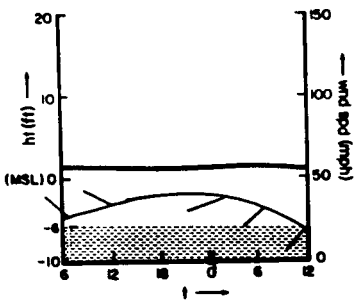


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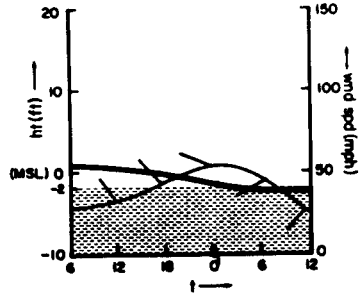




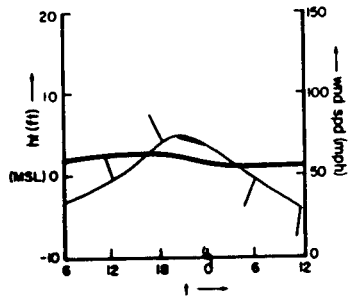
1. PORT MANSFIELD (48, 8)



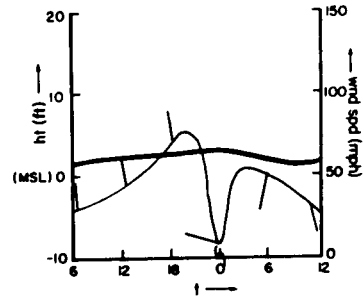
2. BAFFIN BAY (19, 3)



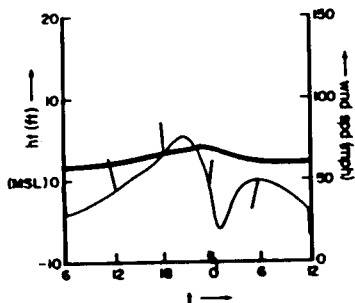
3. PADRI IS. RANGER STA. (24, 35)



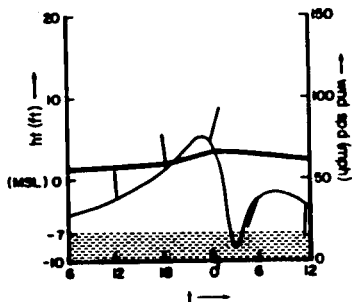
4. MUSTANG PASS (25, 45)



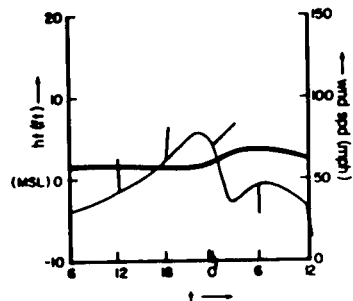
5. NAVAL AIR STA. (20, 46)



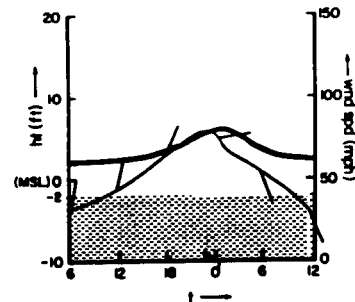
6. CORPUS CHRISTI (2, 53)



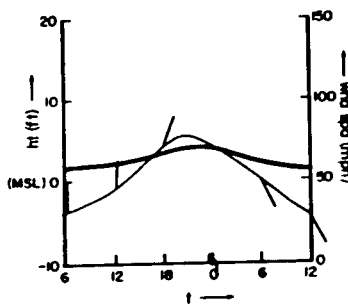
7. INGLESIDE (21, 55)



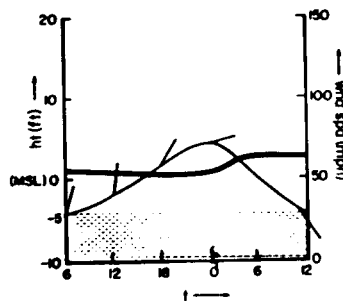
8. ARANSAS PASS (28, 57)



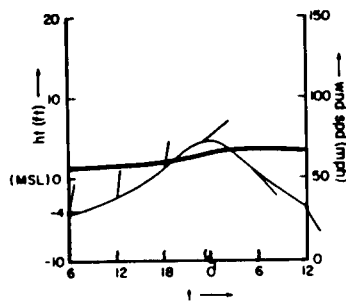
9. PORT ARANSAS (31, 53)



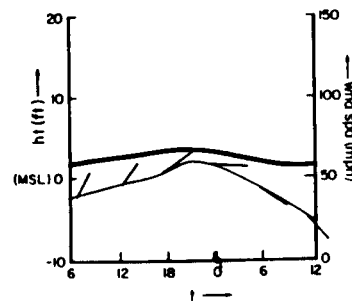
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)

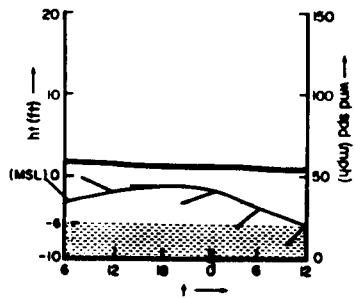


12. MATAGORDA IS. (45, 61)

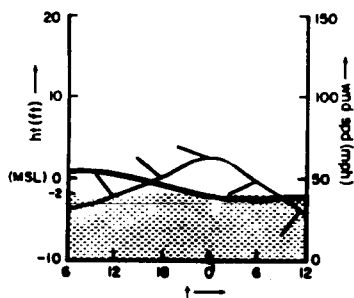




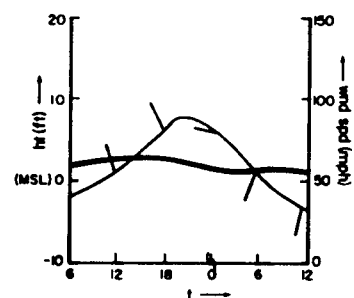
1. PORT MANSFIELD (48, 8)



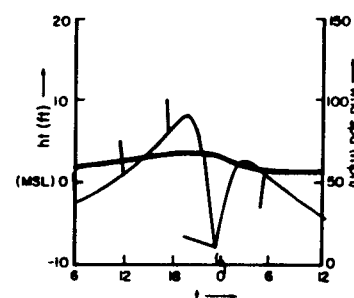
2. BAFFIN BAY (19, 3)



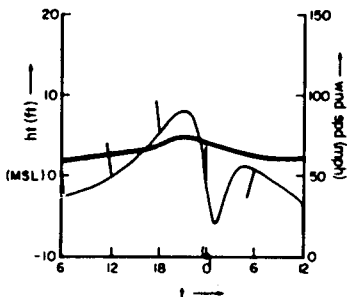
3. PADRI IS. RANGER STA. (24, 35)



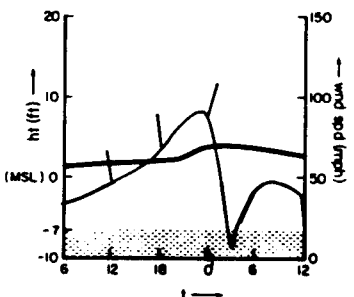
4. MUSTANG PASS (25, 45)



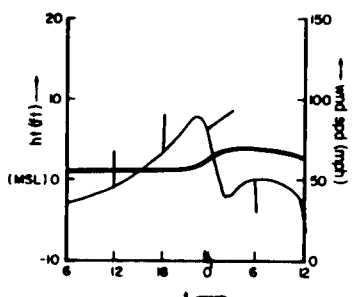
5. NAVAL AIR STA. (20, 46)



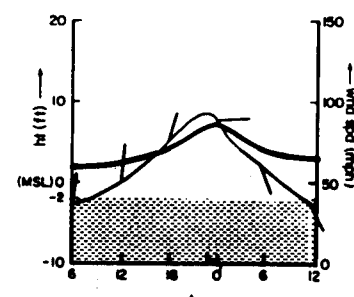
6. CORPUS CHRISTI (12, 53)



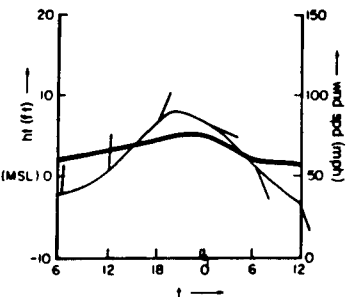
7. INGLESIDE (21, 55)



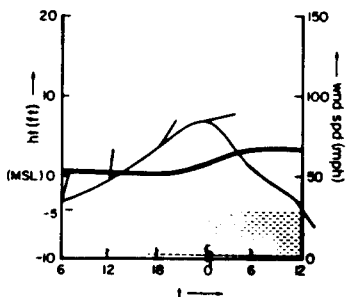
8. ARANSAS PASS (28, 57)



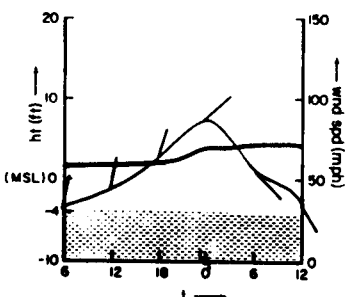
9. PORT ARANSAS (31, 53)



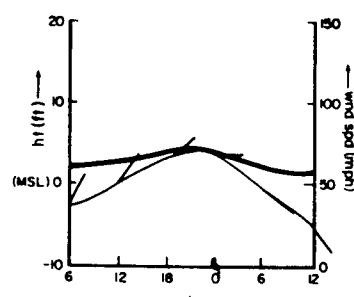
10. COPANO BRIDGE (35, 63)



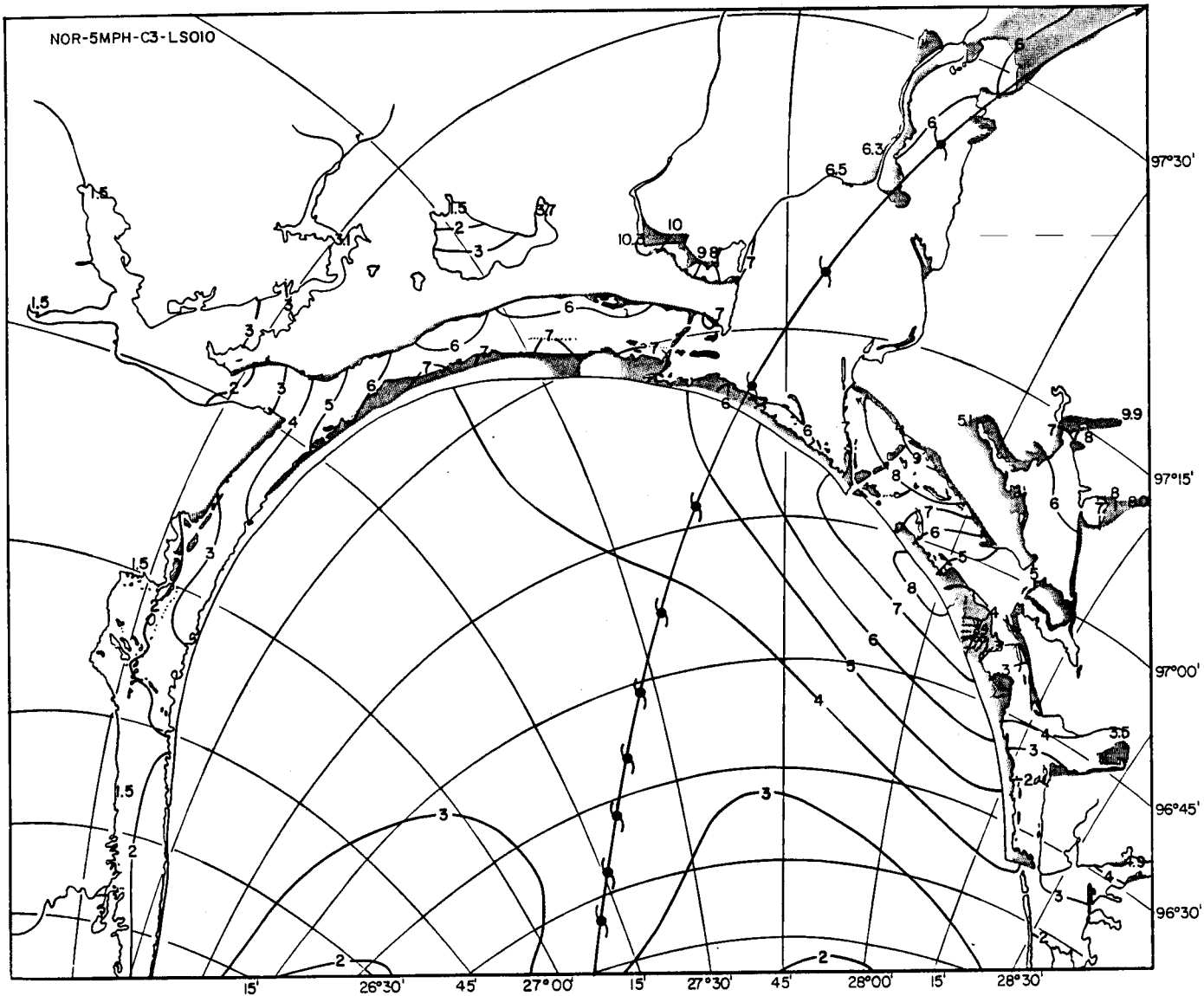
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

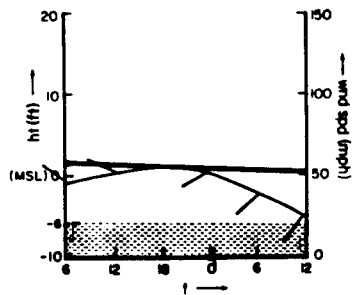


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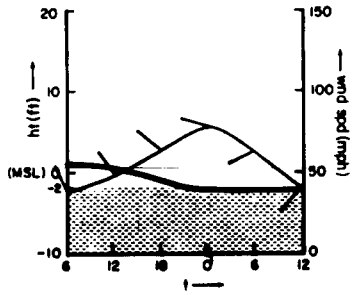


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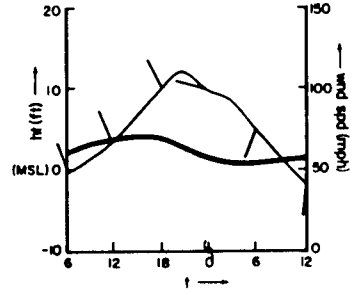
1. PORT MANSFIELD (48, 8)



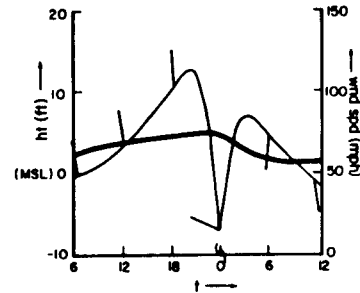
2. BAFFIN BAY (19, 3)



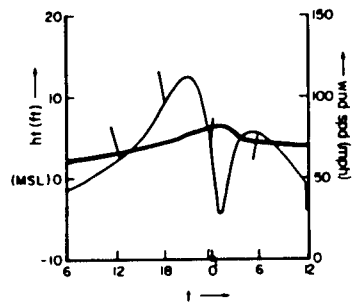
3. PADRI IS. RANGER STA. (24, 35)



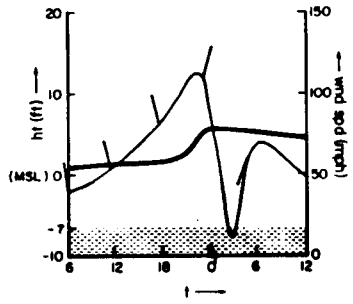
4. MUSTANG PASS (25, 45)



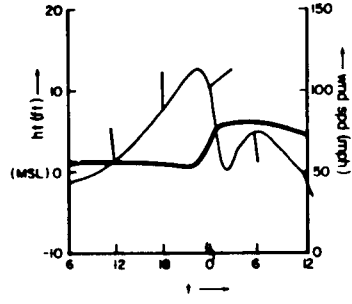
5. NAVAL AIR STA. (20, 46)



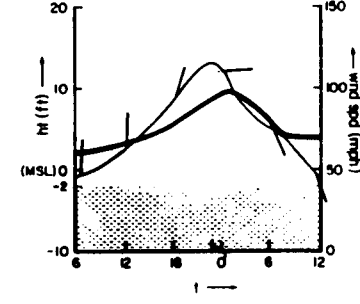
6. CORPUS CHRISTI (12, 53)



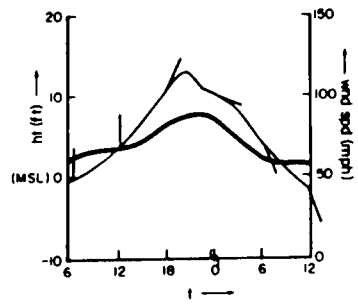
7. INGLESIDE (21, 55)



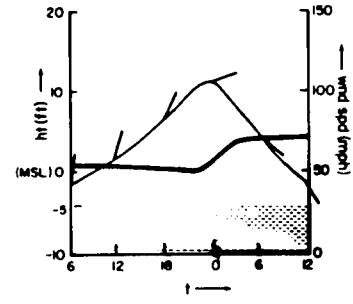
8. ARANSAS PASS (28, 57)



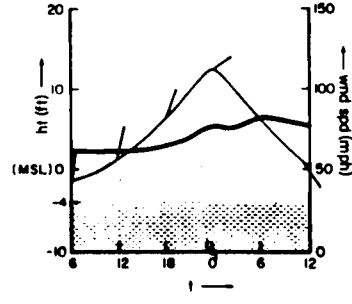
9. PORT ARANSAS (31, 53)



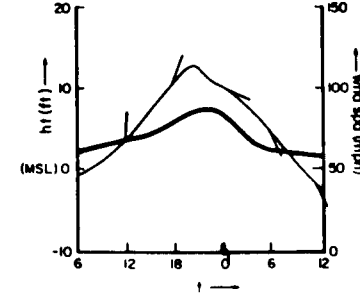
10. COPANO BRIDGE (35, 63)



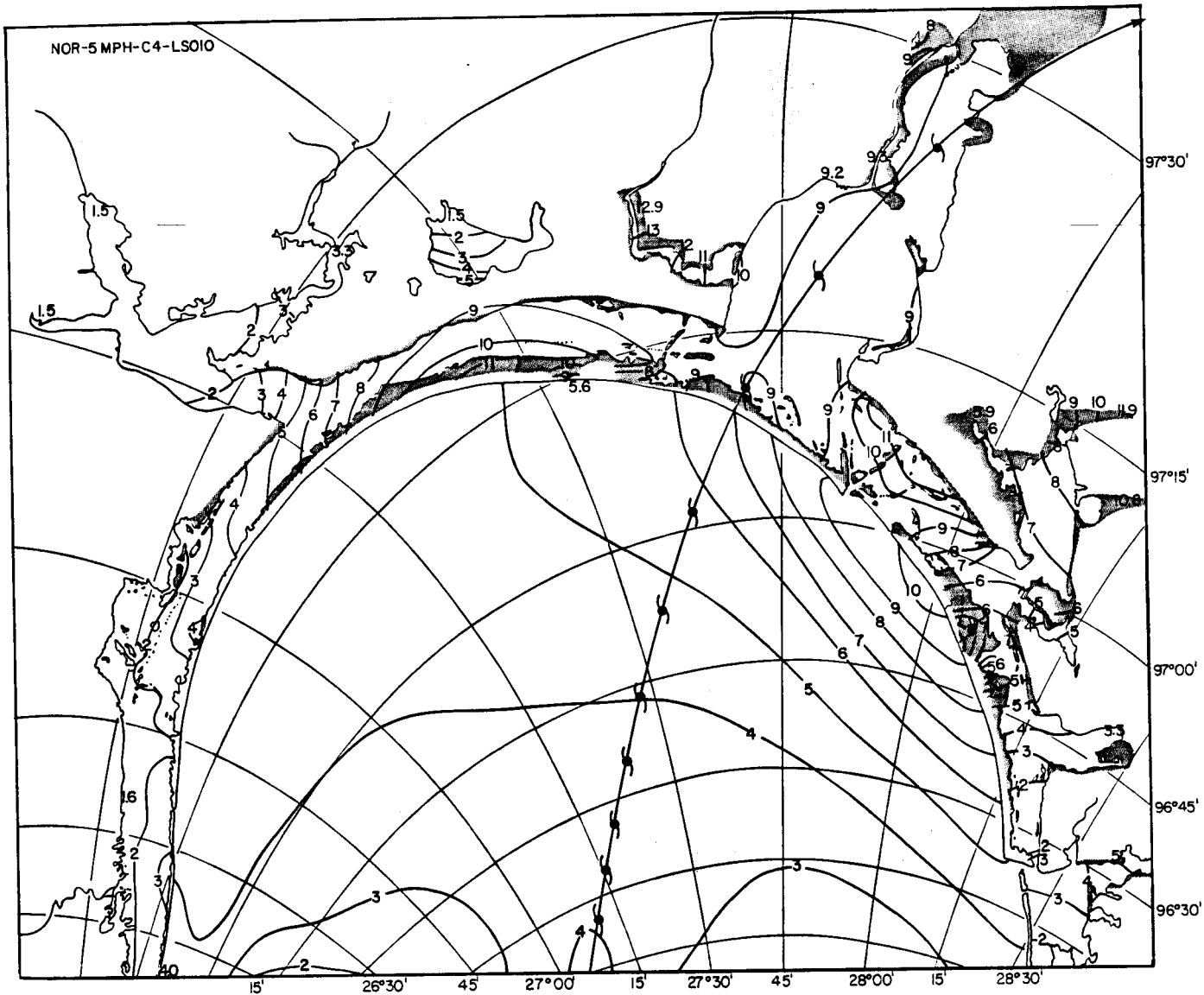
11. BAYSIDE (28, 66)



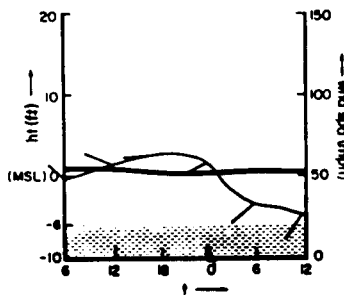
12. MATAGORDA IS. (45, 61)



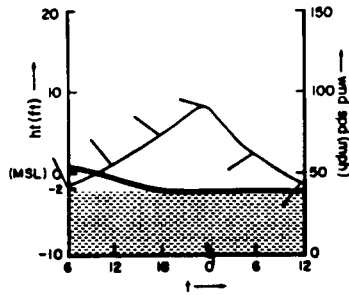
NOR-5 MPH-C4-LSO10



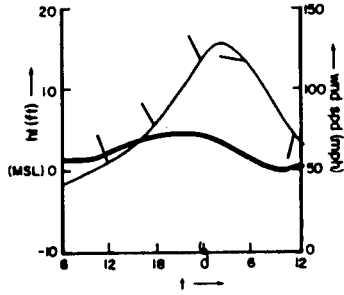
1. PORT MANSFIELD (48, 8)



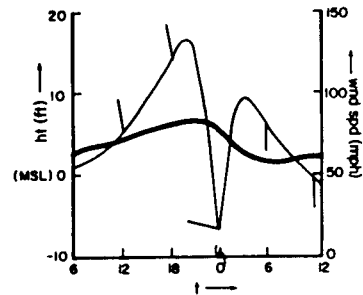
2. BAFFIN BAY (19, 3)



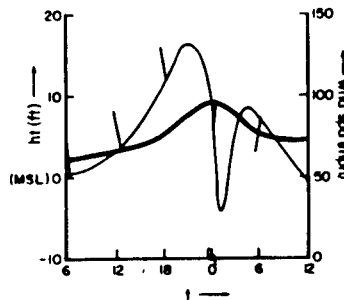
3. PADRI IS. RANGER STA. (24, 35)



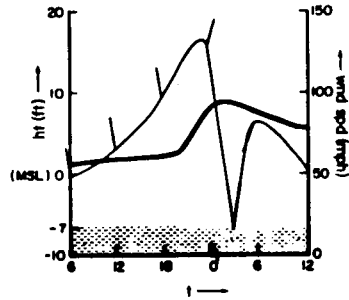
4. MUSTANG PASS (25, 45)



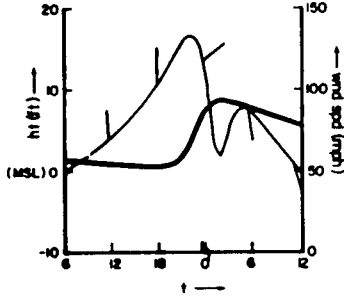
5. NAVAL AIR STA. (20, 46)



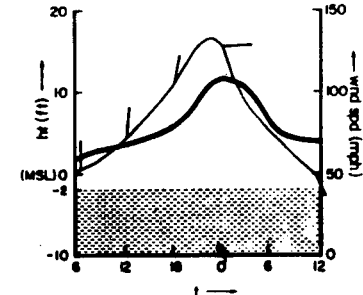
6. CORPUS CHRISTI (12, 53)



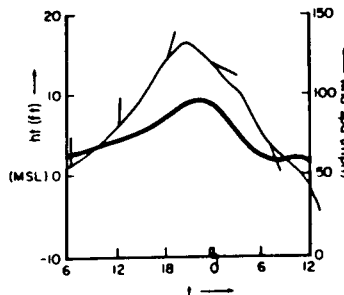
7. INGLESIDE (21, 55)



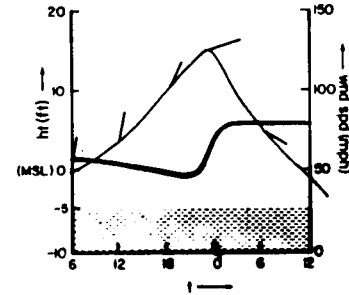
8. ARANSAS PASS (28, 57)



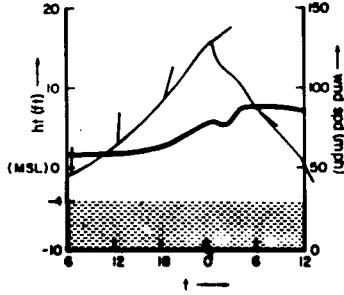
9. PORT ARANSAS (31, 53)



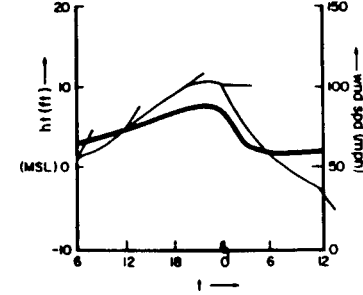
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)



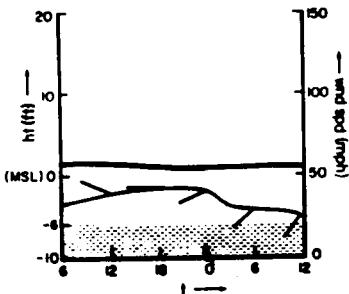
12. MATAGORDA IS. (45, 61)



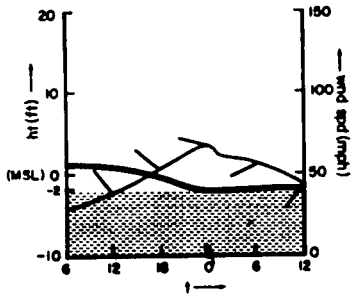




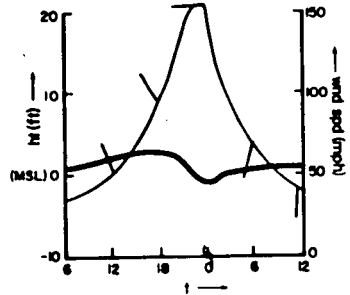
1. PORT MANSFIELD (46, 8)



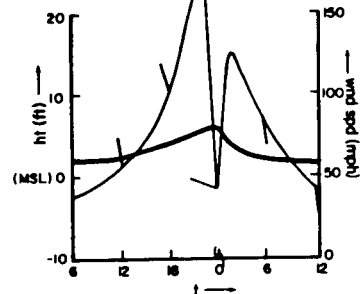
2. BAFFIN BAY (19, 3)



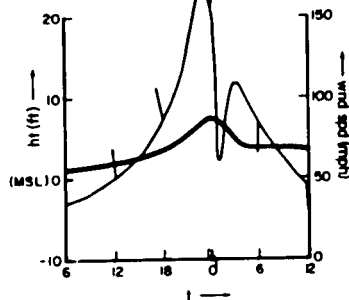
3. PADRI IS. RANGER STA. (24, 35)



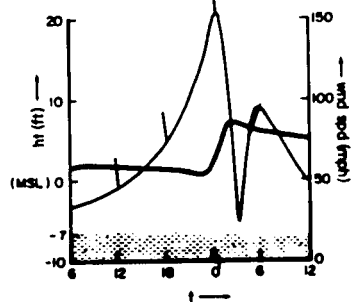
4. MUSTANG PASS (25, 45)



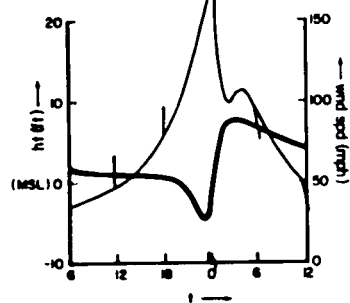
5. NAVAL AIR STA. (20, 46)



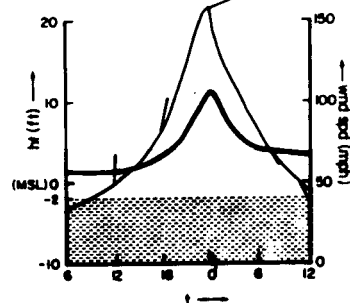
6. CORPUS CHRISTI (12, 53)



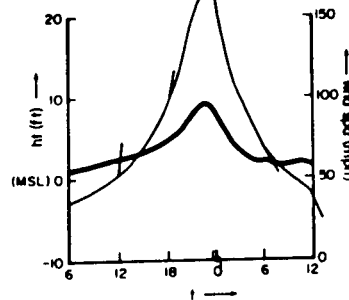
7. INGLESIDE (21, 55)



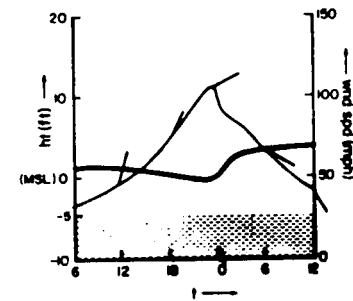
8. ARANSAS PASS (28, 57)



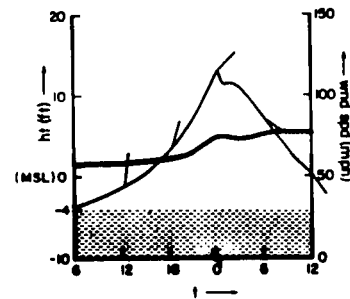
9. PORT ARANSAS (31, 53)



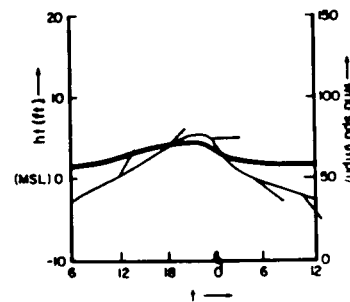
10. COPANO BRIDGE (35, 63)

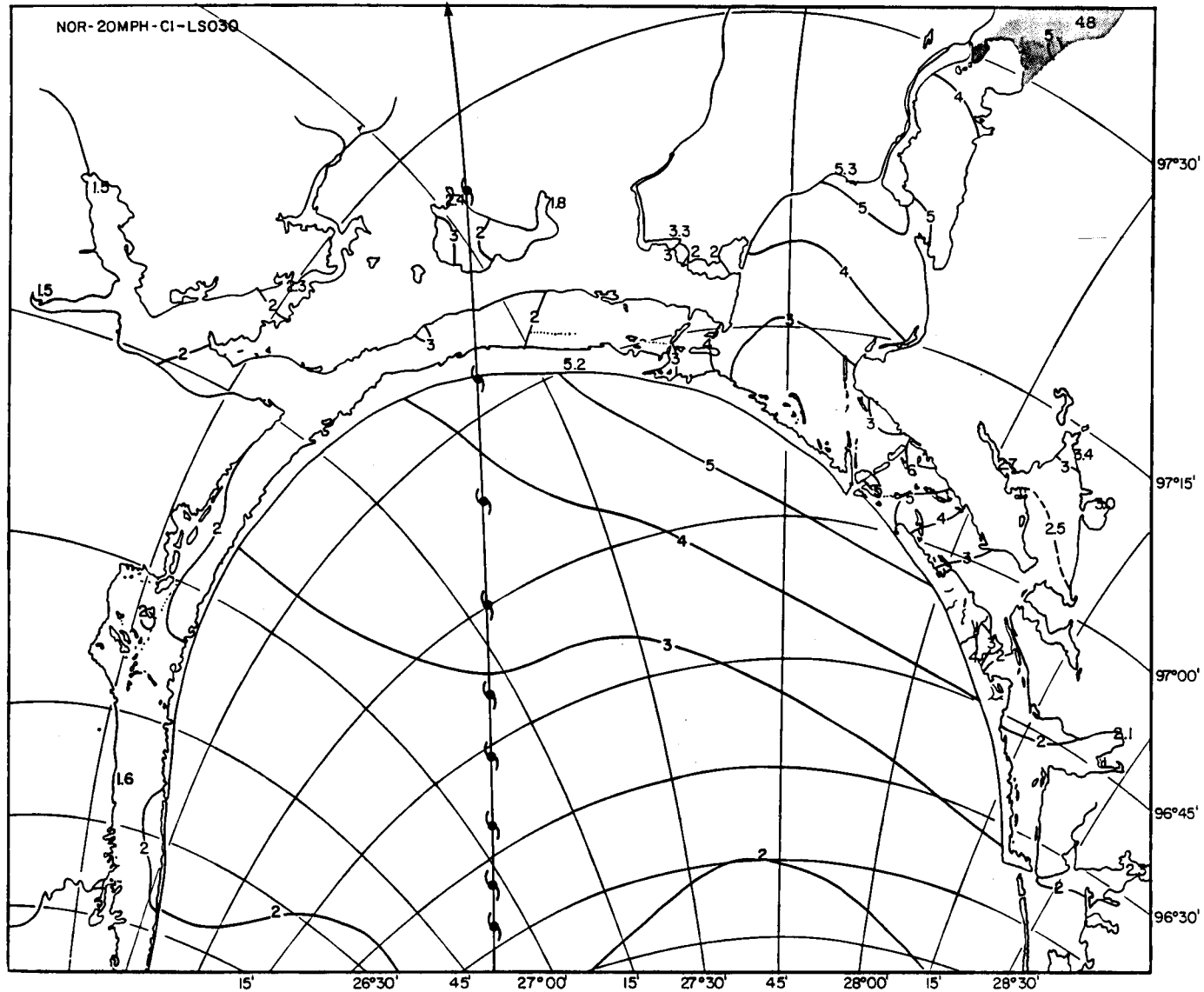


11. BAYSIDE (28, 66)

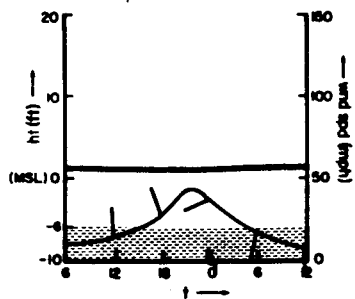


12. MATAGORDA IS. (45, 61)

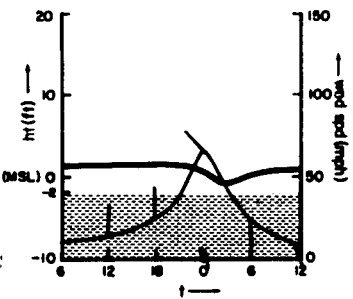




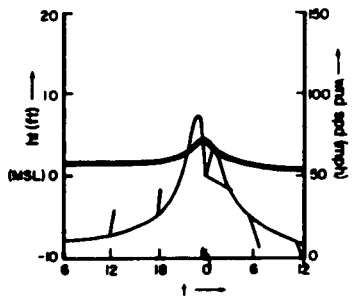
1. PORT MANSFIELD (48, 8)



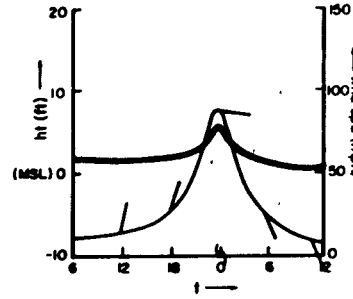
2. BAFFIN BAY (19, 3)



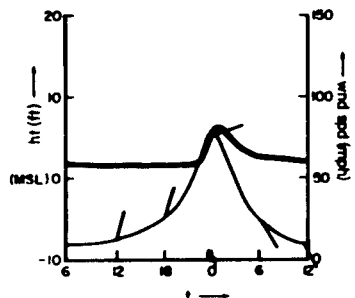
3. PADRI IS. RANGER STA. (24, 35)



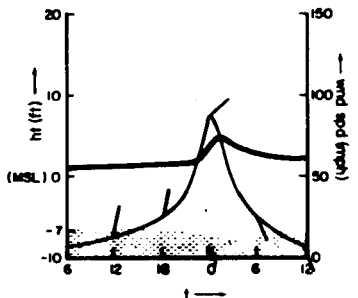
4. MUSTANG PASS (25, 45)



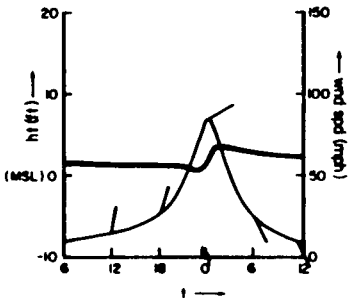
5. NAVAL AIR STA. (20, 46)



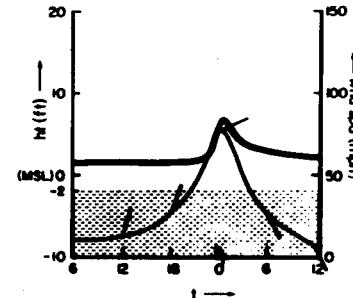
6. CORPUS CHRISTI (12, 53)



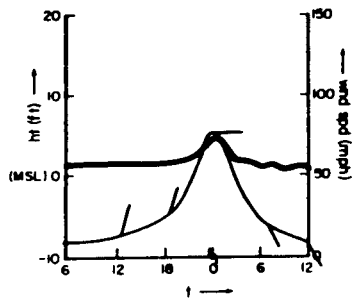
7. INGLESIDE (21, 55)



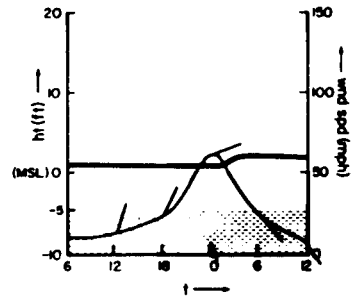
8. ARANSAS PASS (28, 57)



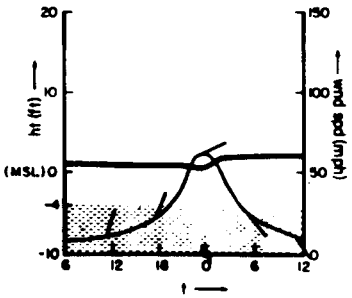
9. PORT ARANSAS (31, 53)



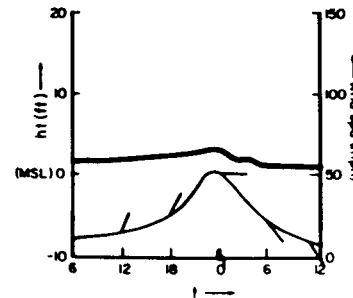
10. COPANO BRIDGE (35, 63)



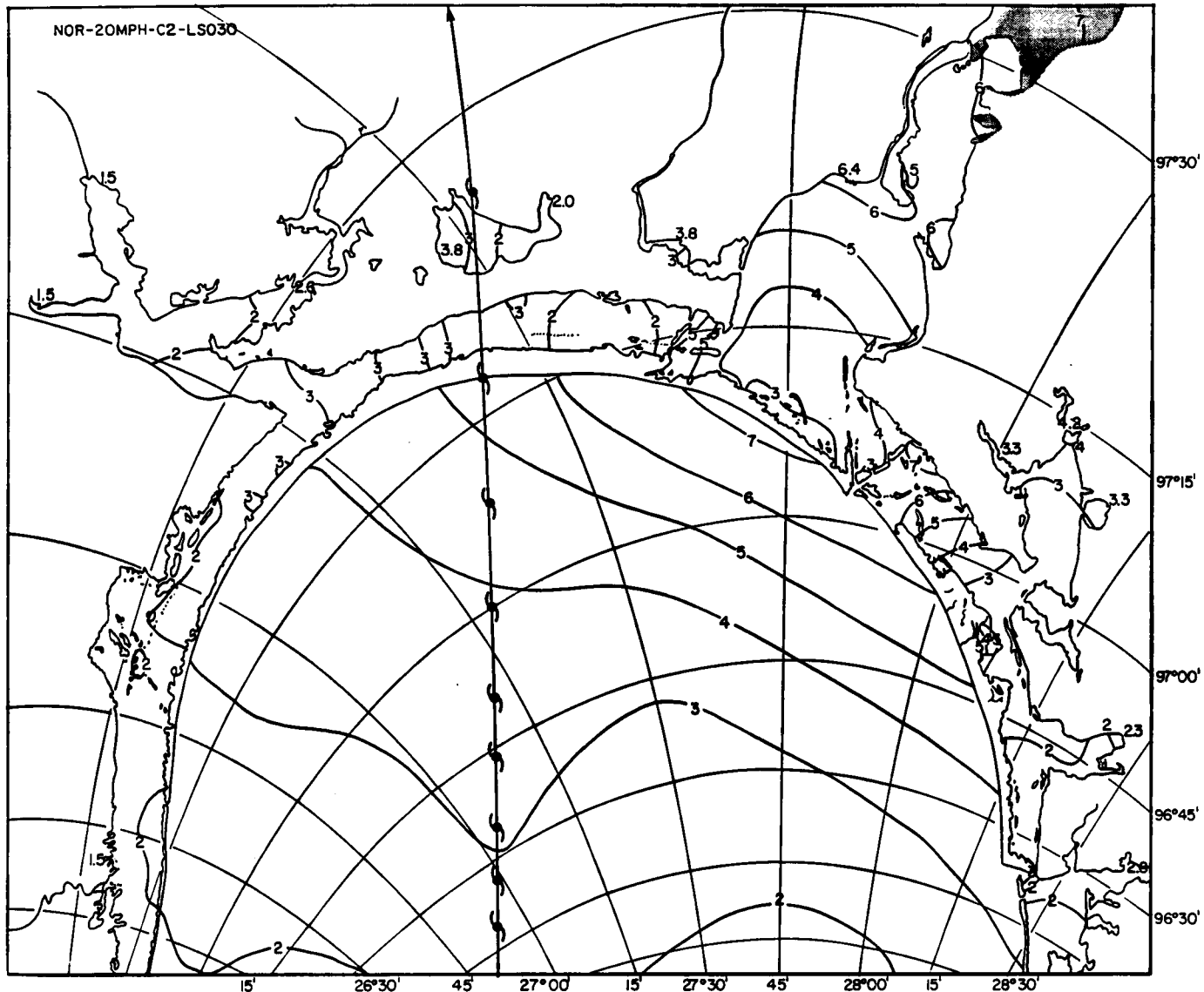
11. BAYSIDE (28, 66)



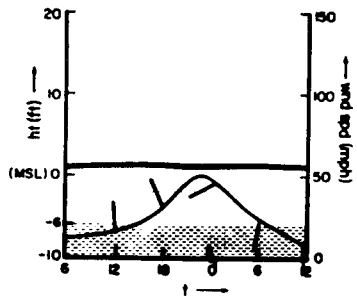
12. MATAGORDA IS. (45, 61)



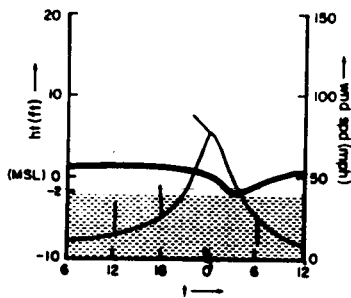
NOR-20MPH-C2-LS030



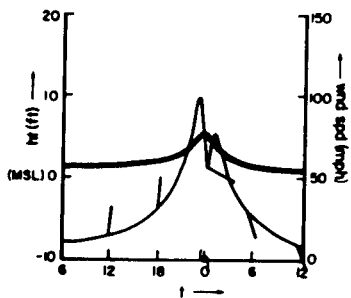
1. PORT MANSFIELD (48, 8)



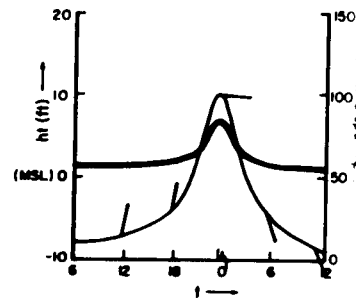
2. BAFFIN BAY (19, 3)



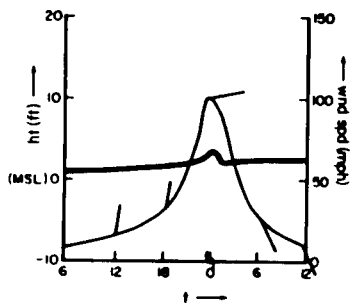
3. PADRI IS. RANGER STA. (24, 35)



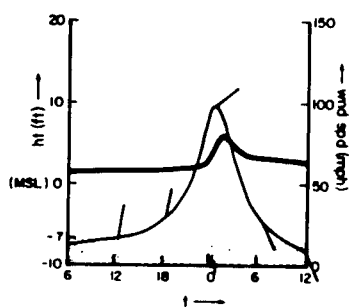
4. MUSTANG PASS (25, 45)



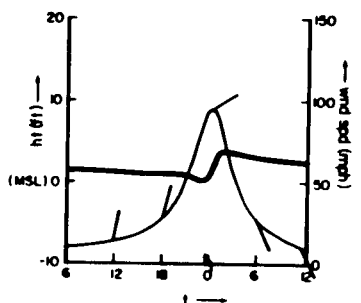
5. NAVAL AIR STA. (20, 46)



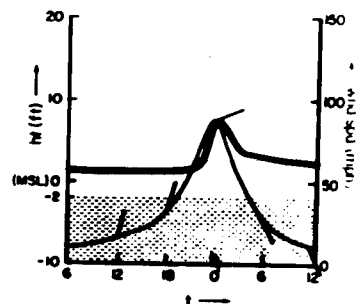
6. CORPUS CHRISTI (12, 53)



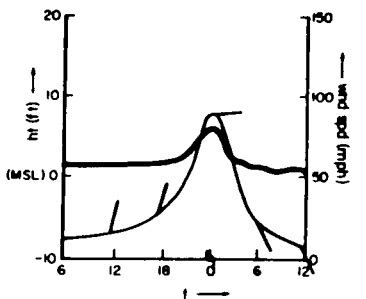
7. INGLESIDE (21, 55)



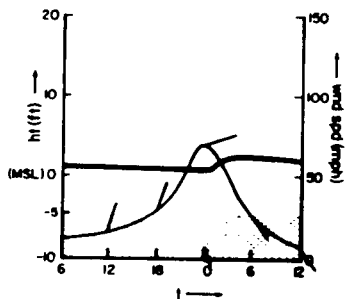
8. ARANSAS PASS (28, 57)



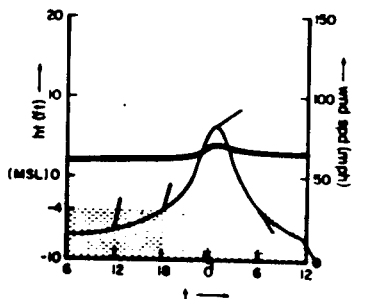
9. PORT ARANSAS (31, 53)



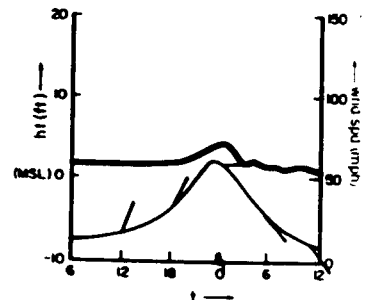
10. COPANO BRIDGE (35, 63)



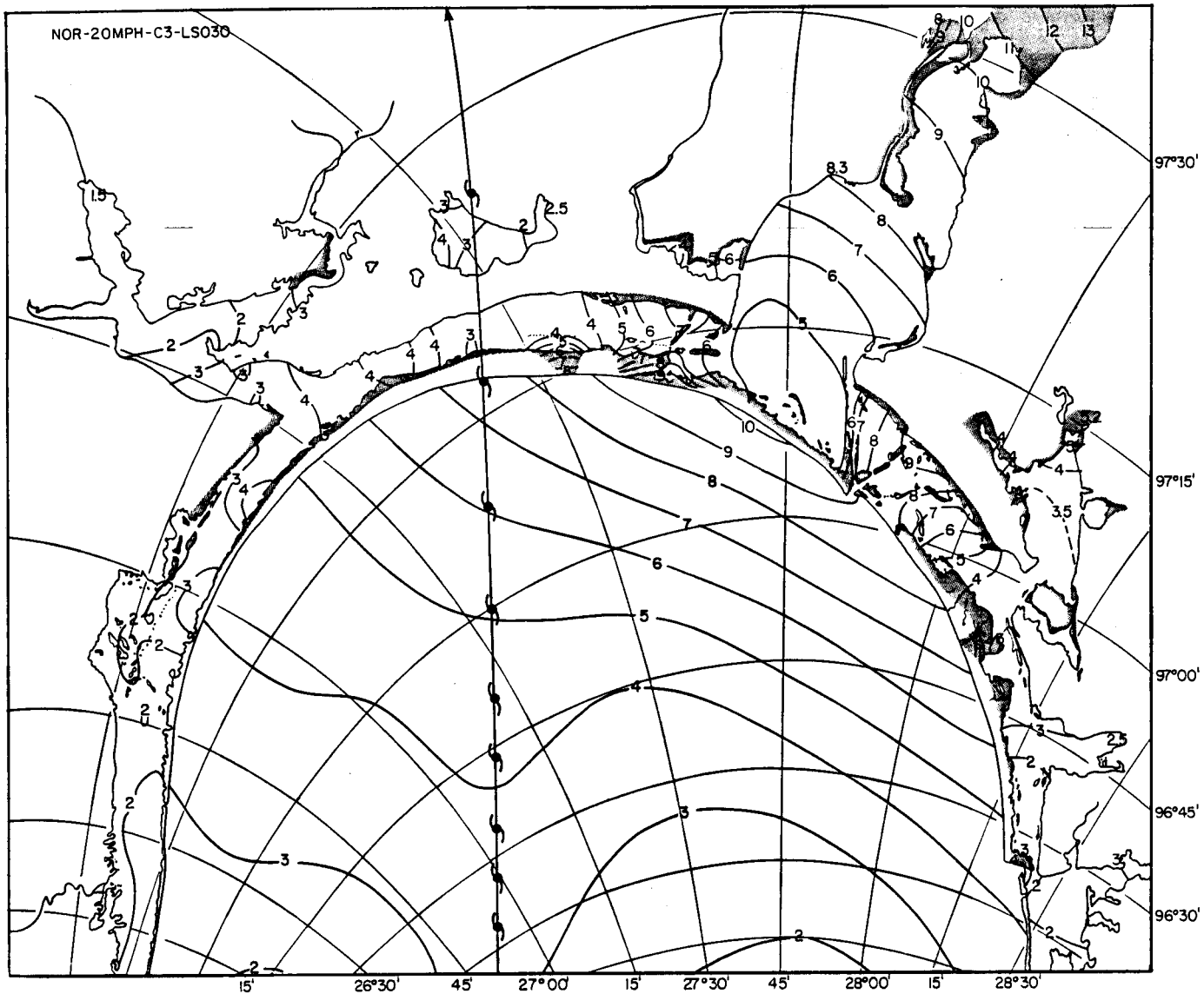
11. BAYSIDE (28, 66)



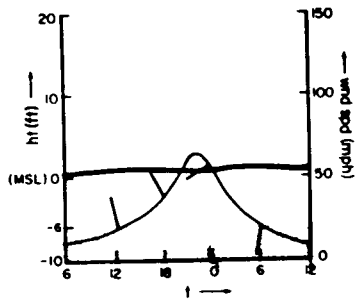
12. MATAGORDA IS. (45, 61)



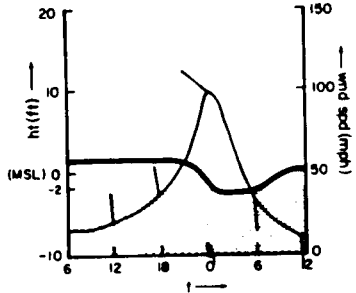
NOR-20MPH-C3-LS030



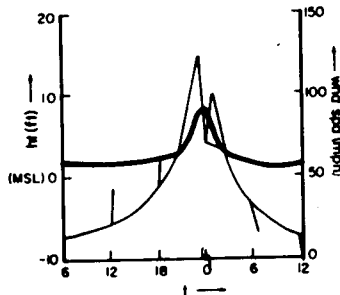
1. PORT MANSFIELD (48, 8)



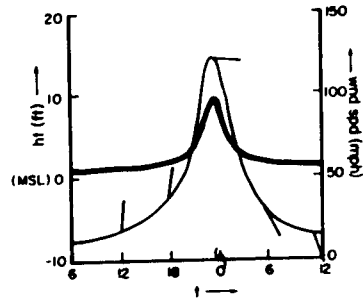
2. BAFFIN BAY (19, 3)



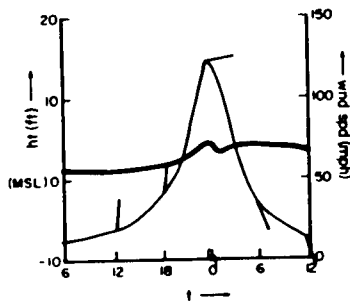
3. PADRI IS. RANGER STA. (24, 35)



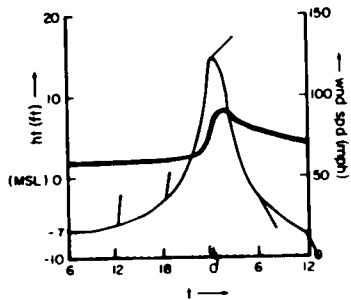
4. MUSTANG PASS (25, 45)



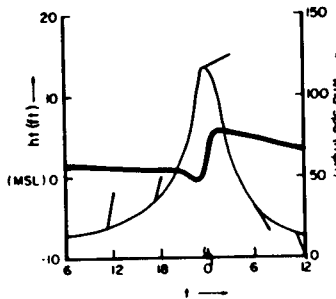
5. NAVAL AIR STA. (20, 46)



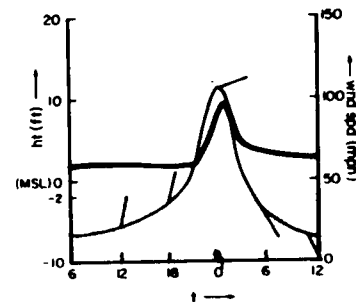
6. CORPUS CHRISTI (12, 53)



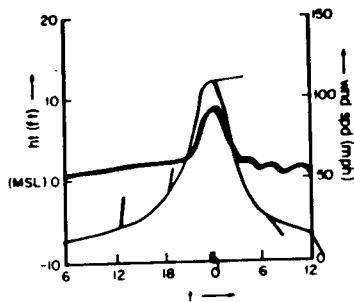
7. INGLESIDE (21, 55)



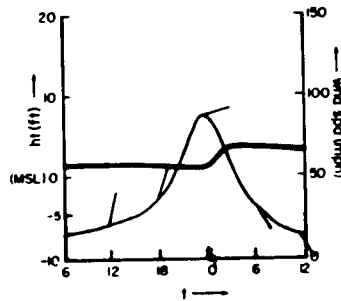
8. ARANSAS PASS (28, 57)



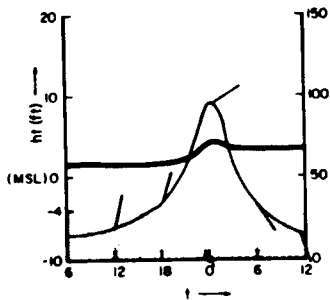
9. PORT ARANSAS (31, 53)



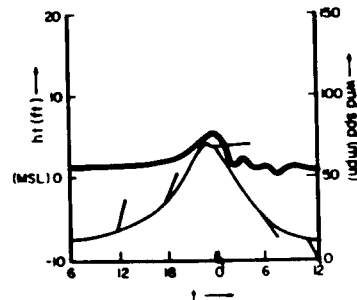
10. COPANO BRIDGE (35, 63)



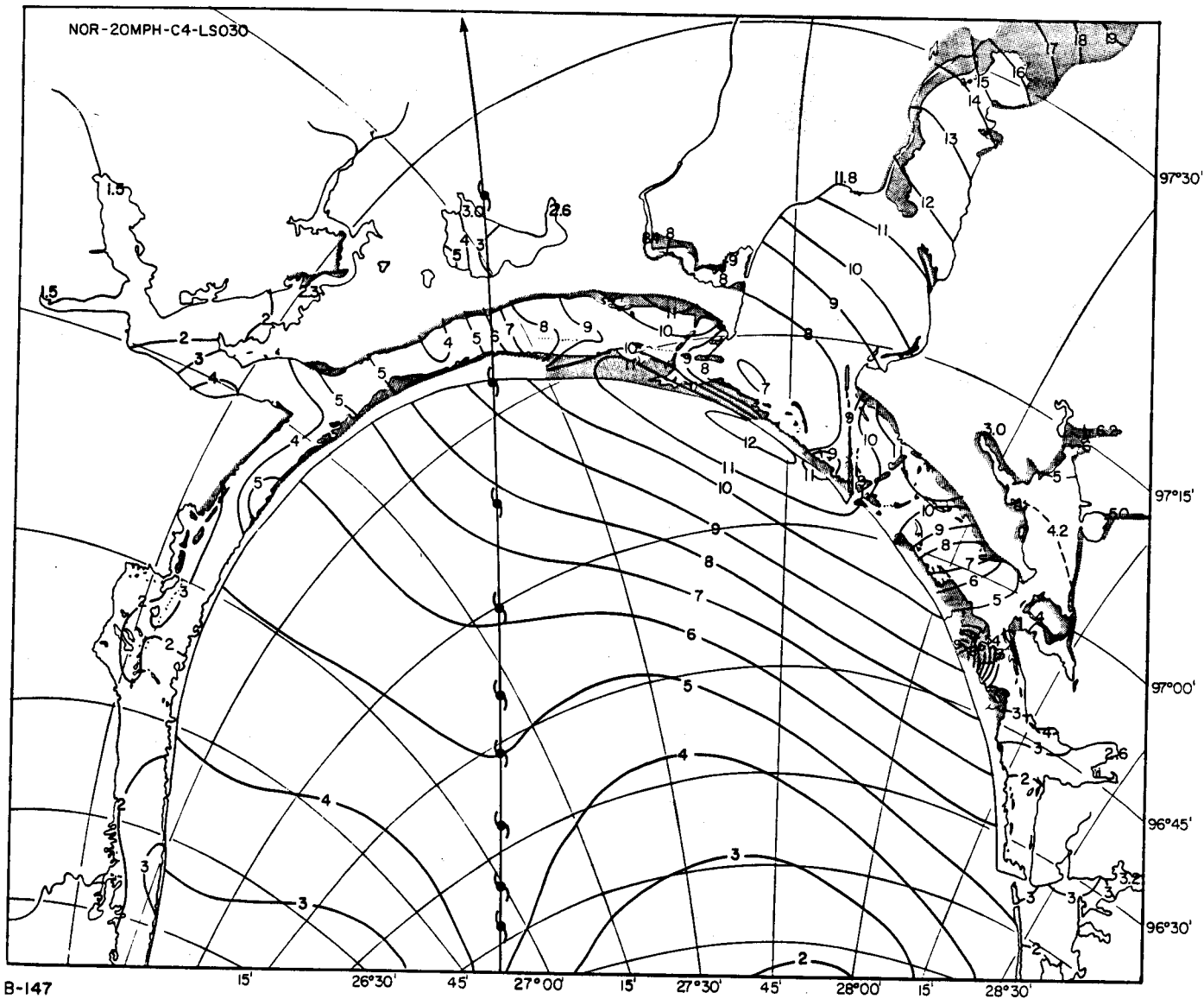
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)



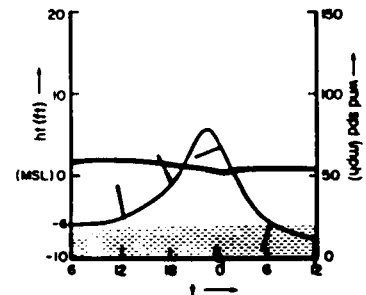
NOR-20MPH-C4-LS030



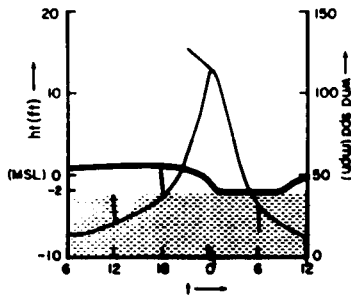
B-147



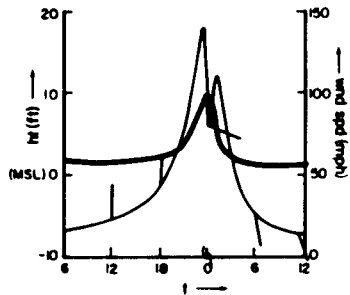
1. PORT MANSFIELD (48, 8)



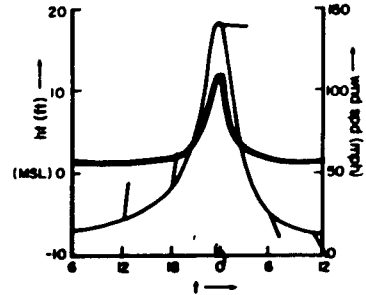
2. BAFFIN BAY (19, 3)



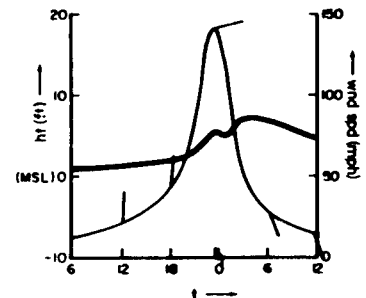
3. PADRI IS. RANGER STA. (24, 35)



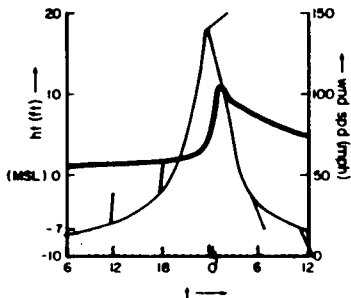
4. MUSTANG PASS (25, 45)



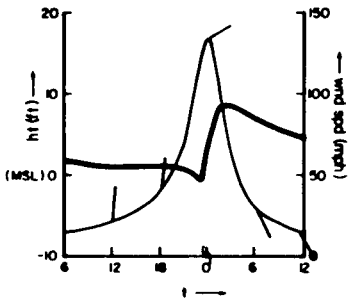
5. NAVAL AIR STA. (20, 46)



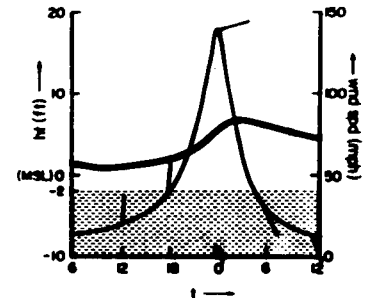
6. CORPUS CHRISTI (12, 53)



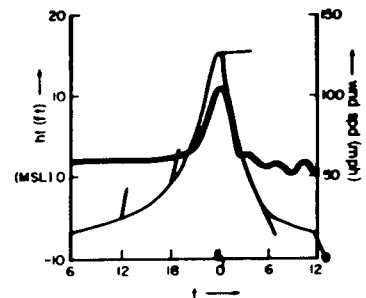
7. INGLESIDE (21, 55)



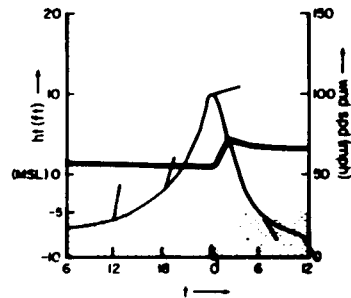
8. ARKANSAS PASS (26, 57)



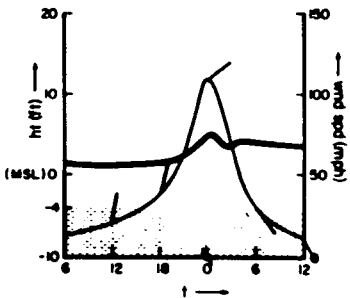
9. PORT ARANSAS (34, 53)



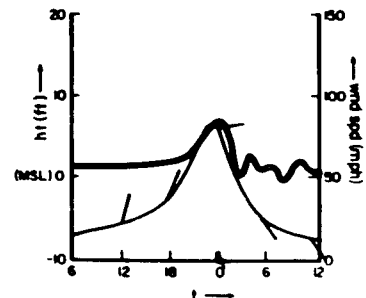
10. COPANO BRIDGE (35, 63)



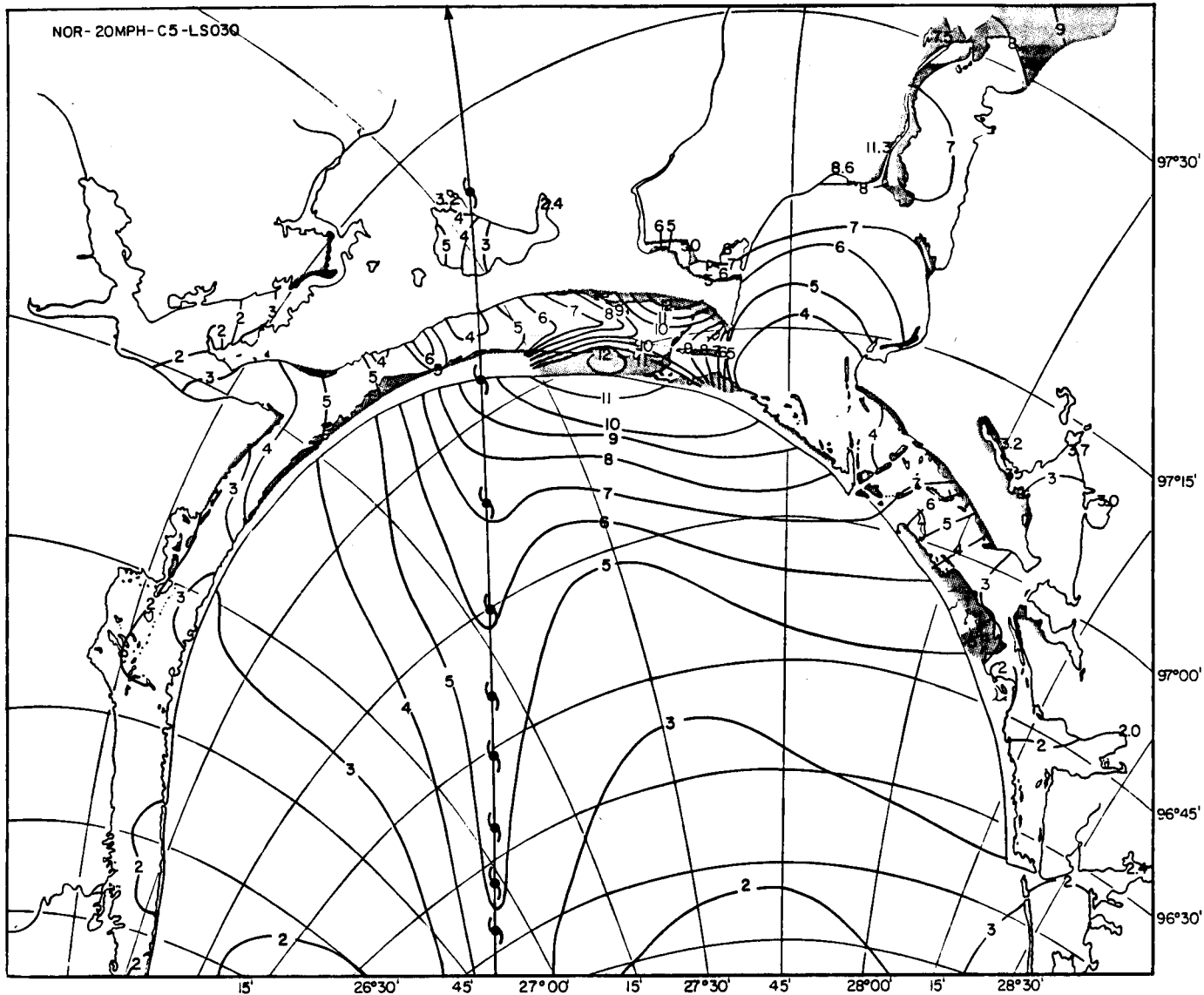
11. BAYSIDE (28, 65)



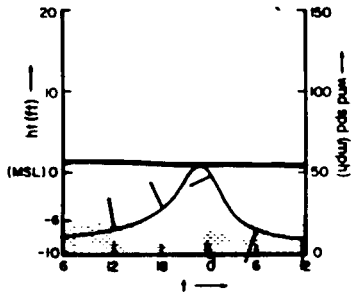
12. MATAGORDA IS. (45, 61)



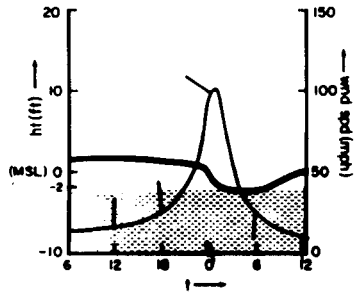
NOR-20MPH-C5-LS03Q



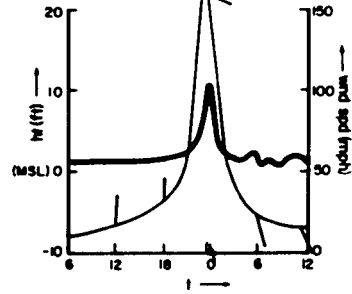
1. PORT MANSFIELD (48, 8)



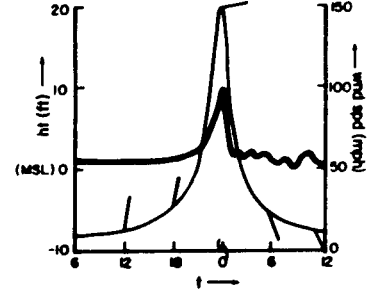
2. BAFFIN BAY (19, 3)



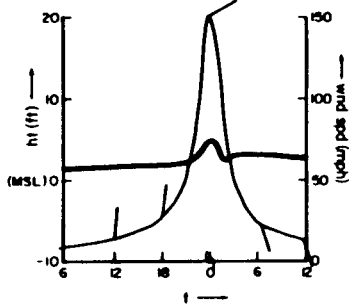
3. PADRI IS. RANGER STA. (24, 35)



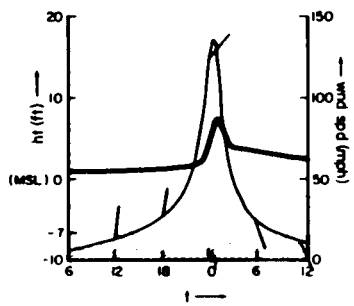
4. MUSTANG PASS (25, 45)



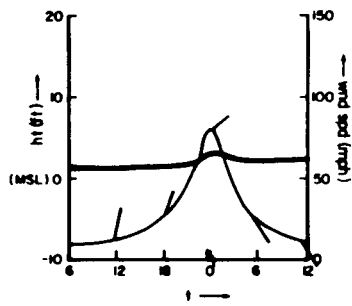
5. NAVAL AIR STA. (20, 46)



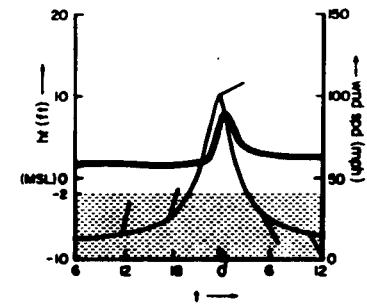
6. CORPUS CHRISTI (12, 53)



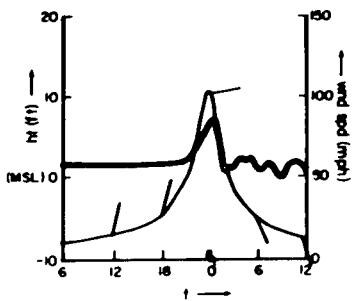
7. INGLESIDE (21, 55)



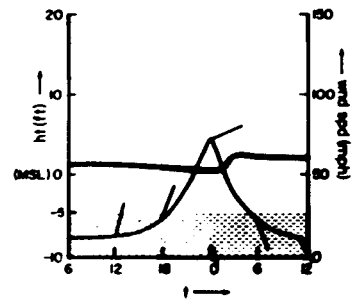
8. ARANSAS PASS (28, 57)



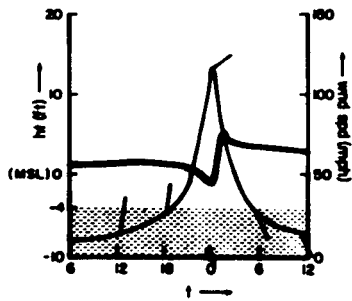
9. PORT ARANSAS (31, 53)



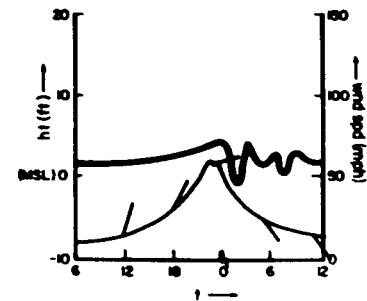
10. COPANO BRIDGE (35, 63)



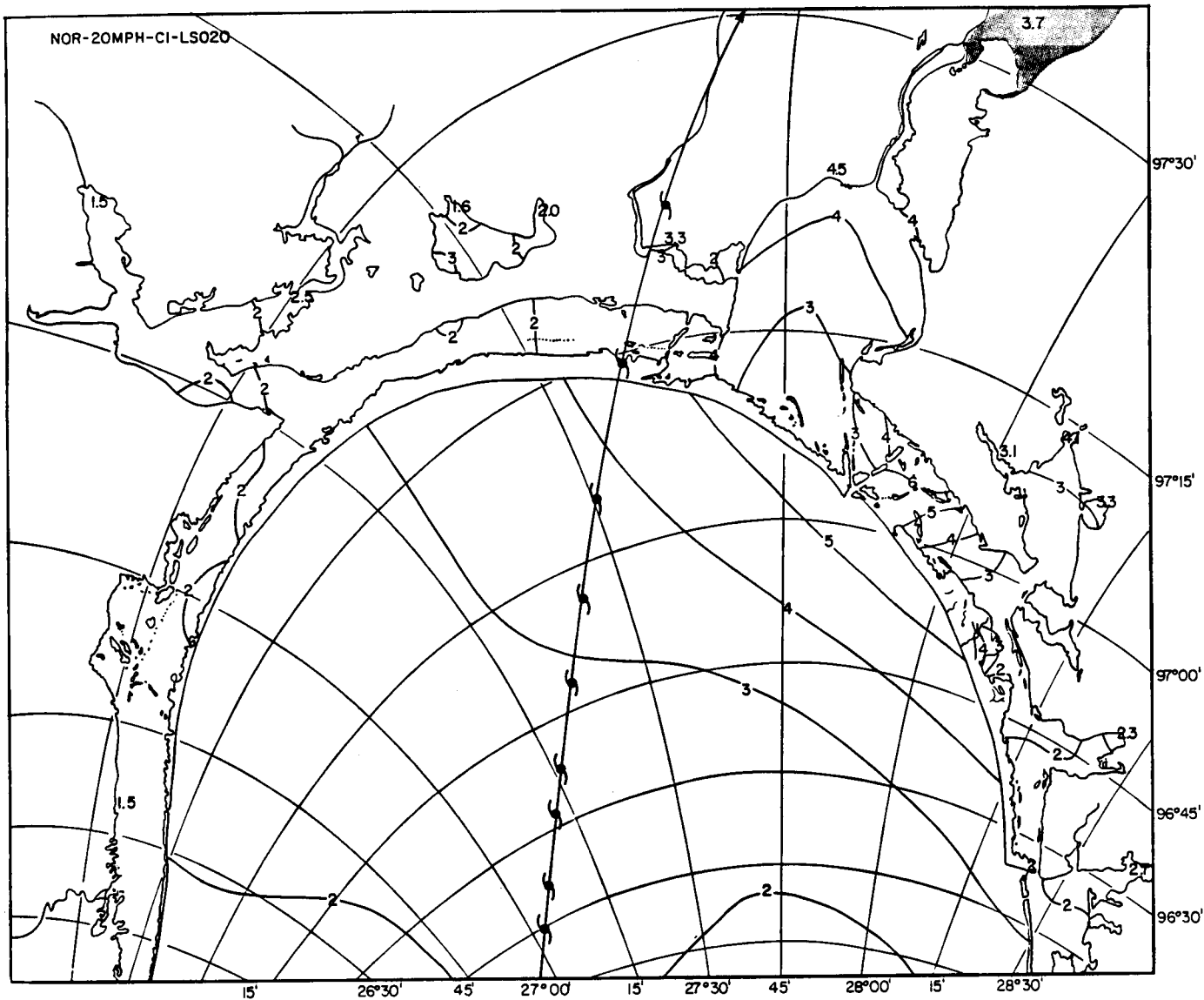
11. BAYSIDE (28, 66)

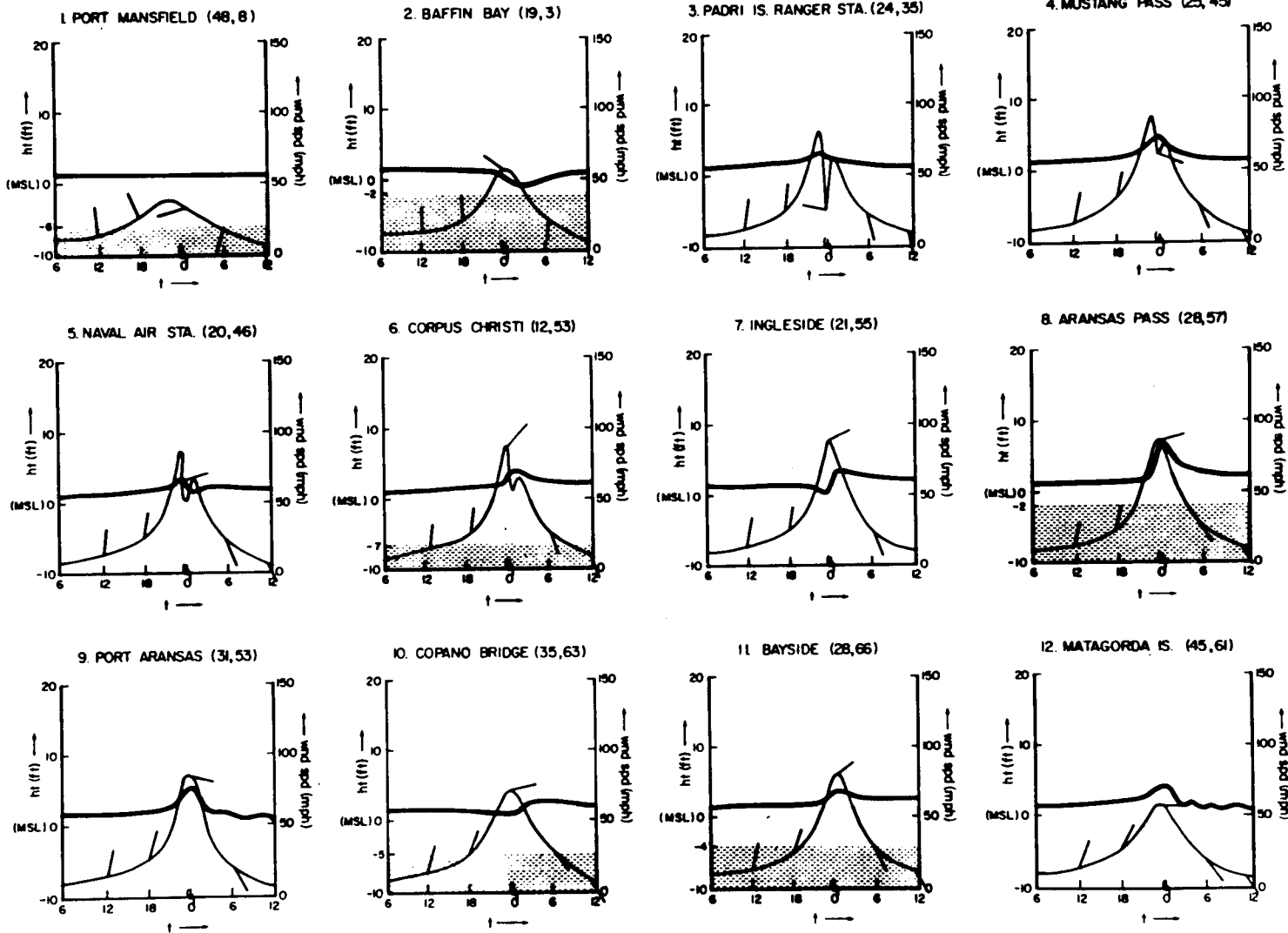


12. MATAGORDA IS. (45, 61)

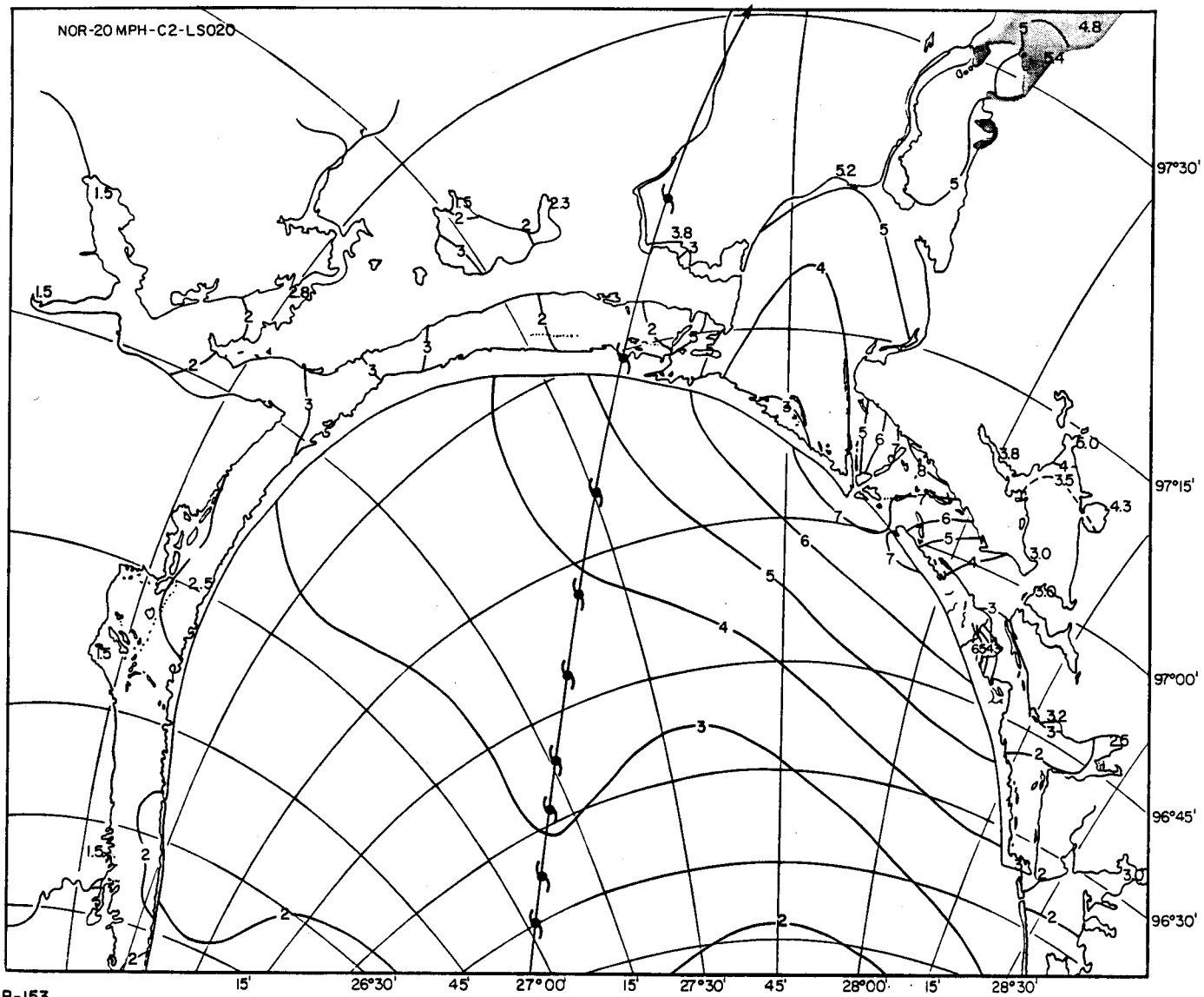


NOR-20MPH-CI-LS020

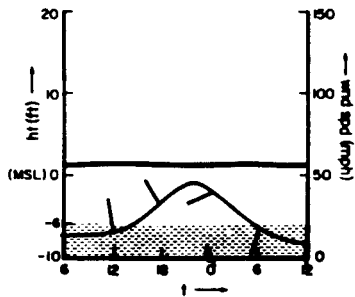




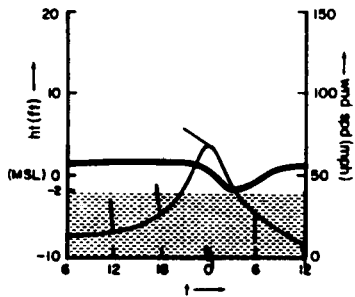
NOR-20 MPH-C2-LS020



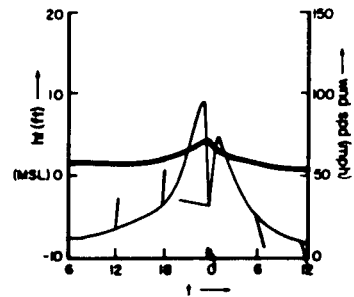
1. PORT MANSFIELD (48, 8)



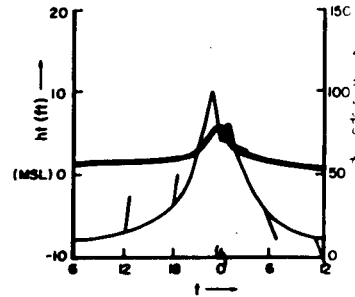
2. BAFFIN BAY (19, 3)



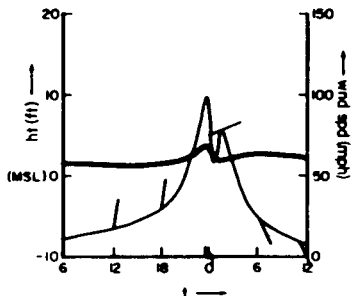
3. PADRI IS. RANGER STA. (24, 35)



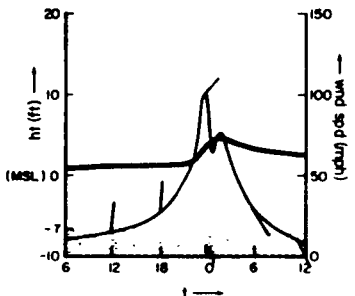
4. MUSTANG PASS (25, 45)



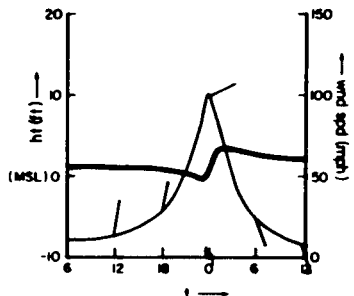
5. NAVAL AIR STA. (20, 46)



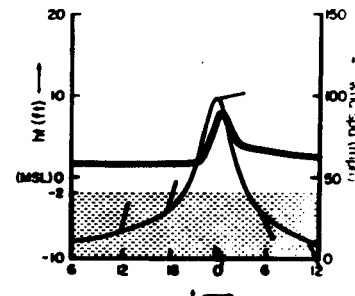
6. CORPUS CHRISTI (12, 53)



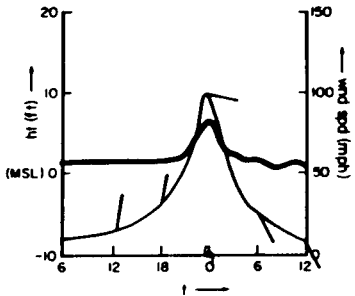
7. INGLESIDE (21, 55)



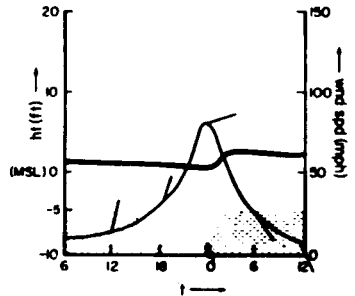
8. ARANSAS PASS (28, 57)



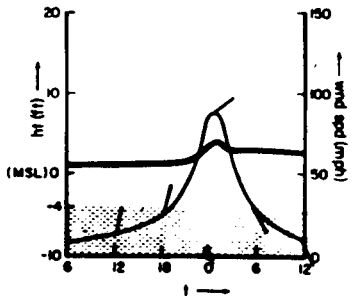
9. PORT ARANSAS (31, 53)



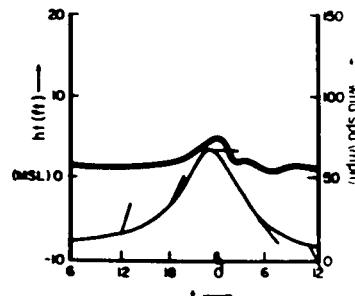
10. COPANO BRIDGE (35, 63)



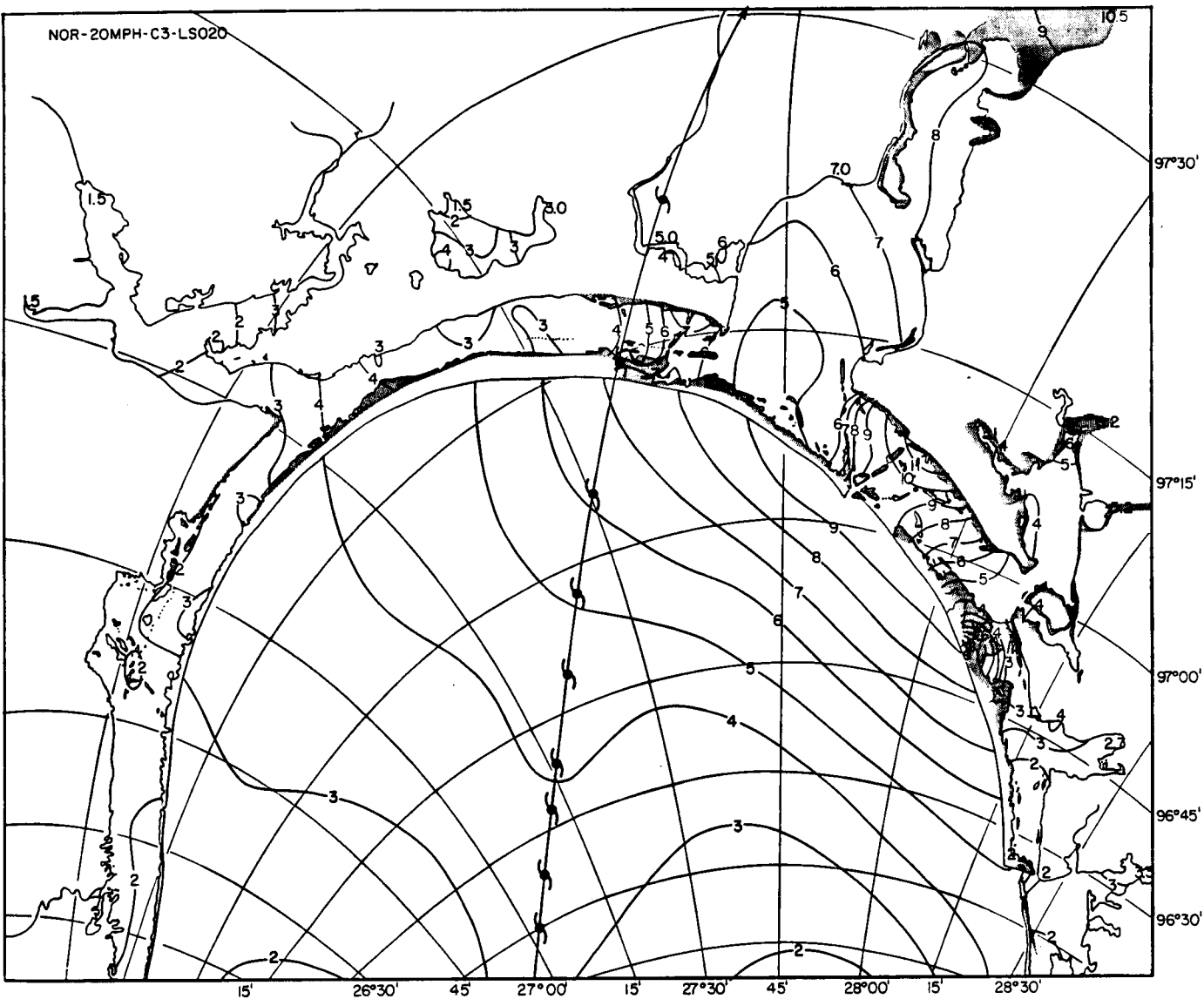
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

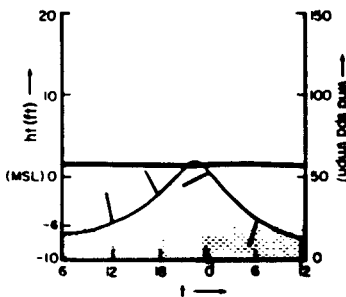


NOR-20MPH-C3-LS020

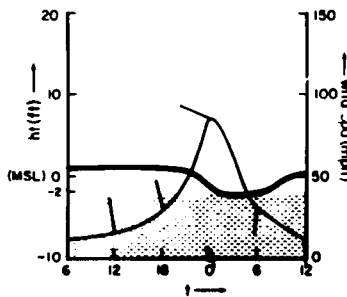




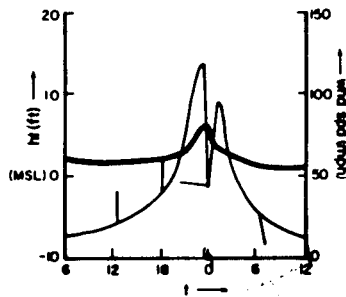
1 PORT MANSFIELD (48, 8)



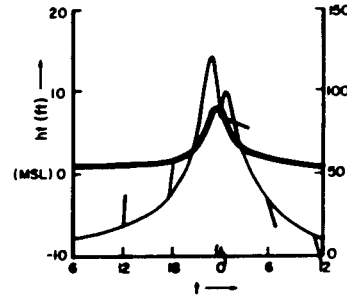
2 BAFFIN BAY (19, 3)



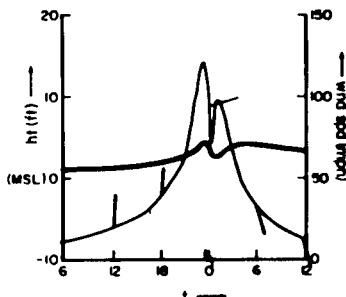
3 PADRI IS. RANGER STA. (24, 35)



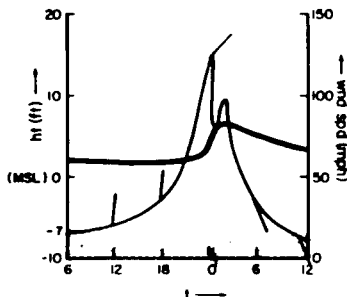
4 MUSTANG PASS (25, 45)



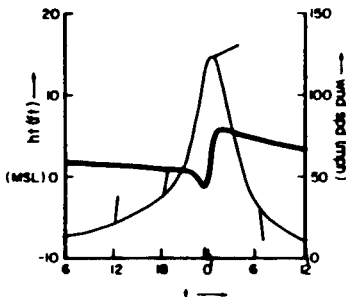
5 NAVAL AIR STA. (20, 46)



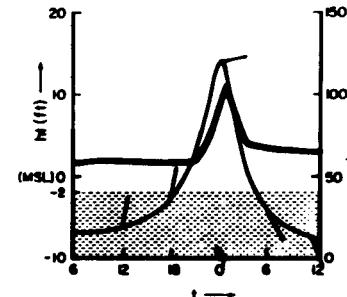
6 CORPUS CHRISTI (12, 53)



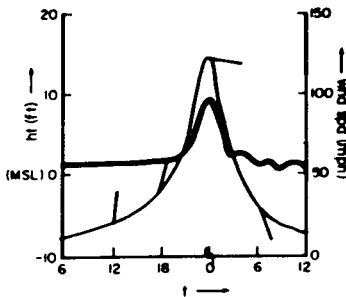
7 INGLESIDE (21, 55)



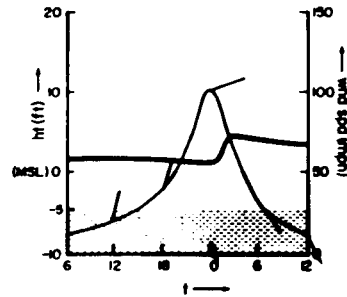
8 ARANSAS PASS (28, 57)



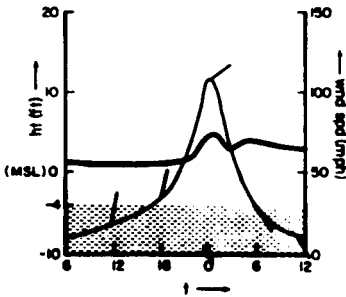
9 PORT ARANSAS (31, 53)



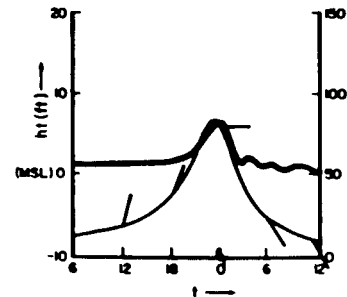
10 COPANO BRIDGE (35, 63)



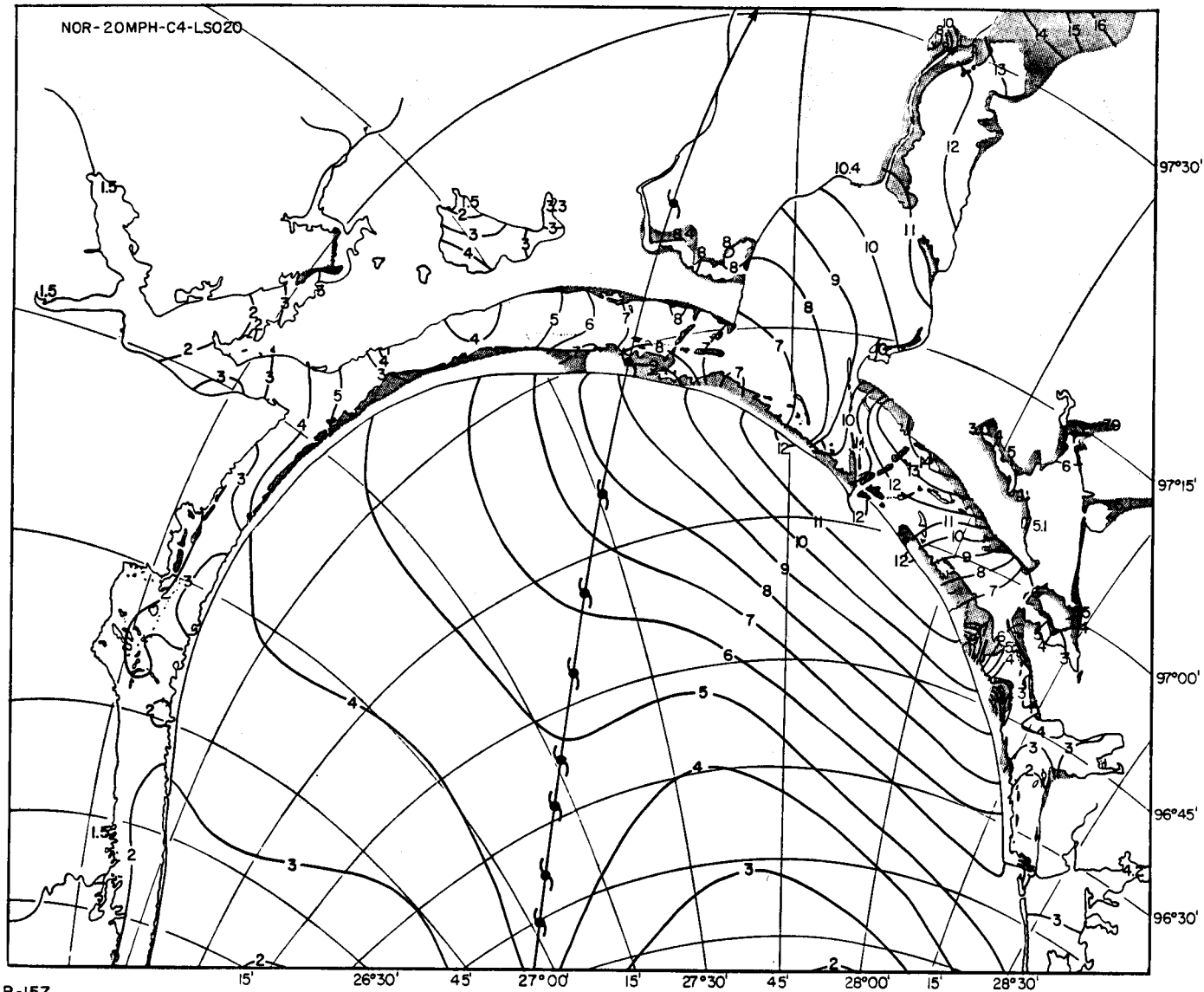
11 BAYSIDE (28, 66)



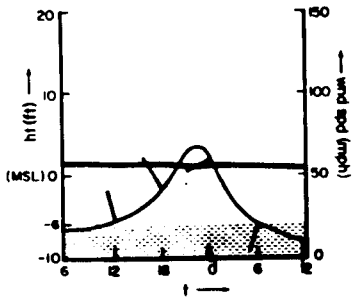
12 MATAGORDA IS. (45, 61)



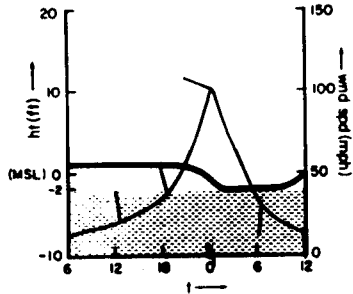
NOR-20MPH-C4-LS020



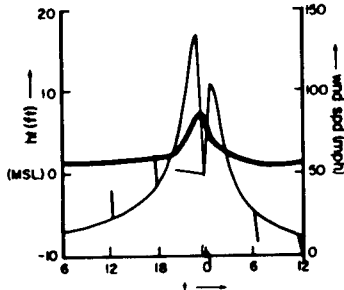
1. PORT MANSFIELD (48, 8)



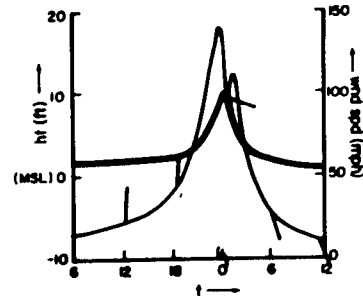
2. BAFFIN BAY (19, 3)



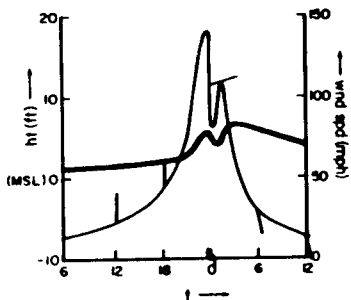
3. PADRI IS. RANGER STA. (24, 35)



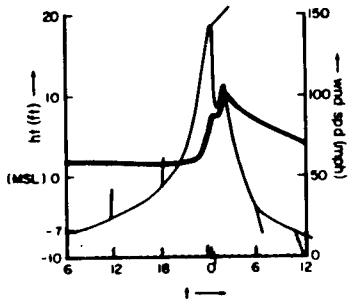
4. MUSTANG PASS (23, 45)



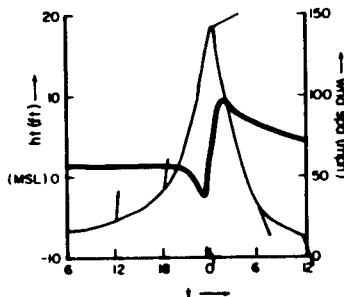
5. NAVAL AIR STA. (20, 46)



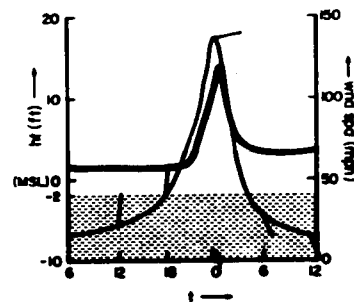
6. CORPUS CHRISTI (12, 53)



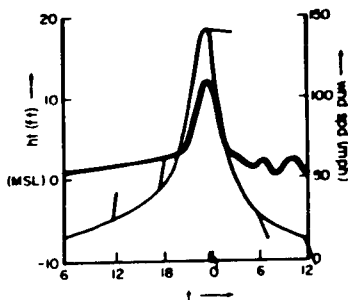
7. INGLESIDE (21, 55)



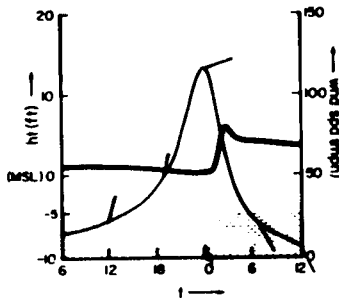
8. ARANSAS PASS (28, 57)



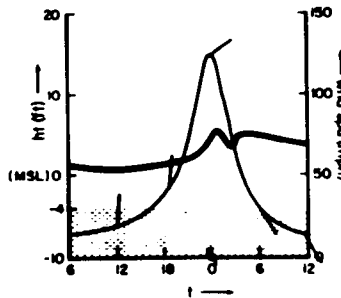
9. PORT ARANSAS (31, 53)



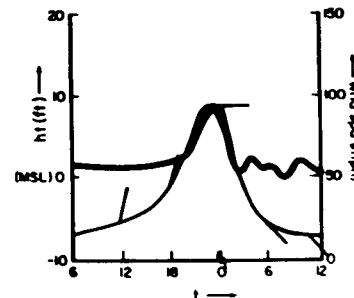
10. COPRANO BRIDGE (35, 63)

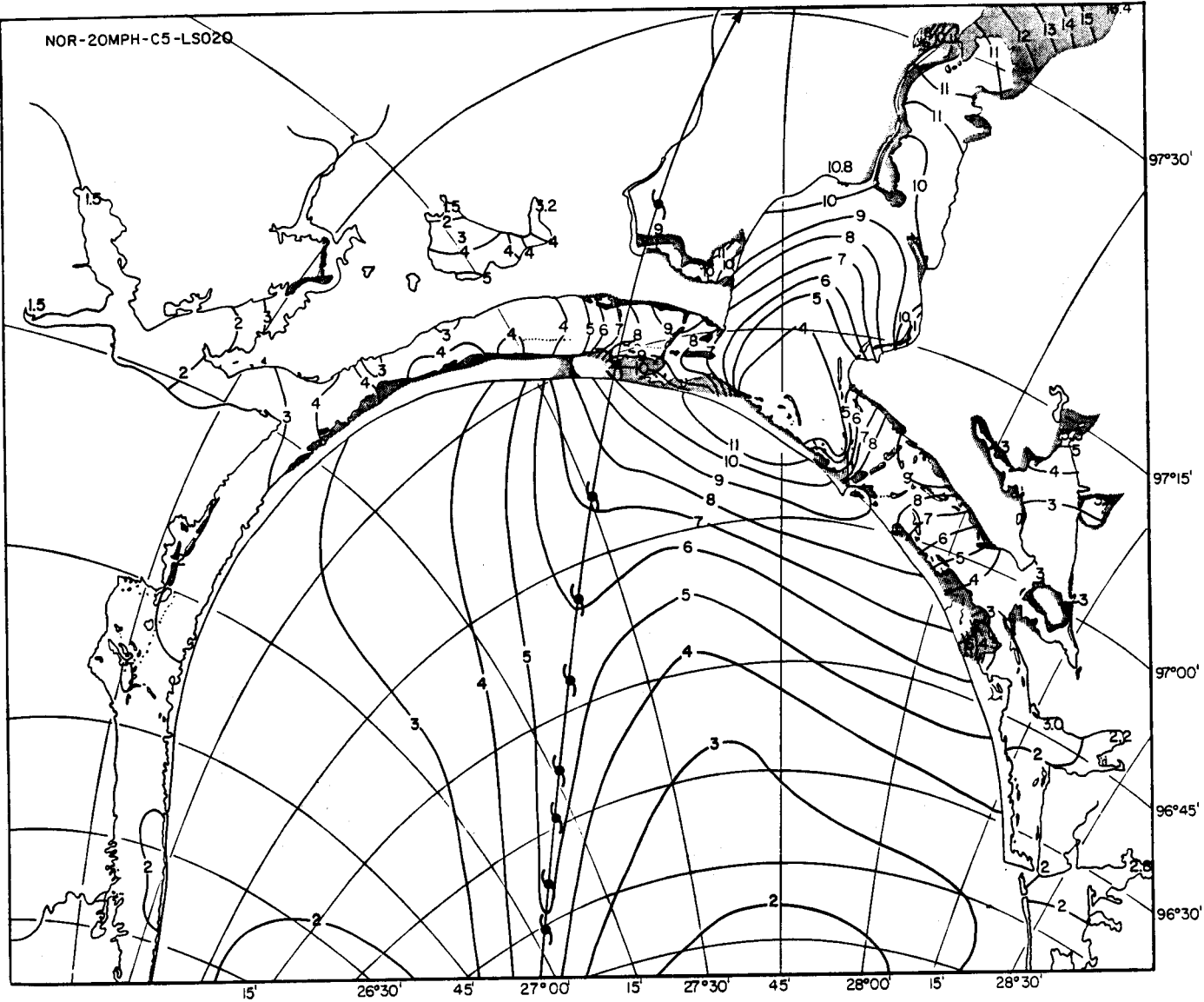


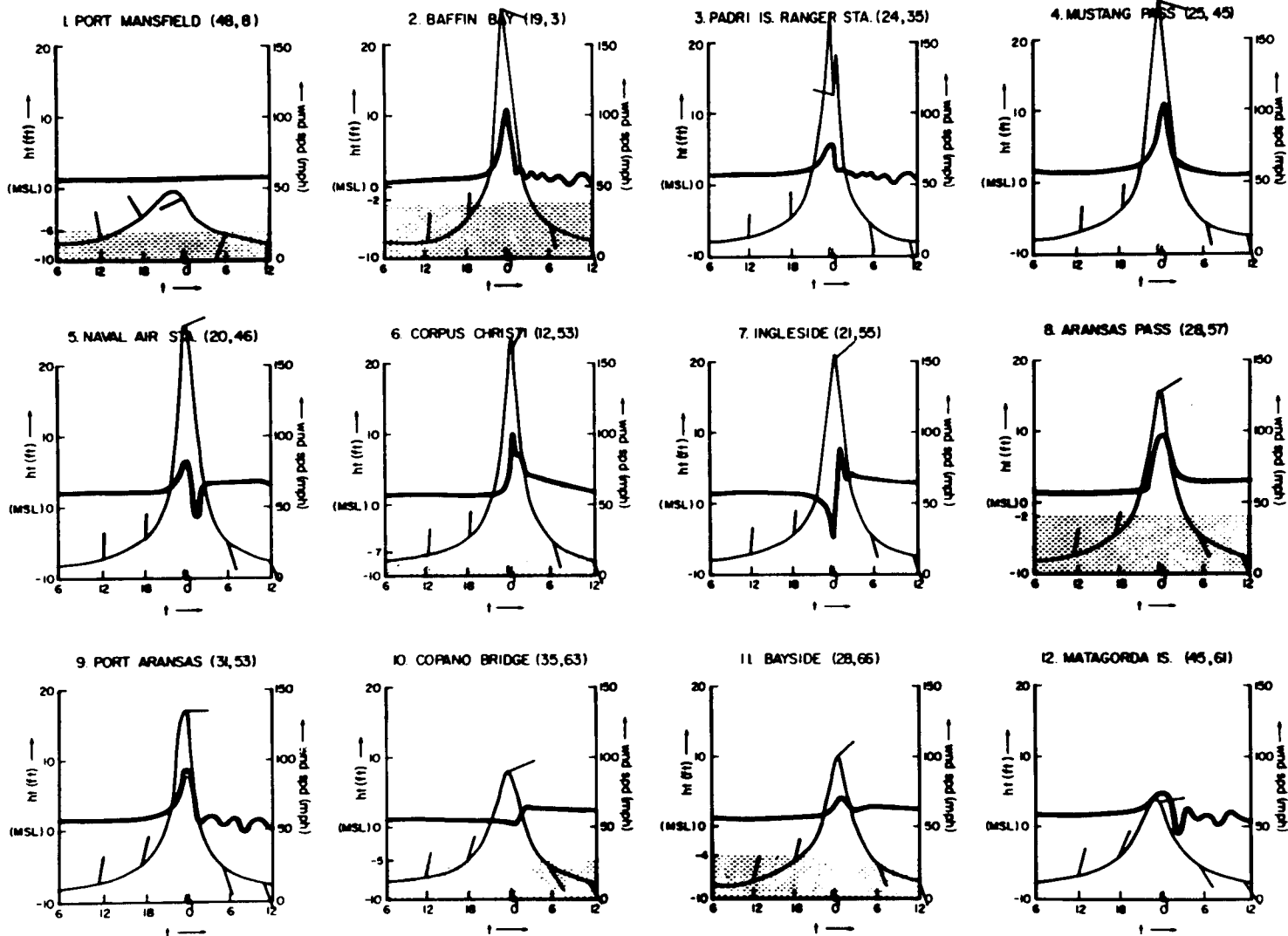
11. BAYSIDE (28, 66)



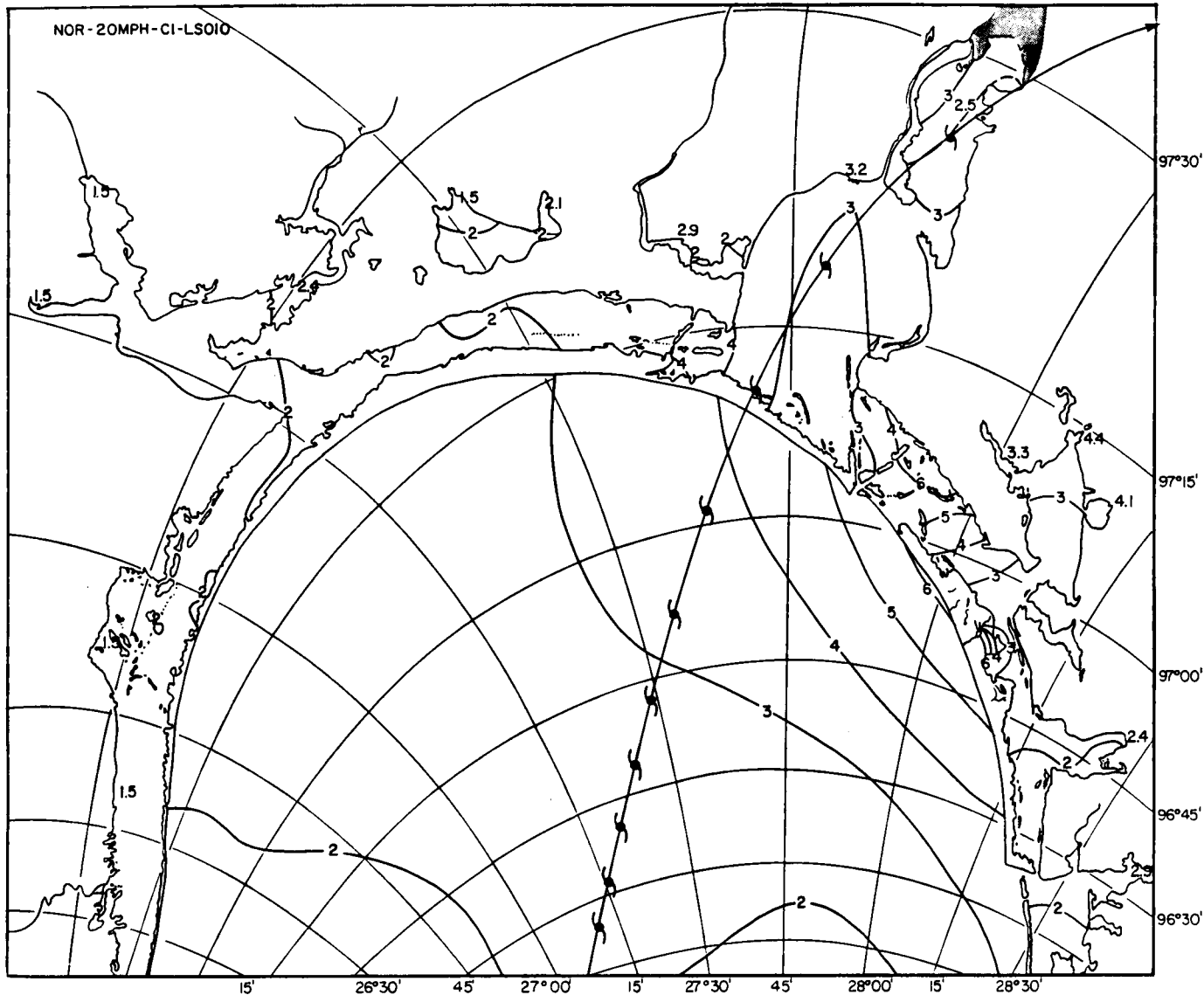
12. MATAGORDA IS. (45, 61)



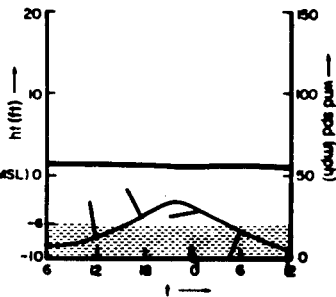




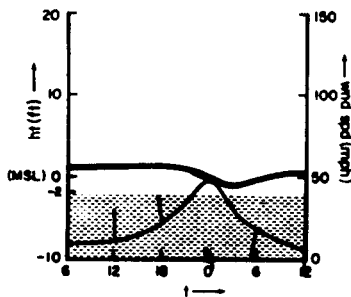
NOR - 20MPH - CI - LSOIO



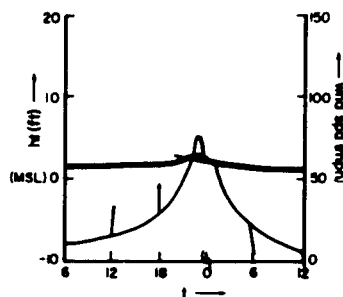
1. PORT MANSFIELD (48, 8)



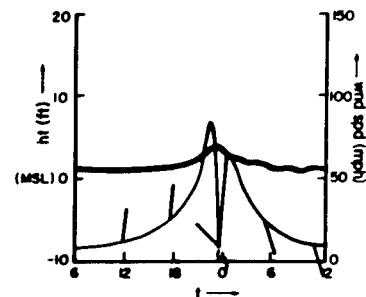
2. BAFFIN BAY (19, 3)



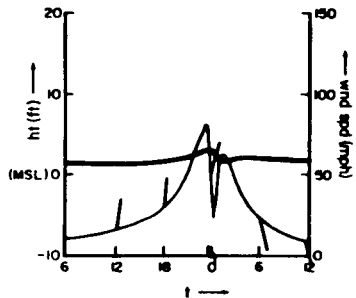
3. PADRI IS. RANGER STA. (24, 35)



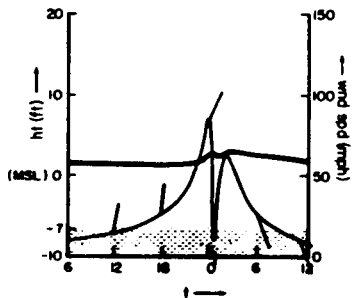
4. MUSTANG PASS (25, 45)



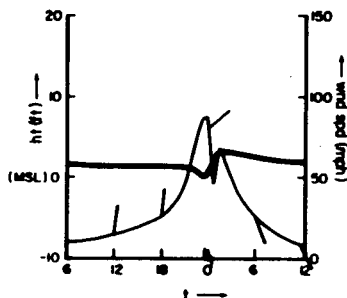
5. NAVAL AIR STA. (20, 46)



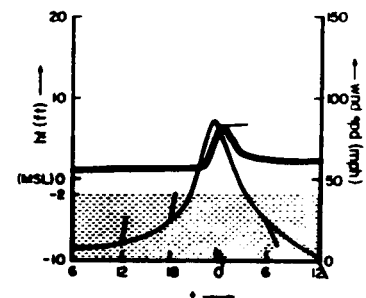
6. CORPUS CHRISTI (12, 53)



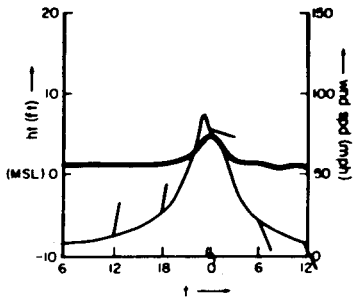
7. INGLESIDE (21, 55)



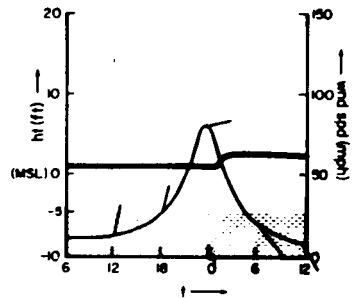
8. ARANSAS PASS (28, 57)



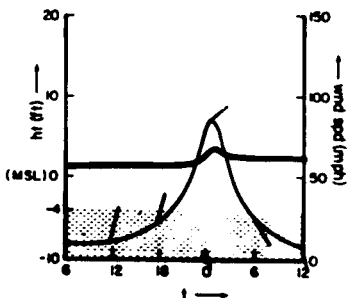
9. PORT ARANSAS (31, 53)



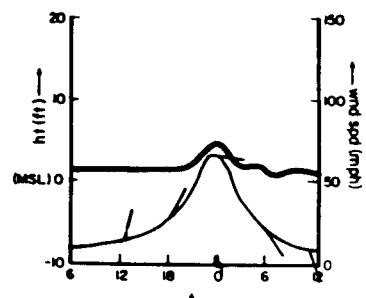
10. COPANO BRIDGE (35, 63)



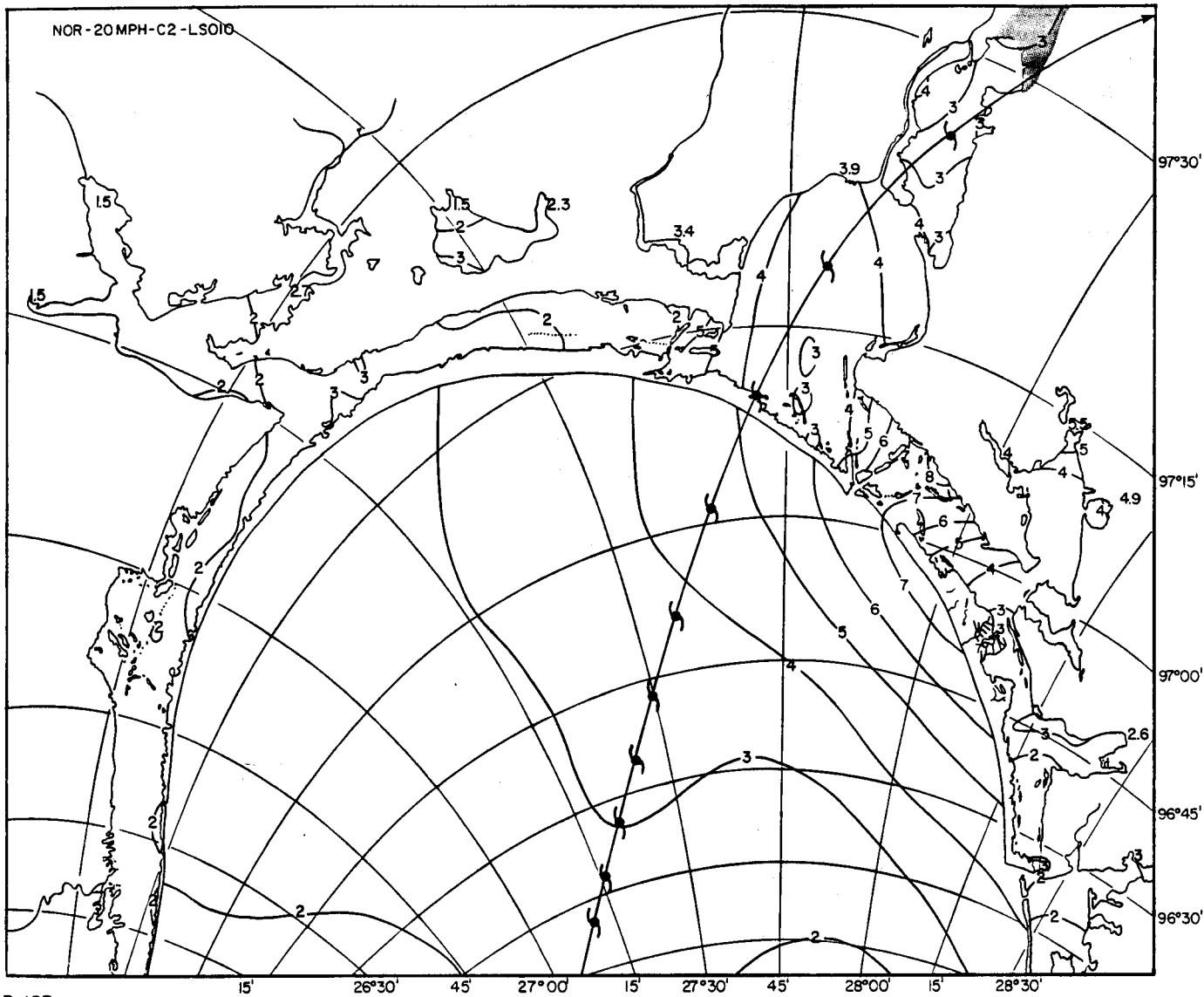
11. BAYSIDE (28, 66)



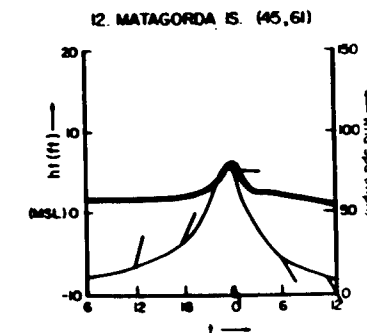
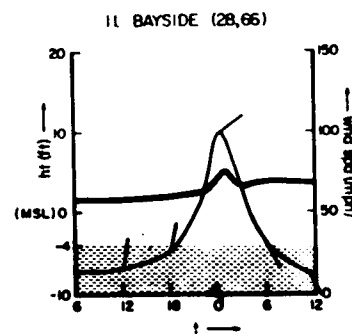
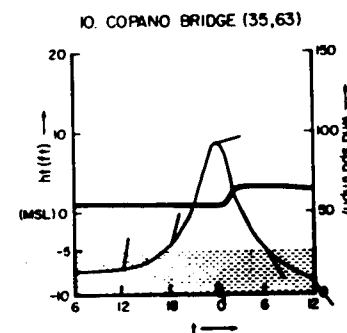
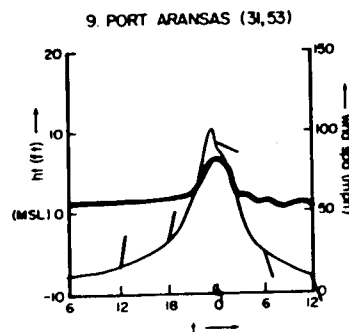
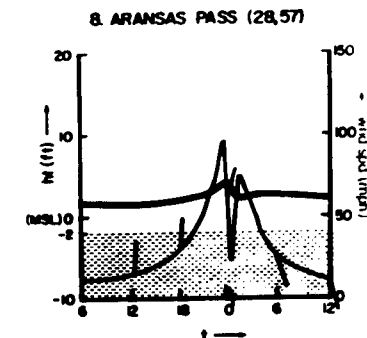
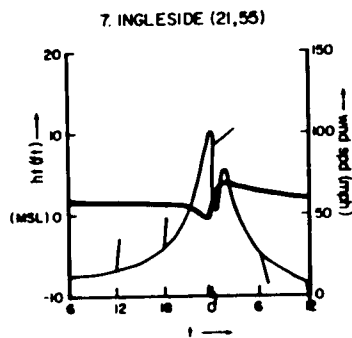
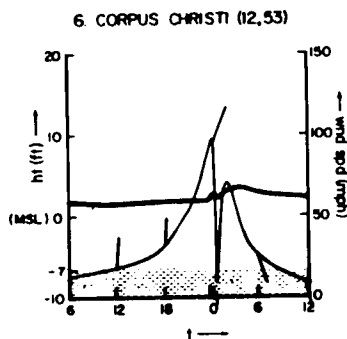
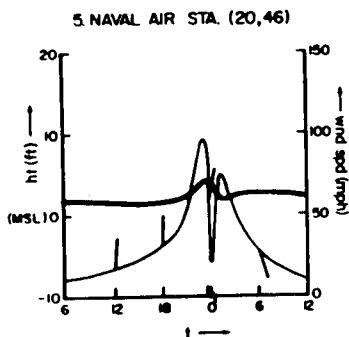
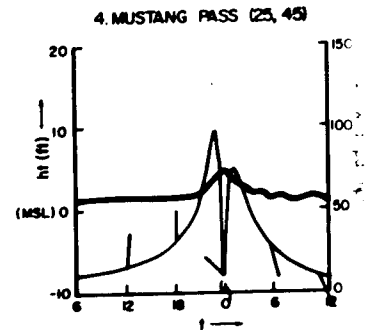
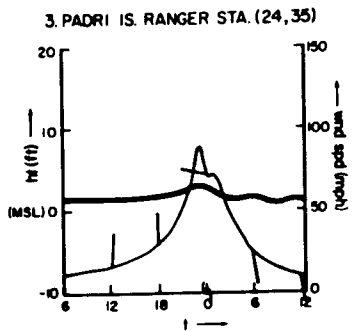
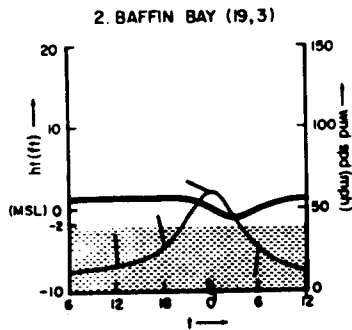
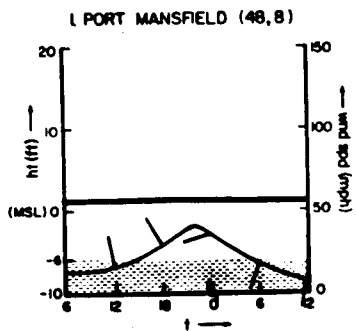
12. MATAGORDA IS. (45, 61)



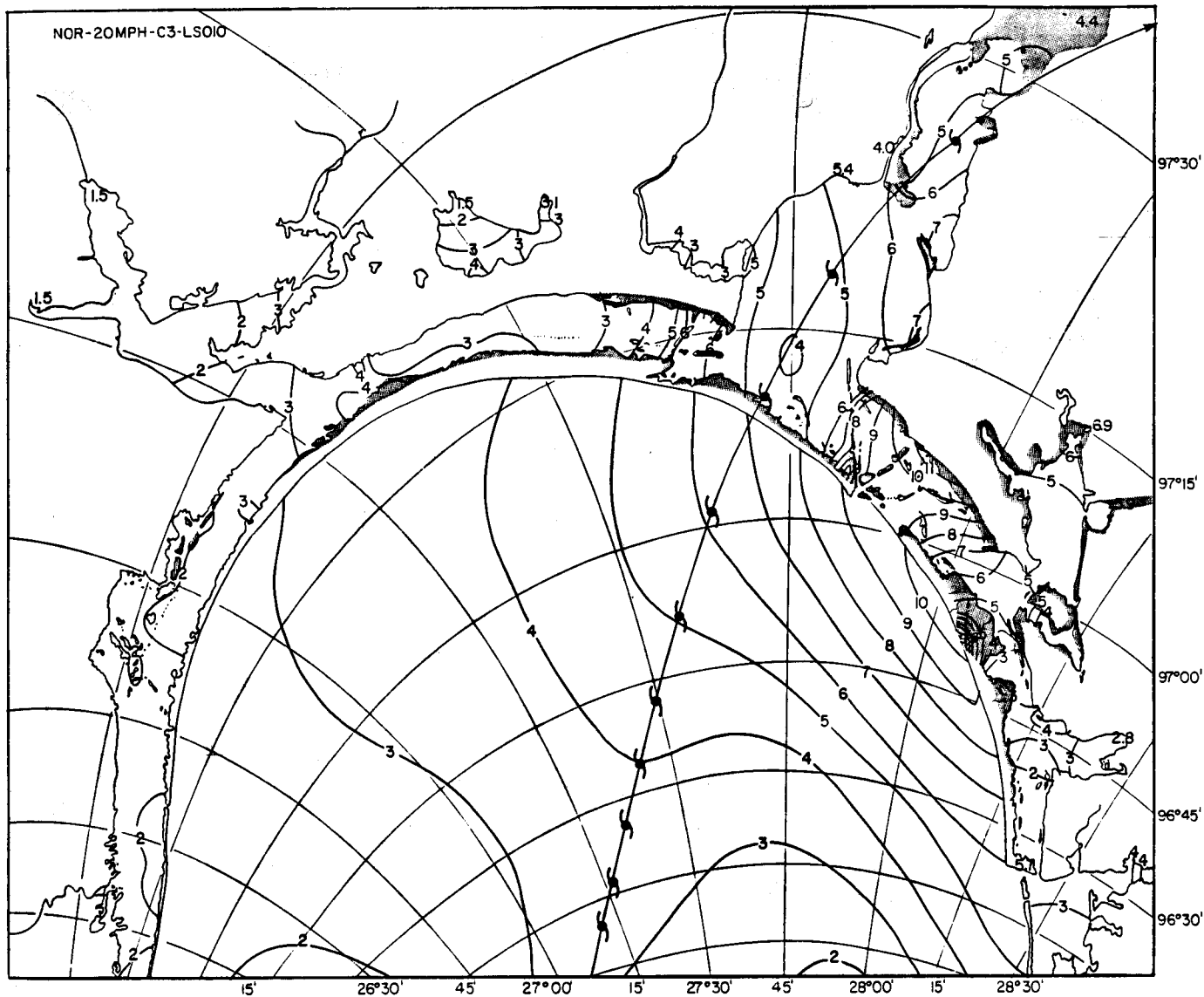
NOR - 20MPH-C2-LS010



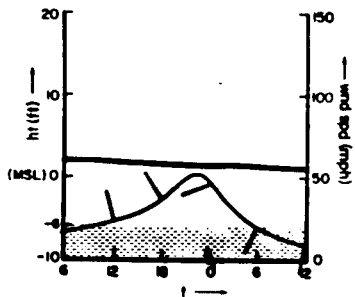




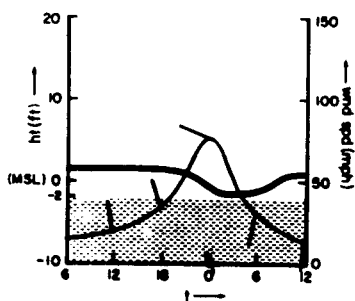
NOR-20MPH-C3-LSO10



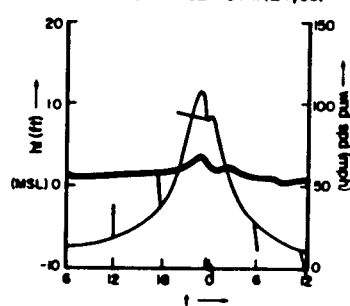
1. PORT MANSFIELD (48, 8)



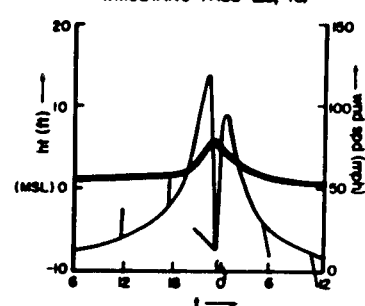
2. BAFFIN BAY (19, 3)



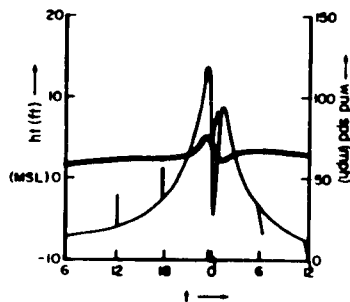
3. PADRI IS. RANGER STA. (24, 35)



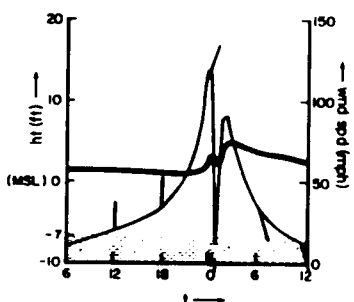
4. MUSTANG PASS (25, 45)



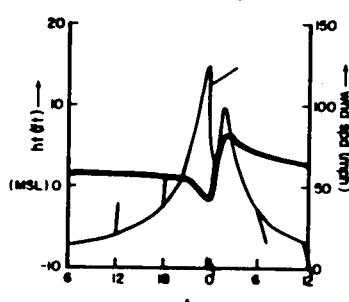
5. NAVAL AIR STA. (20, 46)



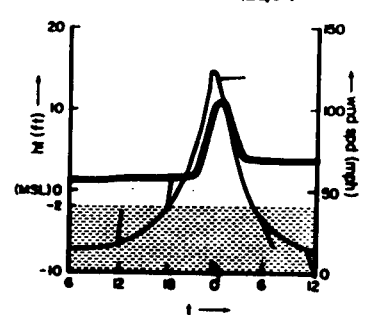
6. CORPUS CHRISTI (12, 53)



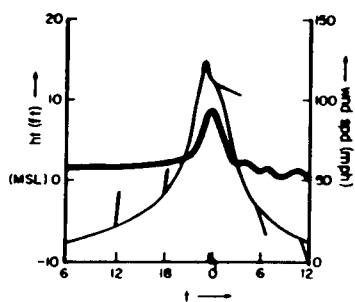
7. INGLESIDE (21, 55)



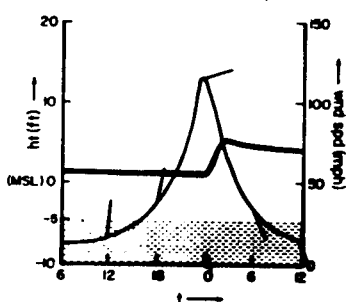
8. ARANSAS PASS (28, 57)



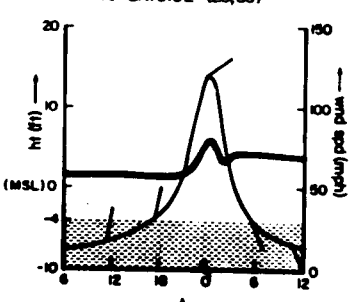
9. PORT ARANSAS (31, 53)



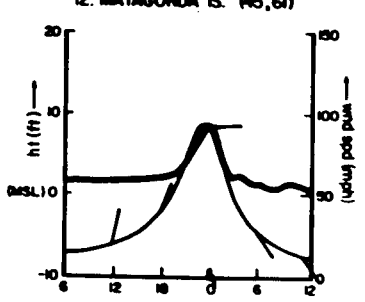
10. COPANO BRIDGE (35, 63)



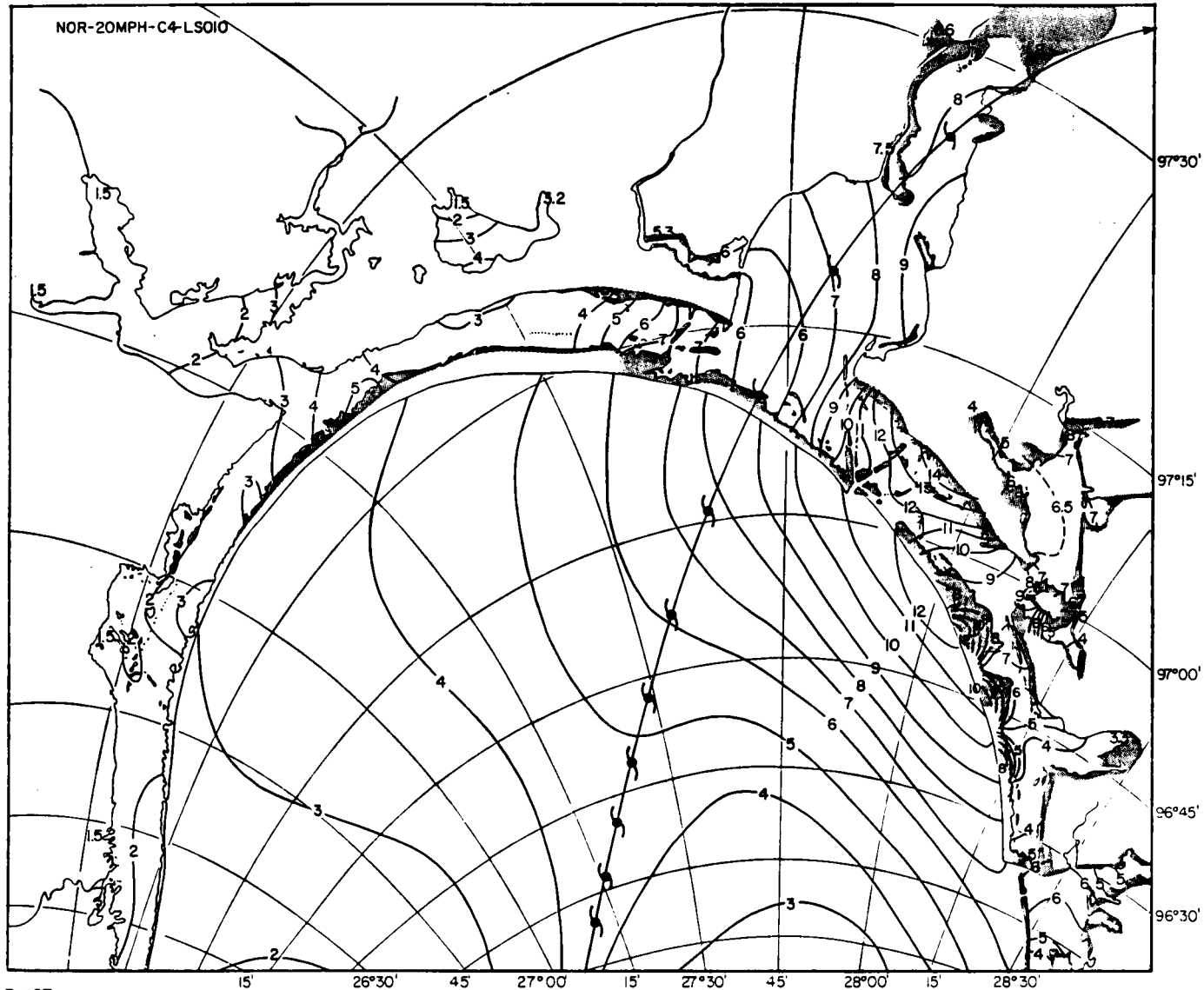
11. BAYSIDE (28, 66)



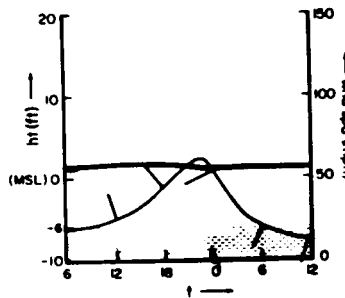
12. MATAGORDA IS. (45, 61)



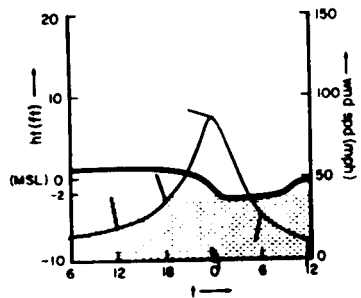
NOR-20MPH-C4-LSOIO



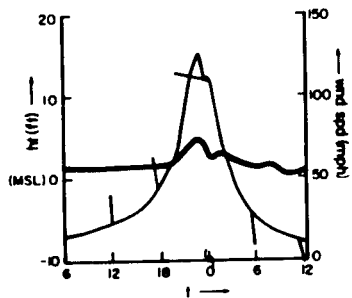
1. PORT MANSFIELD (48, 8)



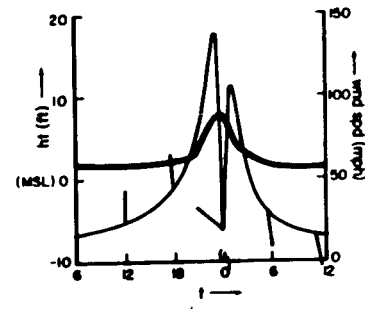
2. BAFFIN BAY (19, 3)



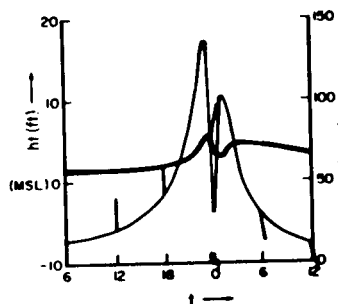
3. PADRI IS. RANGER STA. (24, 35)



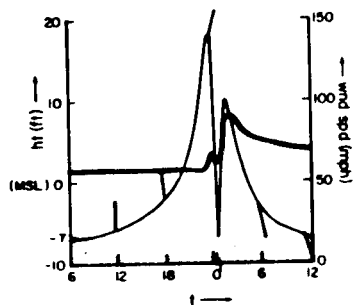
4. MUSTANG PASS (25, 45)



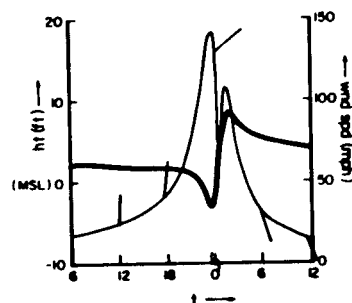
5. NAVAL AIR STA. (20, 46)



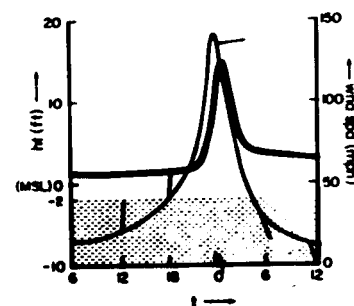
6. CORPUS CHRISTI (12, 53)



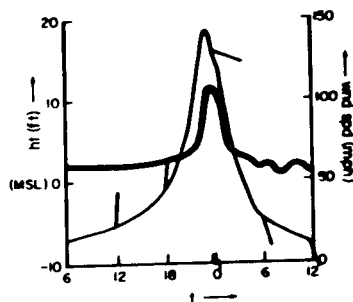
7. INGLESIDE (21, 55)



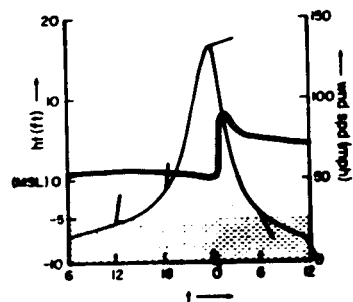
8. ARANSAS PASS (28, 57)



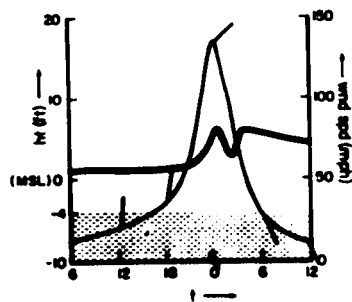
9. PORT ARANSAS (34, 53)



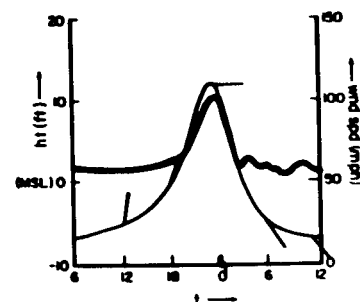
10. COPANO BRIDGE (35, 63)



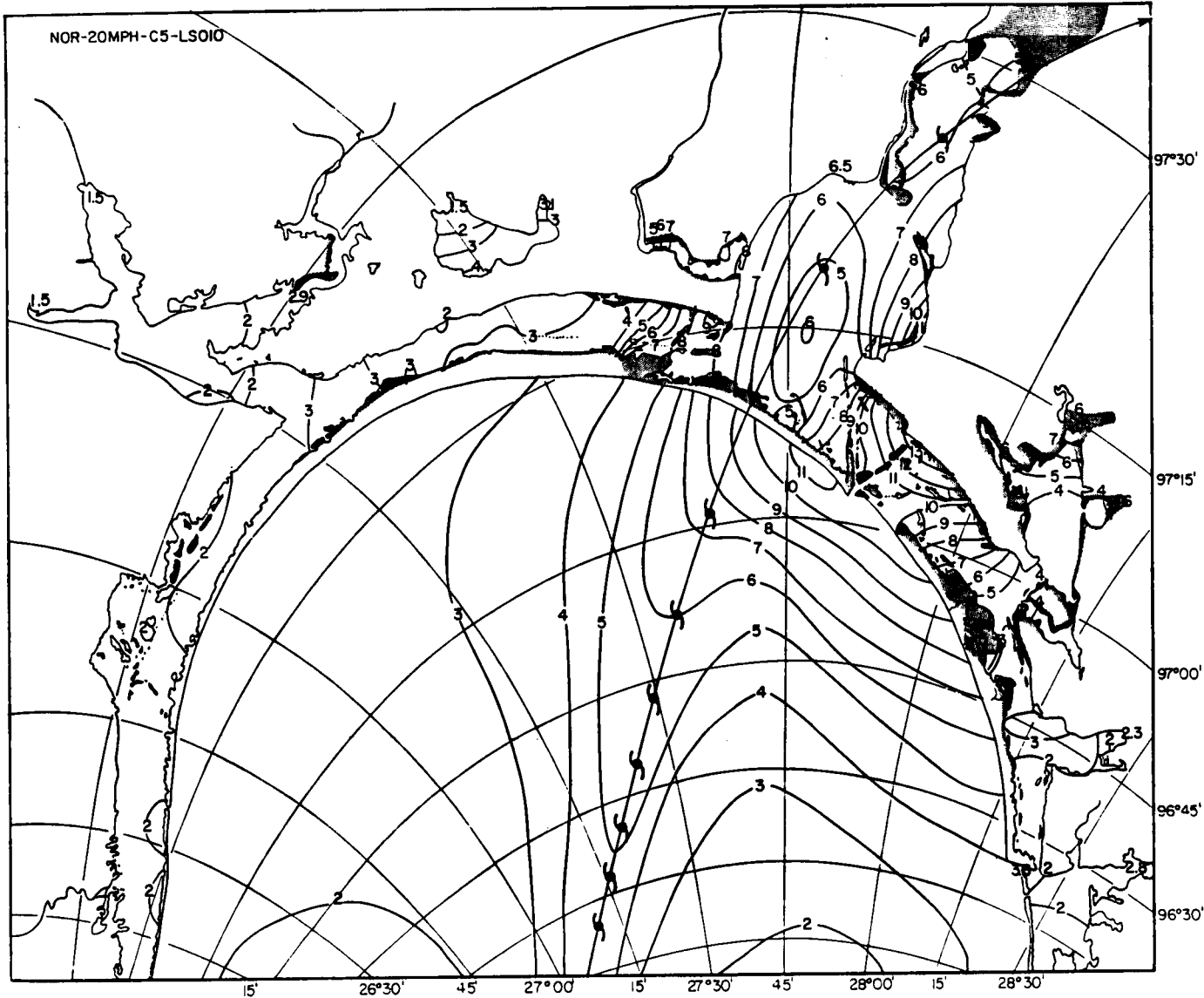
11. BAYSIDE (28, 66)



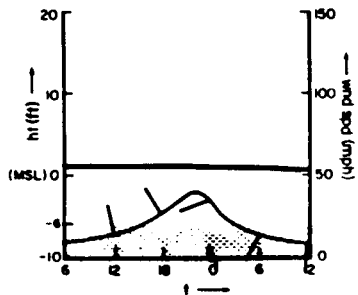
12. MATAGORDA IS. (45, 61)



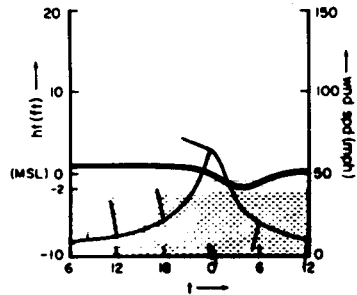
NOR-20MPH-C5-LSO10



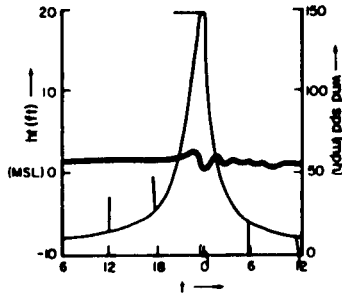
1. PORT MANSFIELD (48, 8)



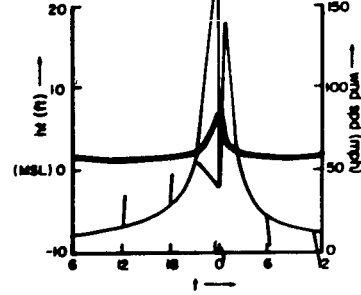
2. BAFFIN BAY (19, 3)



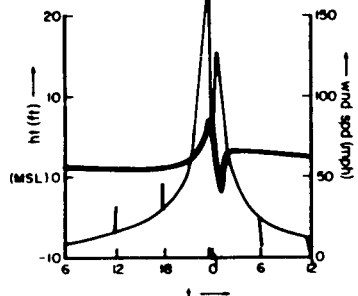
3. PADRI IS. RANGER STA. (24, 35)



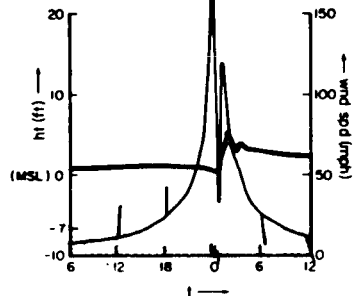
4. MUSTANG PASS (25, 43)



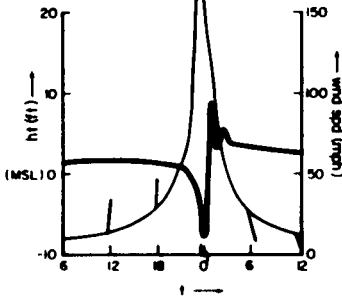
5. NAVAL AIR STA. (20, 46)



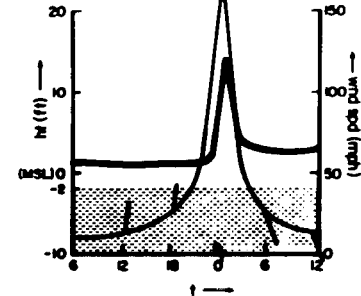
6. CORPUS CHRISTI (12, 53)



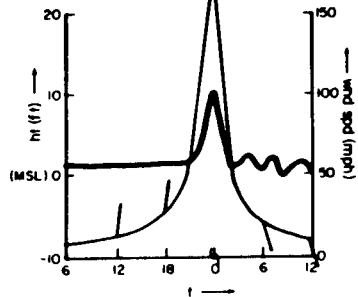
7. INGLESIDE (21, 55)



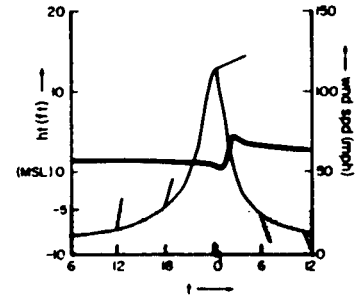
8. ARANSAS PASS (28, 57)



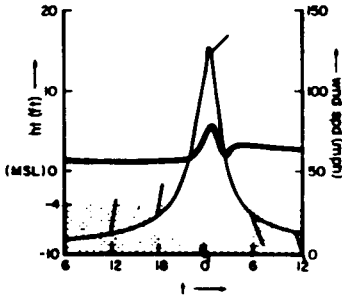
9. PORT ARANSAS (31, 53)



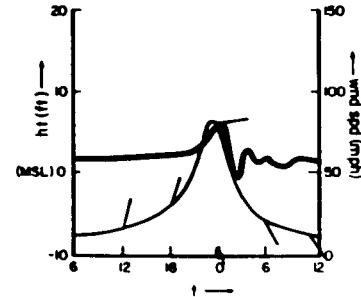
10. COPANO BRIDGE (35, 63)



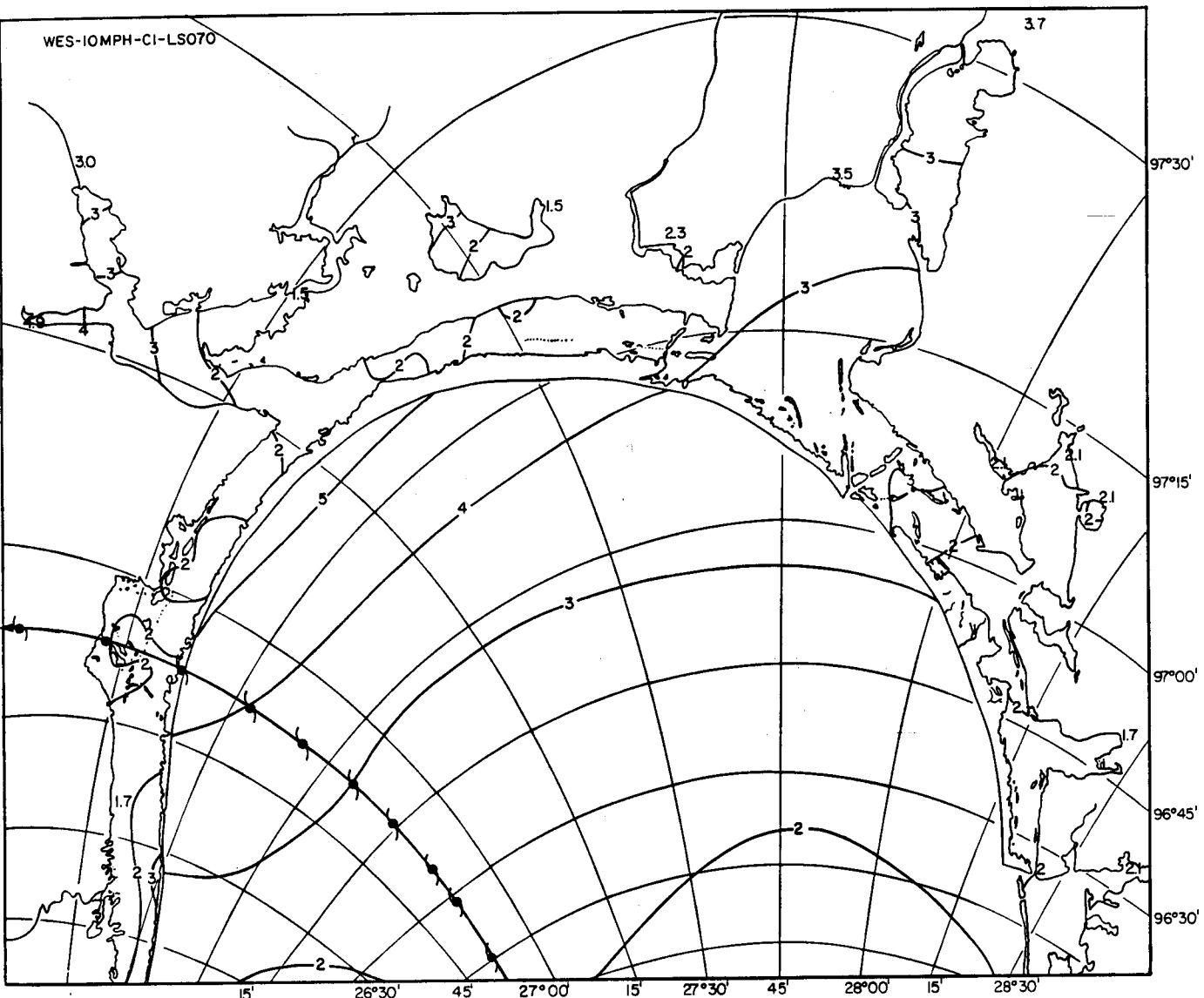
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

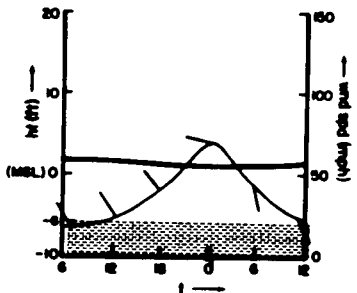


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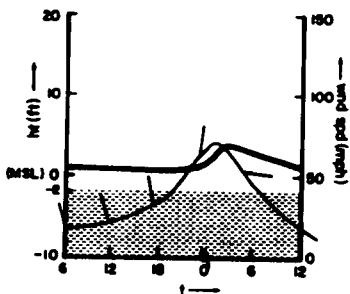




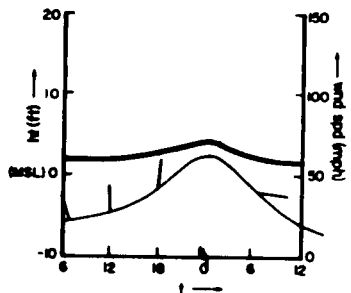
1. PORT MANSFIELD (48, 8)



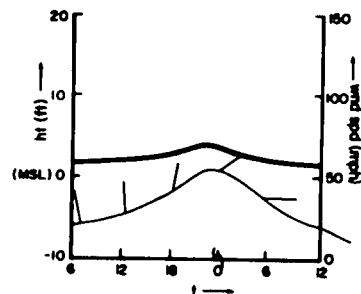
2. BAFFIN BAY (19, 3)



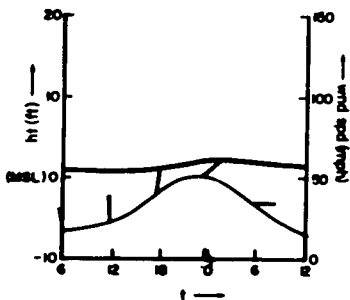
3. PAORI IS. RANGER STA. (24, 35)



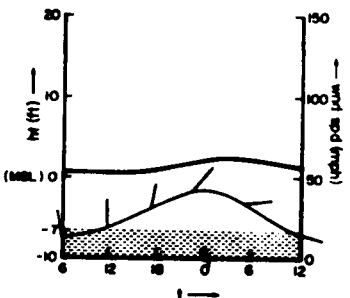
4. MUSTANG PASS (25, 45)



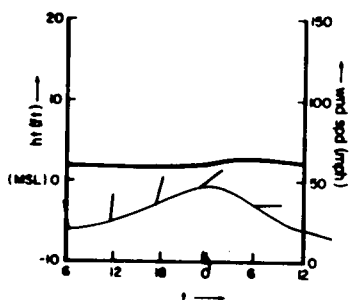
5. NAWAL AIR STA. (20, 46)



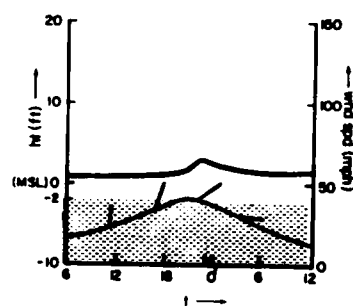
6. CORPUS CHRISTI (12, 53)



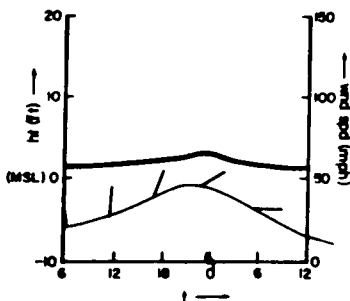
7. INGLESIDE (21, 55)



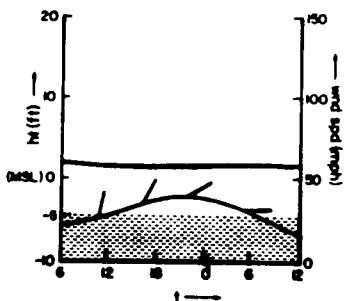
8. ARANSAS PASS (28, 57)



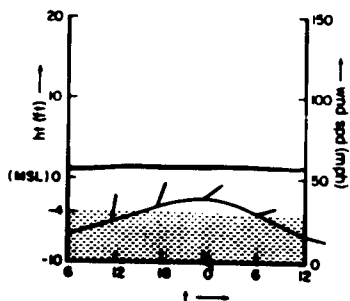
9. PORT ARANSAS (31, 53)



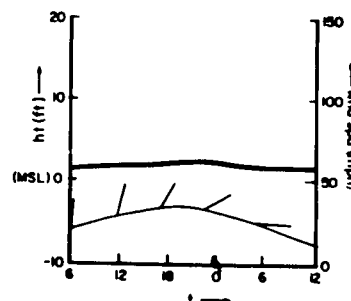
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)

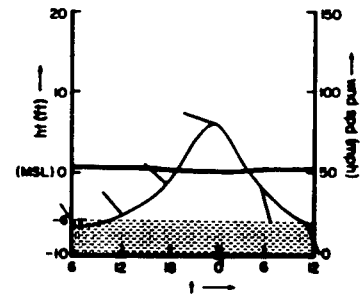


12. MATAGORDA IS. (45, 61)

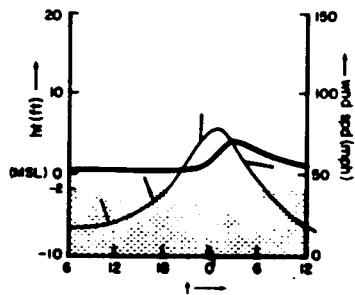




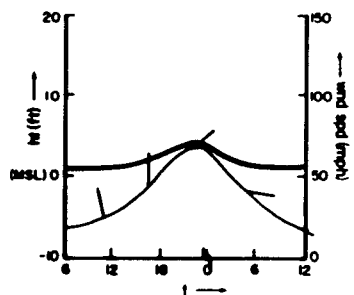
1. PORT MANSFIELD (48, 8)



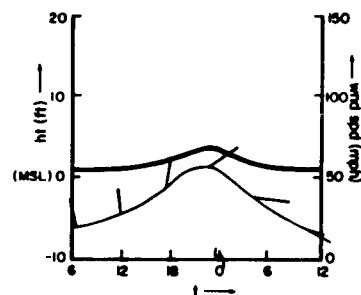
2. BAFFIN BAY (19, 3)



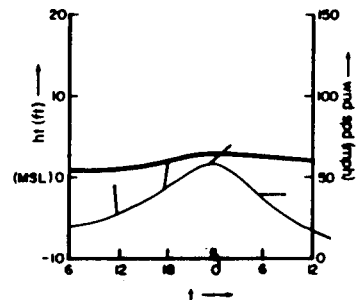
3. PADRI IS. RANGER STA. (24, 35)



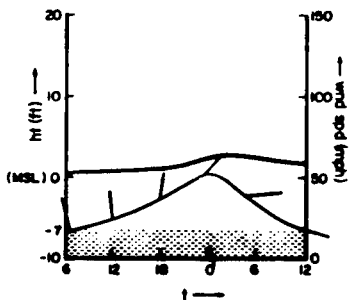
4. MUSTANG PASS (25, 45)



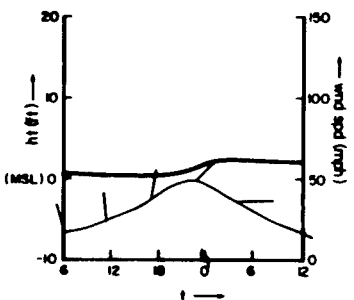
5. NAVAL AIR STA. (20, 46)



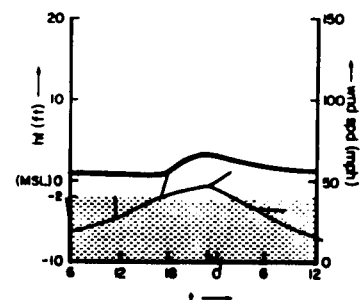
6. CORPUS CHRISTI (12, 53)



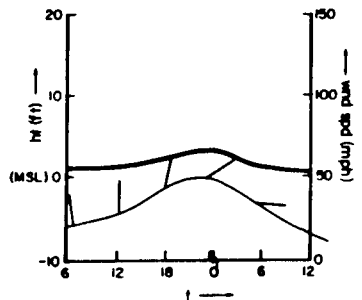
7. INGLESIDE (21, 55)



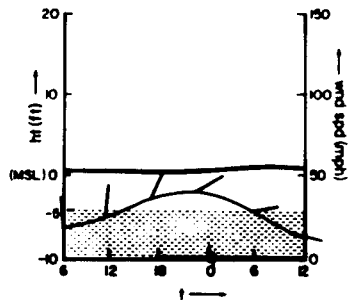
8. ARANSAS PASS (28, 57)



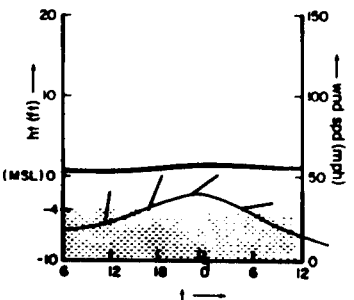
9. PORT ARANSAS (31, 53)



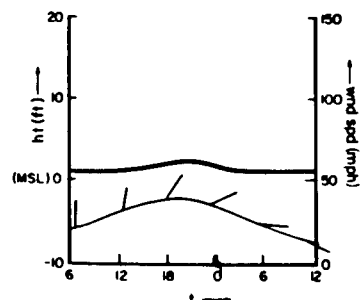
10. COPANO BRIDGE (35, 63)



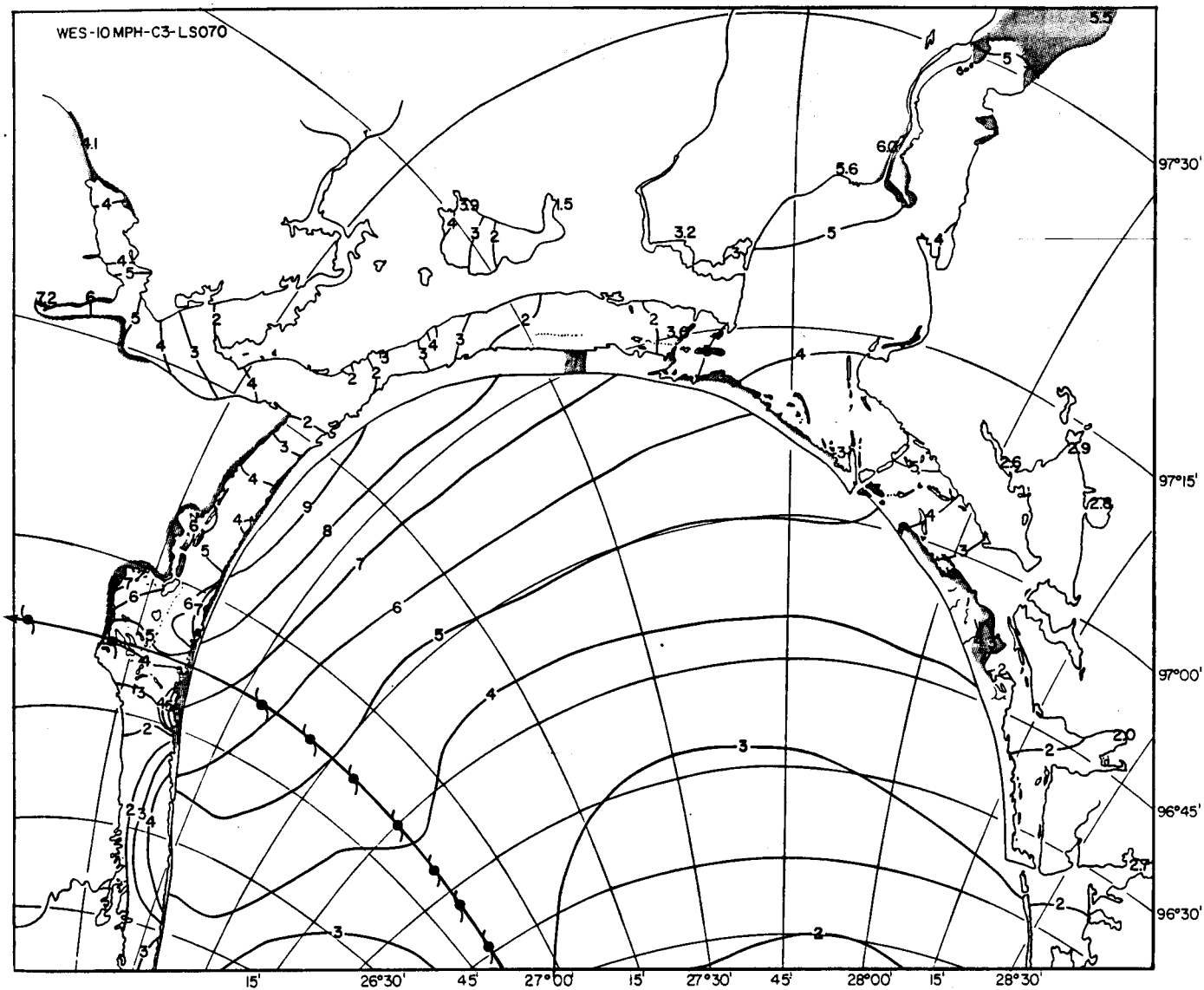
11. BAYSIDE (28, 66)



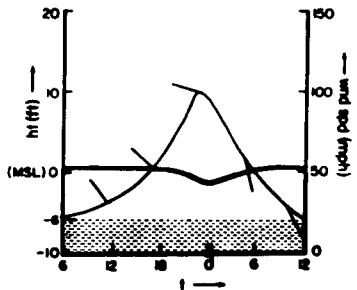
12. MATAGORDA IS. (45, 61)



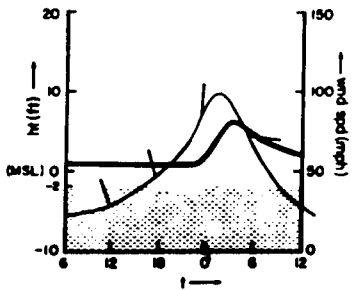
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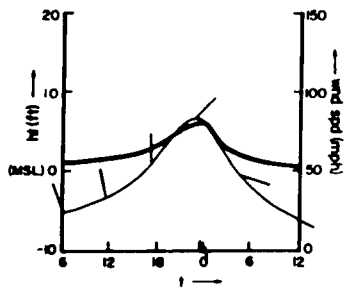
1. PORT MANSFIELD (48, 8)



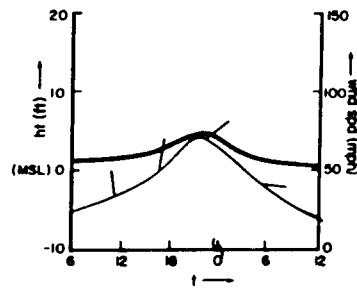
2. BAFFIN BAY (19, 3)



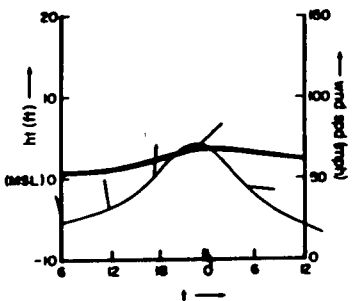
3. PADRI IS. RANGER STA. (24, 35)



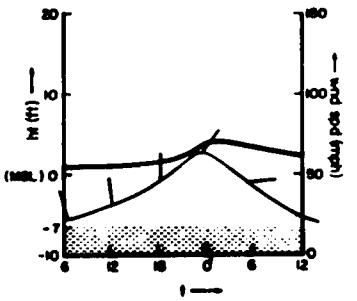
4. MUSTANG PASS (25, 45)



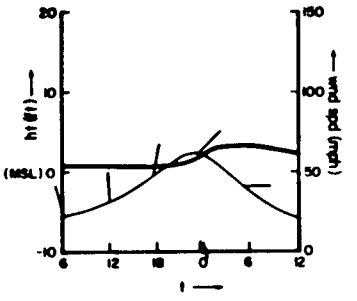
5. NAWAL AIR STA. (20, 46)



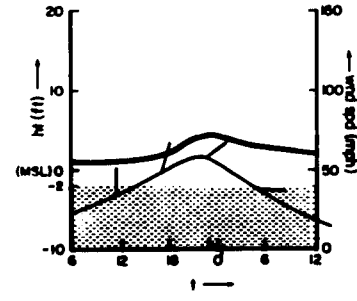
6. CORPUS CHRISTI (22, 53)



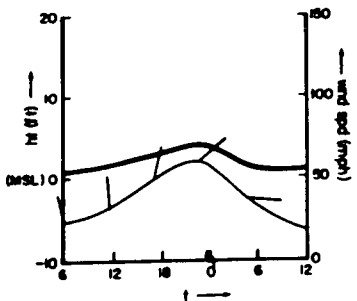
7. INGLESIDE (21, 56)



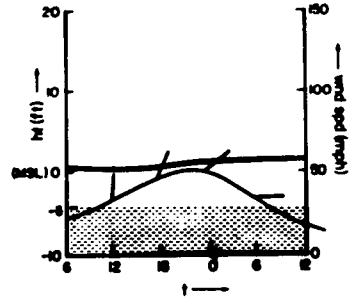
8. ARANSAS PASS (28, 57)



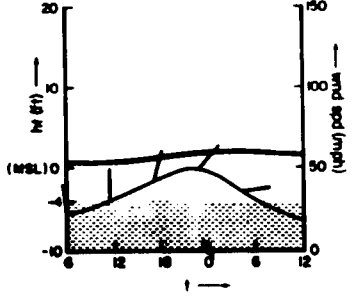
9. PORT ARANSAS (31, 53)



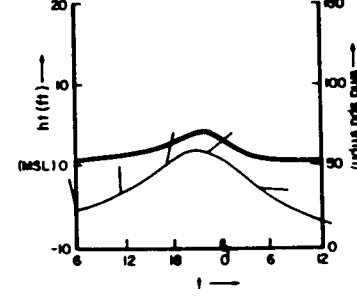
10. COPANO BRIDGE (35, 63)



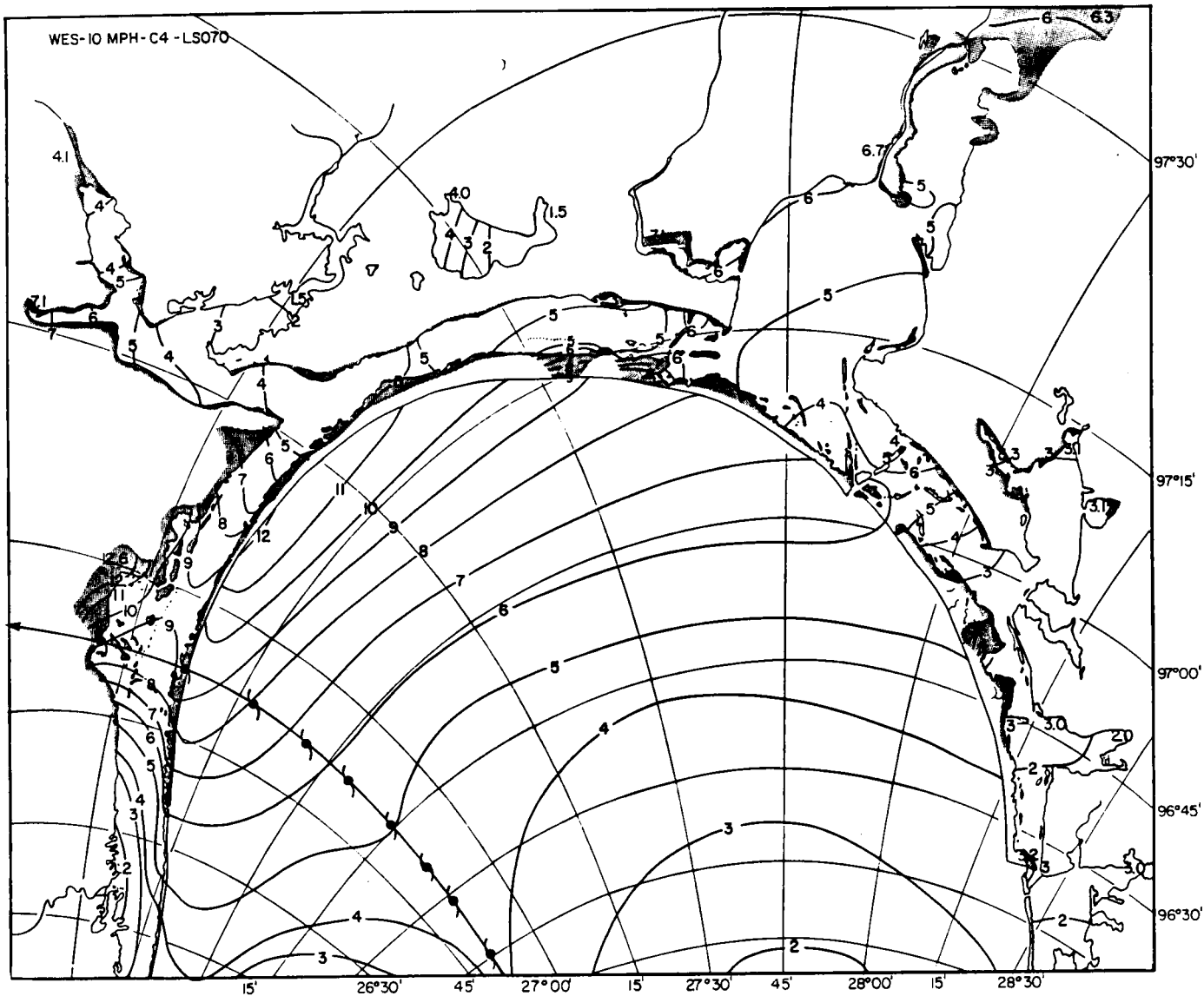
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

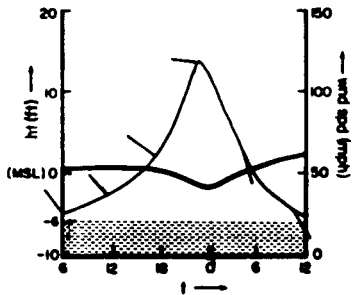


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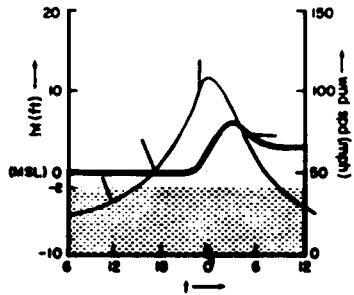


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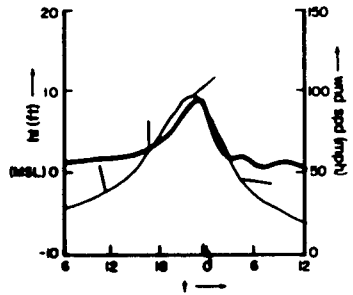
1. PORT MANSFIELD (46, 8)



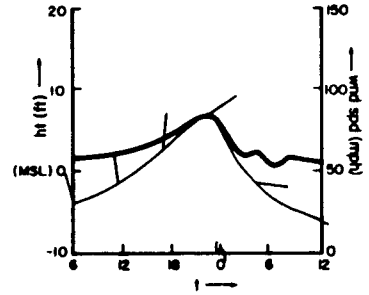
2. BAFFIN BAY (19, 3)



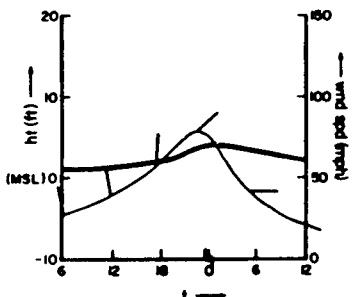
3. PADRI IS. RANGER STA. (24, 35)



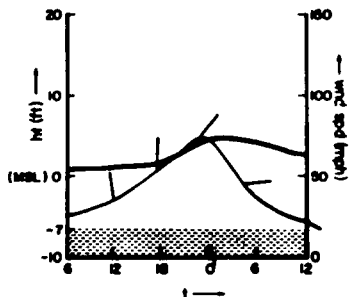
4. MUSTANG PASS (25, 45)



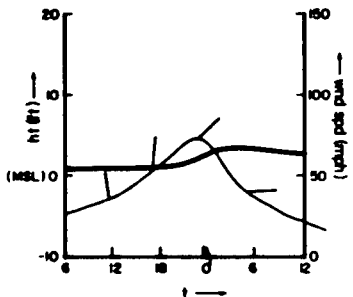
5. NAVAL AIR STA. (20, 46)



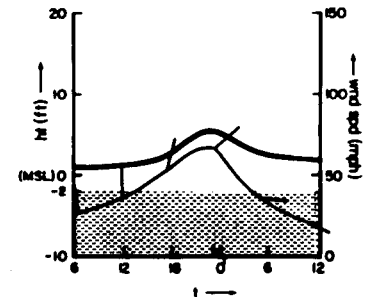
6. CORPUS CHRISTI (12, 53)



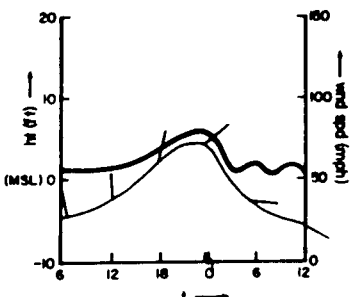
7. INGLESIDE (21, 55)



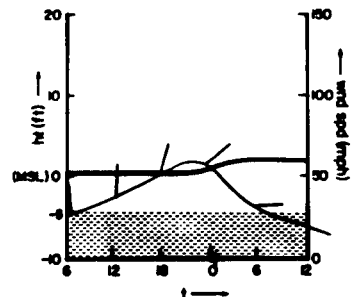
8. ARANSAS PASS (28, 57)



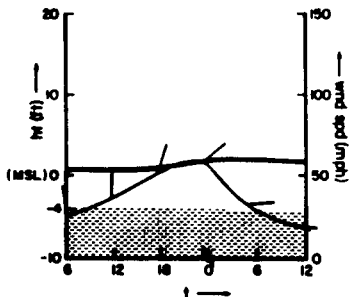
9. PORT ARANSAS (31, 53)



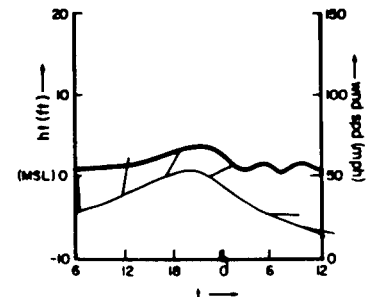
10. COPANO BRIDGE (35, 63)



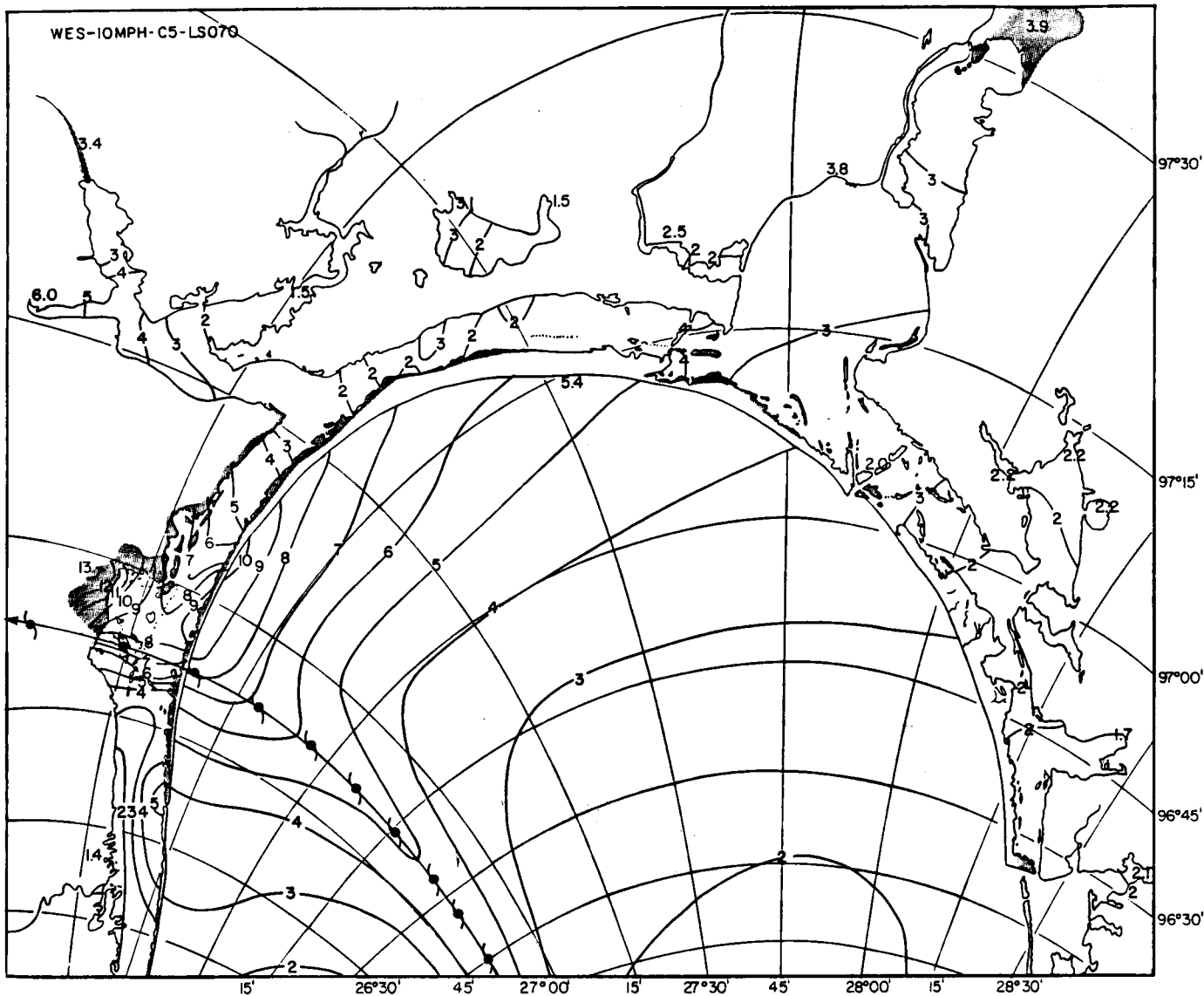
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

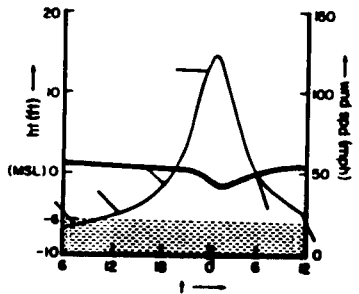


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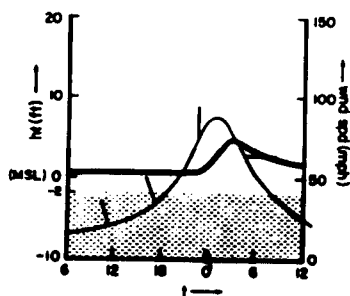




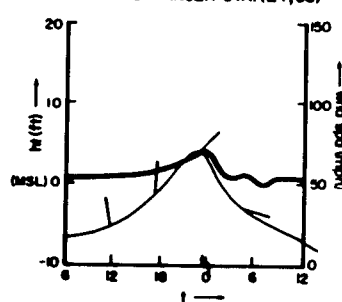
1. PORT MANSFIELD (48, 8)



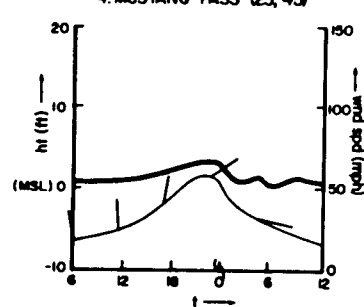
2. BAFFIN BAY (19, 3)



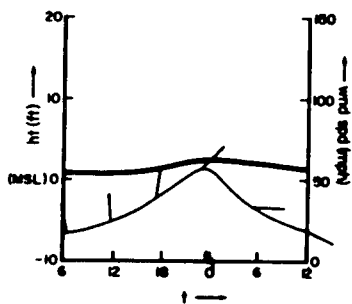
3. PADRI IS. RANGER STA. (24, 35)



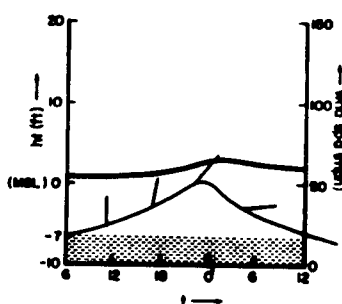
4. MUSTANG PASS (25, 45)



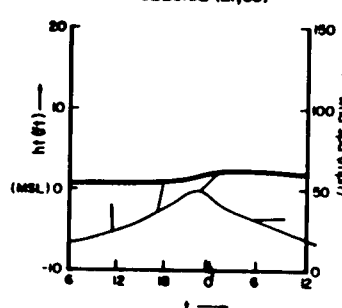
5. NAVAL AIR STA. (20, 46)



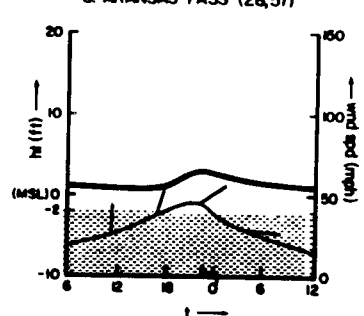
6. CORPUS CHRISTI (12, 53)



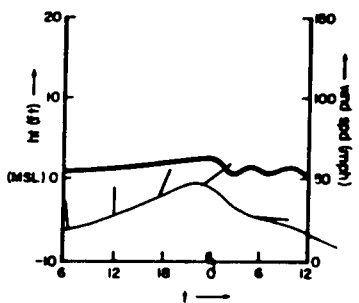
7. INGLESIDE (21, 55)



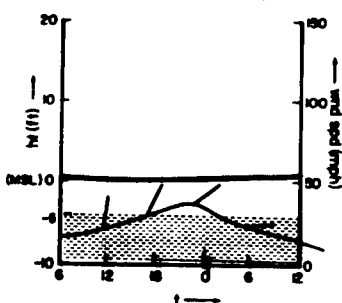
8. ARANSAS PASS (28, 57)



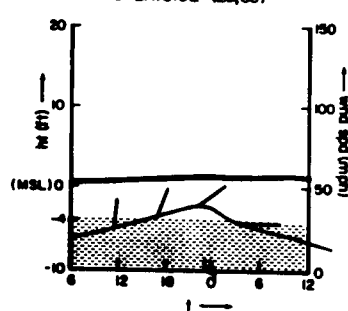
9. PORT ARANSAS (31, 53)



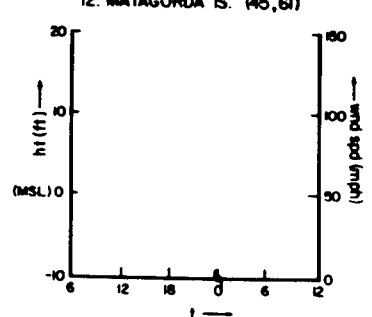
10. COPANO BRIDGE (35, 63)



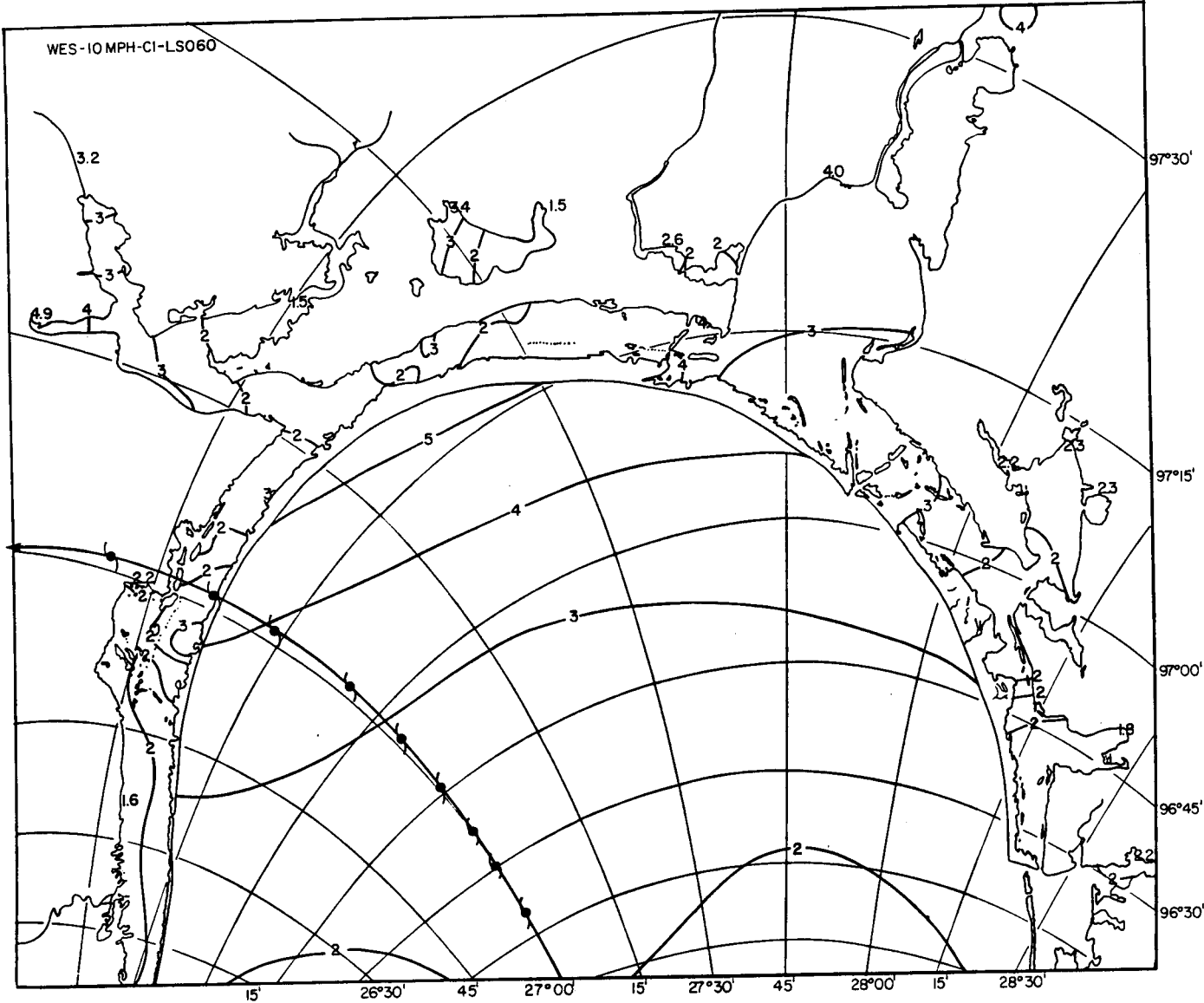
11. BAYSIDE (28, 65)



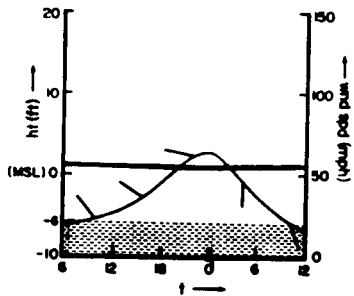
12. MATAGORDA IS. (45, 61)



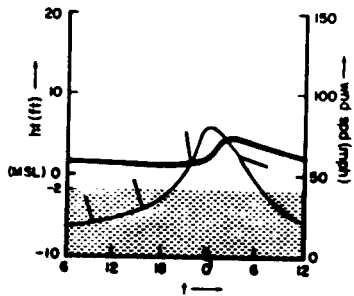
WES-10MPH-C1-LS060



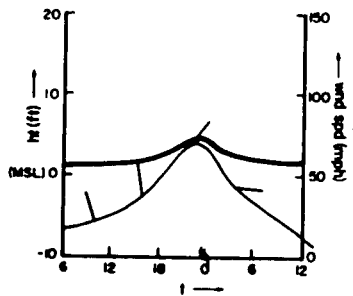
1. PORT MANSFIELD (48, 8)



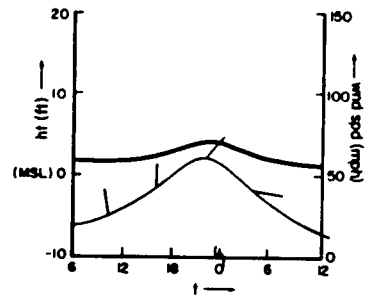
2. BAFFIN BAY (19, 3)



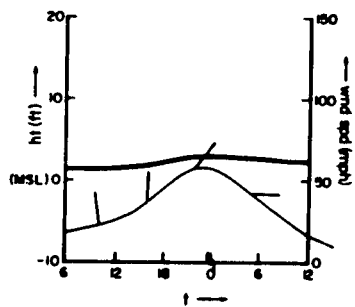
3. PADRI IS. RANGER STA. (24, 35)



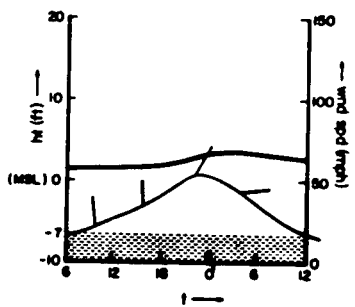
4. MUSTANG PASS (25, 45)



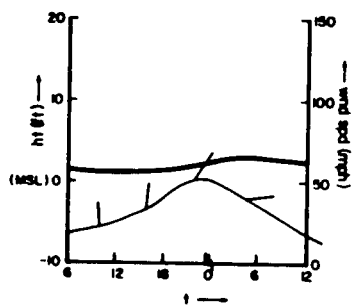
5. NAVAL AIR STA. (20, 46)



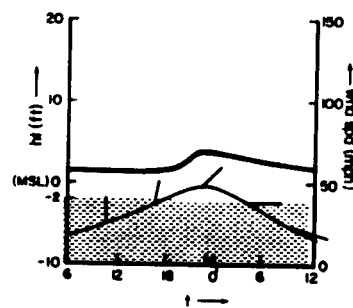
6. CORPUS CHRISTI (12, 53)



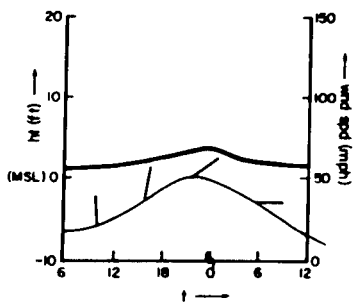
7. INGLESIDE (21, 55)



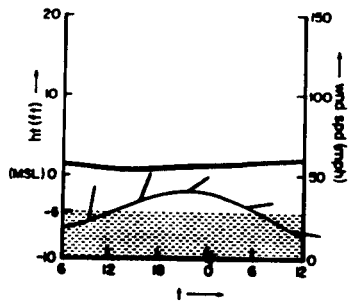
8. ARANSAS PASS (28, 57)



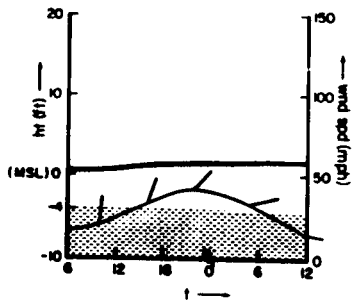
9. PORT ARANSAS (31, 53)



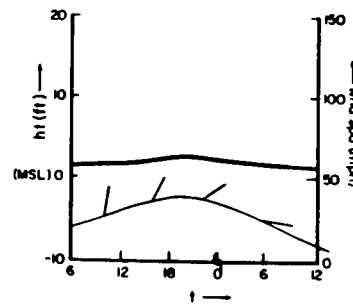
10. COPANO BRIDGE (35, 63)

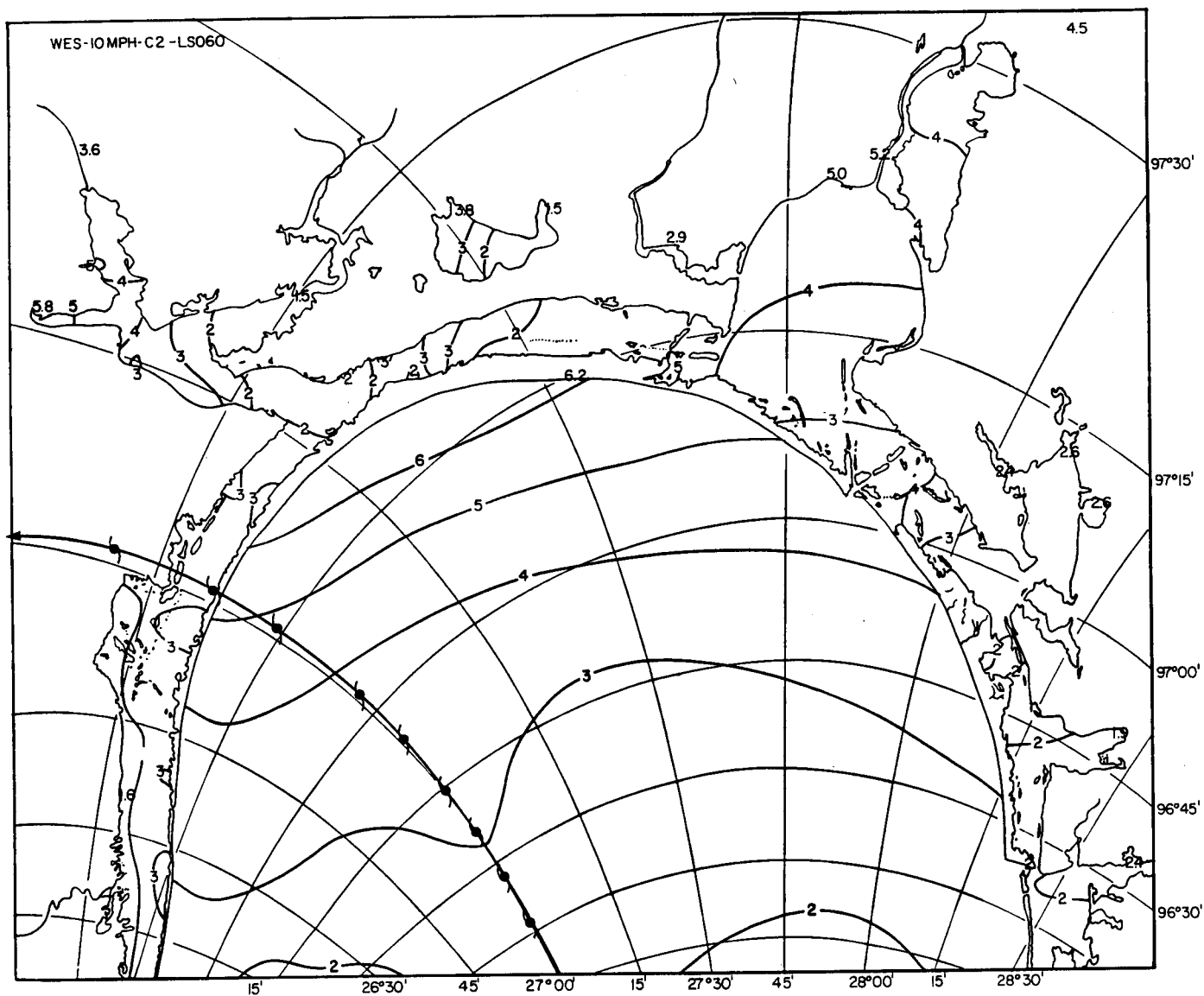


11. BAYSIDE (28, 66)

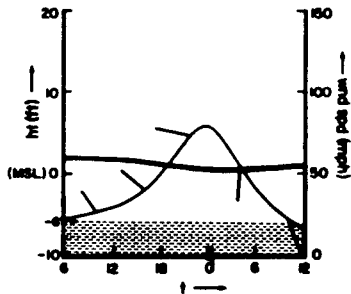


12. MATAGORDA IS. (45, 61)

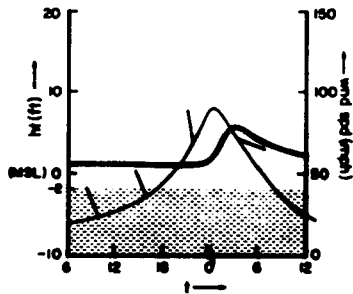




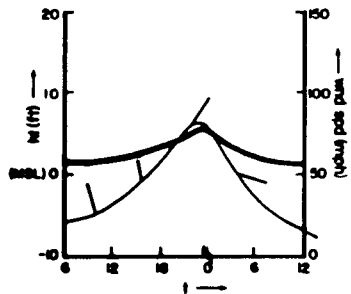
1. PORT MANSFIELD (48, 8)



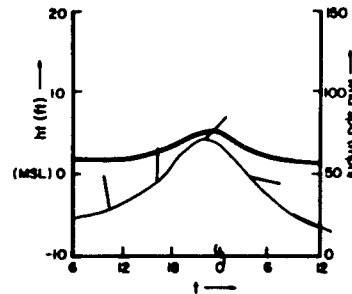
2. BAFFIN BAY (19, 3)



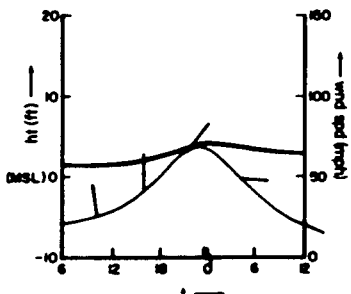
3. PADRI IS. RANGER STA. (24, 35)



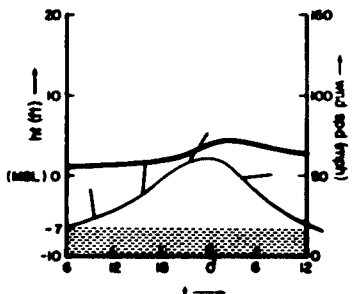
4. MUSTANG PASS (23, 45)



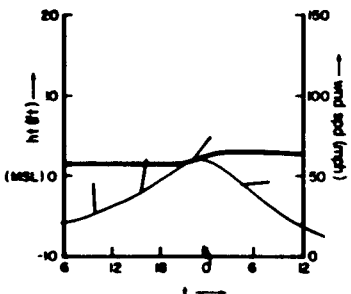
5. NAWAL AIR STA. (20, 46)



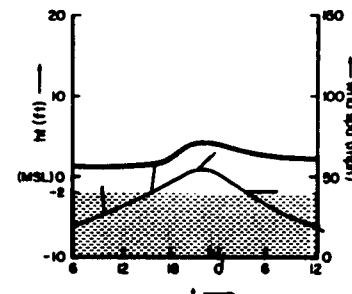
6. CORPUS CHRISTI (22, 53)



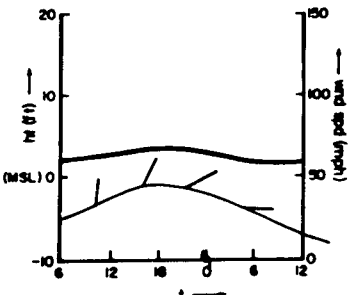
7. INGLESIDE (21, 55)



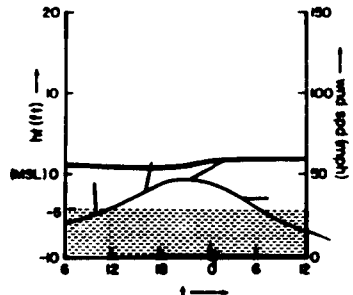
8. ARANSAS PASS (28, 57)



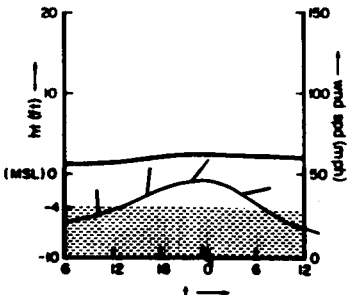
9. PORT ARANSAS (34, 53)



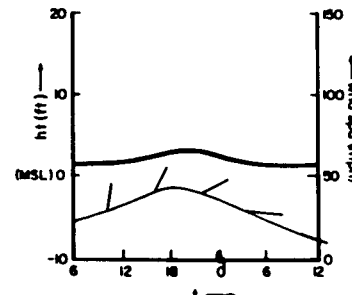
10. COPANO BRIDGE (35, 63)



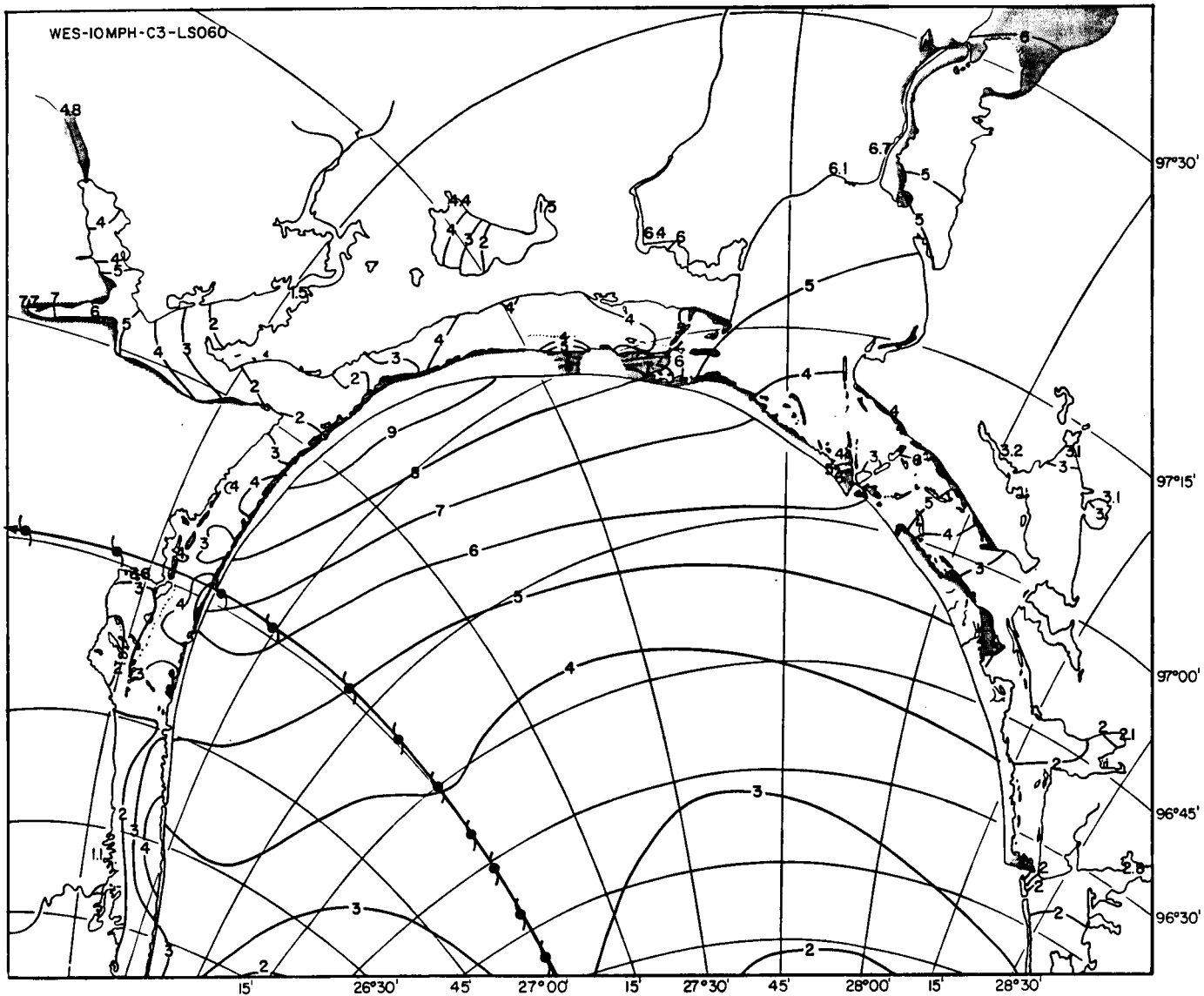
11. BAYSIDE (28, 66)



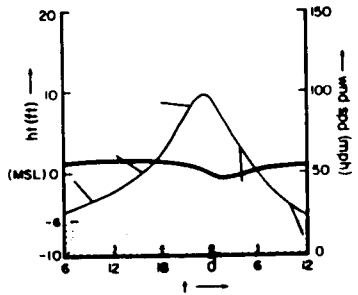
12. MATAGORDA IS. (45, 61)



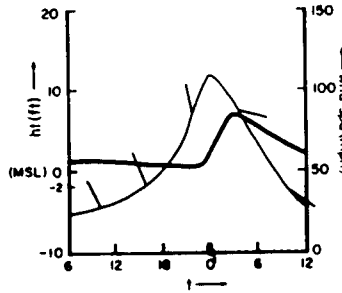
WES-IOMPH-C3-LS060



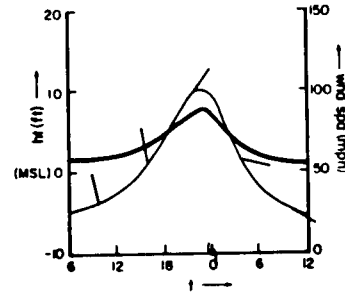
1. PORT MANSFIELD (48, 8)



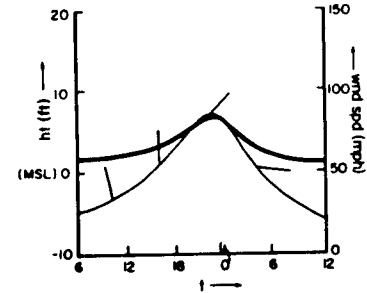
2. BAFFIN BAY (19, 3)



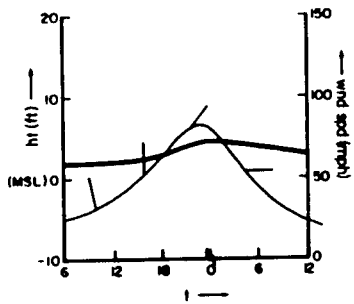
3. PADRI IS. RANGER STA. (24, 35)



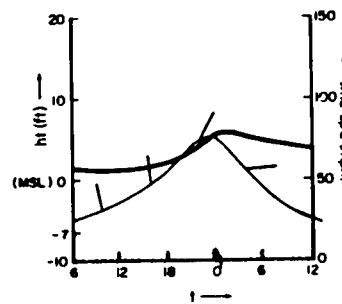
4. MUSTANG PASS (25, 45)



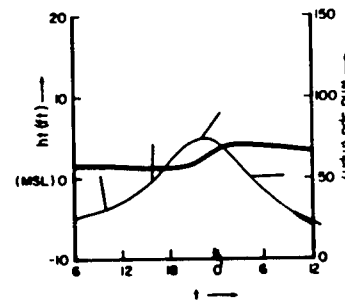
5. NAVAL AIR STA. (20, 46)



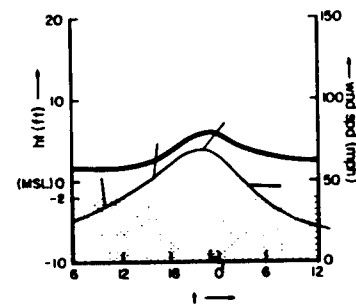
6. CORPUS CHRISTI (12, 53)



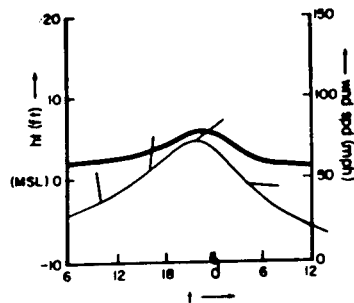
7. INGLESIDE (21, 55)



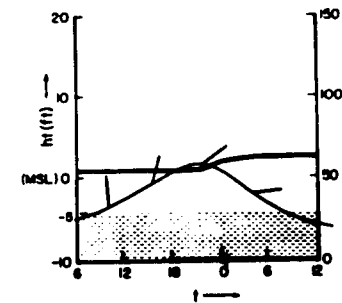
8. ARANSAS PASS (28, 57)



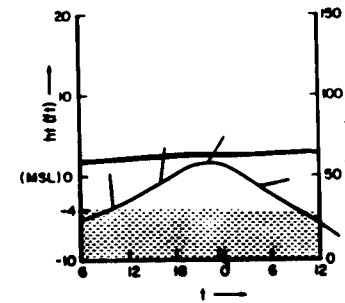
9. PORT ARANSAS (31, 53)



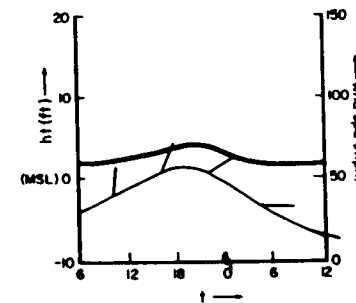
10. COPANO BRIDGE (35, 63)



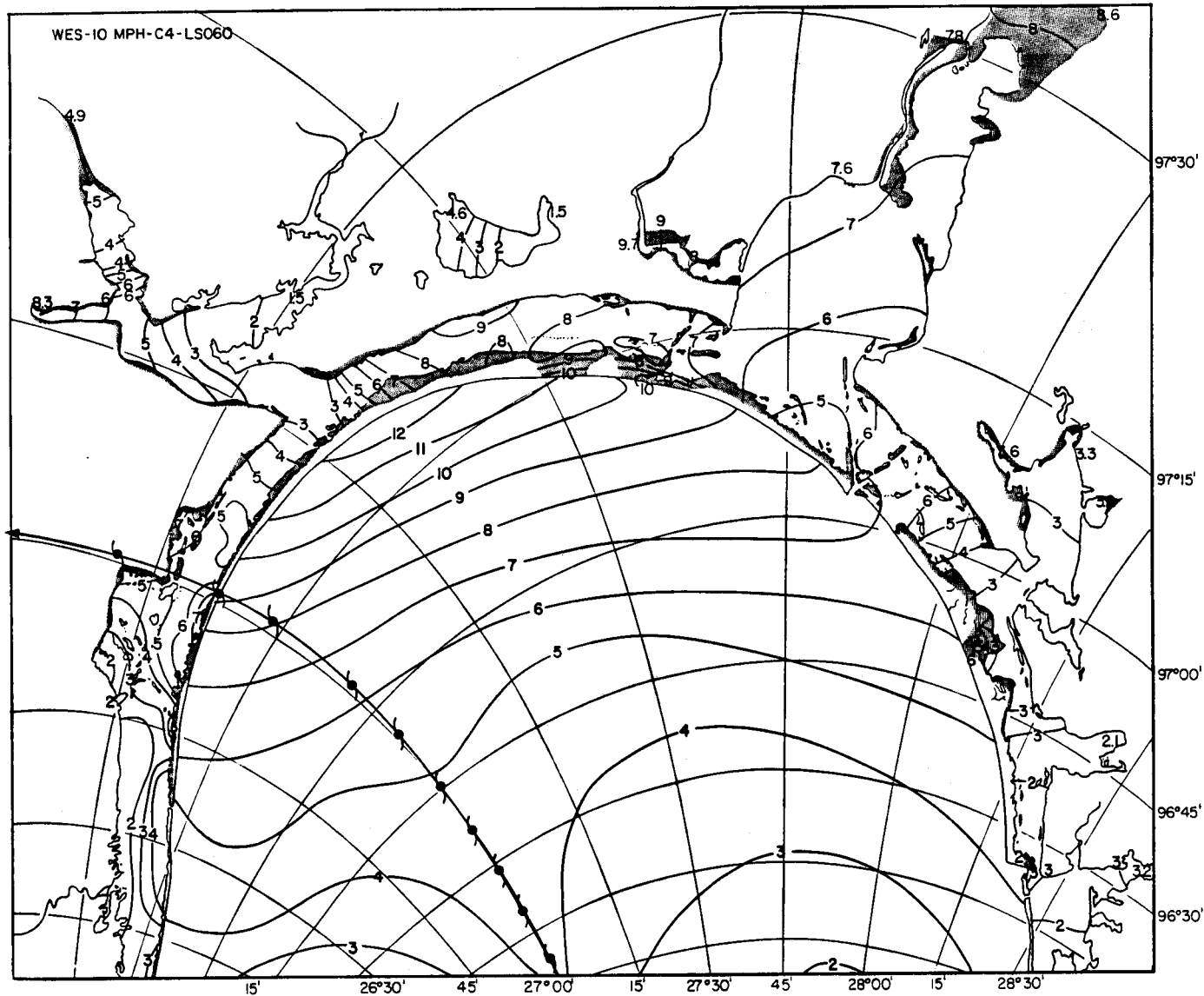
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)



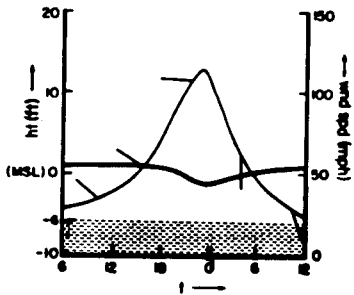
WES-10 MPH-C4-LS060



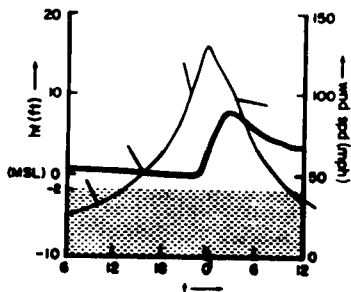
R-187



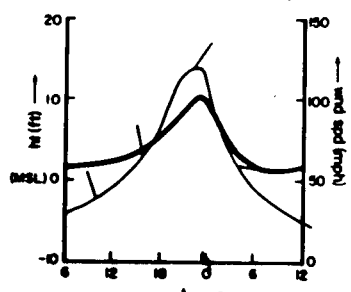
1. PORT MANSFIELD (48, 8)



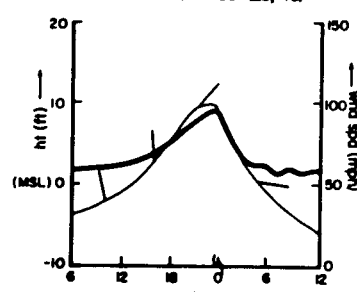
2. BAFFIN BAY (19, 3)



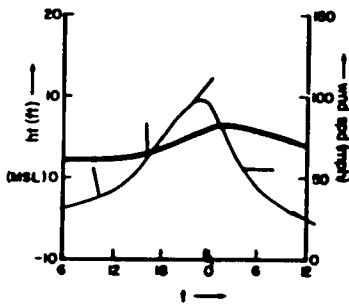
3. PADRI IS. RANGER STA. (24, 35)



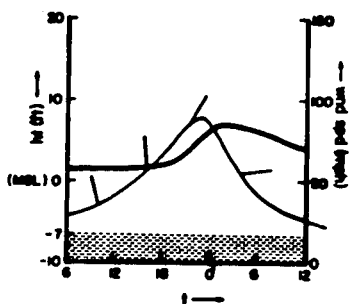
4. MUSTANG PASS (25, 45)



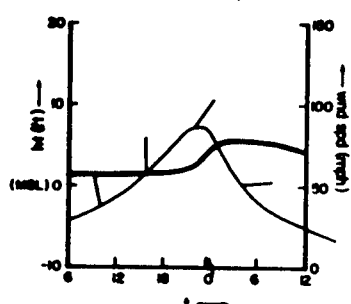
5. NAMAL AIR STA. (20, 46)



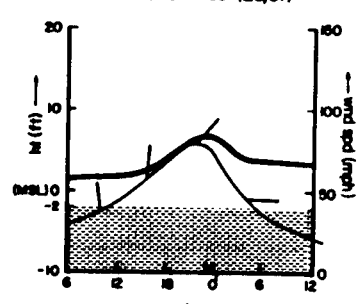
6. CORPUS CHRISTI (62, 53)



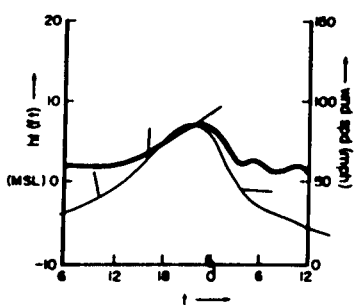
7. INGLESIDE (21, 55)



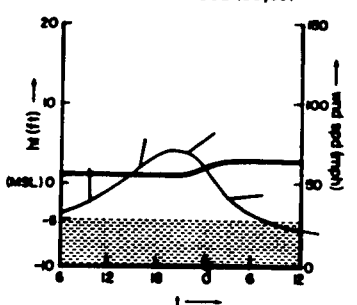
8. ARANSAS PASS (28, 57)



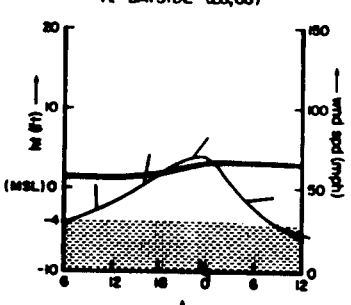
9. PORT ARANSAS (31, 53)



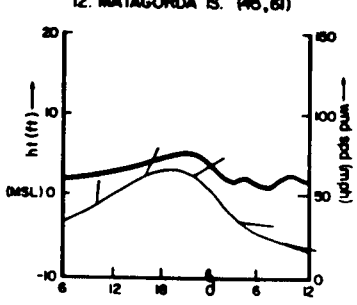
10. COPANO BRIDGE (35, 63)

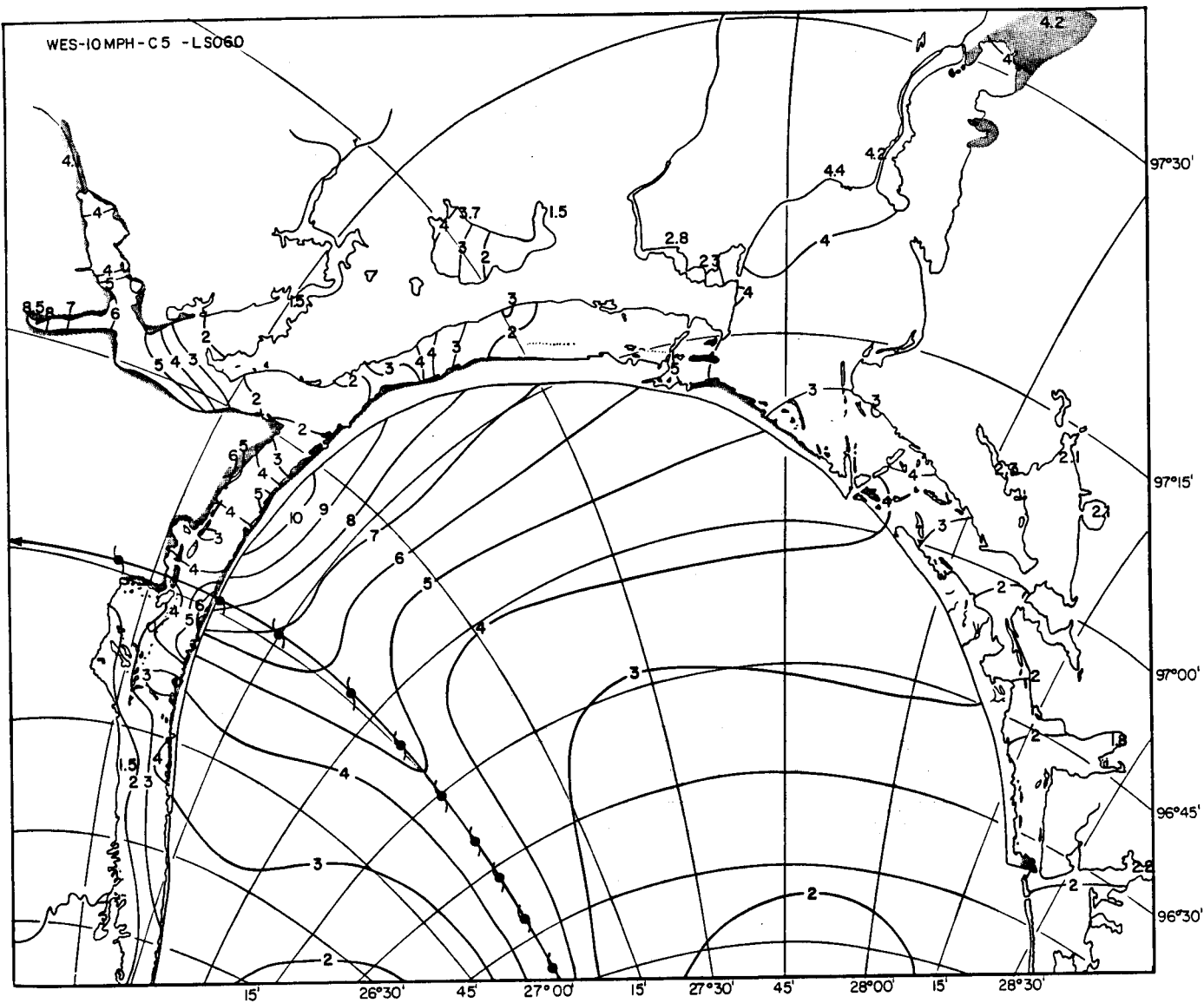


11. BAYSIDE (28, 66)

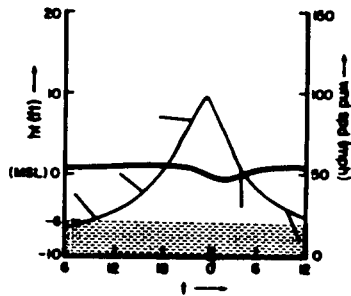


12. MATAGORDA IS. (46, 61)

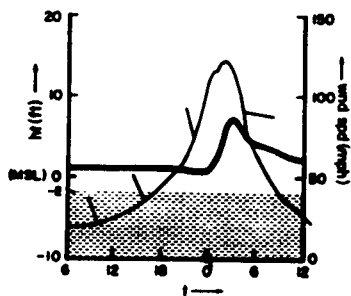




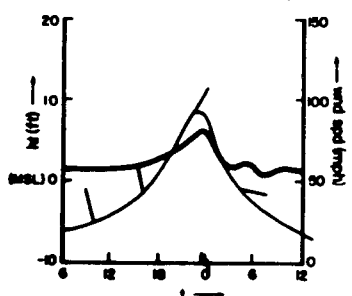
1. PORT MANSFIELD (48, 8)



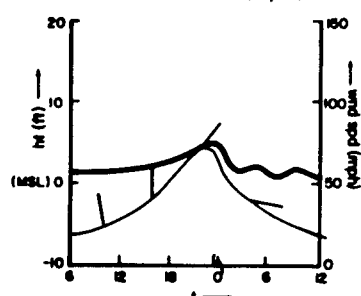
2. BAFFIN BAY (19, 3)



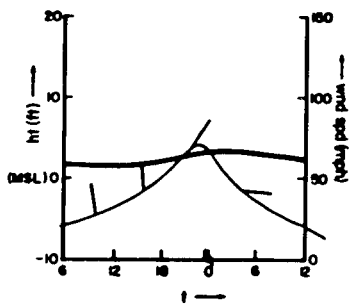
3. PADRI IS. RANGER STA. (24, 35)



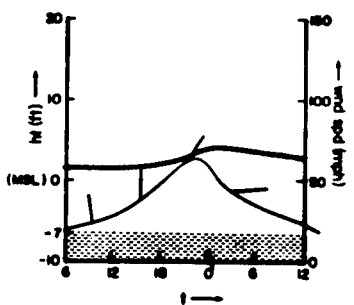
4. MUSTANG PASS (25, 45)



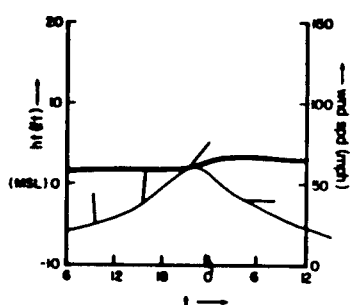
5. NAMAL AIR STA. (20, 46)



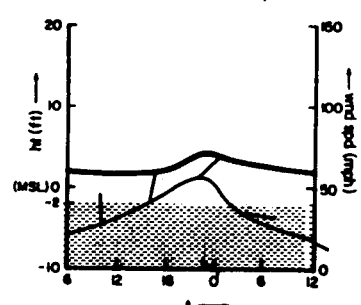
6. CORPUS CHRISTI (82, 53)



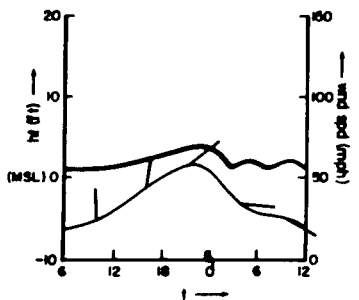
7. INGLESIDE (21, 55)



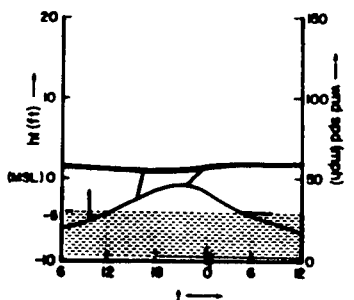
8. ARANSAS PASS (28, 57)



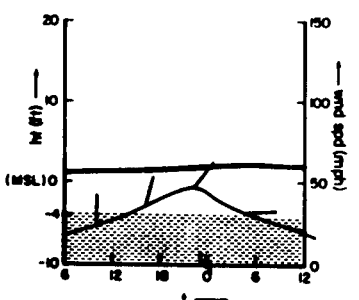
9. PORT ARANSAS (31, 53)



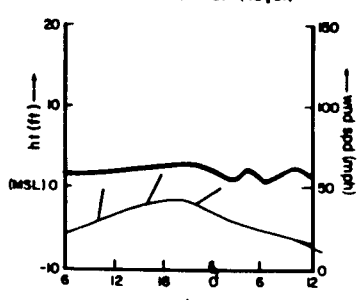
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)

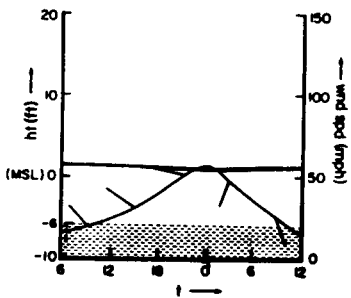


12. MATAGORDA IS. (45, 61)

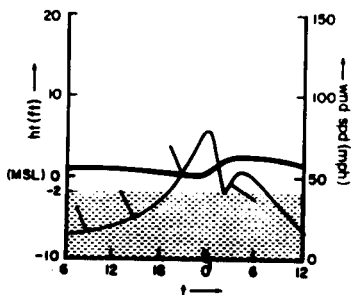




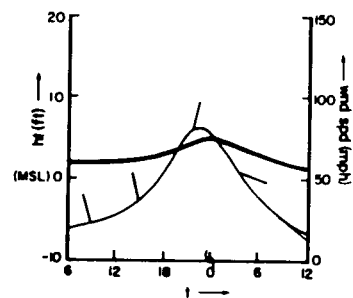
1. PORT MANSFIELD (48, 8)



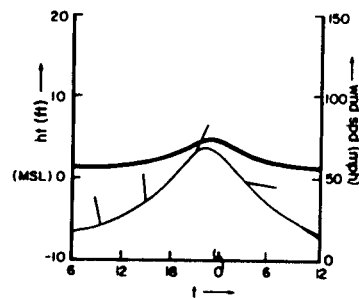
2. BAFFIN BAY (19, 3)



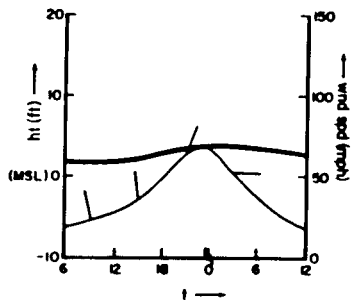
3. PADRI IS. RANGER STA. (24, 35)



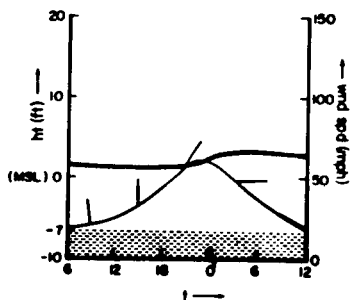
4. MUSTANG PASS (25, 45)



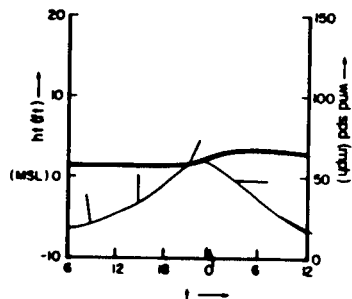
5. NAVAL AIR STA. (20, 46)



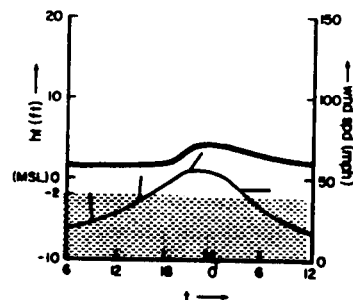
6. CORPUS CHRISTI (12, 53)



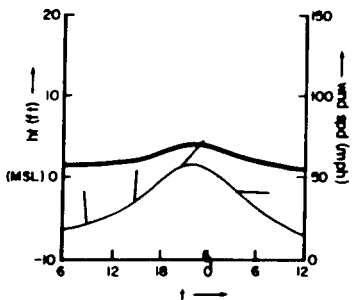
7. INGLESIDE (21, 55)



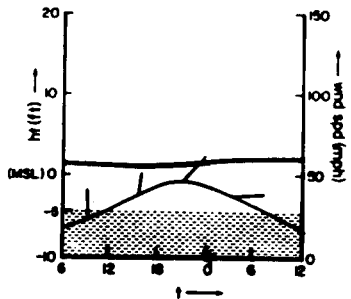
8. ARANSAS PASS (28, 57)



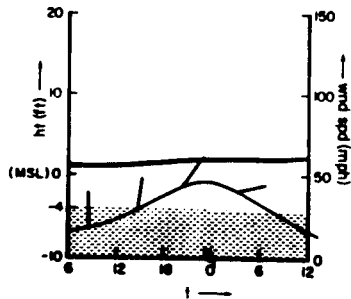
9. PORT ARANSAS (31, 53)



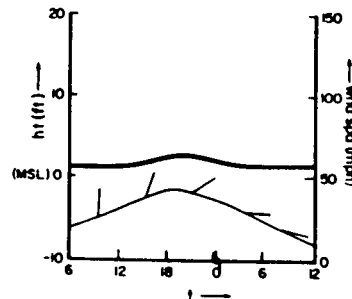
10. COPANO BRIDGE (35, 63)

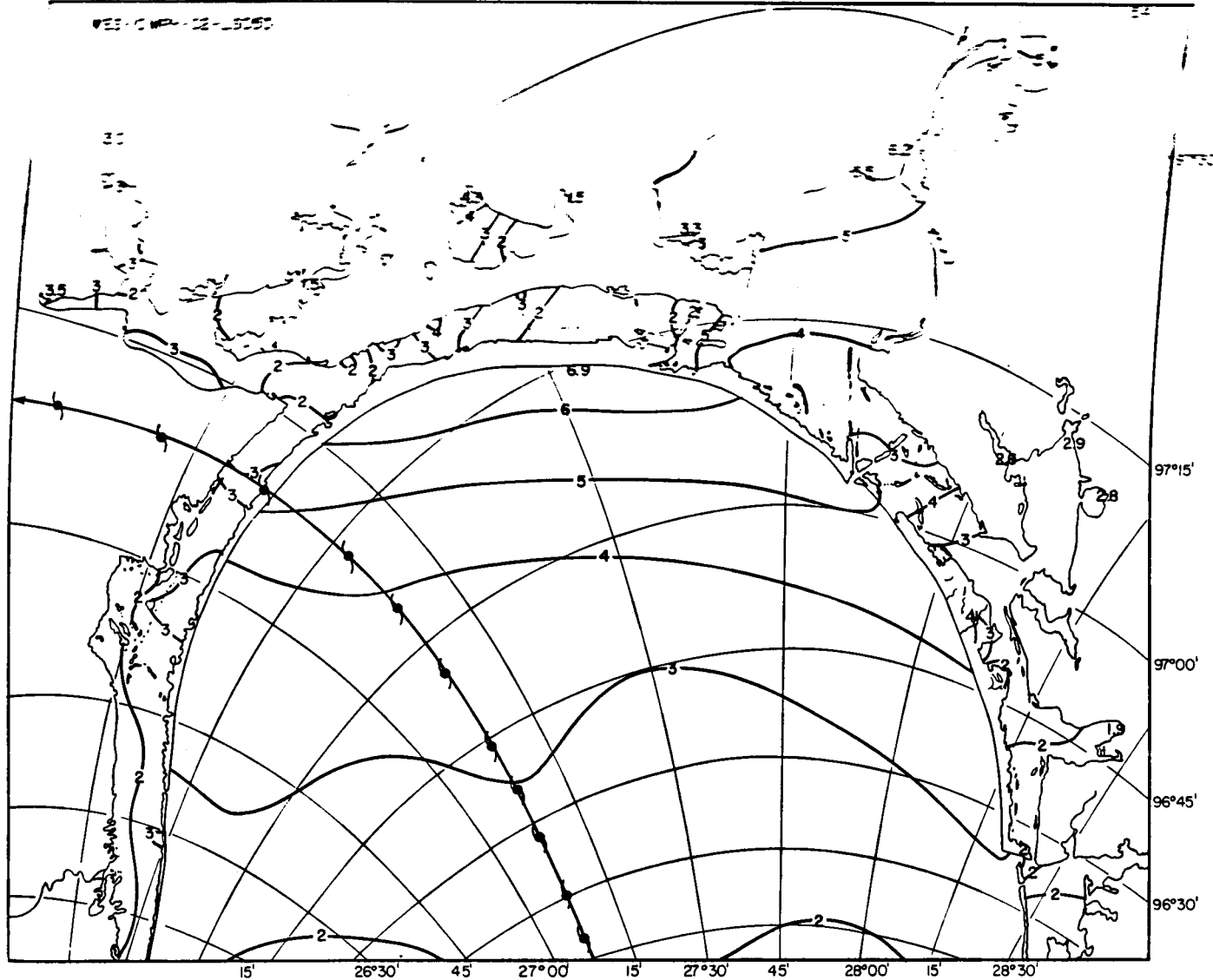


11. BAYSIDE (28, 66)

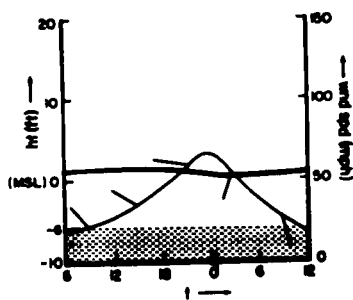


12. MATAGORDA IS. (45, 61)

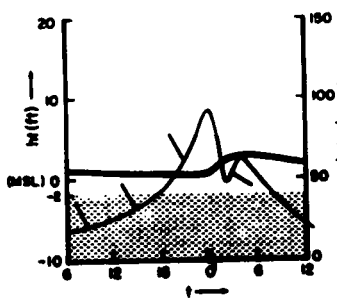




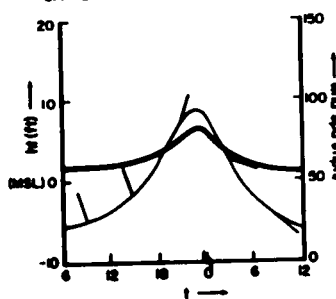
1. PORT MANSFIELD (46, 8)



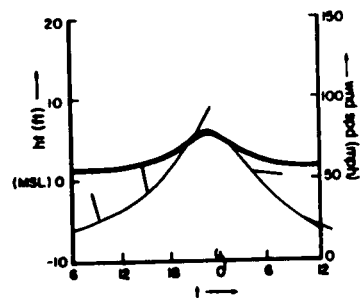
2. BAFFIN BAY (19, 3)



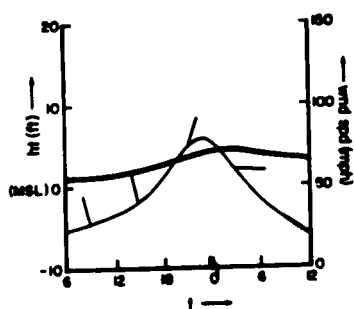
3. PADRI IS. RANGER STA. (24, 35)



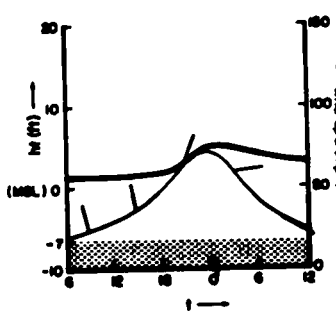
4. MUSTANG PASS (25, 45)



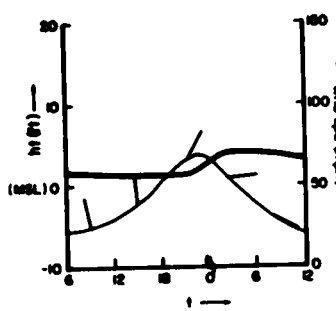
5. NAWAL AIR STA. (20, 46)



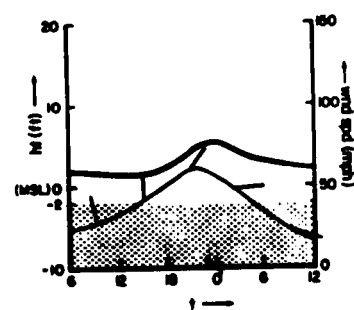
6. CORPUS CHRISTI (32, 53)



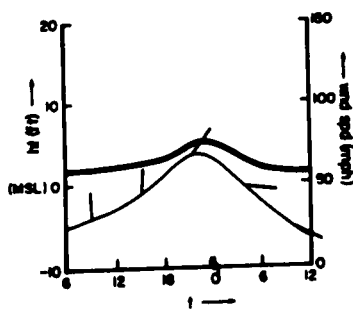
7. INGLESIDE (21, 55)



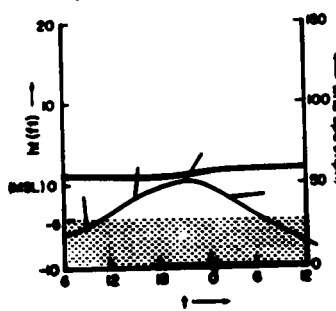
8. ARANSAS PASS (28, 57)



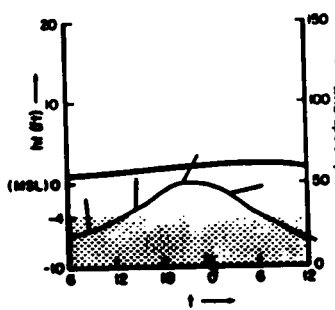
9. PORT ARANSAS (31, 53)



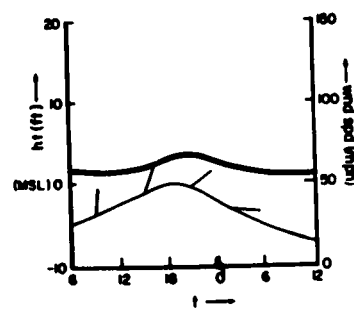
10. CORPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)



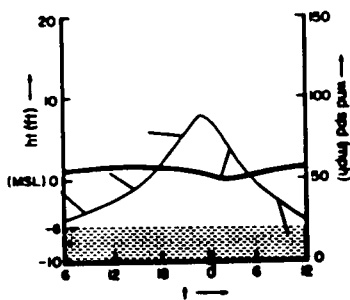
12. MATAGORDA IS. (45, 61)



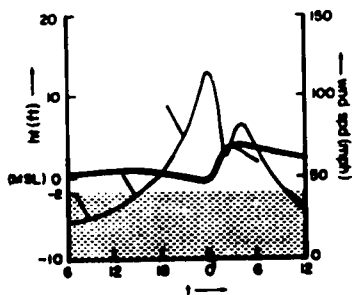




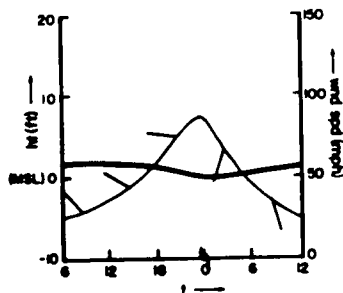
1. PORT MANSFIELD (48, 8)



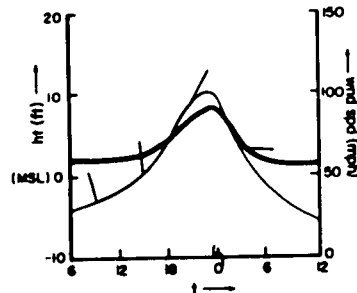
2. BAFFIN BAY (19, 31)



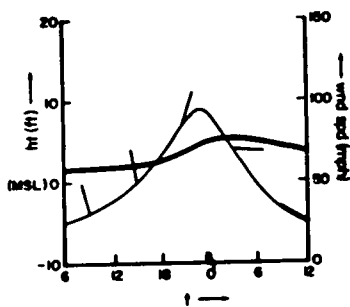
3. PADRI IS. RANGER STA. (24, 35)



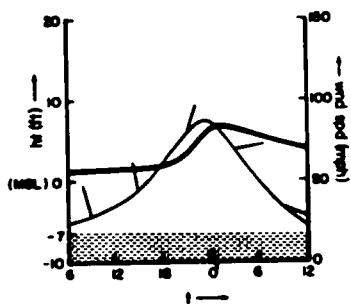
4. MUSTANG PASS (25, 45)



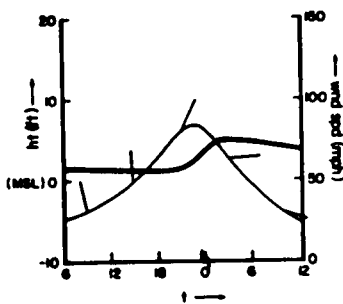
5. NAWAL AIR STA. (20, 46)



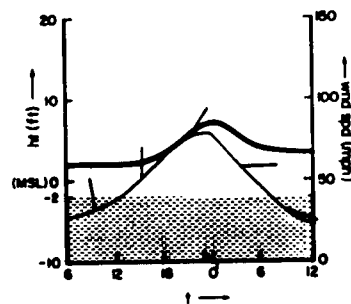
6. CORPUS CHRISTI (22, 53)



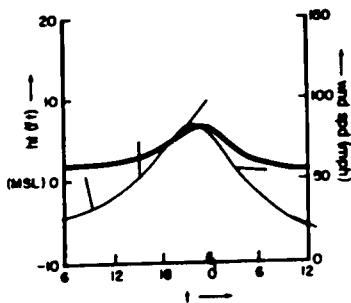
7. INGLESIDE (21, 55)



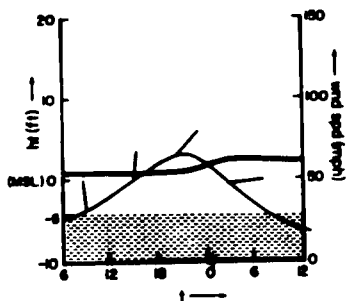
8. ARANSAS PASS (28, 57)



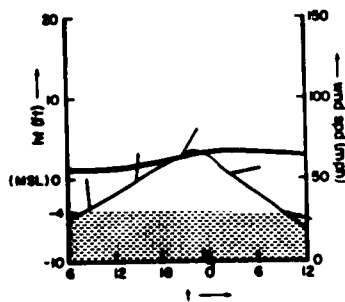
9. PORT ARANSAS (31, 53)



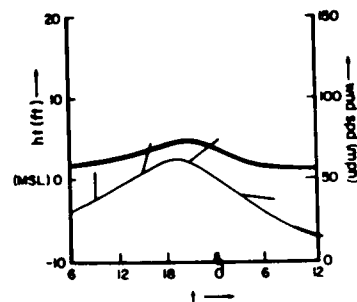
10. COPRANO BRIDGE (35, 63)



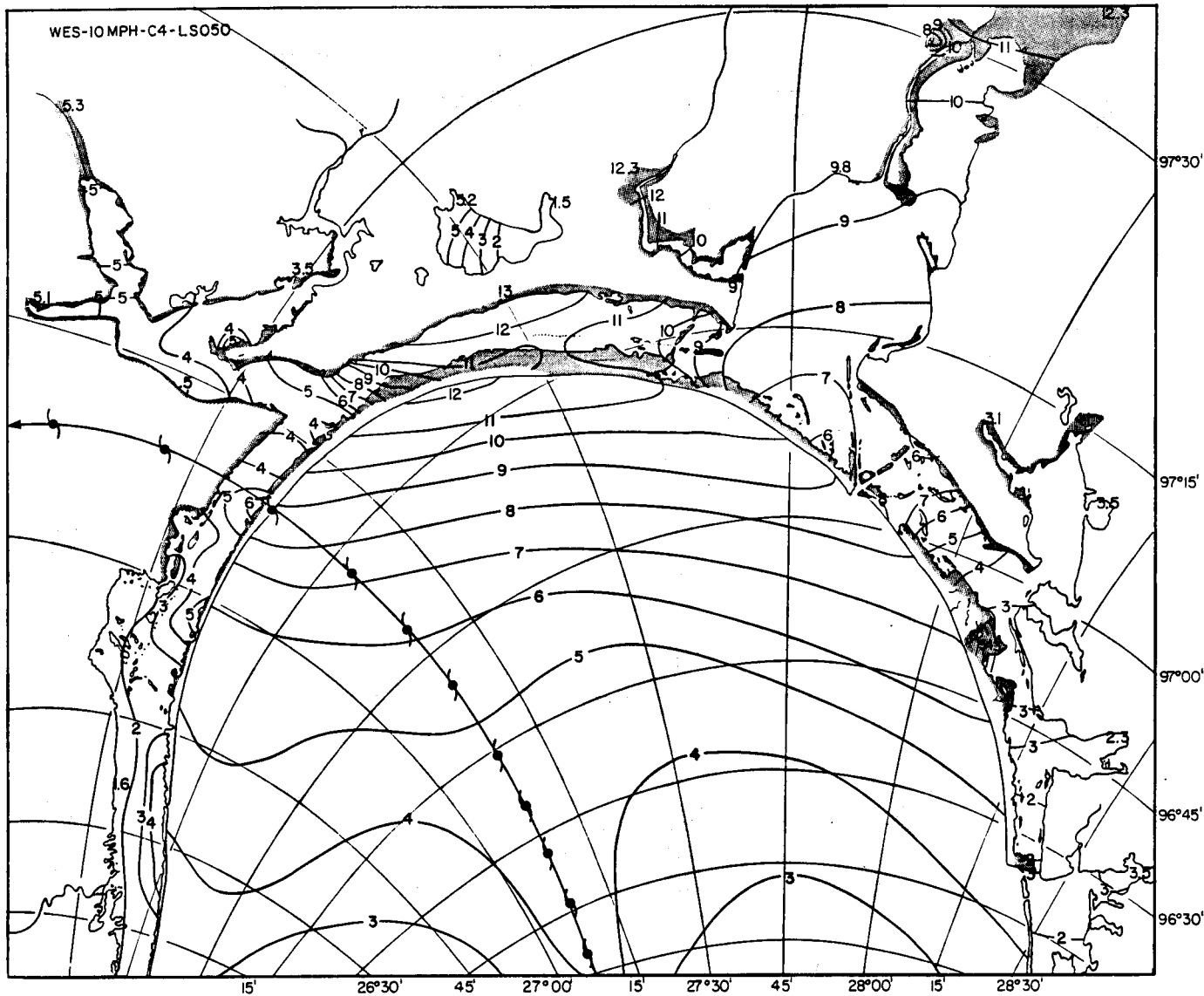
11. BAYSIDE (28, 66)



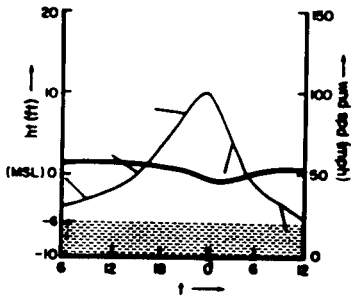
12. MATAGORDA IS. (45, 61)



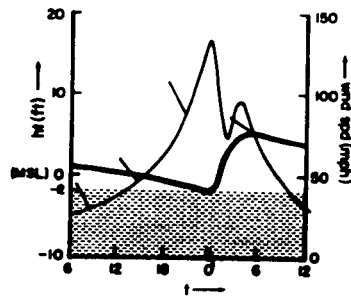
WES-10 MPH-C4-L.S050



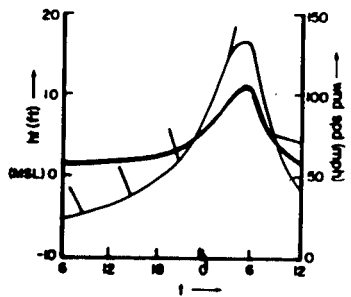
1. PORT MANSFIELD (48, 8)



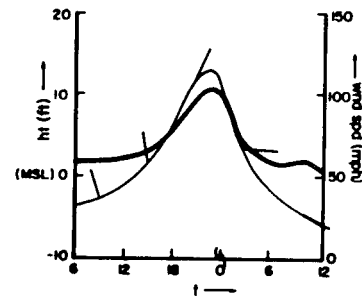
2. BAFFIN BAY (19, 3)



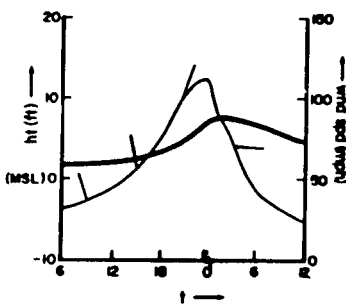
3. PADRI IS. RANGER STA. (24, 35)



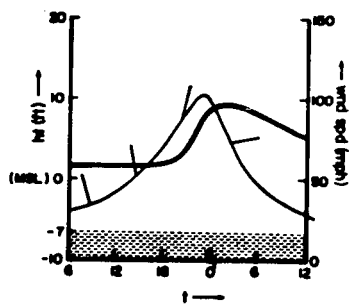
4. MUSTANG PASS (25, 45)



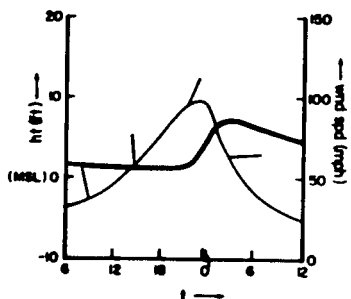
5. NAWAL AIR STA. (20, 46)



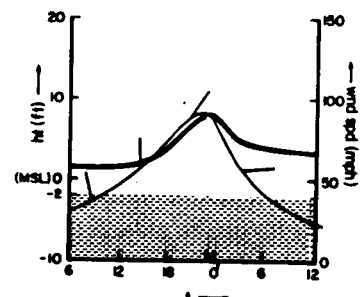
6. CORPUS CHRISTI (22, 53)



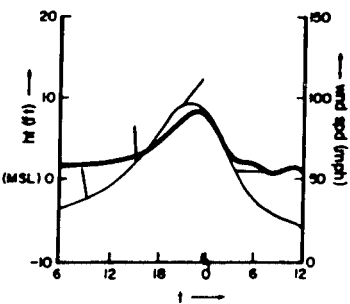
7. INGLESIDE (21, 55)



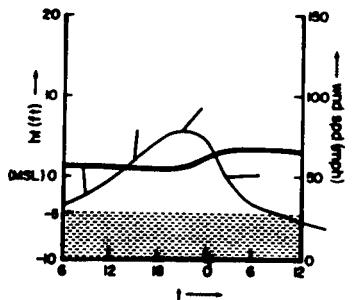
8. ARANSAS PASS (28, 57)



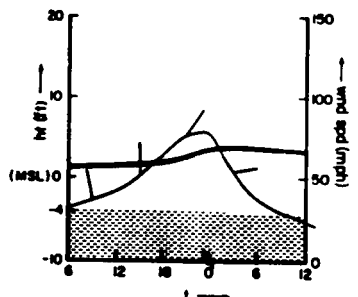
9. PORT ARANSAS (31, 53)



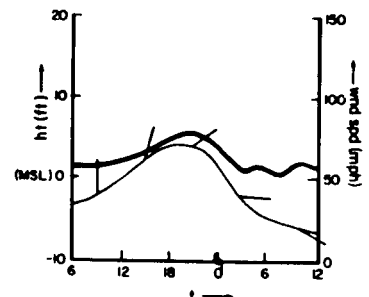
10. COPANO BRIDGE (35, 63)



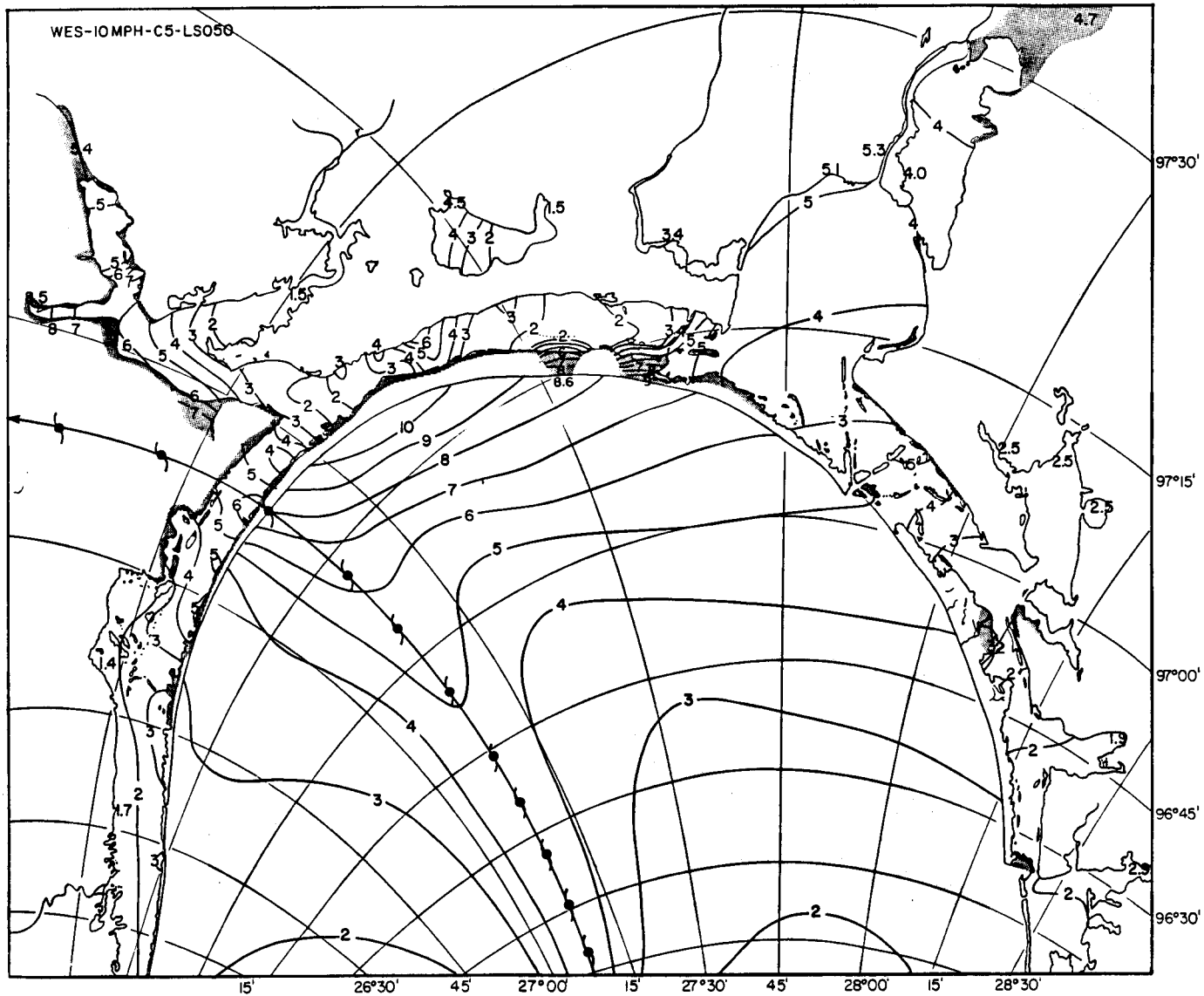
11. BAYSIDE (28, 66)



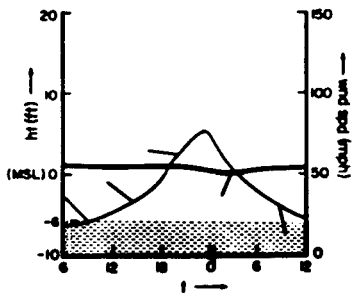
12. MATAGORDA IS. (45, 61)



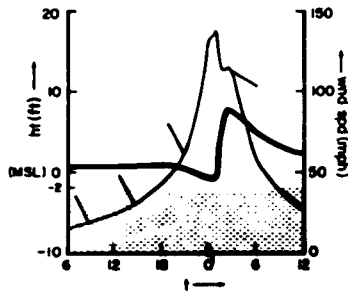
WES-10MPH-C5-LS058



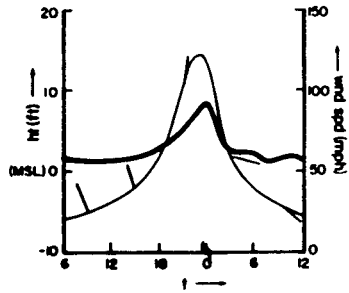
1. PORT MANSFIELD (48, 8)



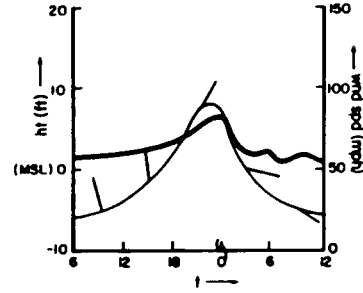
2. BAFFIN BAY (19, 3)



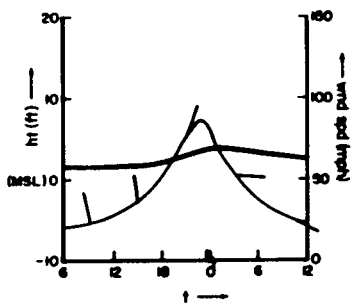
3. PADRI IS. RANGER STA. (24, 35)



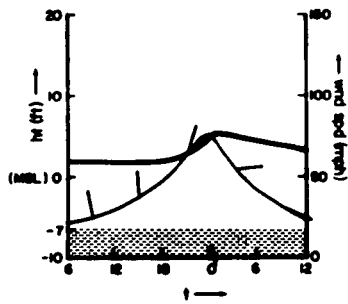
4. MUSTANG PASS (25, 45)



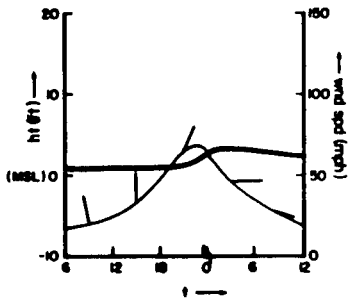
5. NAWAL AIR STA. (20, 46)



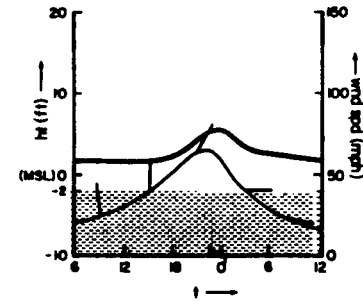
6. CORPUS CHRISTI (12, 53)



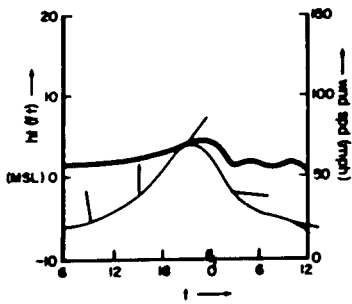
7. INGLESIDE (21, 55)



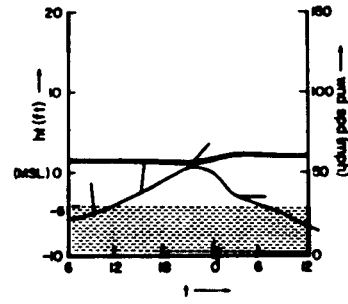
8. ARANSAS PASS (28, 57)



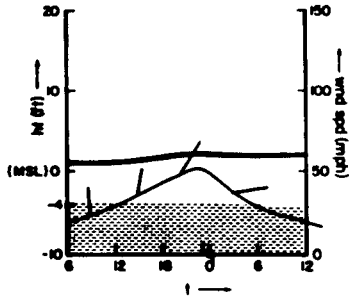
9. PORT ARANSAS (31, 53)



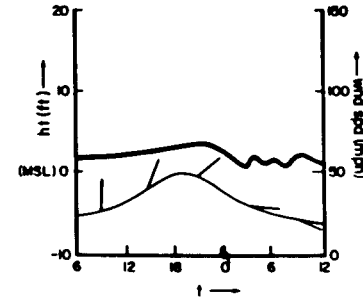
10. COPANO BRIDGE (35, 63)



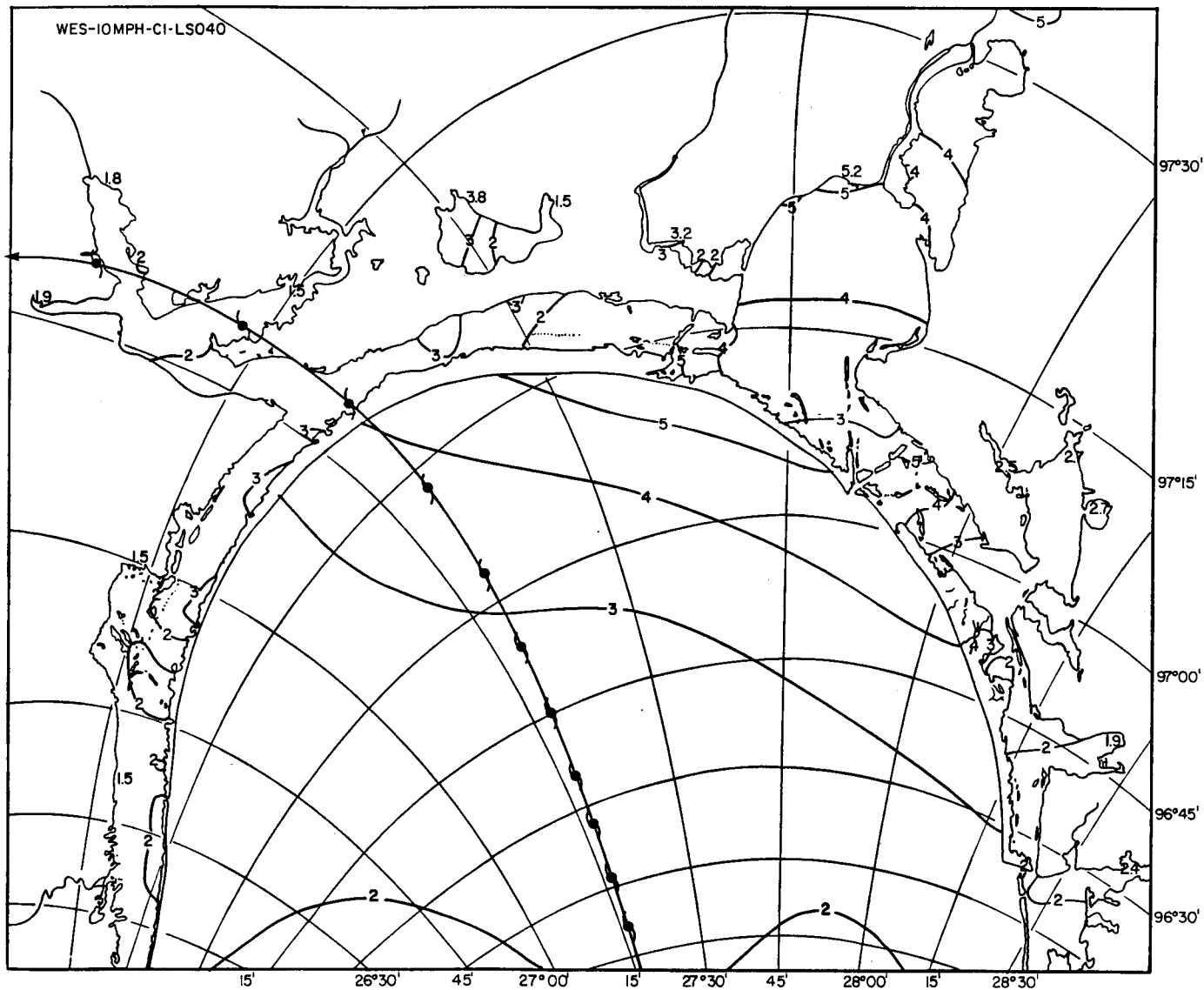
11. BAYSIDE (28, 66)



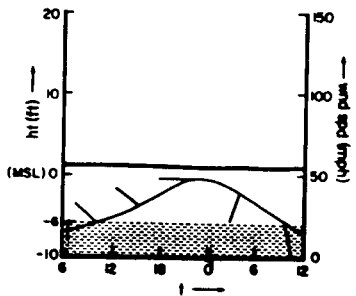
12. MATAGORDA IS. (45, 61)



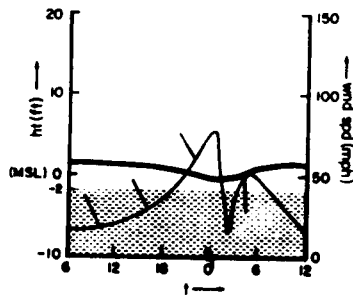
WES-10MPH-CI-LS040



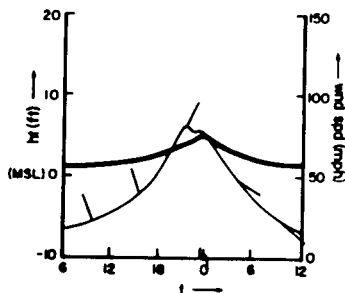
1. PORT MANSFIELD (48, 8)



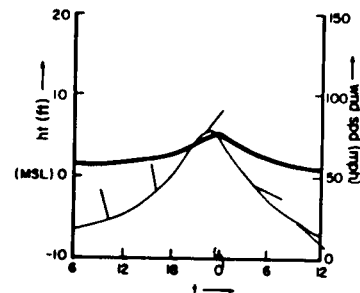
2. BAFFIN BAY (19, 3)



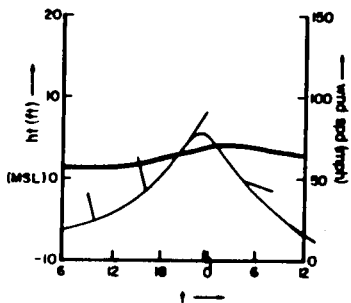
3. PADRI IS. RANGER STA. (24, 35)



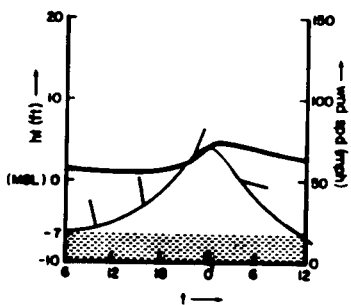
4. MUSTANG PASS (25, 45)



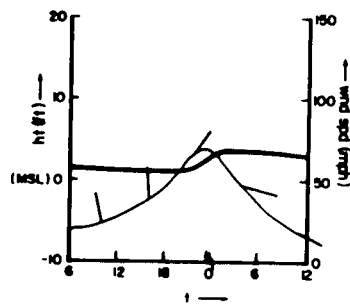
5. NAVAL AIR STA. (20, 46)



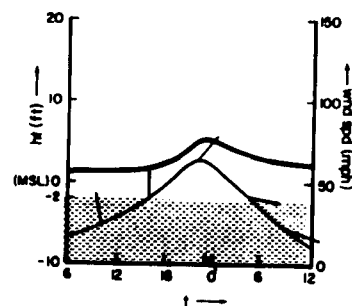
6. CORPUS CHRISTI (12, 53)



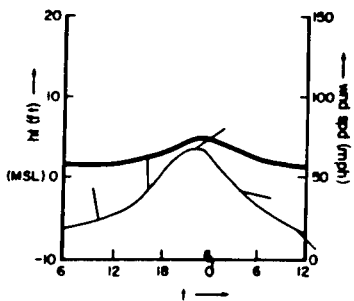
7. INGLESIDE (21, 55)



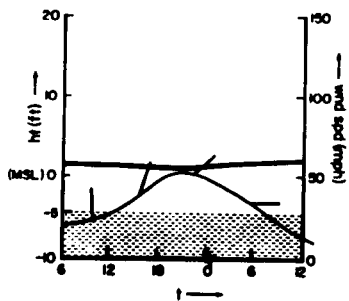
8. ARANSAS PASS (28, 57)



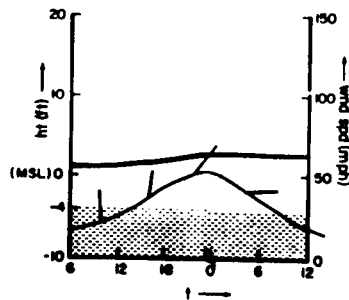
9. PORT ARANSAS (31, 53)



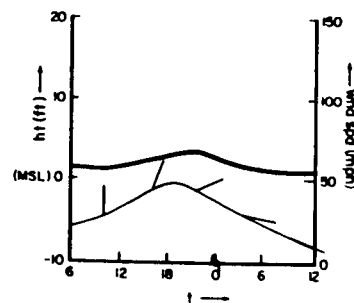
10. COPANO BRIDGE (35, 63)

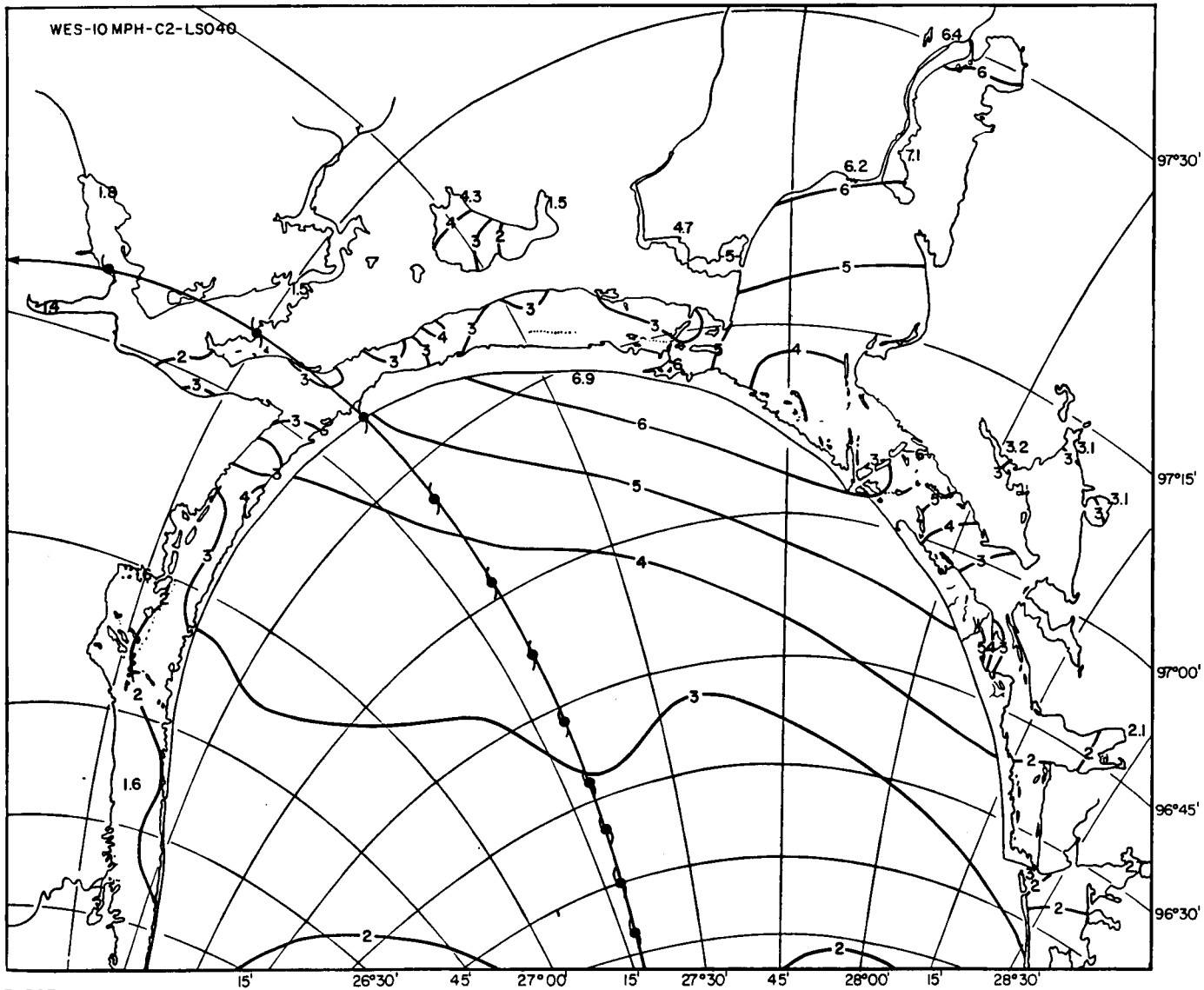


11. BAYSIDE (28, 66)



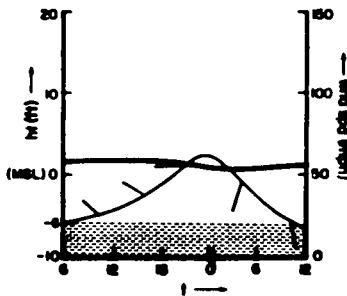
12. MATAGORDA IS. (45, 61)



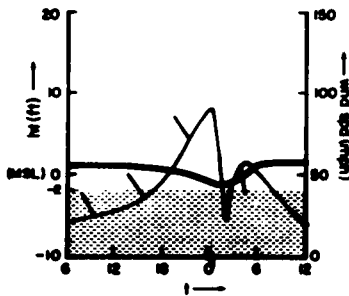




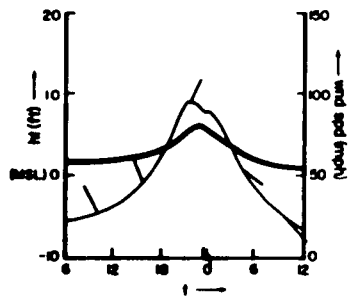
1. PORT MANSFIELD (48, 8)



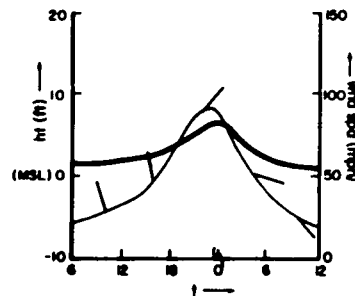
2. BAFFIN BAY (19, 3)



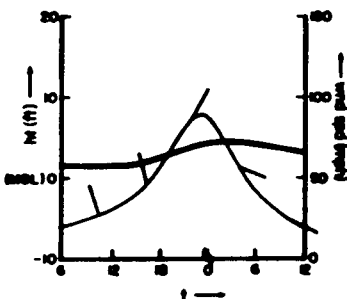
3. PADRI IS. RANGER STA. (24, 35)



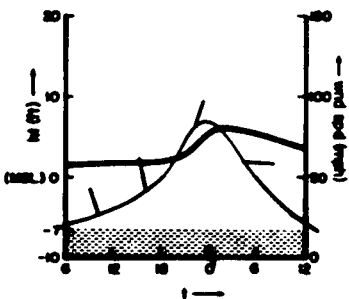
4. MUSTANG PASS (25, 45)



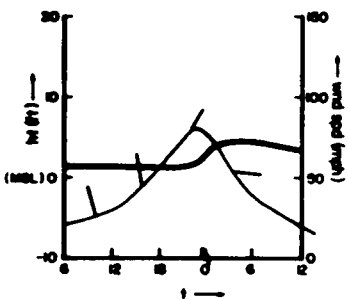
5. NARVAL AIR STA. (20, 46)



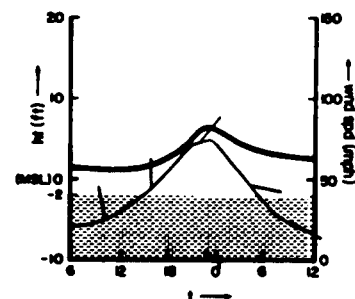
6. CORPUS CHRISTI (52, 53)



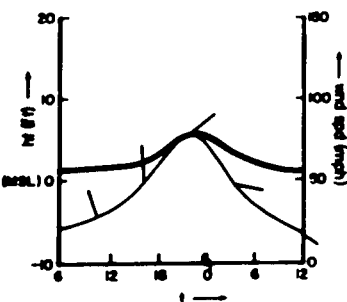
7. INGLESIDE (21, 56)



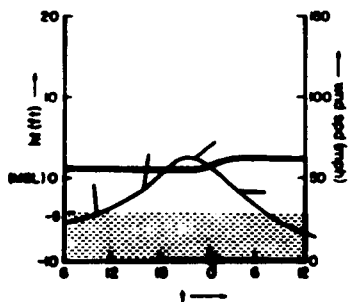
8. ARANSAS PASS (28, 57)



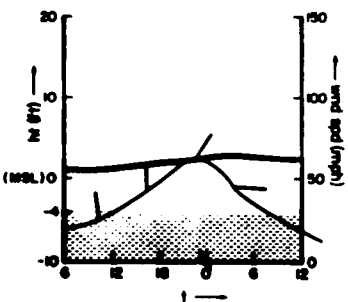
9. PORT ARANSAS (31, 53)



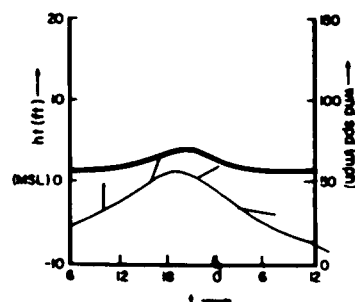
10. COPANO BRIDGE (35, 63)



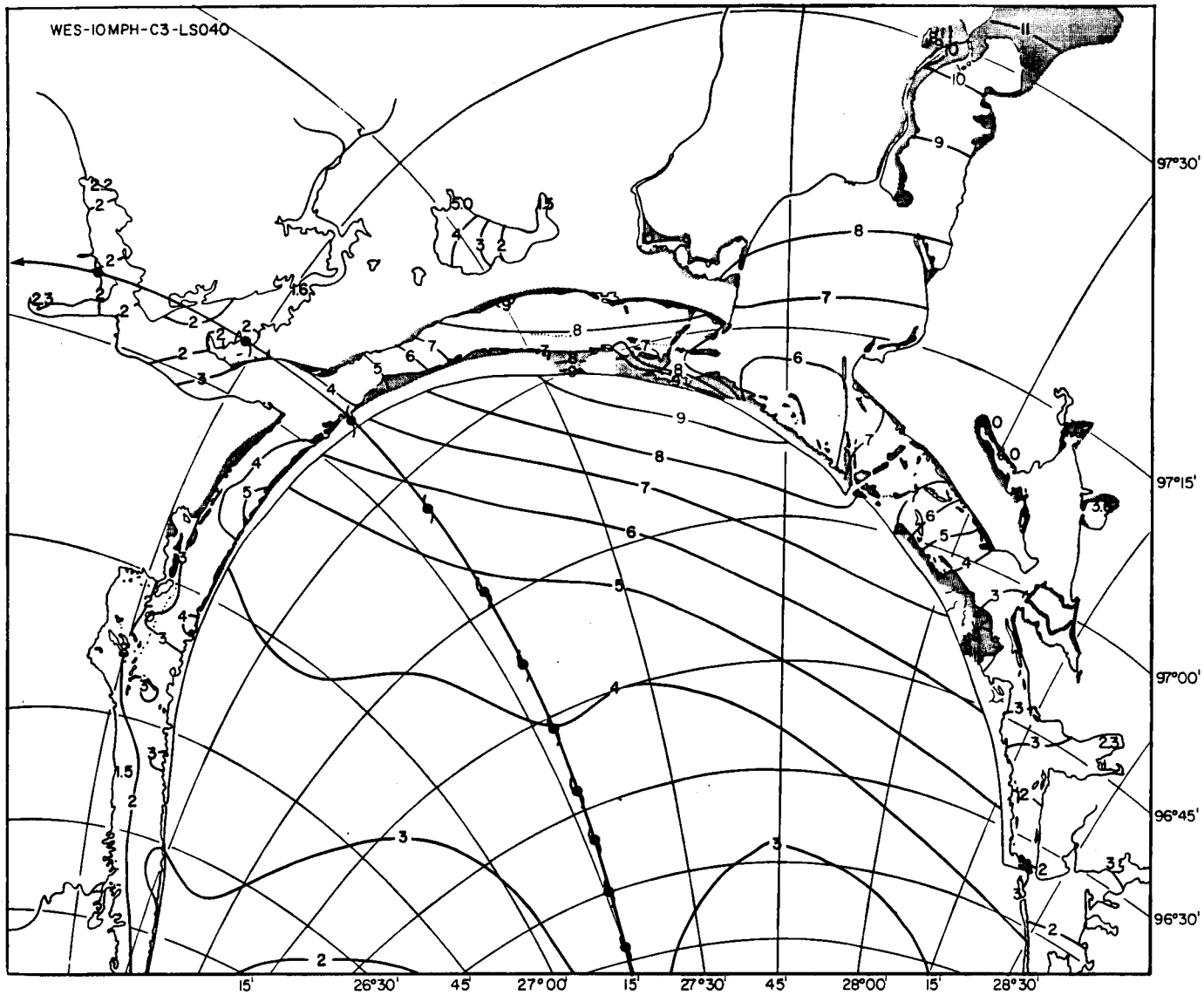
11. BAYSIDE (28, 66)



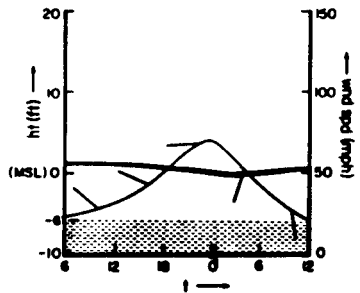
12. MATAGORDA IS. (45, 61)



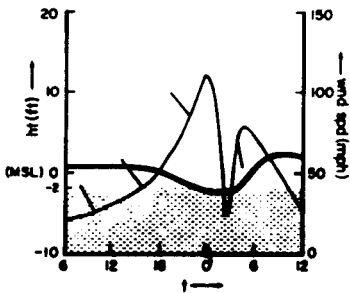
WES-10MPH-C3-LS040



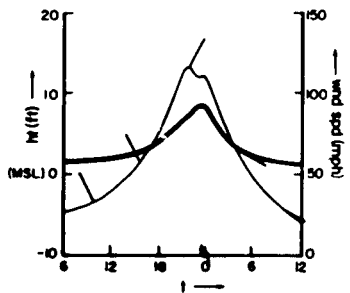
1. PORT MANSFIELD (48, 8)



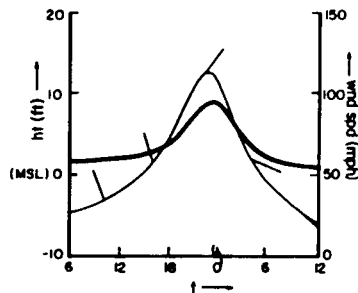
2. BAFFIN BAY (19, 3)



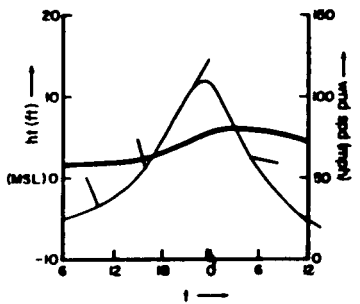
3. PADRI IS. RANGER STA. (24, 35)



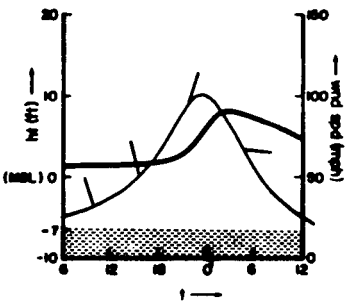
4. MUSTANG PASS (25, 45)



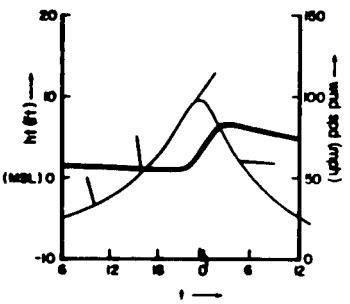
5. NAML AIR STA. (20, 46)



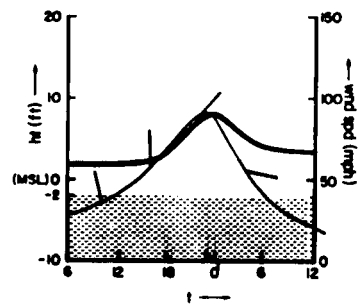
6. CORPUS CHRISTI (22, 53)



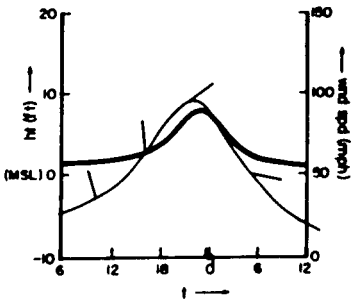
7. INGLSIDE (21, 55)



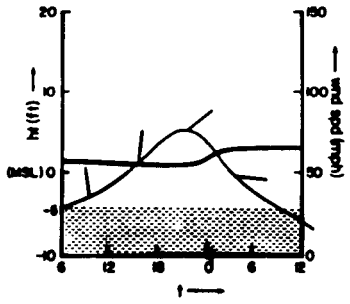
8. ARANSAS PASS (28, 57)



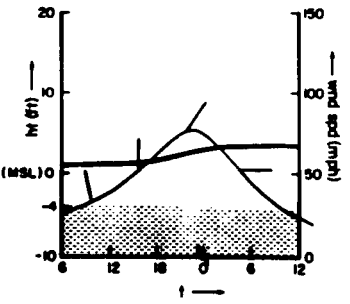
9. PORT ARANSAS (31, 53)



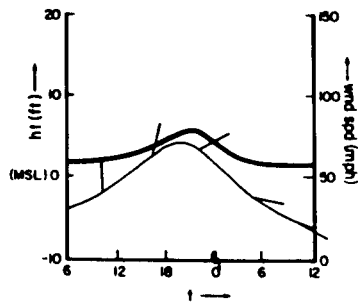
10. COPLAND BRIDGE (35, 63)



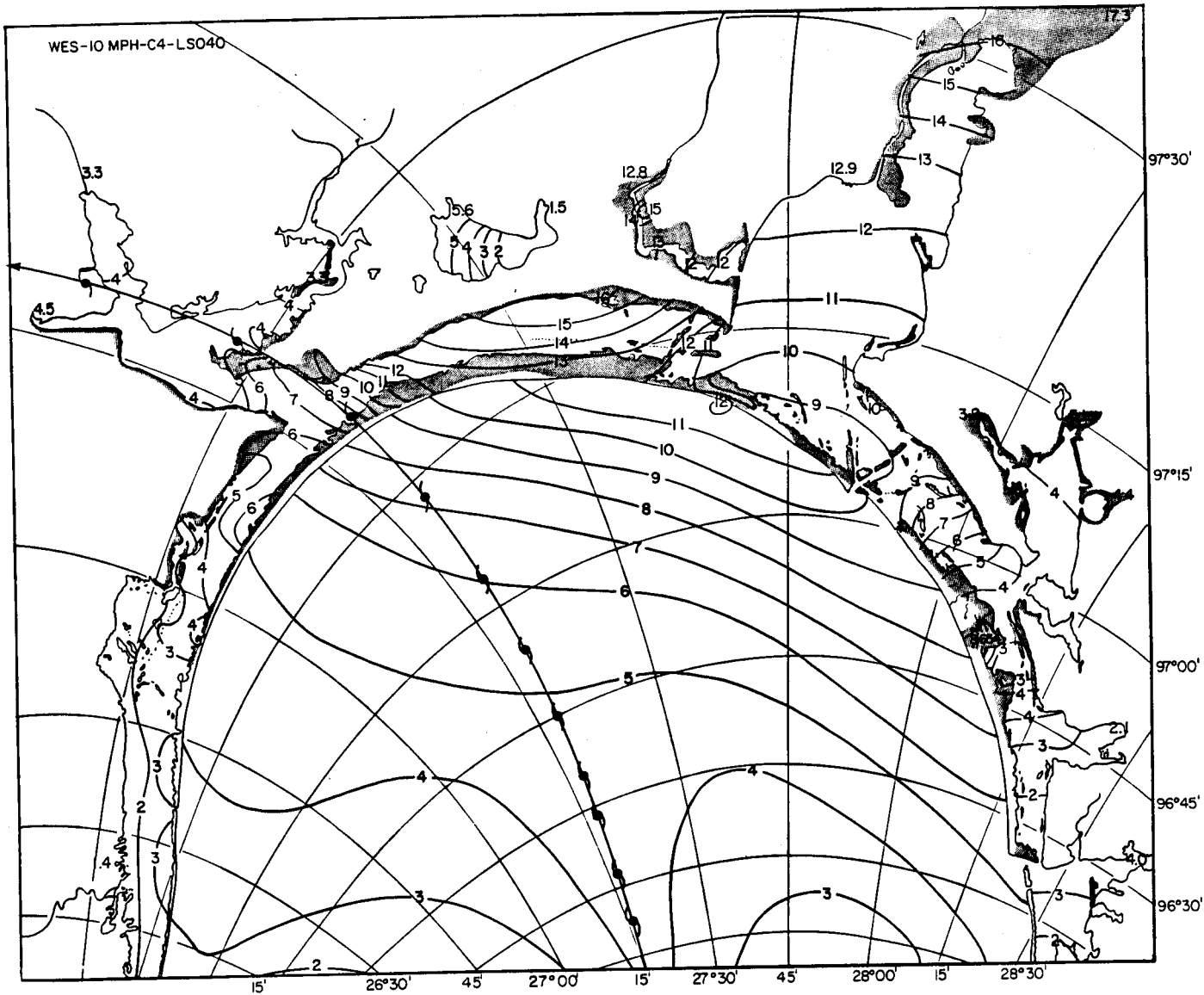
11. BAYSIDE (28, 66)



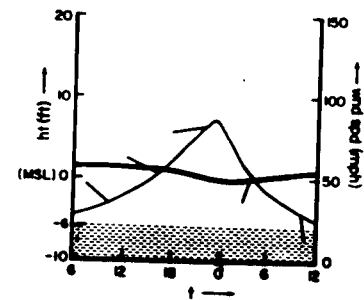
12. MATAGORDA IS. (45, 61)



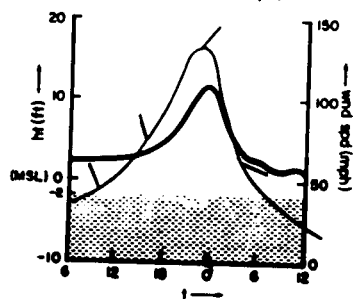
WES-10 MPH-C4-LS040



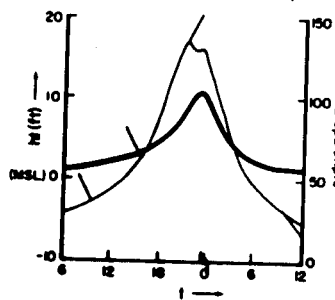
1. PORT MANSFIELD (48, 8)



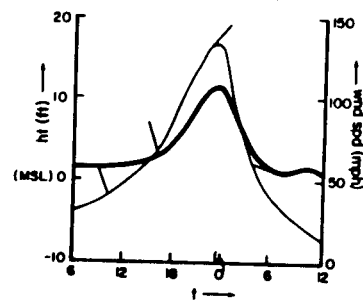
2. BAFFIN BAY (19, 3)



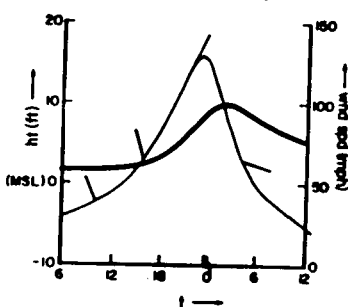
3. PADRI IS. RANGER STA. (24, 35)



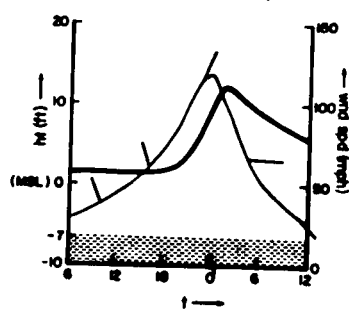
4. MUSTANG PASS (25, 45)



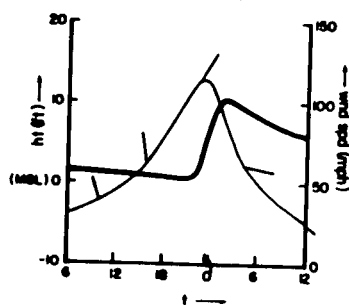
5. NAVAL AIR STA. (20, 46)



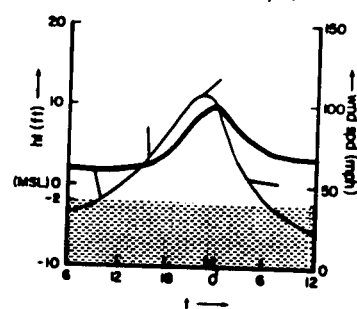
6. CORPUS CHRISTI (12, 53)



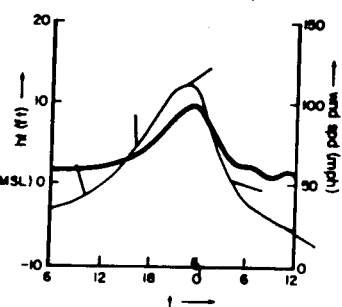
7. INGLESIDE (21, 55)



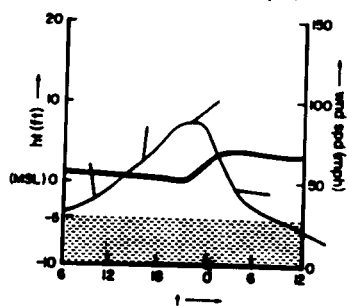
8. ARANSAS PASS (28, 57)



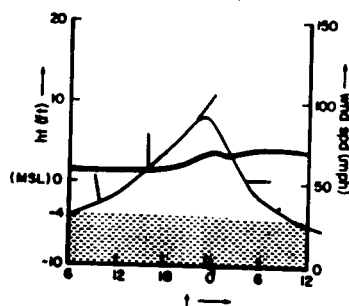
9. PORT ARANSAS (31, 53)



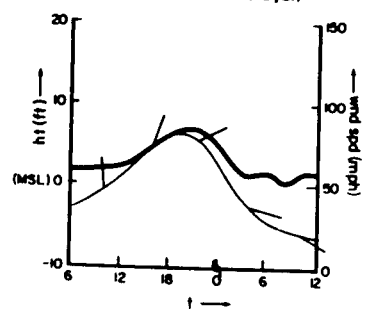
10. COPANO BRIDGE (35, 63)



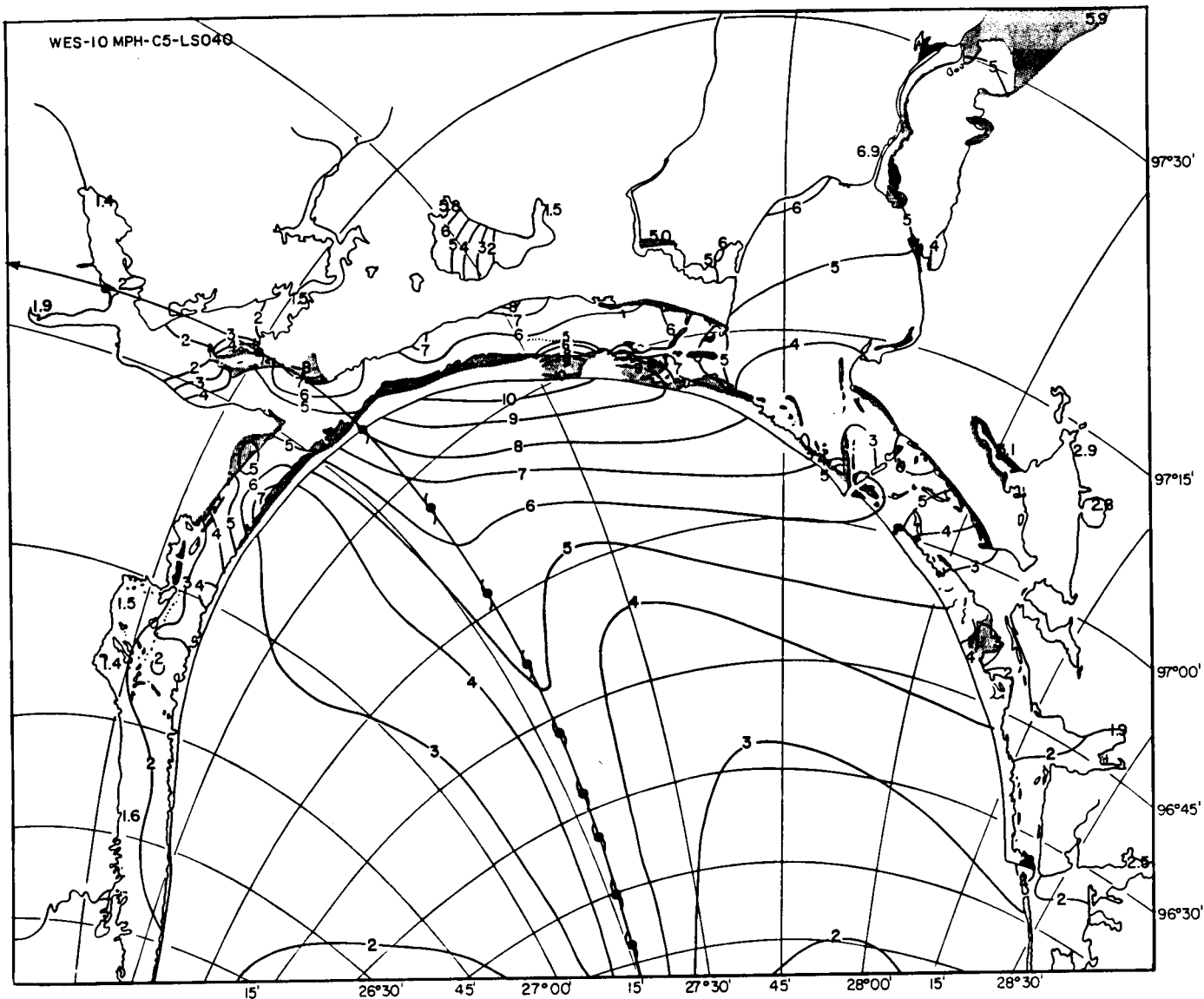
11. BAYSIDE (28, 66)



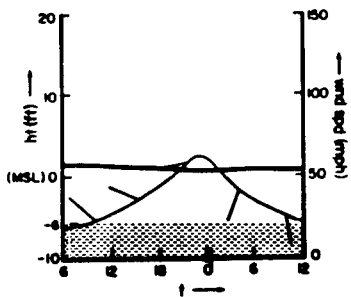
12. MATAGORDA IS. (45, 61)



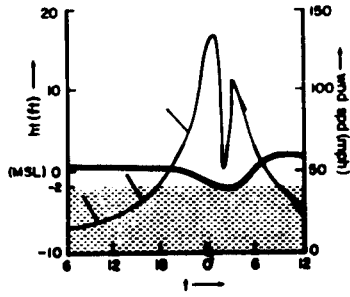
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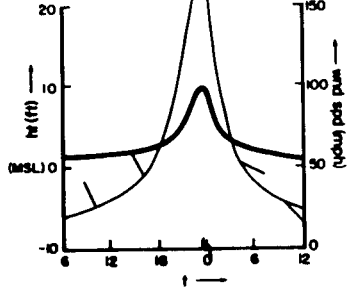
1. PORT MANSFIELD (48, 8)



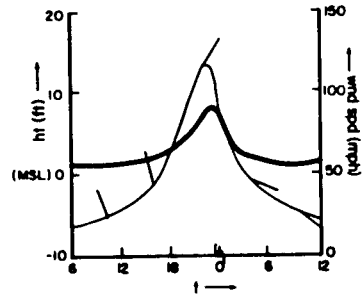
2. BAFFIN BAY (19, 3)



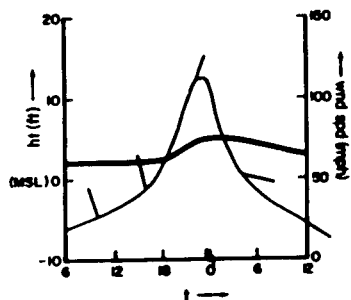
3. PADRI IS. RANGER STA. (24, 35)



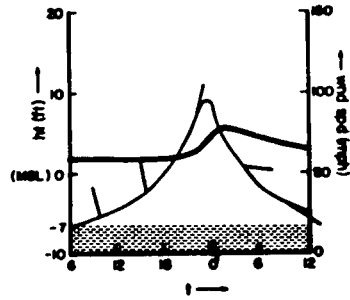
4. MUSTANG PASS (25, 45)



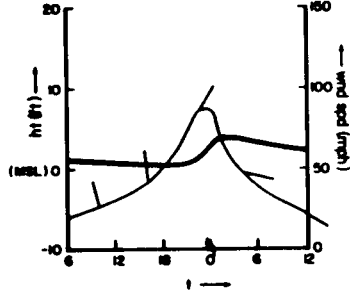
5. NAMAL AIR STA. (20, 46)



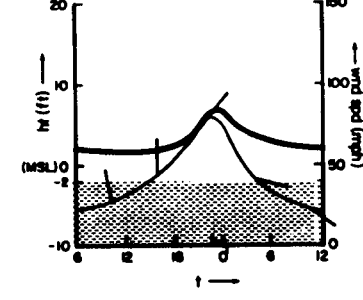
6. CORPUS CHRISTI (12, 53)



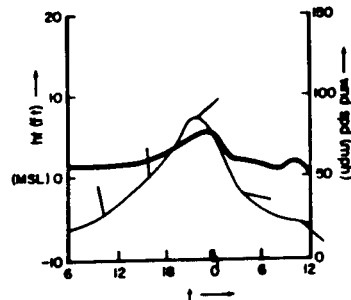
7. INGLESIDE (21, 55)



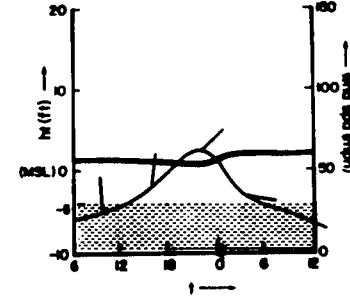
8. ARANSAS PASS (28, 57)



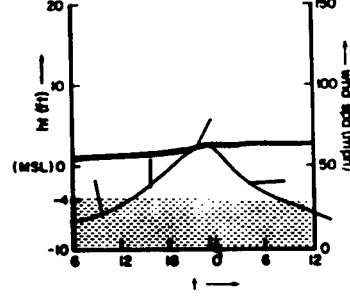
9. PORT ARANSAS (31, 53)



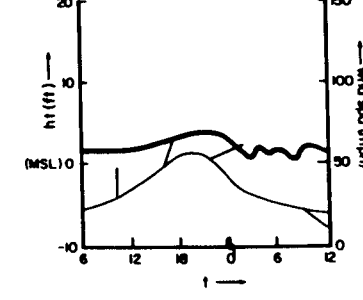
10. CORIANO BRIDGE (35, 63)



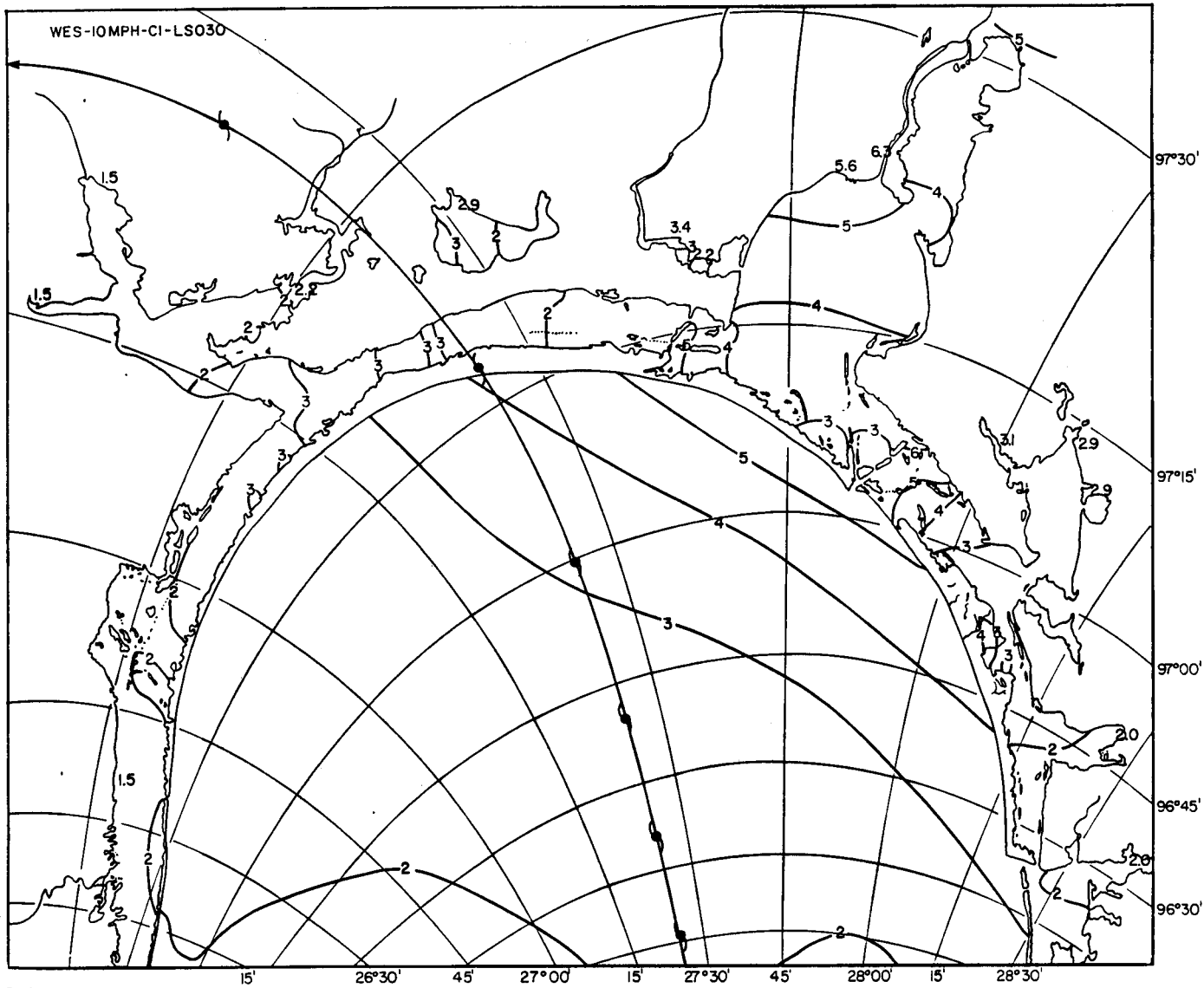
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

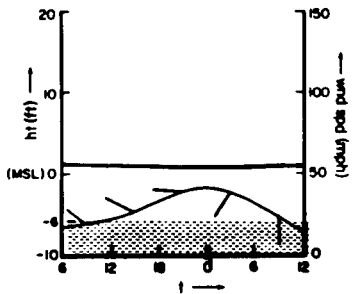


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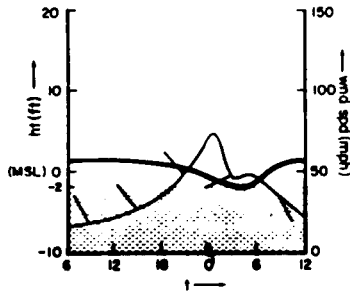




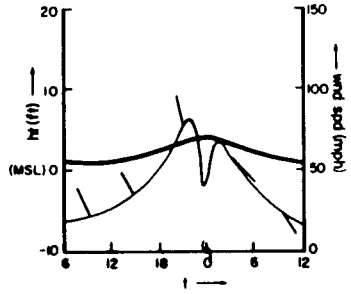
1. PORT MANSFIELD (48, 8)



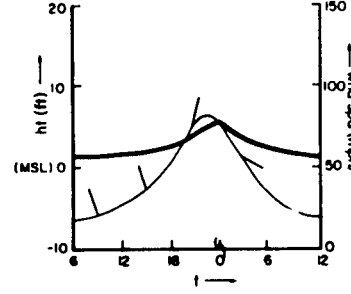
2. BAFFIN BAY (19, 3)



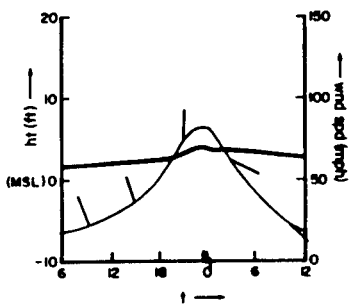
3. PADRI IS. RANGER STA. (24, 35)



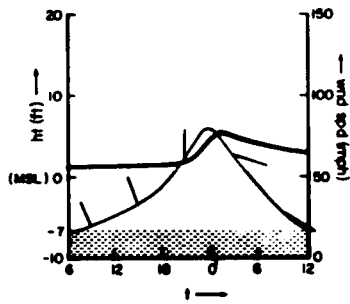
4. MUSTANG PASS (25, 45)



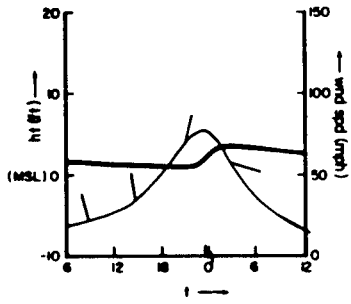
5. NAVAL AIR STA. (20, 46)



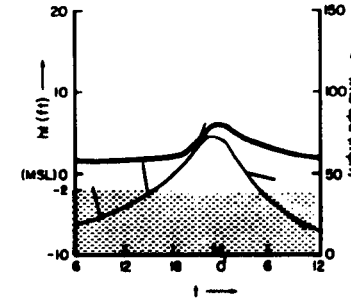
6. CORPUS CHRISTI (12, 53)



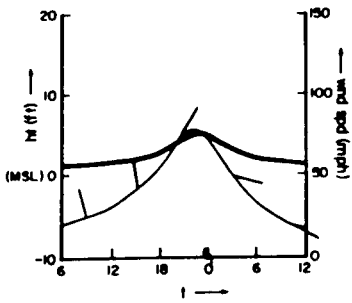
7. INGLESIDE (21, 55)



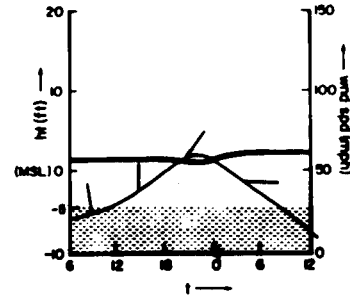
8. ARANSAS PASS (28, 57)



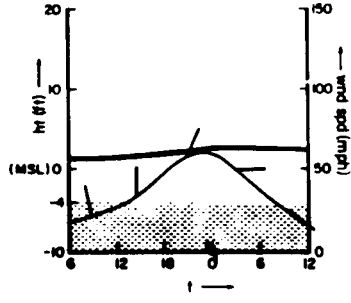
9. PORT ARANSAS (31, 53)



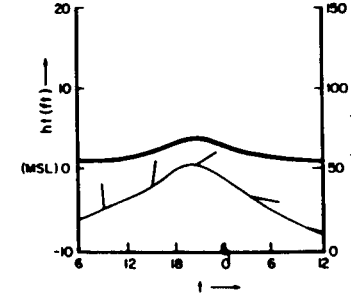
10. COPANO BRIDGE (35, 63)



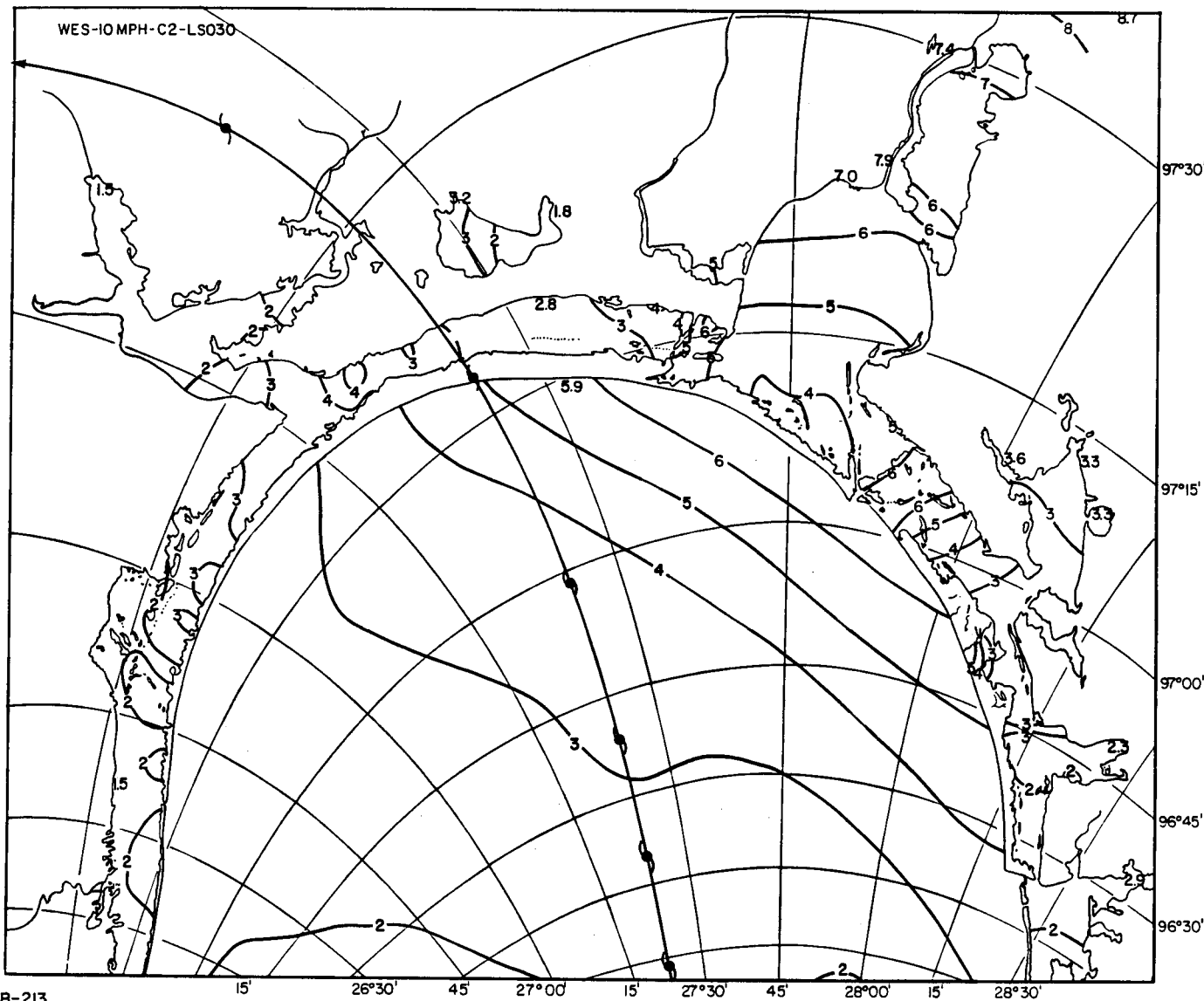
11. BAYSIDE (28, 66)



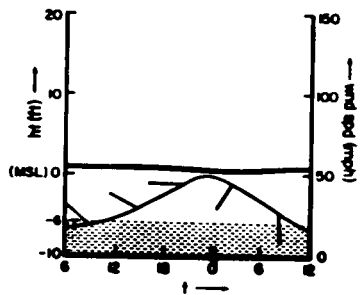
12. MATAGORDA IS. (45, 61)



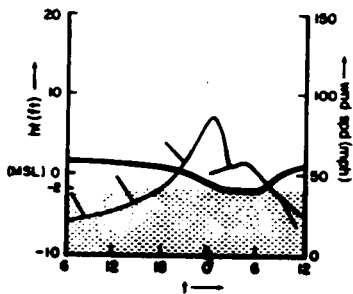
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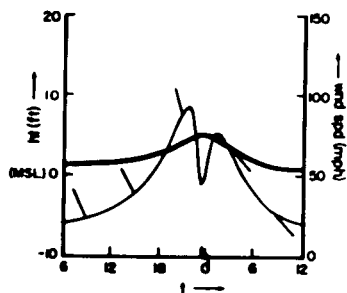
1. PORT MANSFIELD (48, 8)



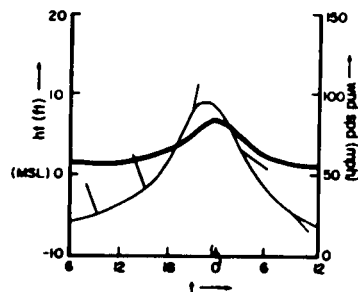
2. BAFFIN BAY (19, 3)



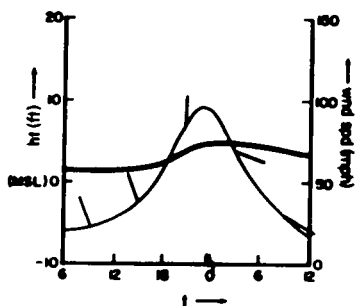
3. PADRI IS. RANGER STA. (24, 35)



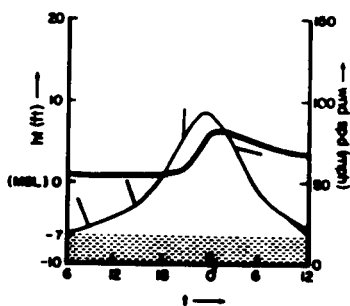
4. MUSTANG PASS (25, 45)



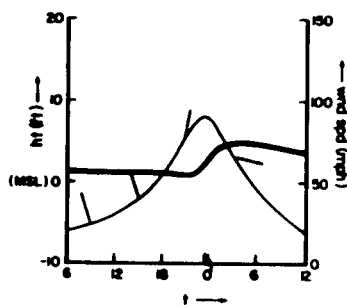
5. NAWAL AIR STA. (20, 46)



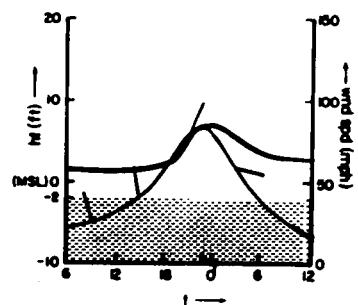
6. CORPUS CHRISTI (12, 53)



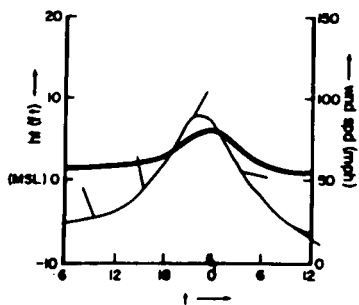
7. INGLESIDE (21, 55)



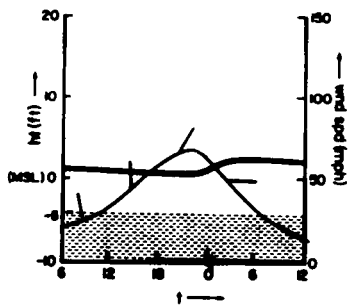
8. ARANSAS PASS (28, 57)



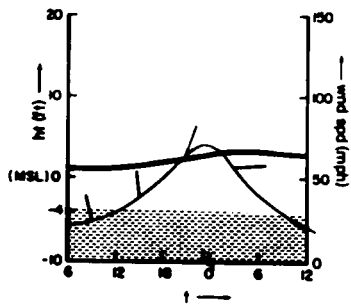
9. PORT ARANSAS (34, 53)



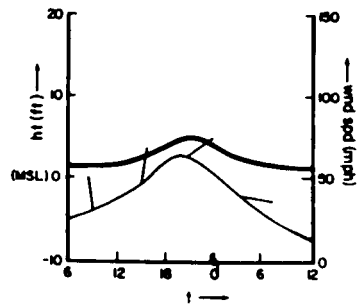
10. COPANO BRIDGE (35, 63)



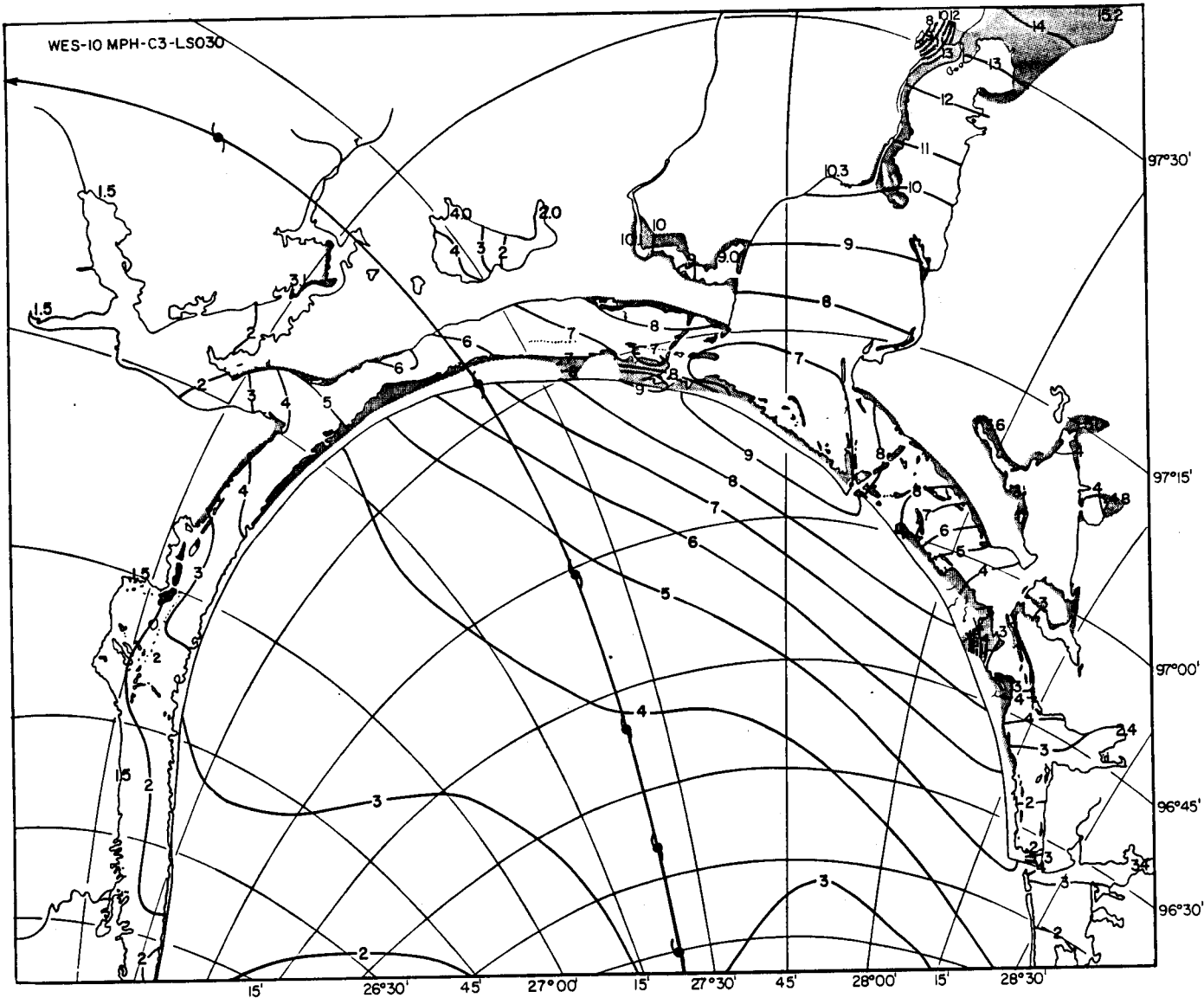
11. BAYSIDE (28, 65)



12. MATAGORDA IS. (45, 61)

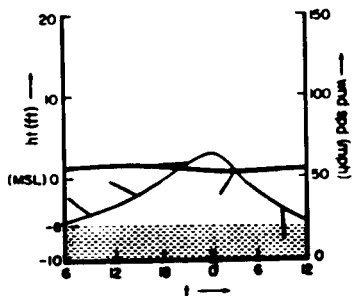


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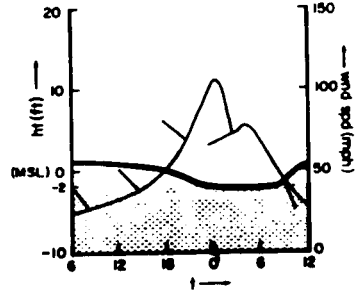


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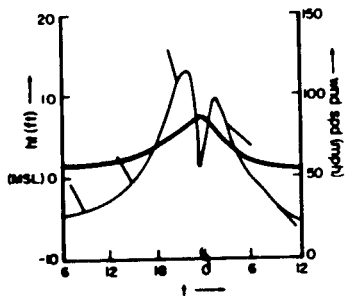
1. PORT MANSFIELD (48, 8)



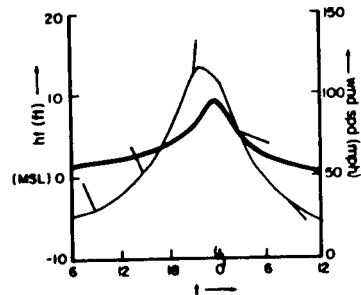
2. BAFFIN BAY (19, 31)



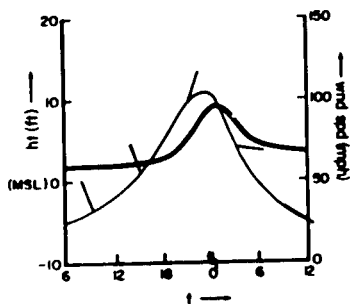
3. PADRI IS. RANGER STA. (24, 35)



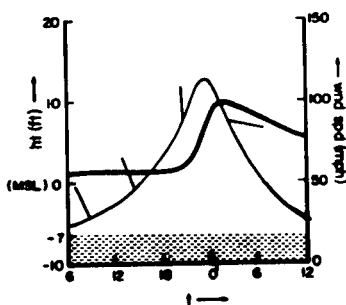
4. MUSTANG PASS (25, 45)



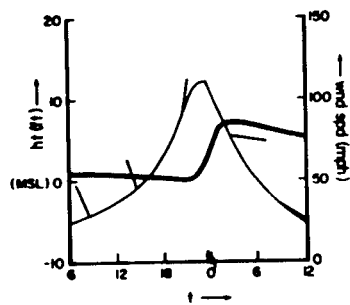
5. NAVAL AIR STA. (20, 46)



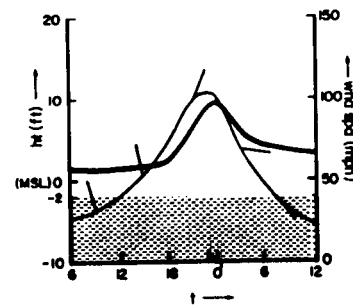
6. CORPUS CHRISTI (12, 53)



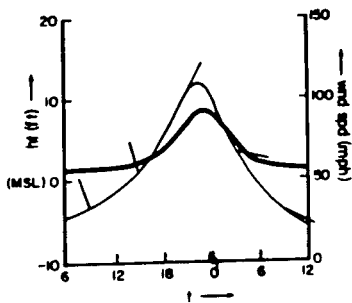
7. INGLESIDE (21, 55)



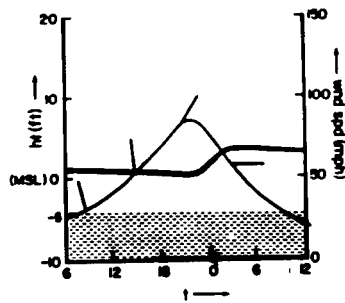
8. ARANSAS PASS (28, 57)



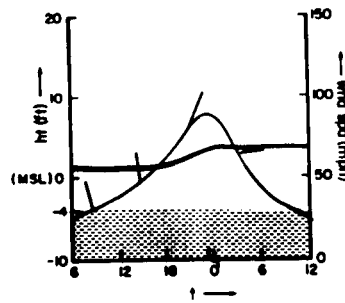
9. PORT ARANSAS (31, 53)



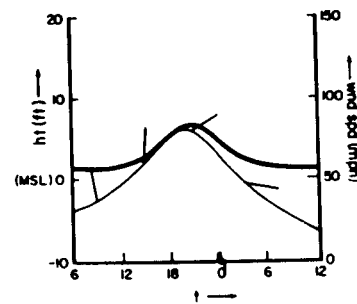
10. COPANO BRIDGE (35, 63)



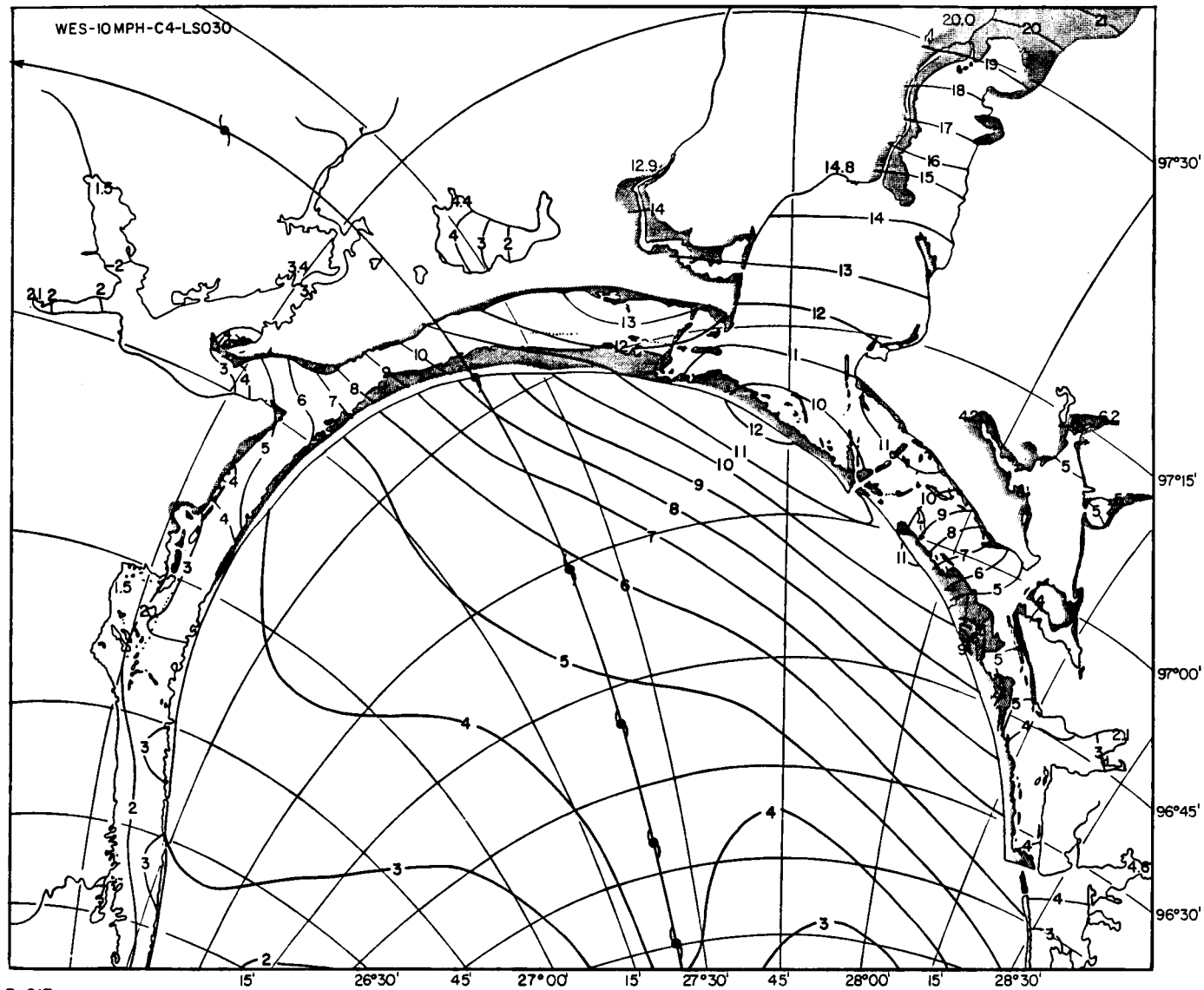
11. BAYSIDE (28, 66)



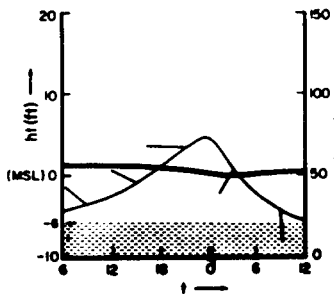
12. MATAGORDA IS. (45, 61)



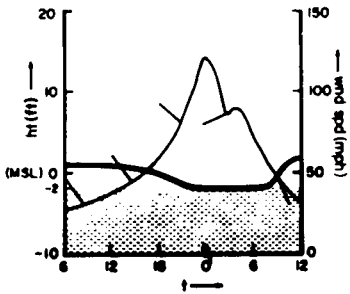
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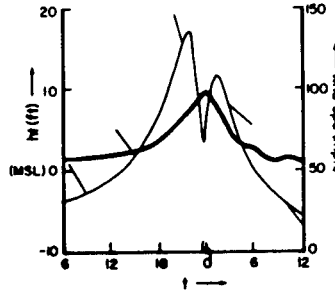
1. PORT MANSFIELD (48,8)



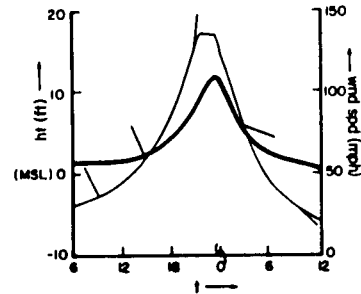
2. BAFFIN BAY (19,3)



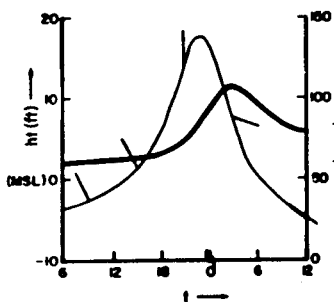
3. PADRI IS. RANGER STA. (24,35)



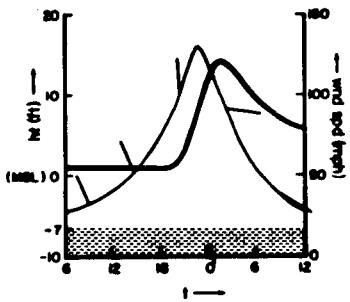
4. MUSTANG PASS (25,45)



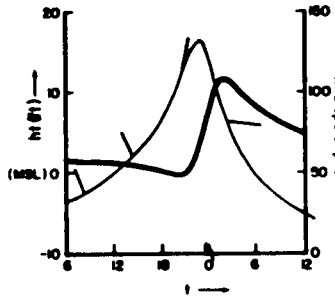
5. NAWAL AIR STA. (20,46)



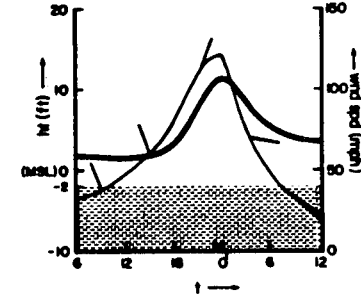
6. CORPUS CHRISTI (22,53)



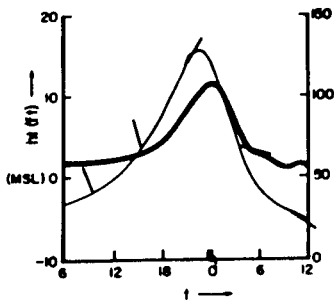
7. INGLESIDE (21,55)



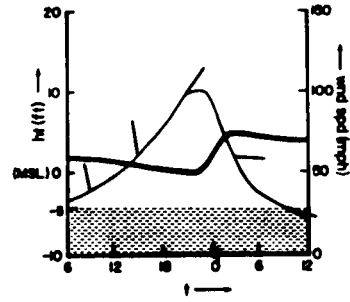
8. ARANSAS PASS (28,57)



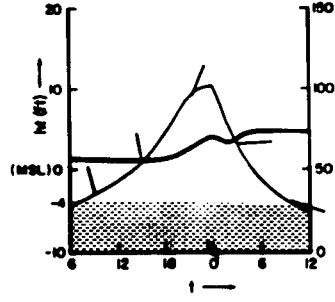
9. PORT ARANSAS (31,53)



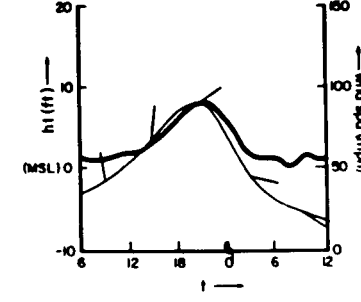
10. COPANO BRIDGE (35,63)

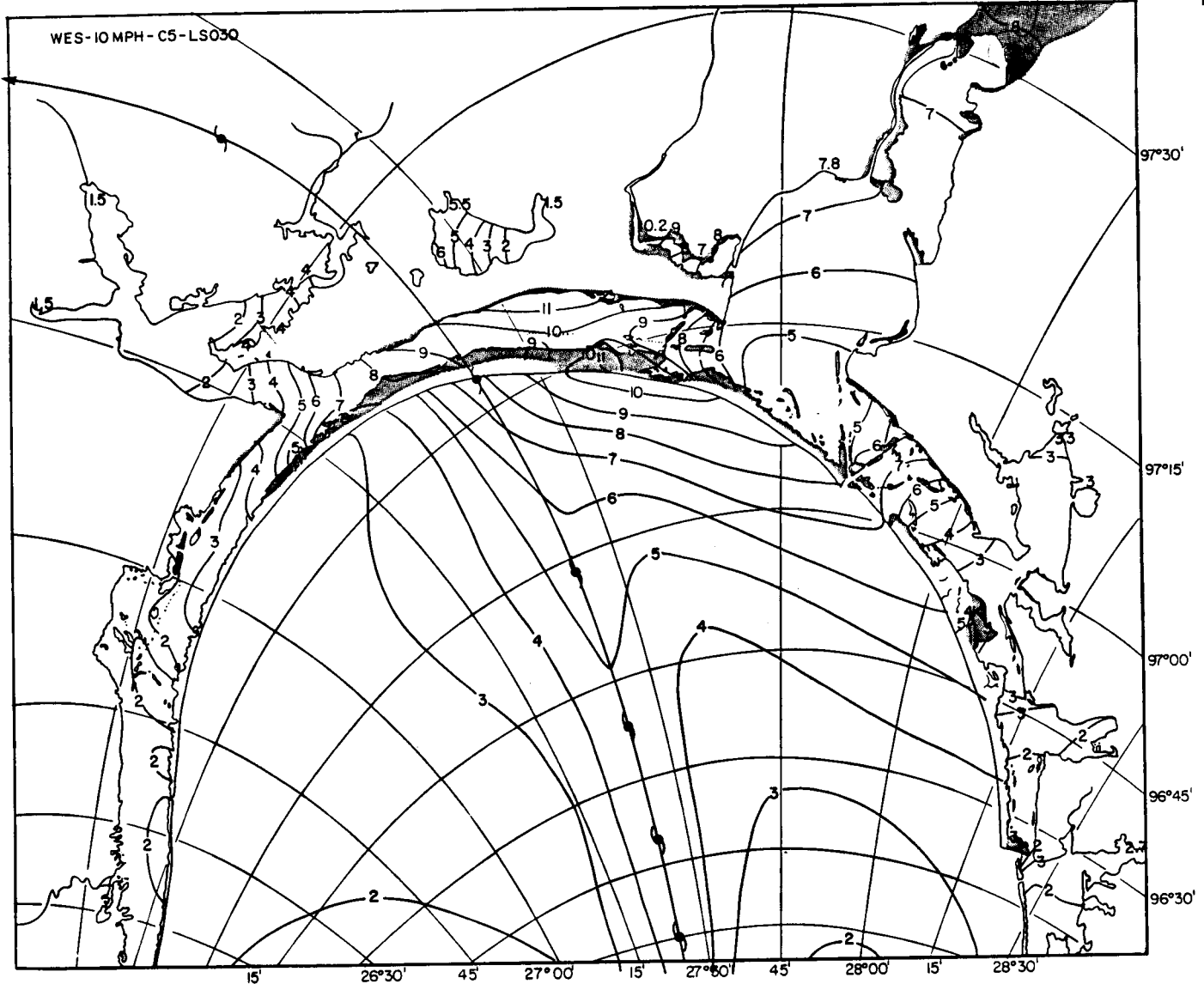


11. BAYSIDE (28,66)



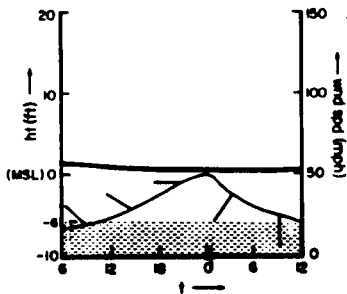
12. MATAGORDA IS. (45,61)



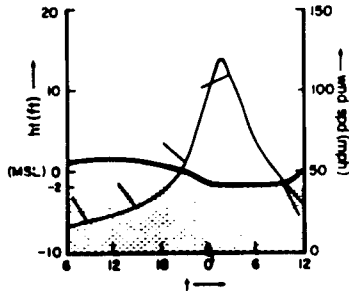




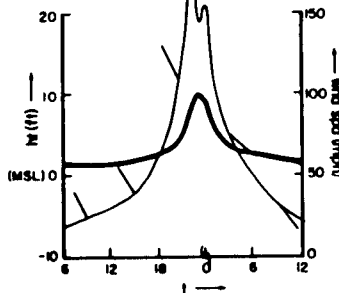
1. PORT MANSFIELD (48, 8)



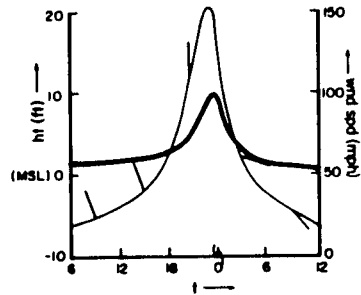
2. BAFFIN BAY (19, 3)



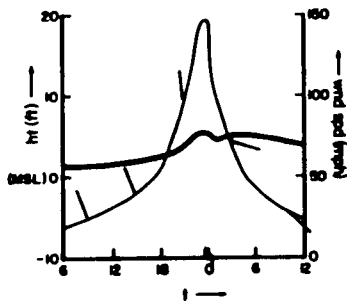
3. PADRI IS. RANGER STA. (24, 35)



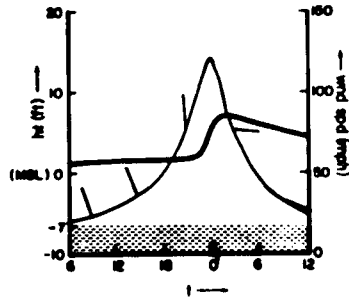
4. MUSTANG PASS (25, 45)



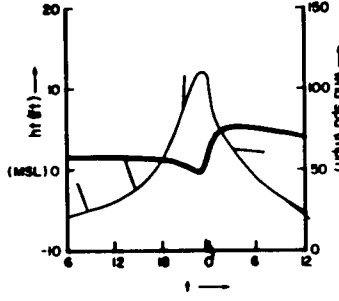
5. NAWAL AIR STA. (20, 46)



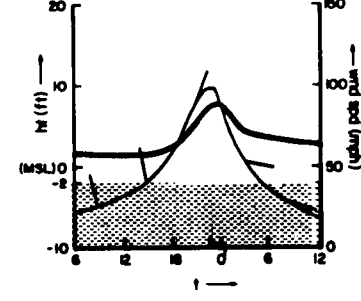
6. CORPUS CHRISTI (12, 53)



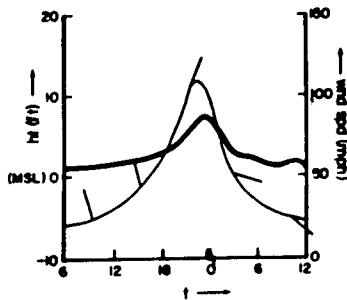
7. INGLESIDE (21, 55)



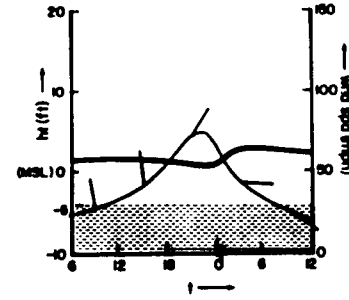
8. ARANSAS PASS (28, 57)



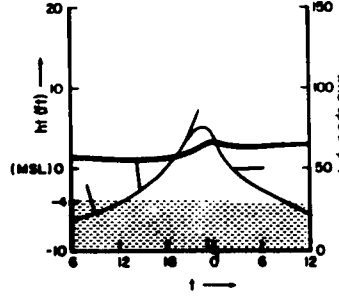
9. PORT ARANSAS (31, 53)



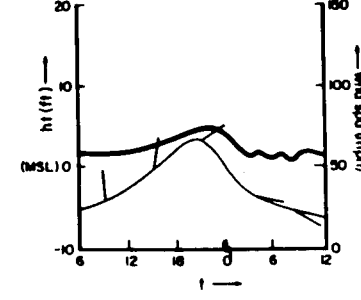
10. CORPANO BRIDGE (35, 63)



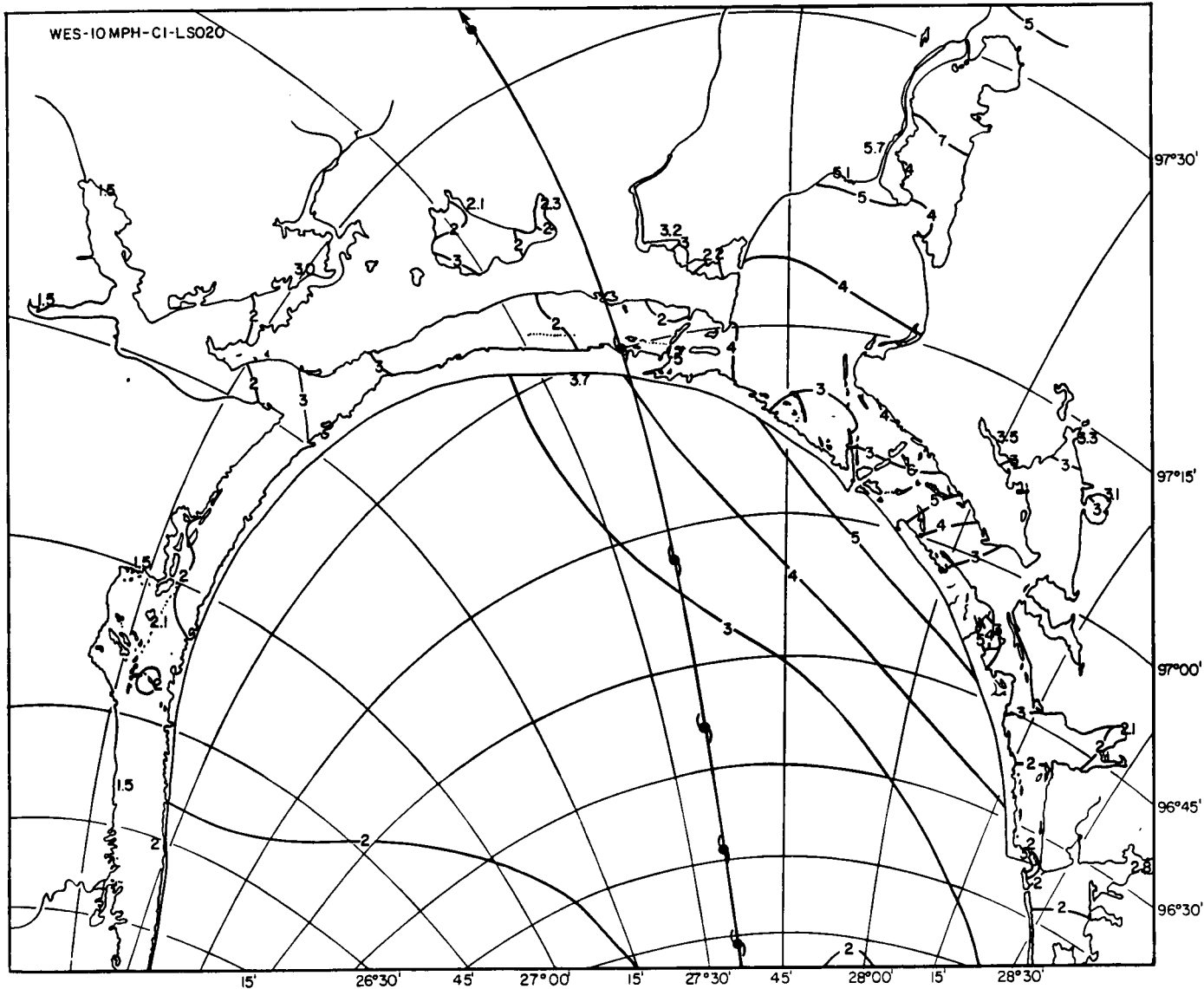
11. BAYSIDE (28, 66)



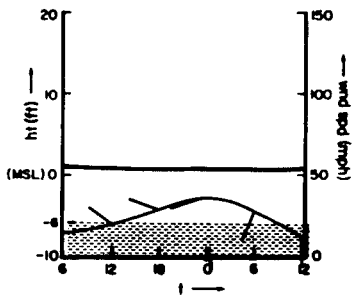
12. MATAGORDA IS. (45, 61)



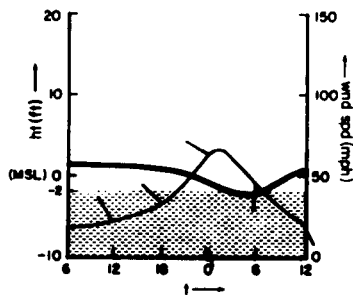
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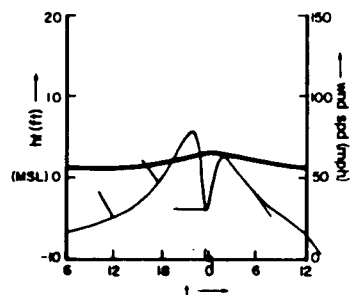
1. PORT MANSFIELD (48,8)



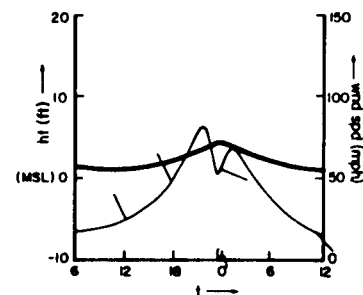
2. BAFFIN BAY (19,3)



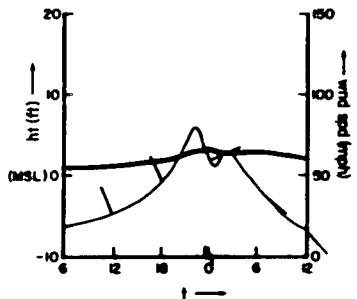
3. PADRI IS. RANGER STA. (24,35)



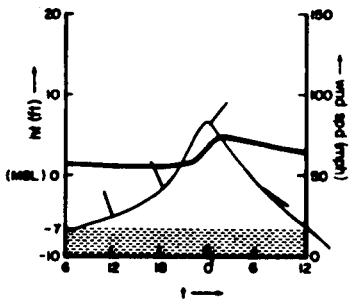
4. MUSTANG PASS (25,45)



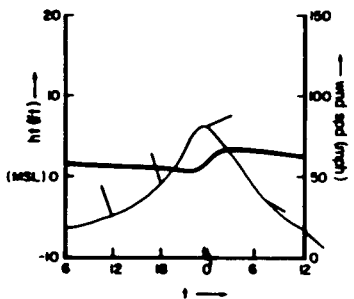
5. NAVAL AIR STA. (20,46)



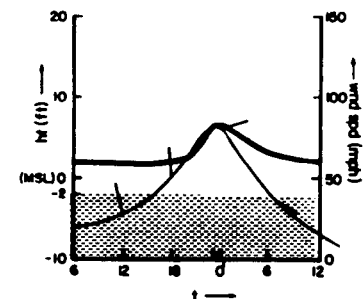
6. CORPUS CHRISTI (12,53)



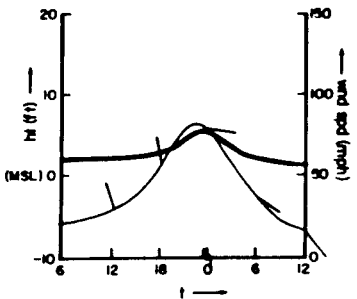
7. INGLESIDE (21,55)



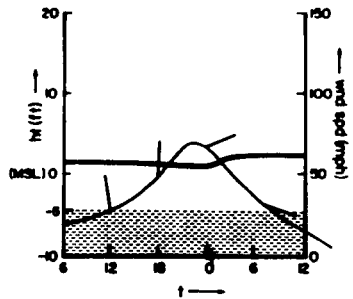
8. ARANSAS PASS (28,57)



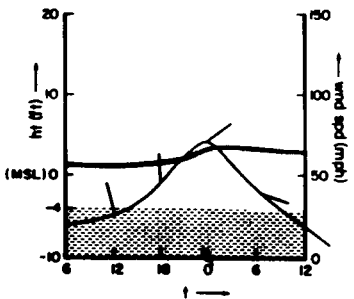
9. PORT ARANSAS (31,53)



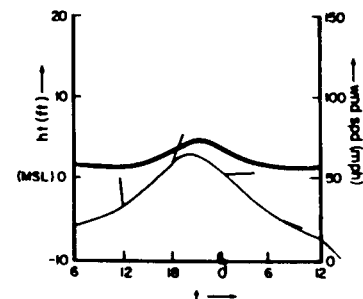
10. COPANO BRIDGE (35,63)



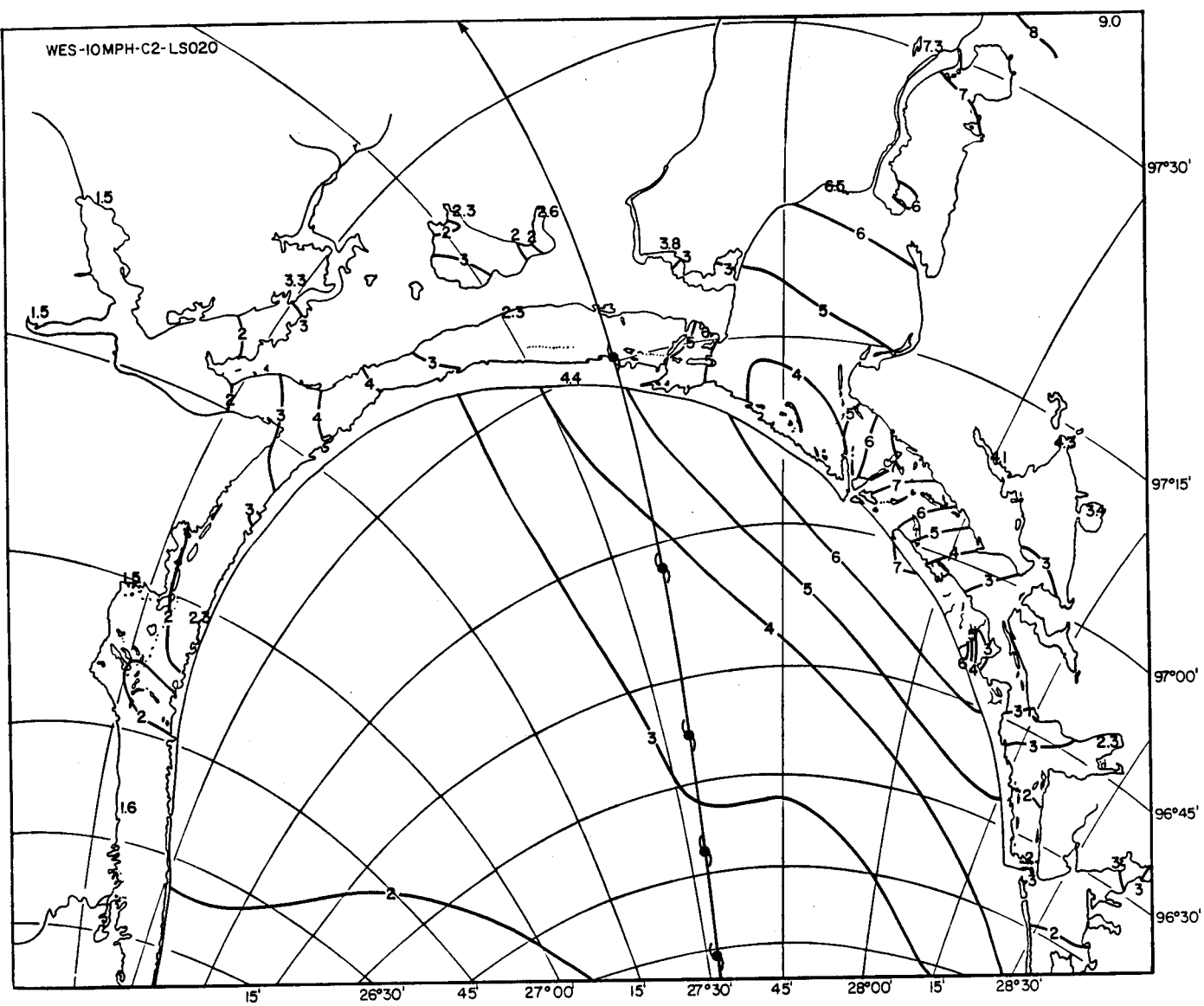
11. BAYSIDE (28,66)



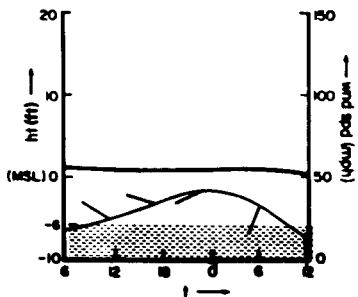
12. MATAGORDA IS. (45,61)



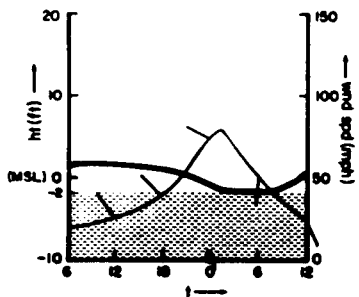
WES-10MPH-C2-LS020



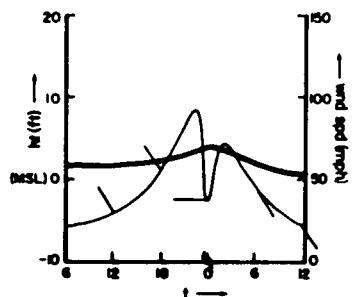
1. PORT MANSFIELD (48, 8)



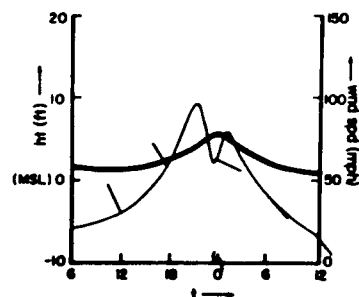
2. BAFFIN BAY (19, 3)



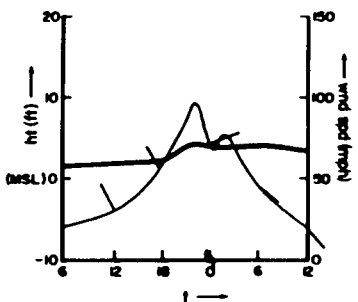
3. PADRI IS. RANGER STA. (24, 35)



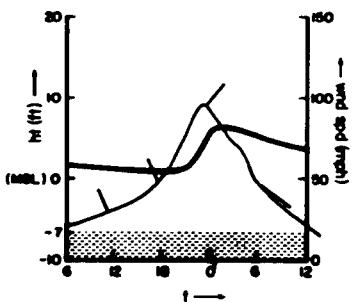
4. MUSTANG PASS (25, 45)



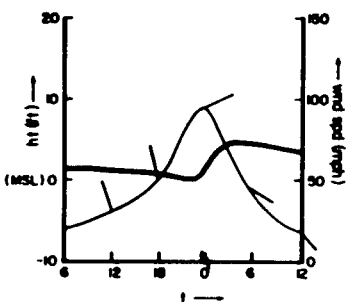
5. NAVAL AIR STA. (20, 46)



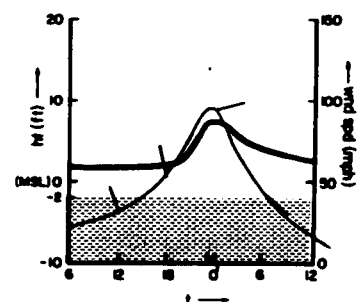
6. CORPUS CHRISTI (12, 53)



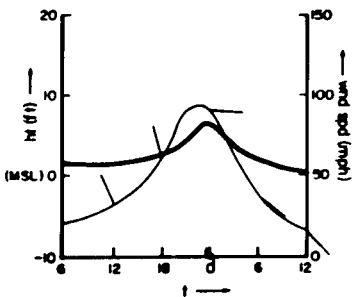
7. INGLESIDE (21, 55)



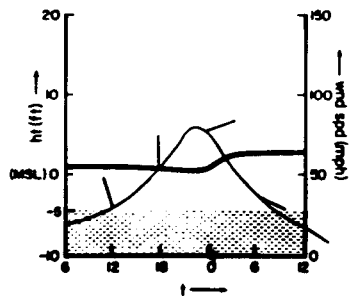
8. ARANSAS PASS (28, 57)



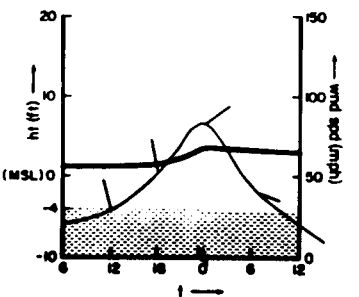
9. PORT ARANSAS (31, 53)



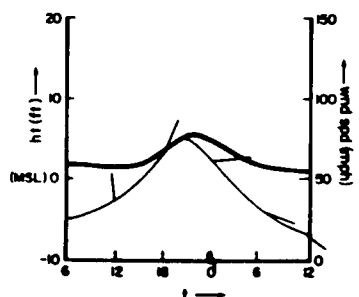
10. COPANO BRIDGE (35, 63)



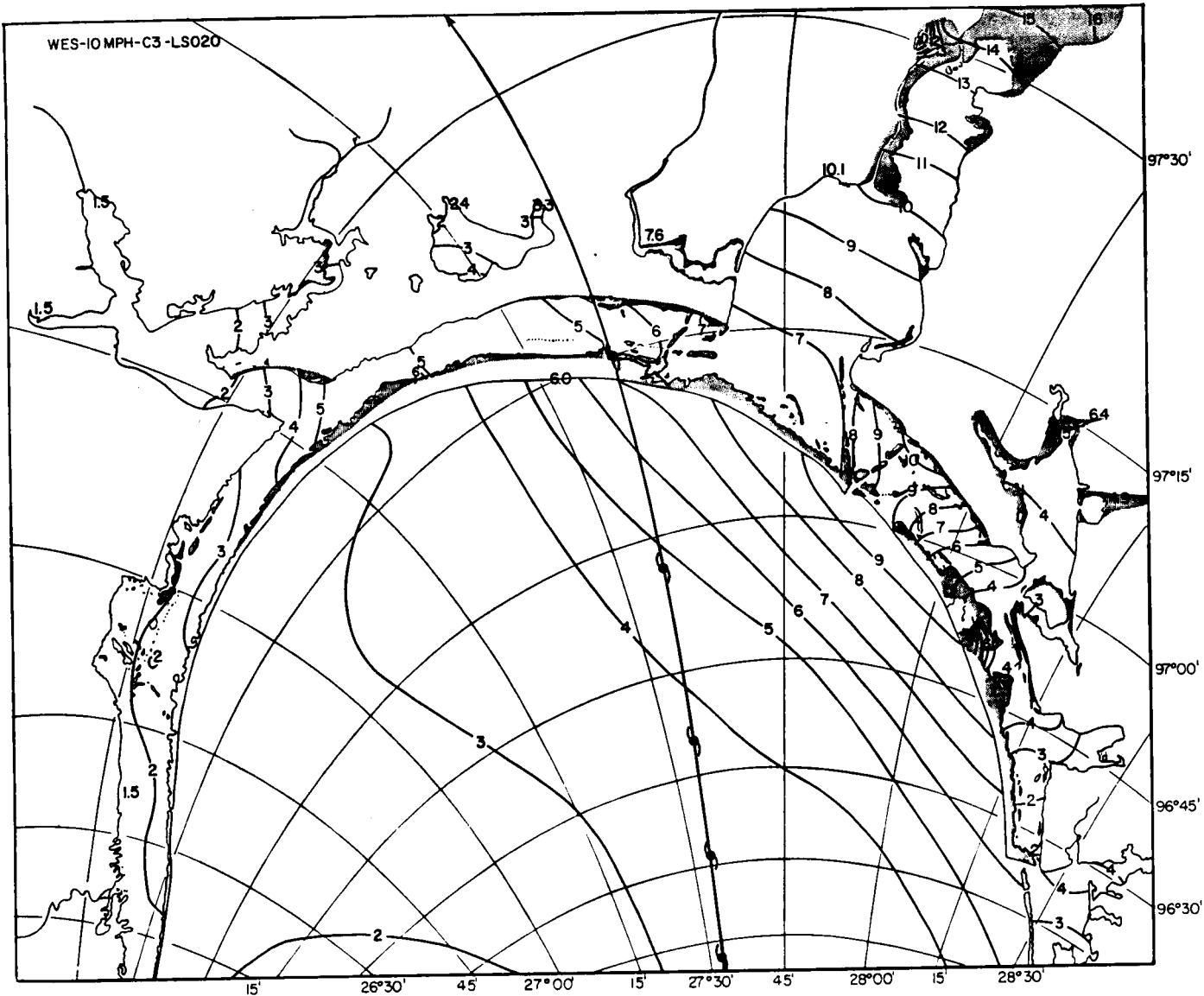
11. BAYSIDE (28, 66)



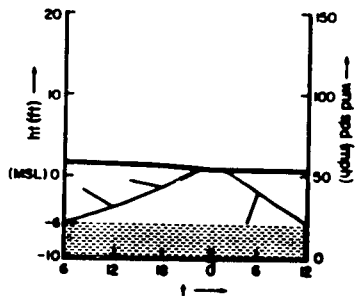
12. MATAGORDA IS. (45, 61)



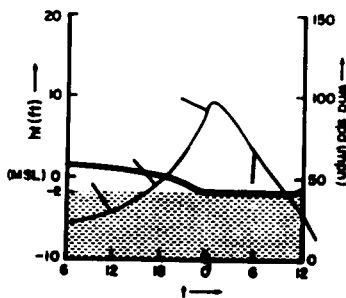
WES-10 MPH-C3-LS020



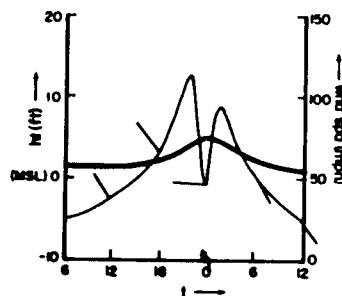
1. PORT MANSFIELD (48, 8)



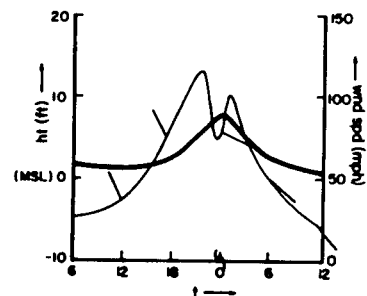
2. BAFFIN BAY (19, 3)



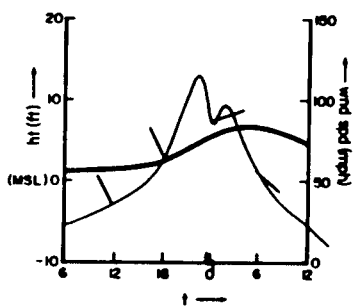
3. PADRI IS. RANGER STA. (24, 35)



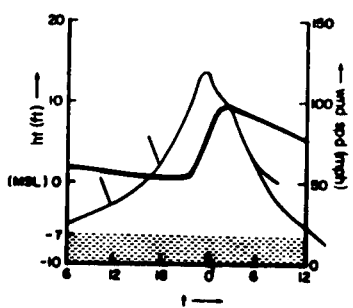
4. MUSTANG PASS (25, 45)



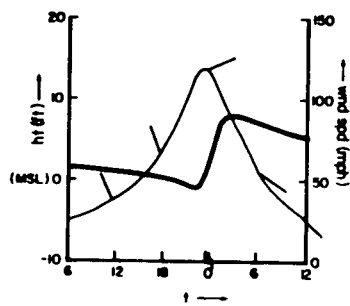
5. NAVAL AIR STA. (20, 46)



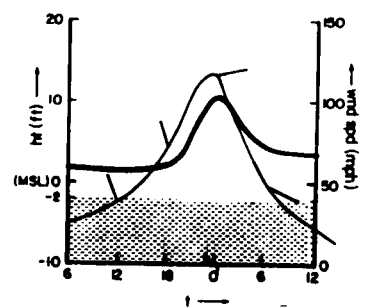
6. CORPUS CHRISTI (12, 53)



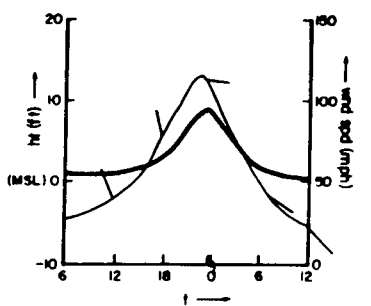
7. INGLESIDE (21, 55)



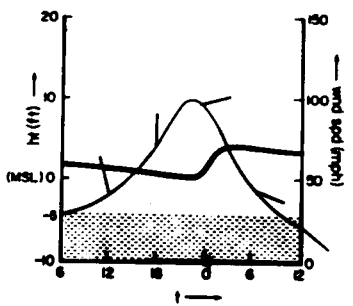
8. ARANSAS PASS (28, 57)



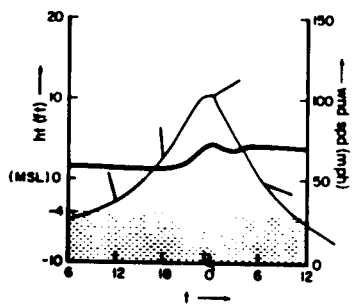
9. PORT ARANSAS (31, 53)



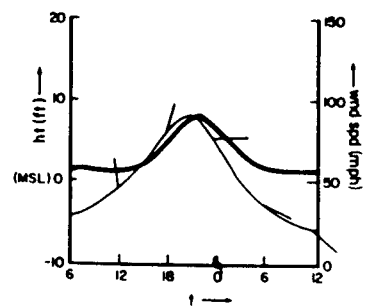
10. COPANO BRIDGE (35, 63)

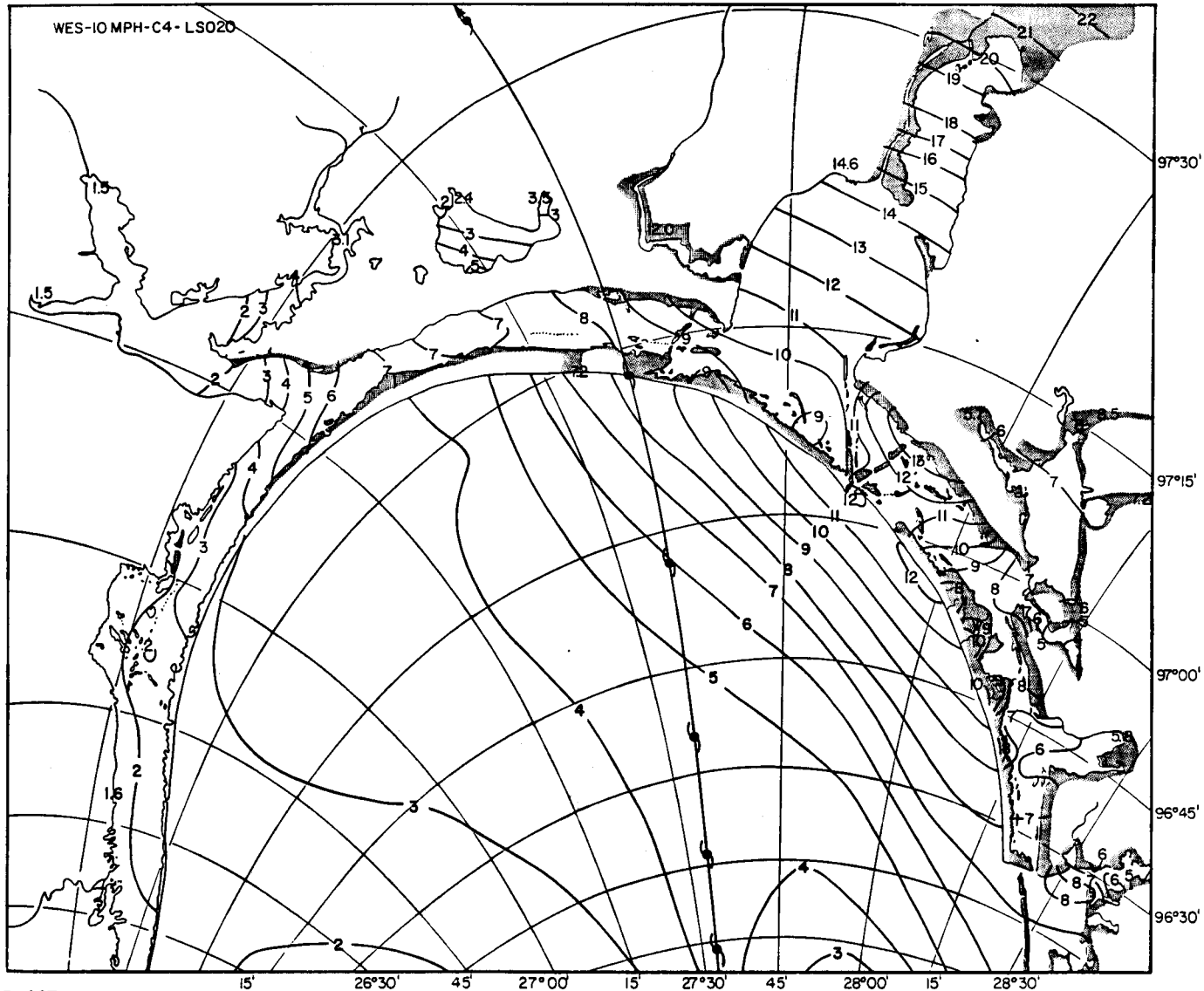


11. BAYSIDE (28, 66)



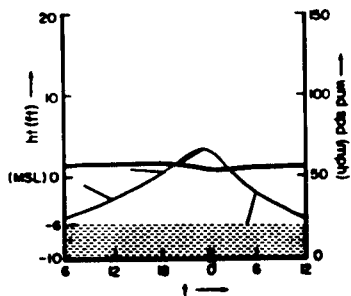
12. MATAGORDA IS. (45, 61)



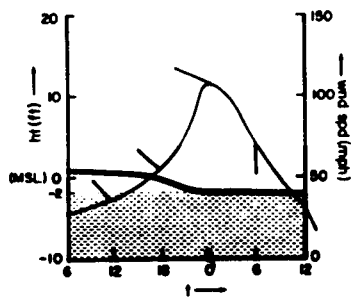




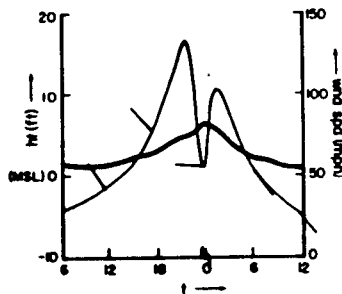
1. PORT MANSFIELD (48,8)



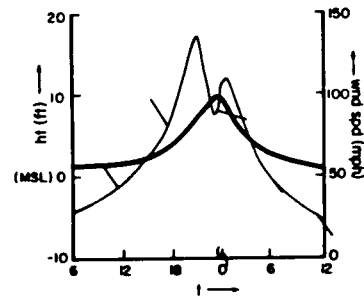
2. BAFFIN BAY (19,3)



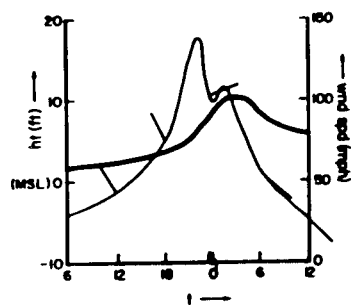
3. PADRI IS. RANGER STA. (24,35)



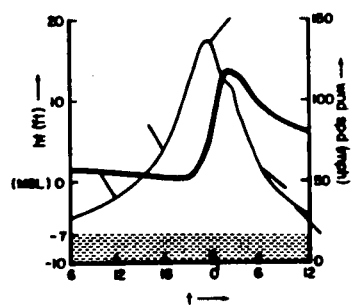
4. MUSTANG PASS (25,45)



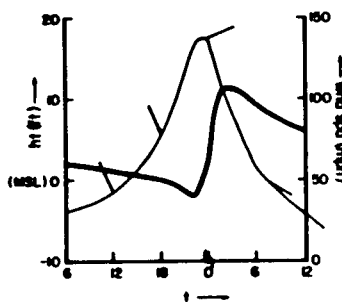
5. NAVAL AIR STA. (20,46)



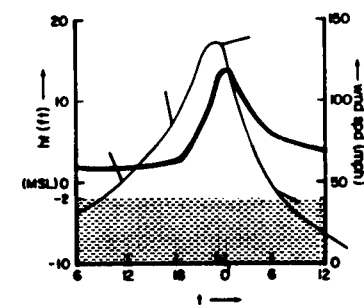
6. CORPUS CHRISTI (12,53)



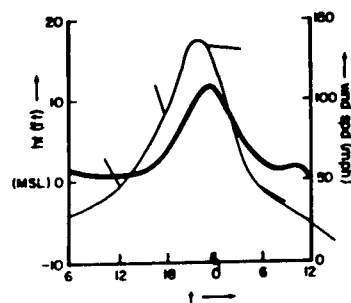
7. INGLESIDE (21,55)



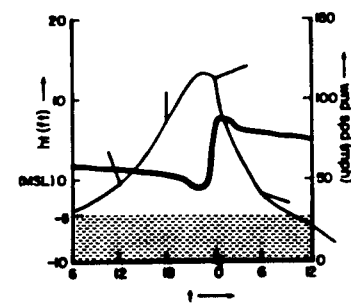
8. ARANSAS PASS (28,57)



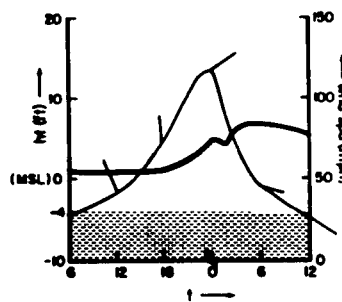
9. PORT ARANSAS (31,53)



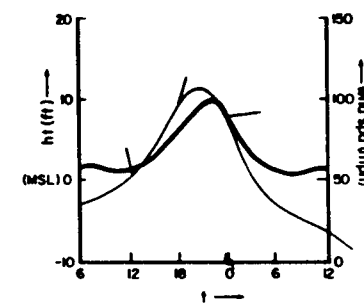
10. COPANO BRIDGE (35,63)



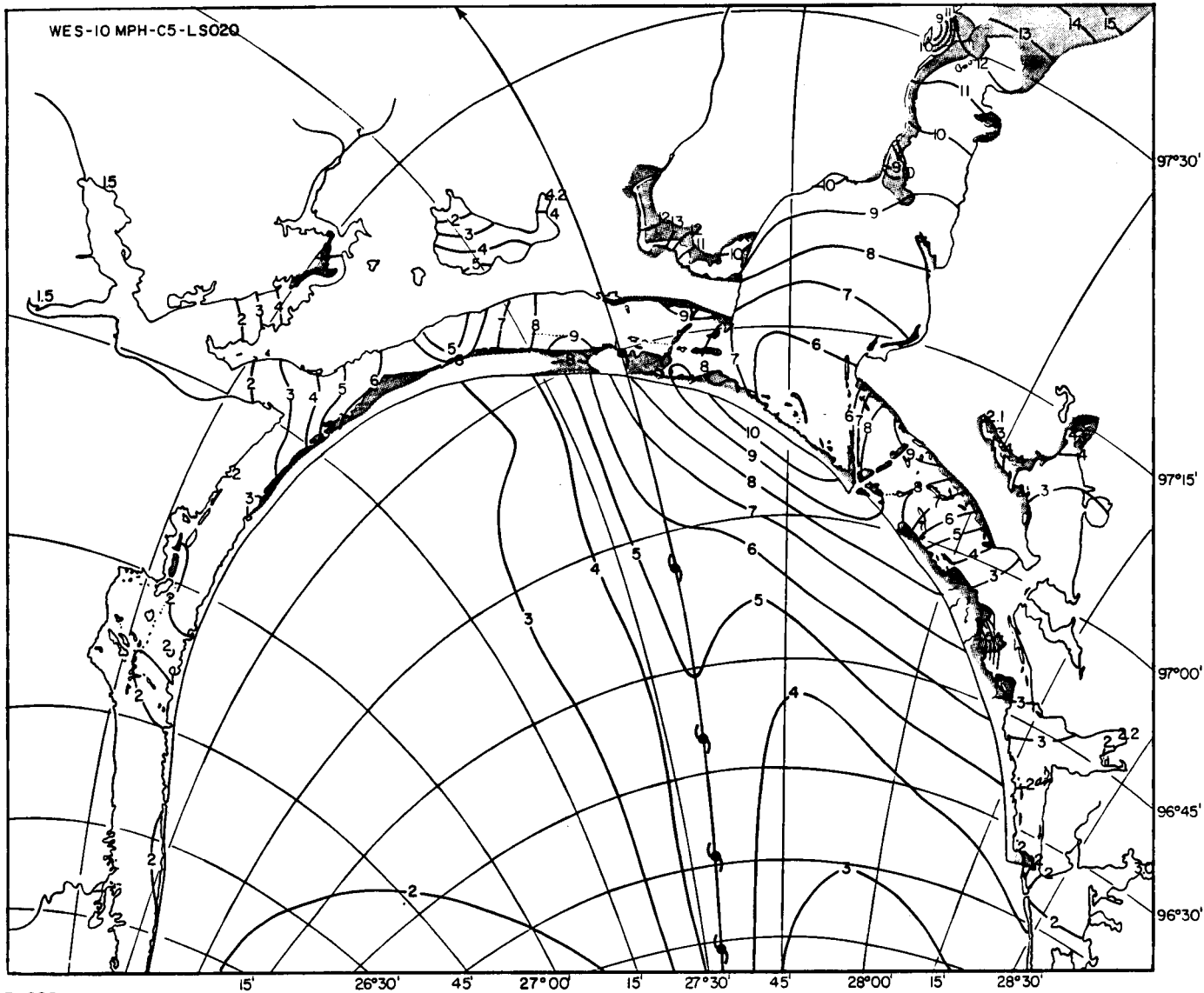
11. BAYSIDE (28,66)



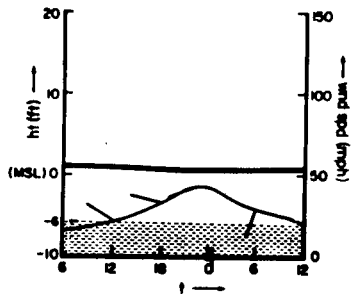
12. MATAGORDA IS. (45,61)



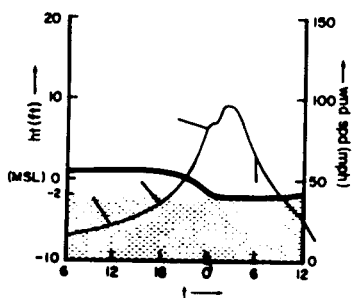
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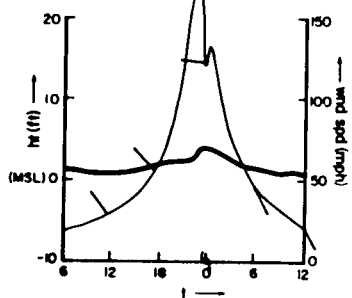
1. PORT MANSFIELD (48,8)



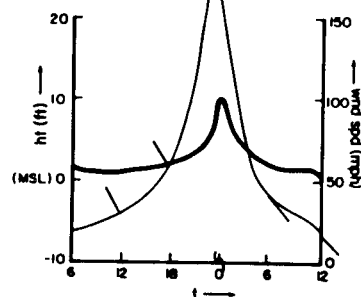
2. BAFFIN BAY (19,3)



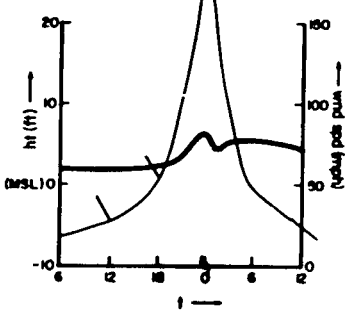
3. PADRI IS. RANGER STA. (24,35)



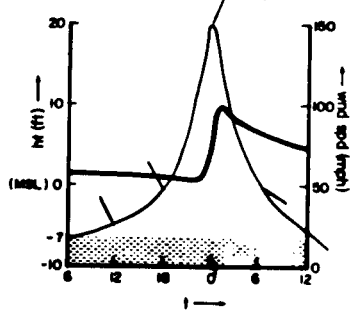
4. MUSTANG PASS (25,45)



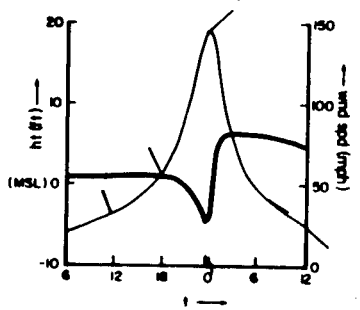
5. NAVAL AIR STA. (20,46)



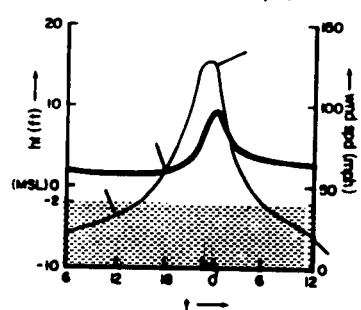
6. CORPUS CHRISTI (12,53)



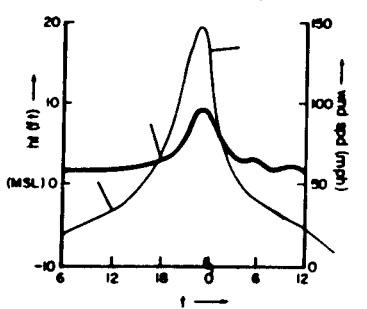
7. INGLESIDE (21,55)



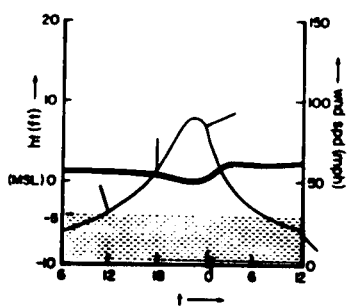
8. ARANSAS PASS (28,57)



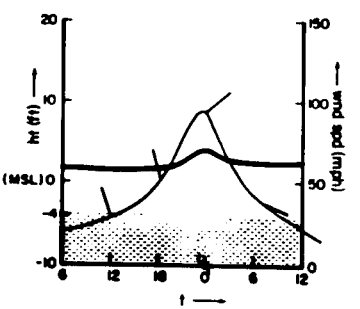
9. PORT ARANSAS (31,53)



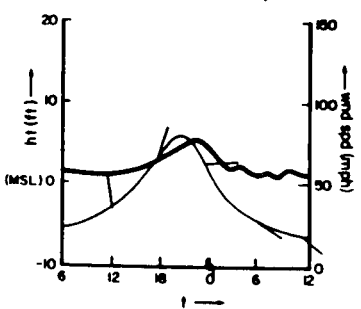
10. COPANO BRIDGE (35,63)



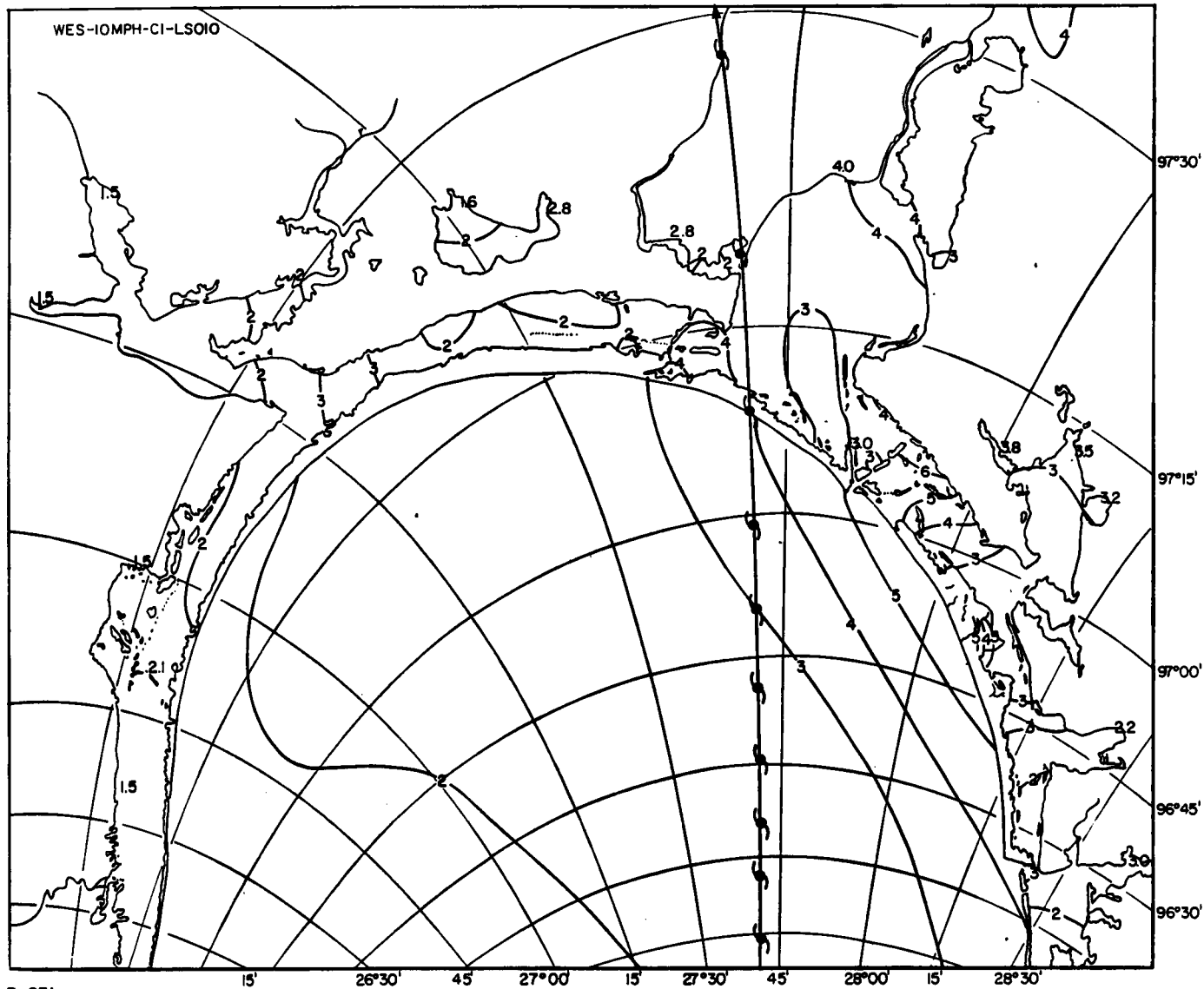
11. BAYSIDE (28,65)



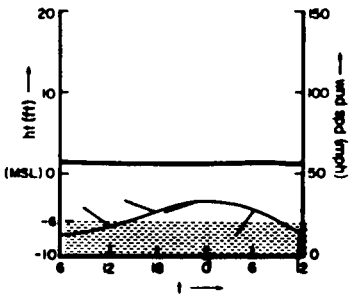
12. MATAGORDA IS. (45,61)



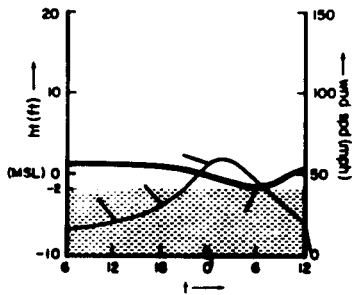
WES-10MPH-CI-LSO10



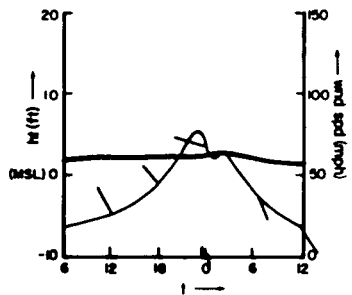
1. PORT MANSFIELD (48, 8)



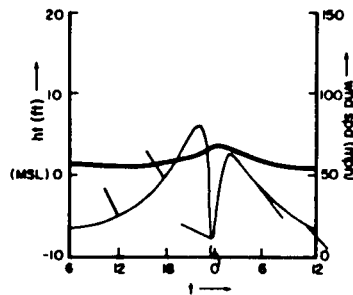
2. BAFFIN BAY (19, 3)



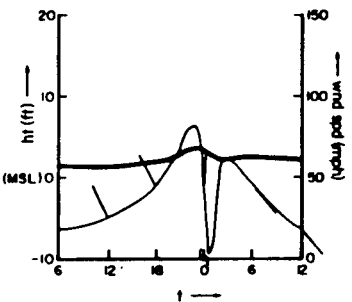
3. PADRI IS. RANGER STA. (24, 35)



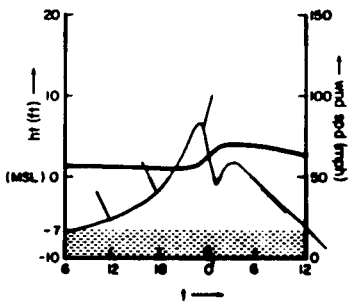
4. MUSTANG PASS (25, 45)



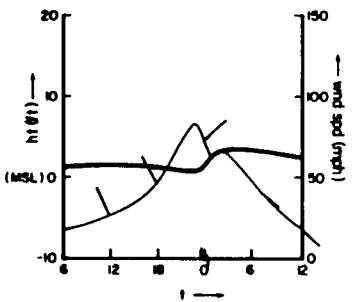
5. NAVAL AIR STA. (20, 46)



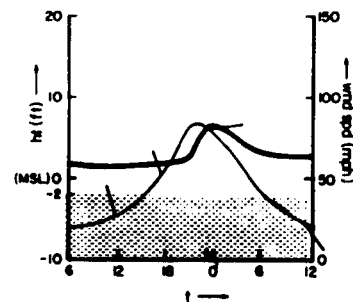
6. CORPUS CHRISTI (12, 53)



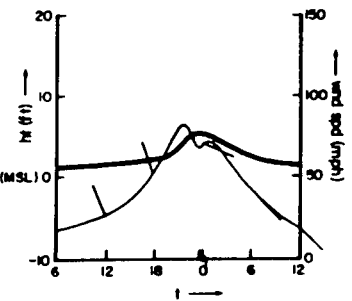
7. INGLESIDE (21, 55)



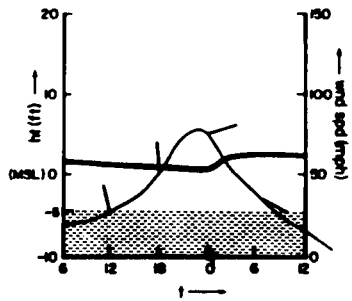
8. ARANSAS PASS (28, 57)



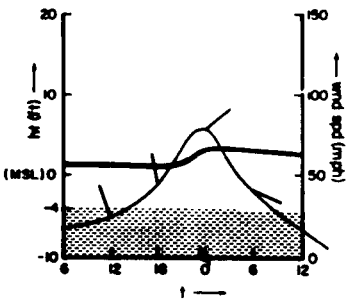
9. PORT ARANSAS (31, 53)



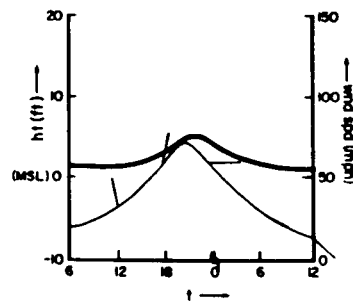
10. COPANO BRIDGE (35, 63)

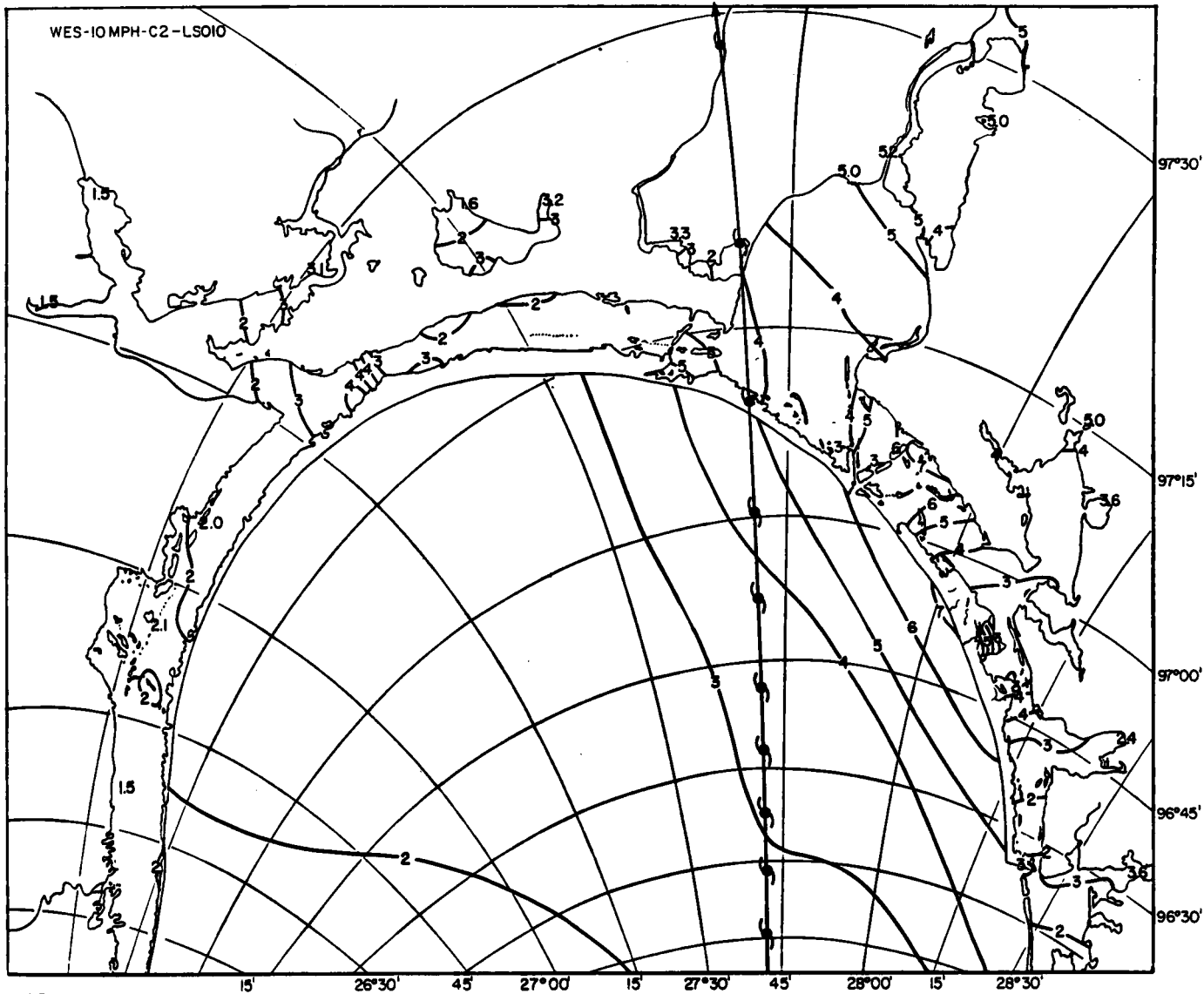


11. BAYSIDE (28, 66)

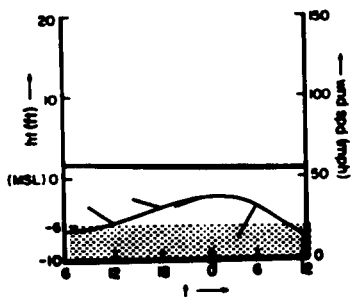


12. MATAGORDA IS. (45, 61)

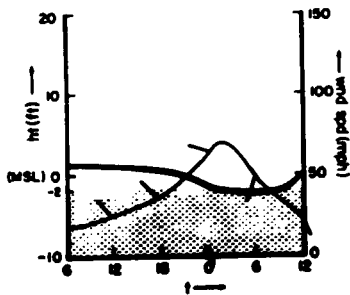




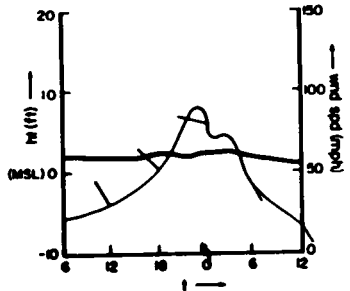
1. PORT MANSFIELD (48,8)



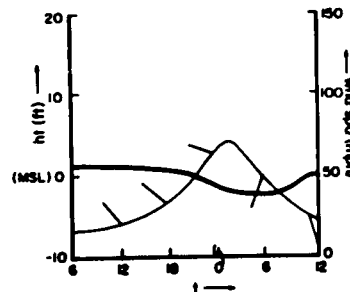
2. BAFFIN BAY (19,3)



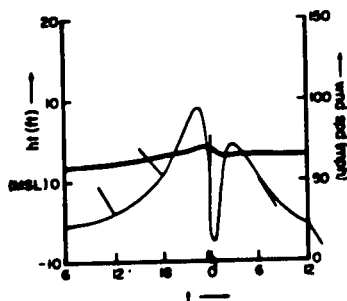
3. PADRI IS. RANGER STA. (24,35)



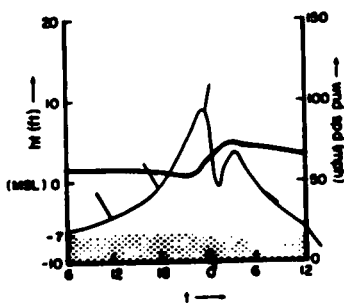
4. MUSTANG PASS (25,45)



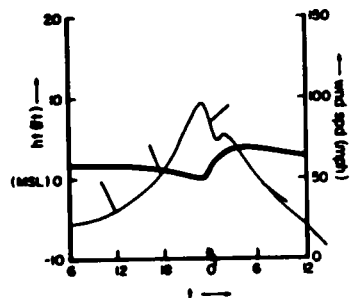
5. NAWAL AIR STA. (20,46)



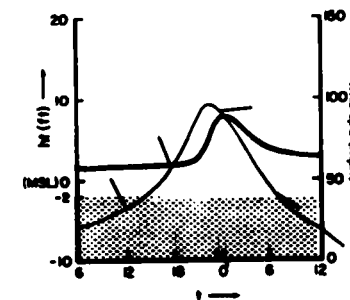
6. CORPUS CHRISTI (2,53)



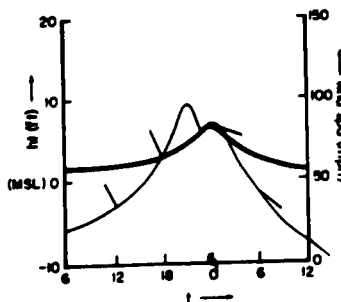
7. INGLESIDE (21,55)



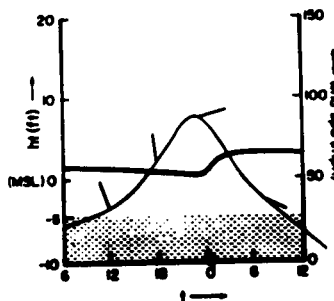
8. ARANSAS PASS (28,57)



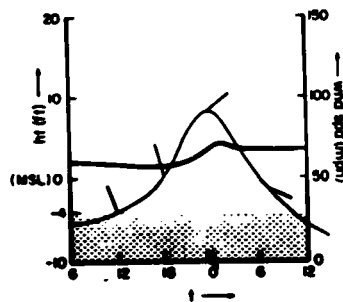
9. PORT ARANSAS (3,53)



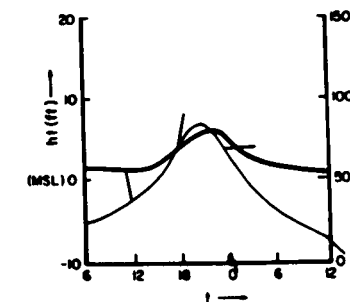
10. COPANO BRIDGE (35,63)

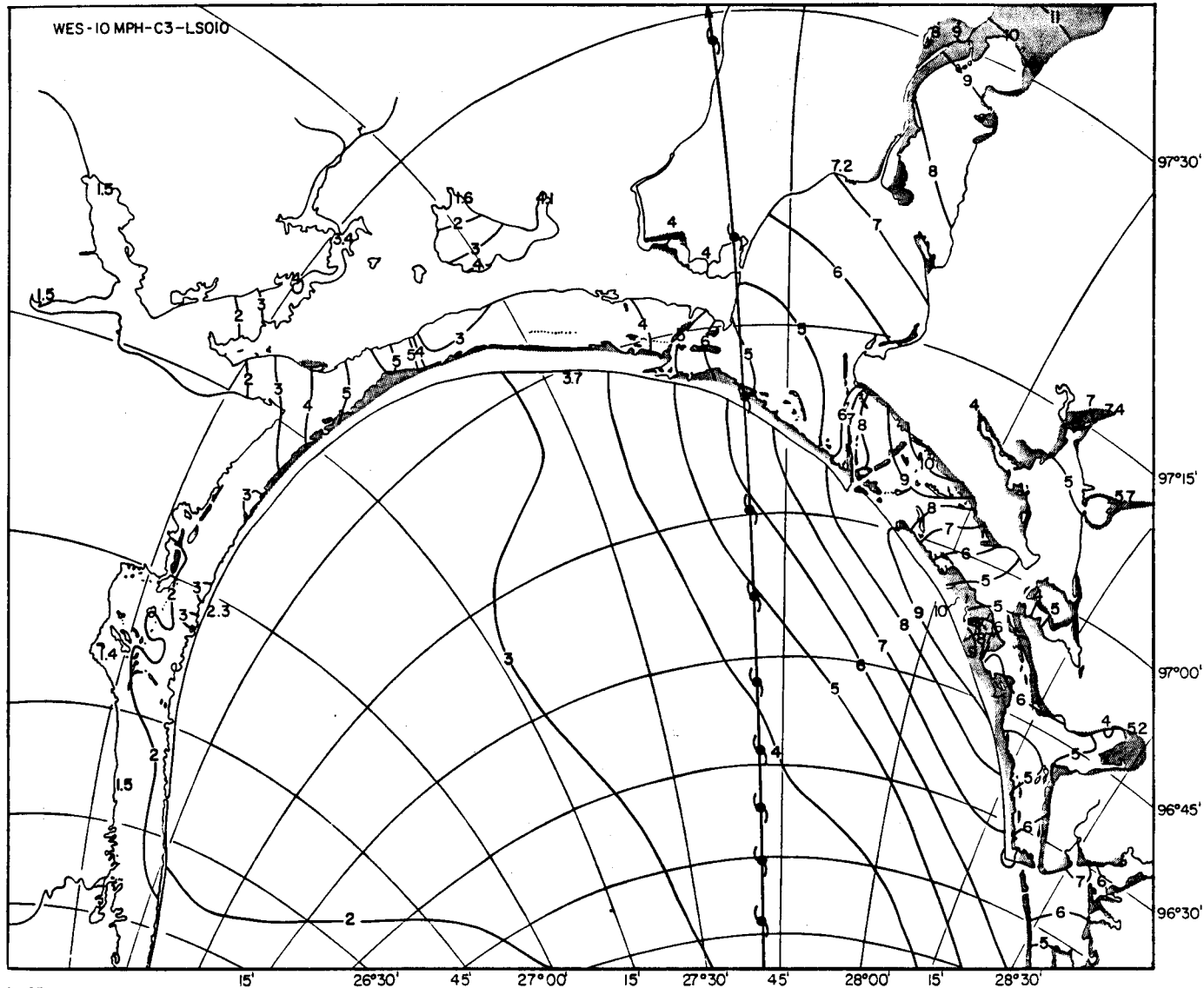


11. BAYSIDE (28,66)



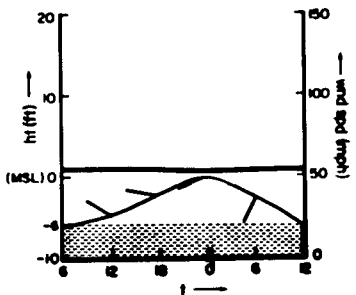
12. MATAGORDA IS. (45,61)



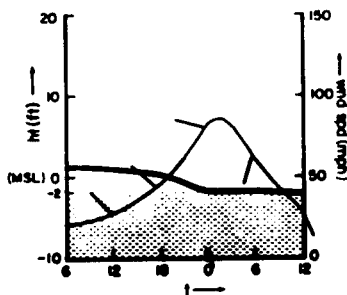




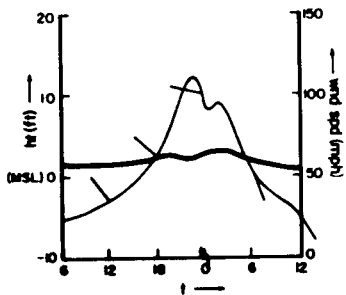
1. PORT MANSFIELD (48, 8)



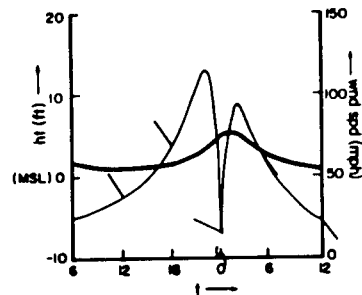
2. BAFFIN BAY (19, 3)



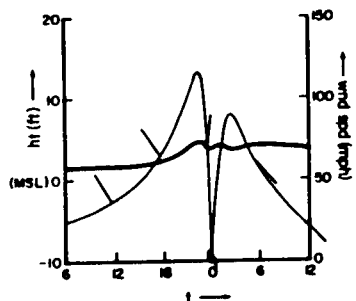
3. PADRI IS. RANGER STA. (24, 35)



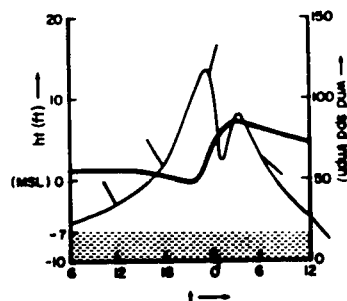
4. MUSTANG PASS (25, 45)



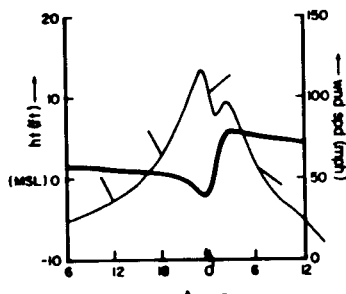
5. NAVAL AIR STA. (20, 46)



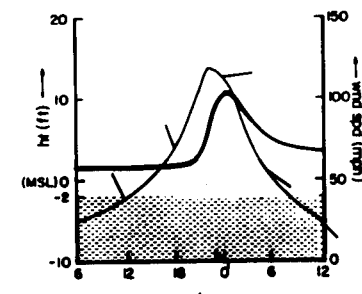
6. CORPUS CHRISTI (12, 53)



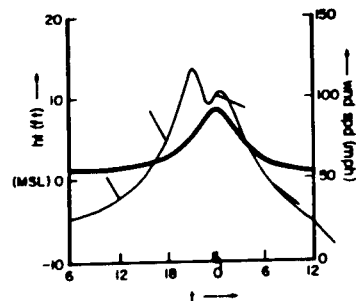
7. INGLESIDE (21, 55)



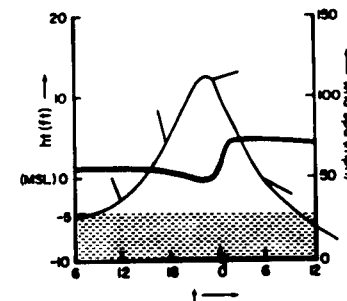
8. ARANSAS PASS (28, 57)



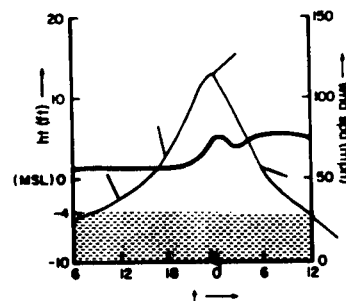
9. PORT ARANSAS (31, 53)



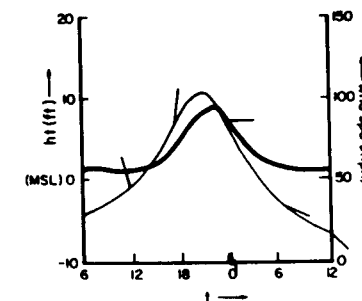
10. COPANO BRIDGE (35, 63)

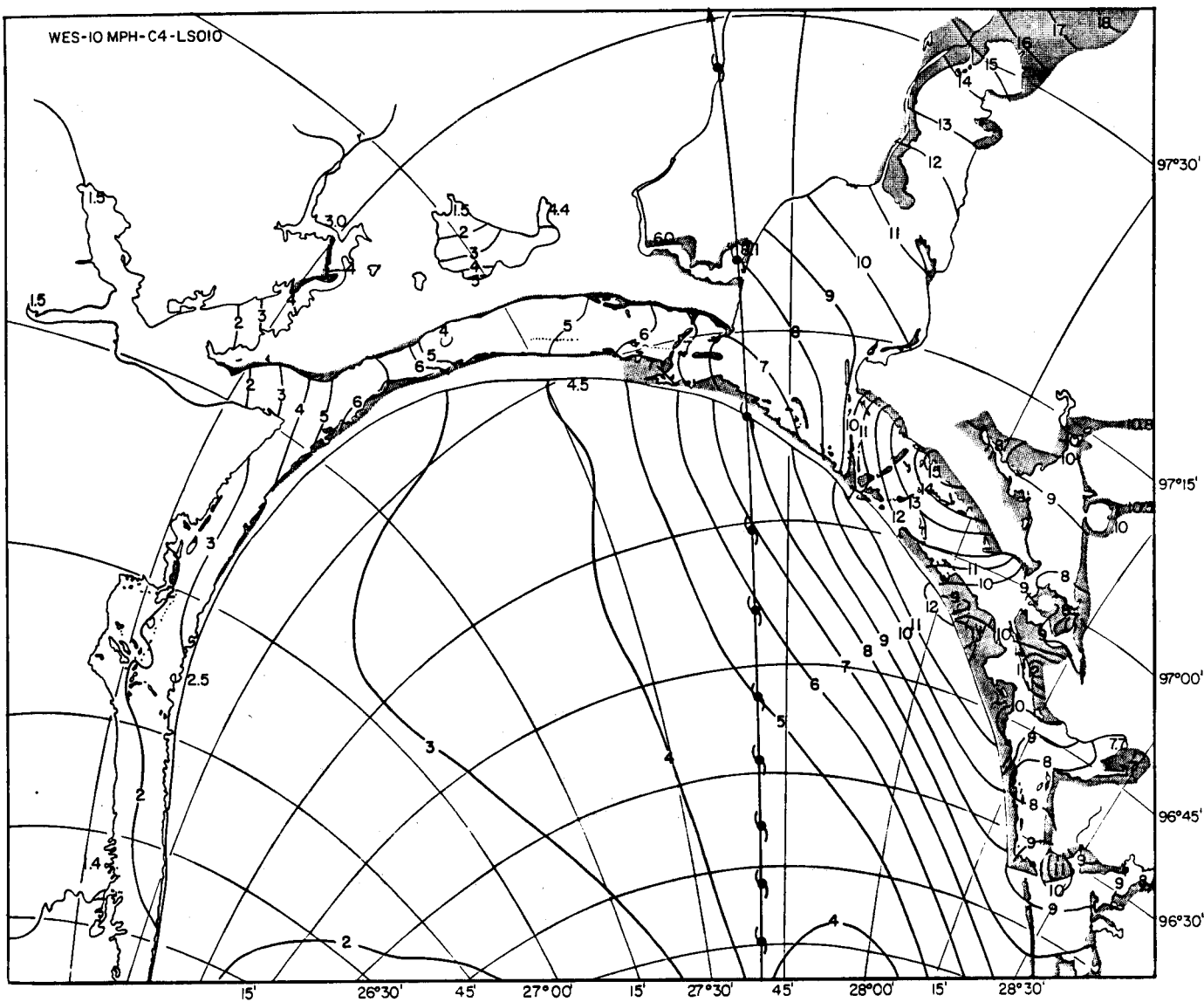


11. BAYSIDE (28, 66)

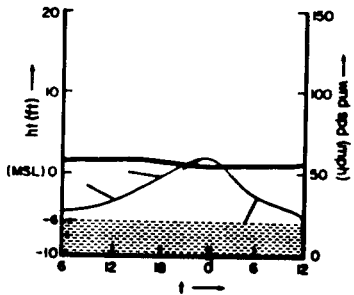


12. MATAGORDA IS. (45, 61)

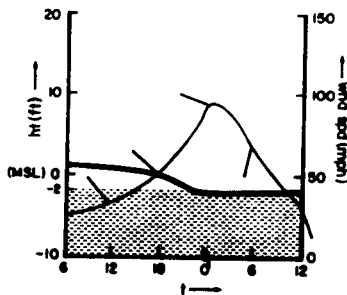




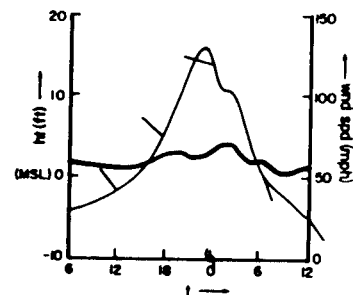
1. PORT MANSFIELD (48, 8)



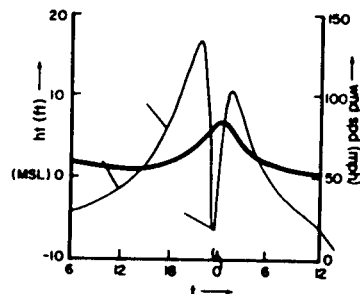
2. BAFFIN BAY (19, 3)



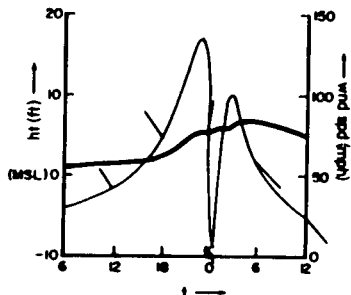
3. PADRI IS. RANGER STA. (24, 35)



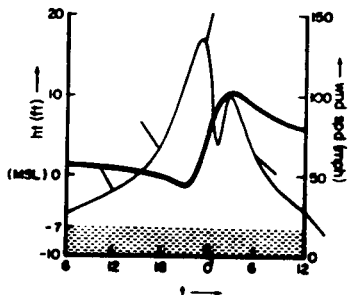
4. MUSTANG PASS (25, 45)



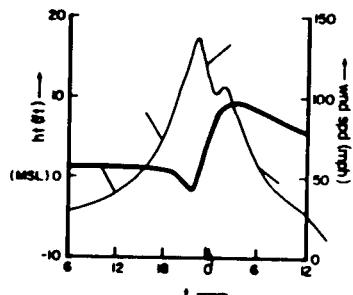
5. NAVAL AIR STA. (20, 46)



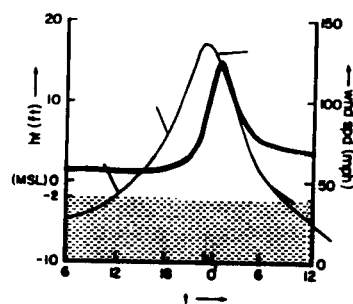
6. CORPUS CHRISTI (12, 53)



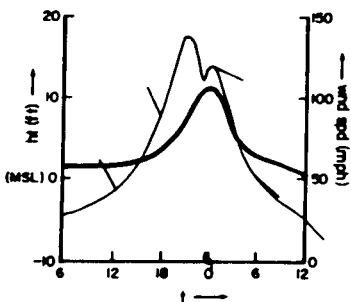
7. INGLESIDE (21, 55)



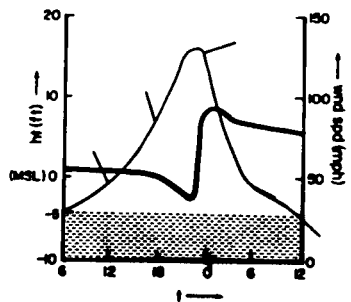
8. ARANSAS PASS (28, 57)



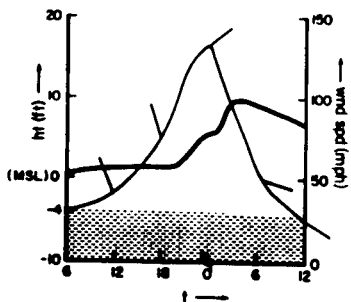
9. PORT ARANSAS (31, 53)



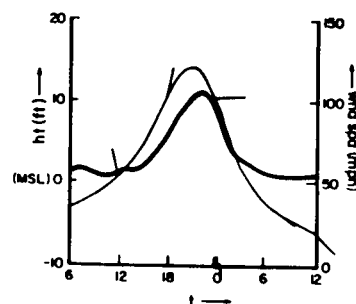
10. COPLAND BRIDGE (35, 63)



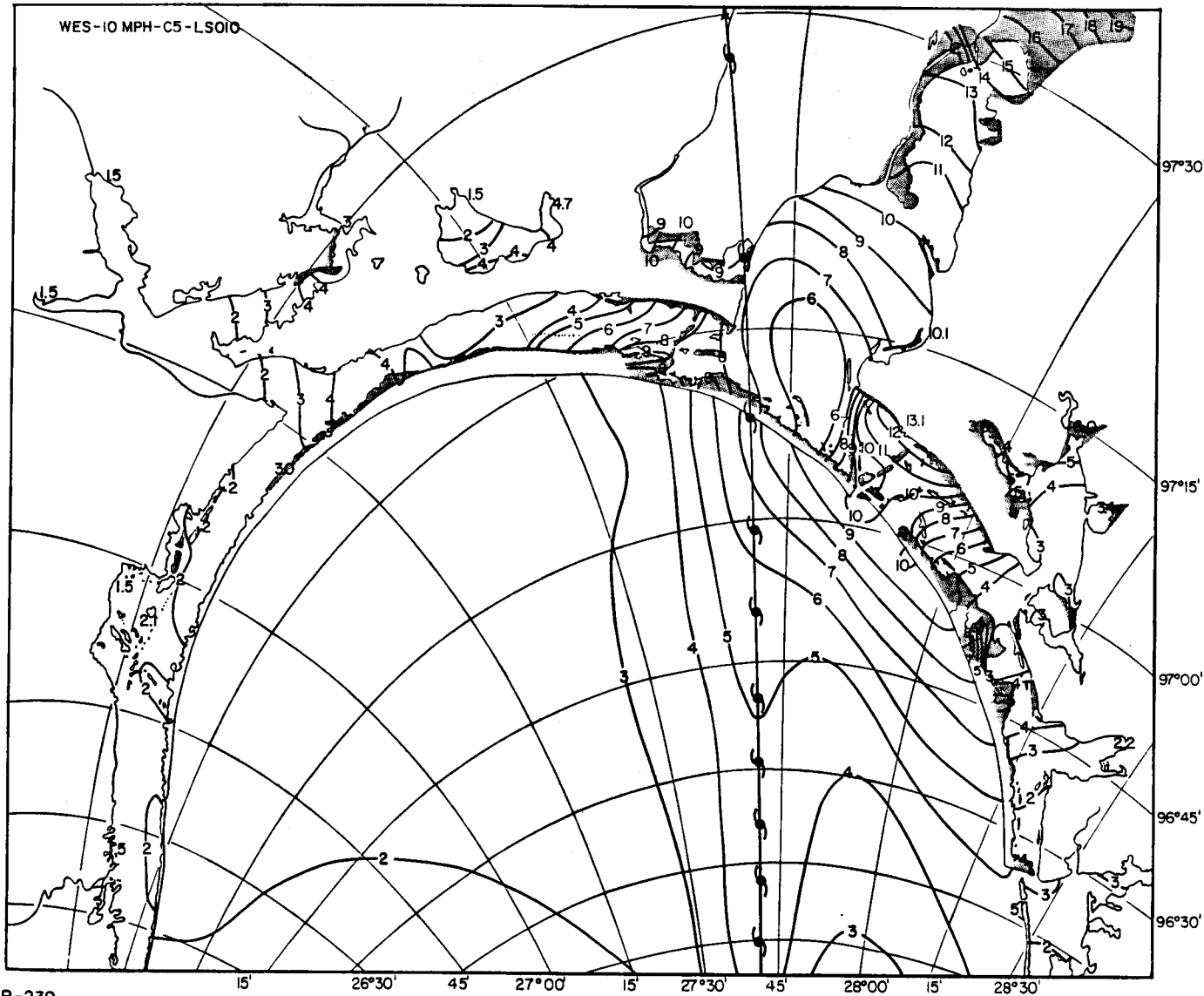
11. BAYSIDE (28, 66)



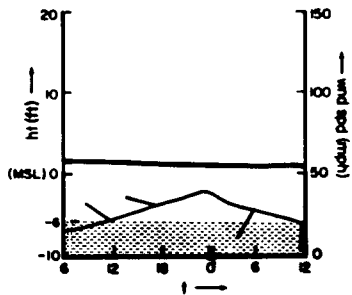
12. MATAGORDA IS. (45, 61)



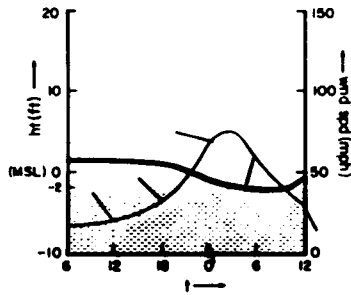
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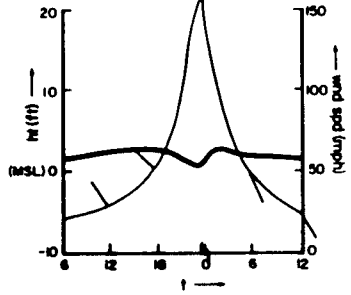
1. PORT MANSFIELD (48, 8)



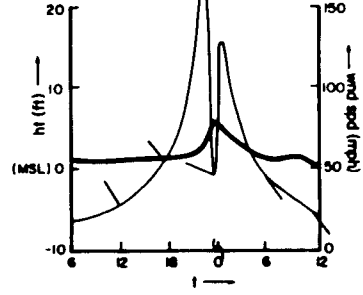
2. BAFFIN BAY (19, 3)



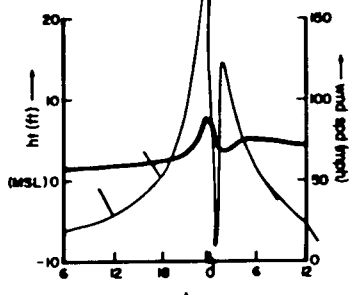
3. PADRI IS. RANGER STA. (24, 35)



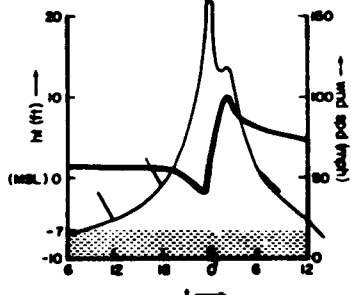
4. MUSTANG PASS (25, 45)



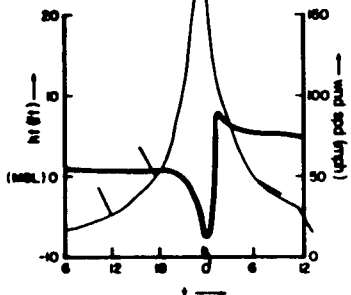
5. NAWAL AIR STA. (20, 46)



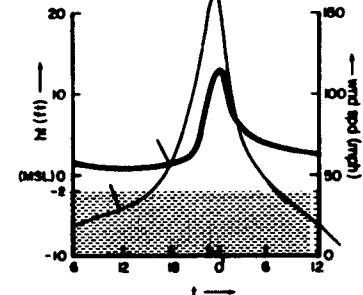
6. CORPUS CHRISTI (32, 53)



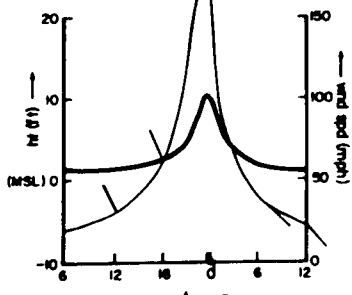
7. INGLESDALE (21, 56)



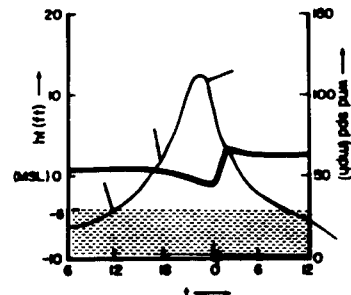
8. ARANSAS PASS (28, 57)



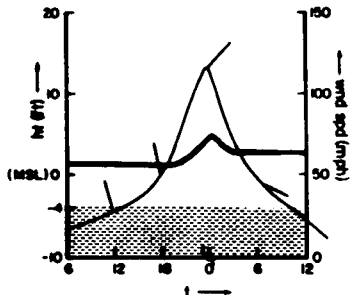
9. PORT ARANSAS (34, 53)



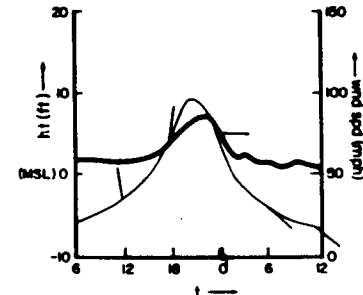
10. COPANO BRIDGE (35, 63)



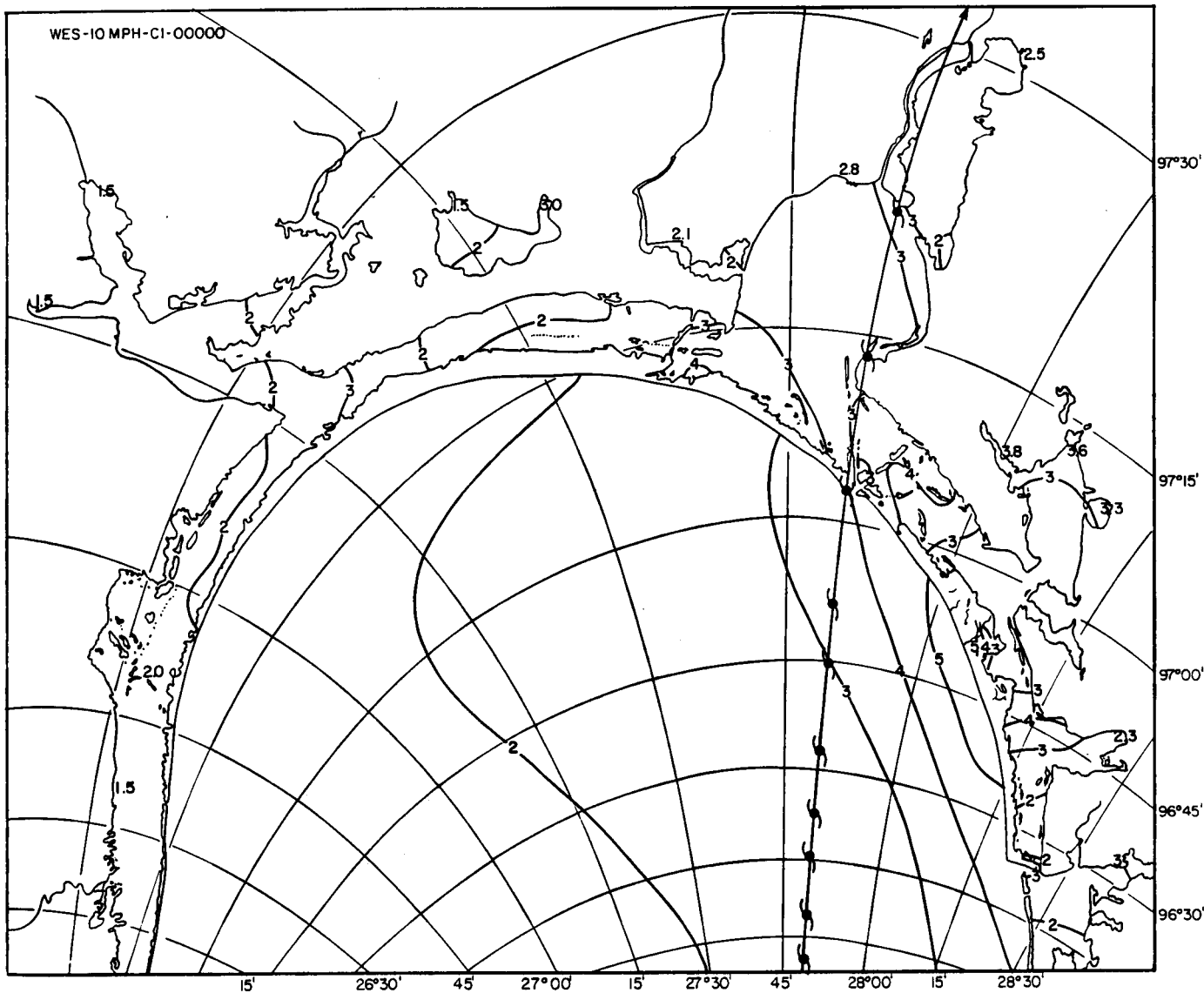
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

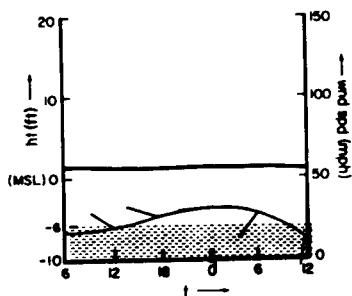


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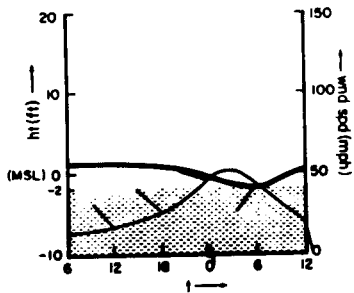


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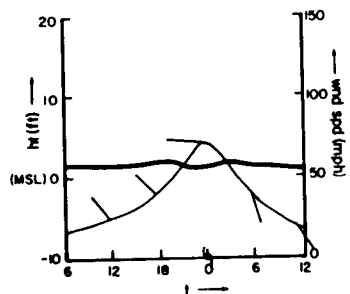
1. PORT MANSFIELD (48, 8)



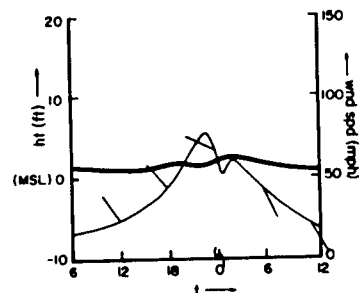
2. BAFFIN BAY (19, 3)



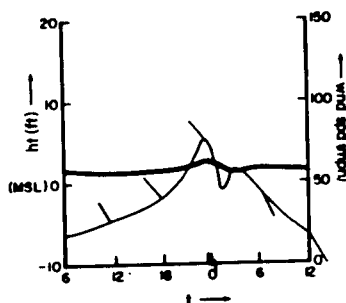
3. PADRI IS. RANGER STA. (24, 35)



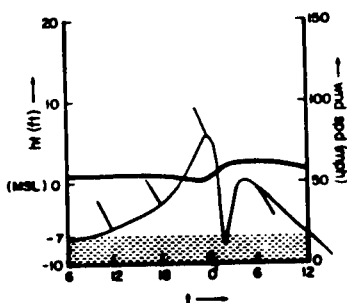
4. MUSTANG PASS (25, 45)



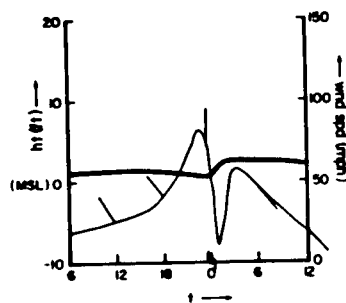
5. NAVAL AIR STA. (20, 46)



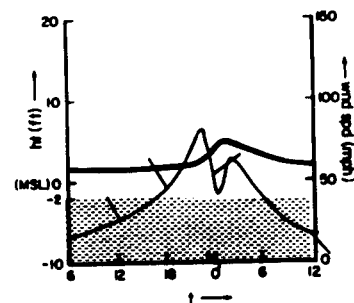
6. CORPUS CHRISTI (12, 53)



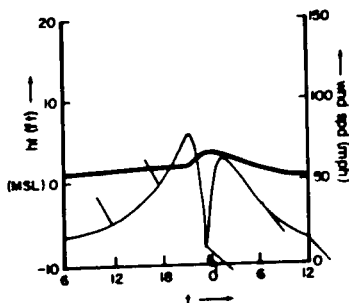
7. INGLESIDE (21, 55)



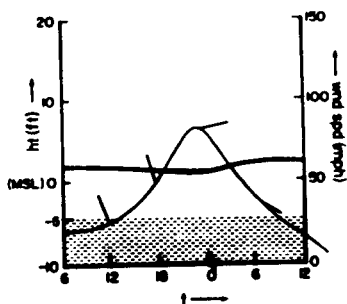
8. ARANSAS PASS (28, 57)



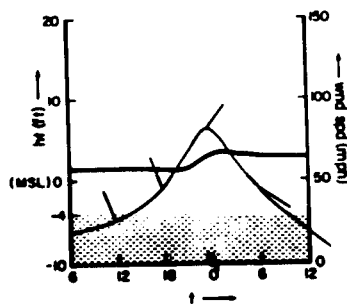
9. PORT ARANSAS (31, 53)



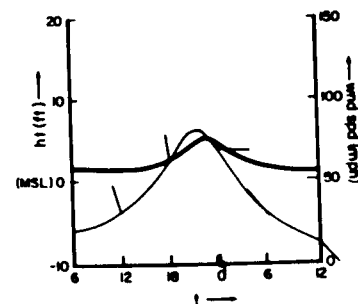
10. COPANO BRIDGE (35, 63)



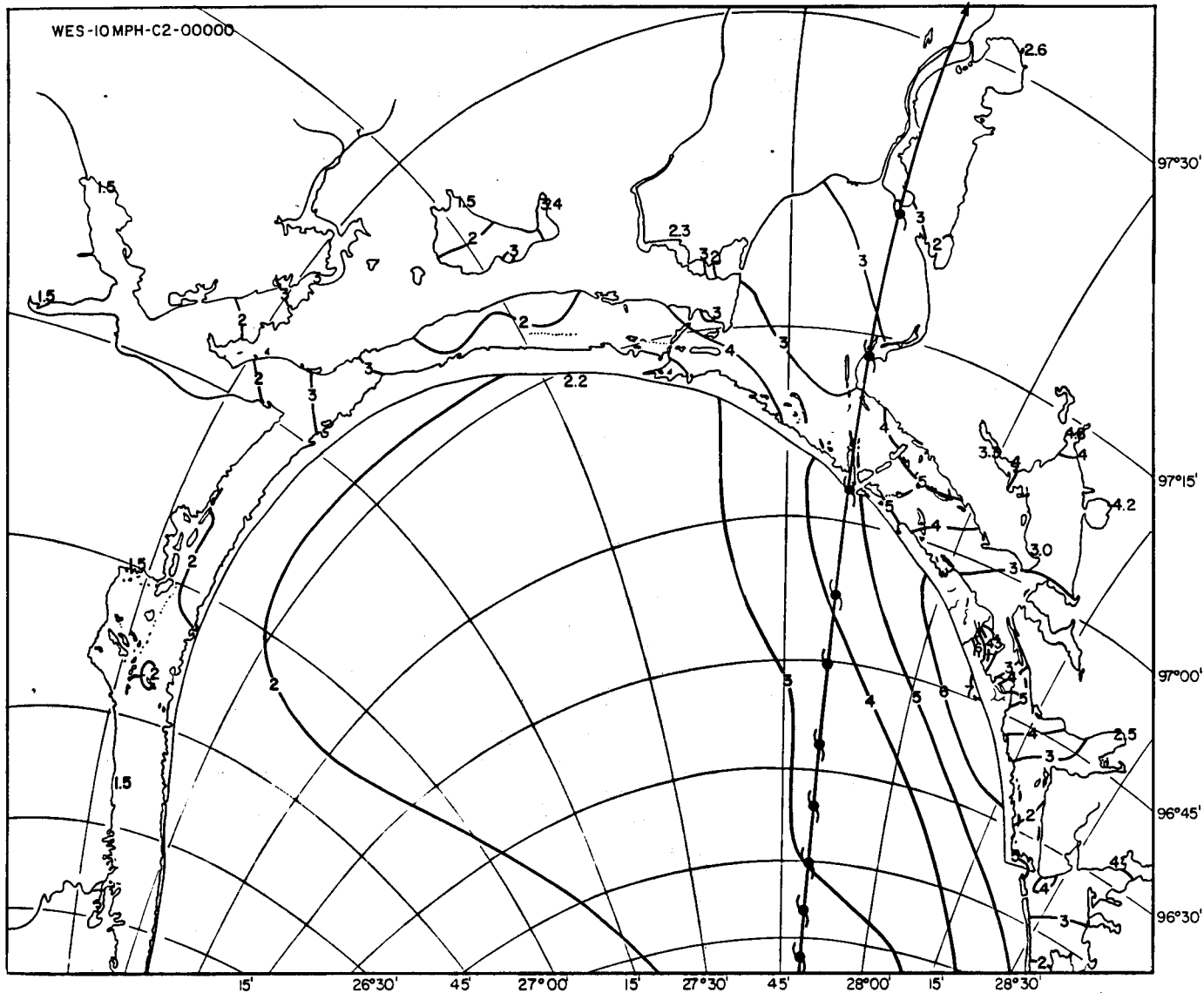
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)



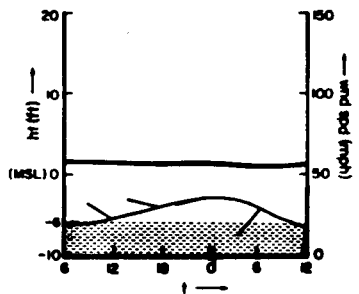
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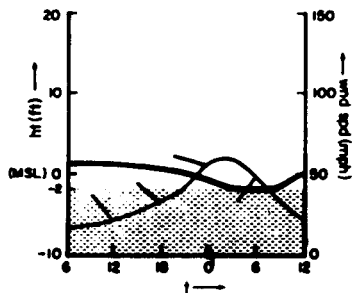
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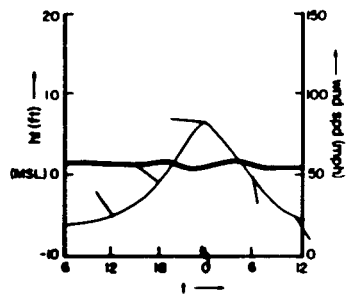
1. PORT MANSFIELD (48, 8)



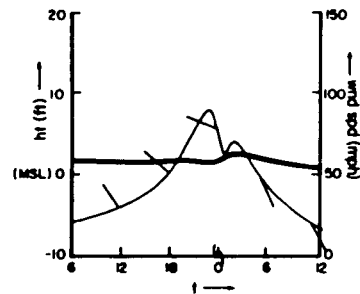
2. BAFFIN BAY (19, 3)



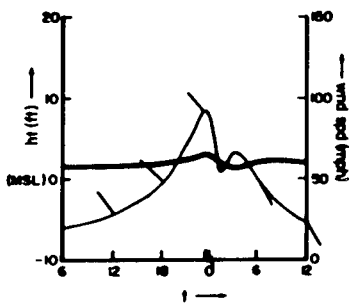
3. PADRI IS. RANGER STA. (24, 35)



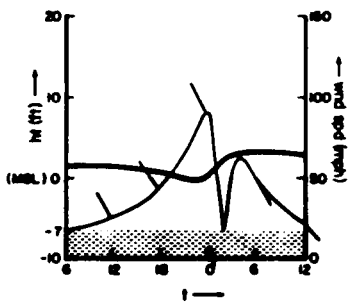
4. MUSTANG PASS (25, 45)



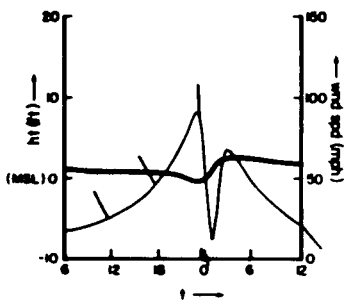
5. NAVAL AIR STA. (20, 46)



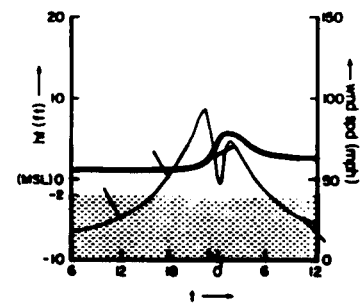
6. CORPUS CHRISTI (22, 53)



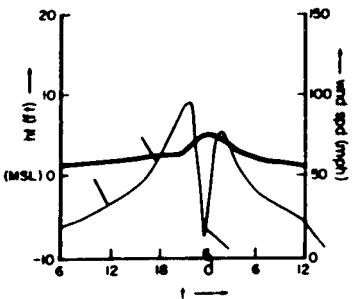
7. INGLESIDE (21, 56)



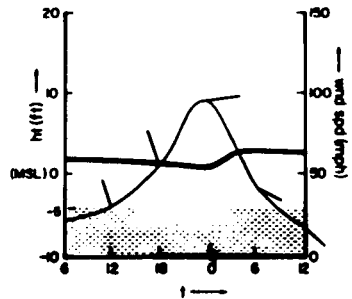
8. ARANSAS PASS (28, 57)



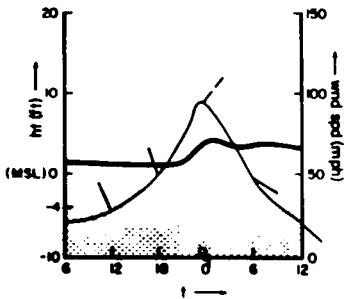
9. PORT ARANSAS (31, 53)



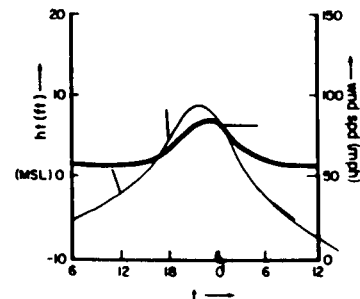
10. COPANO BRIDGE (35, 63)



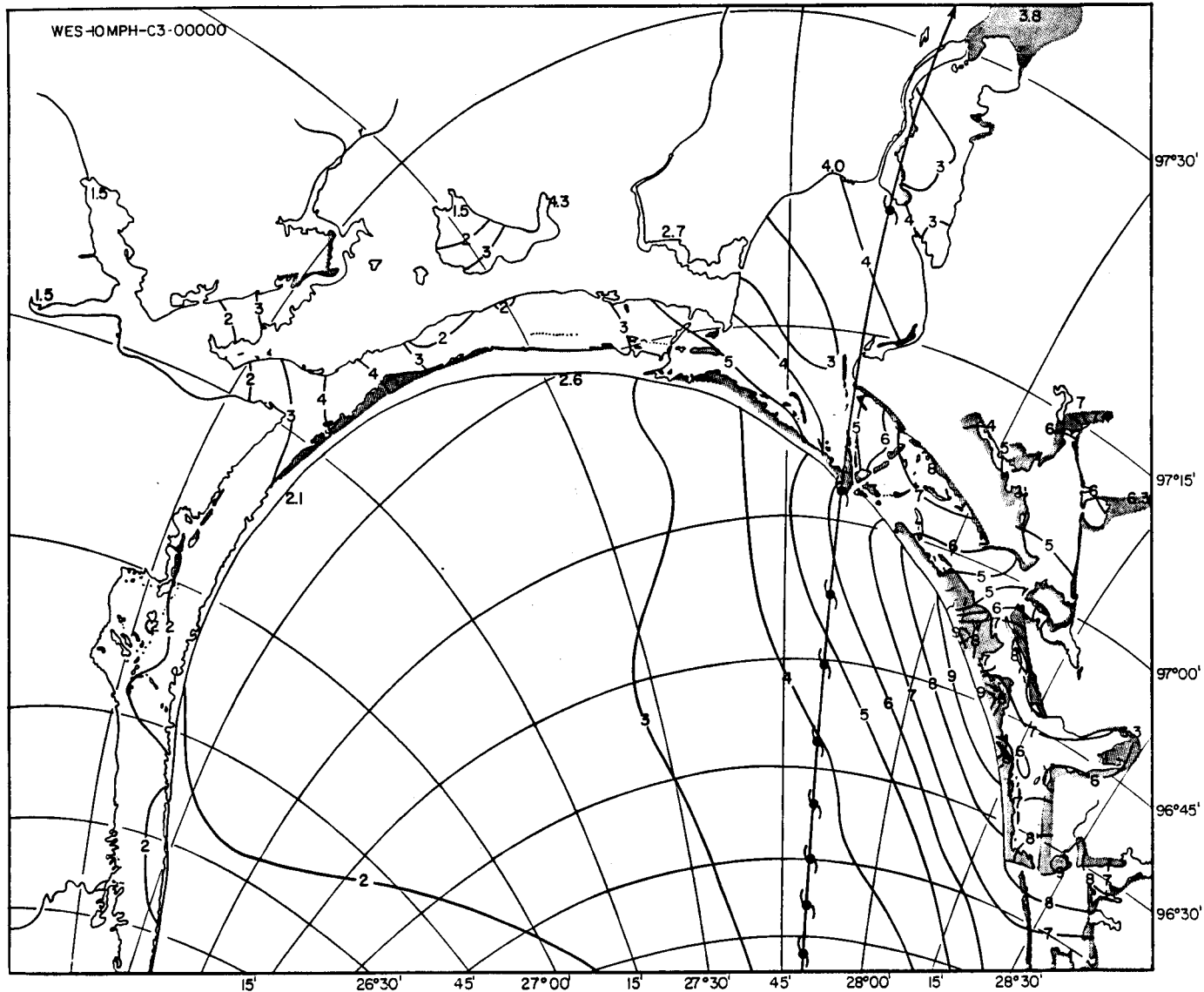
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

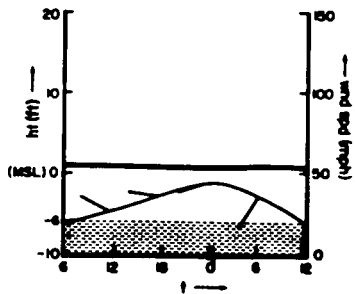


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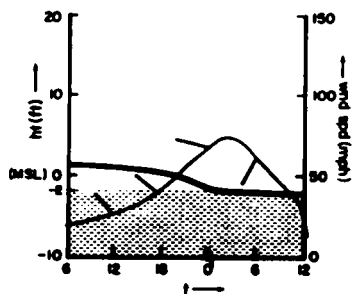


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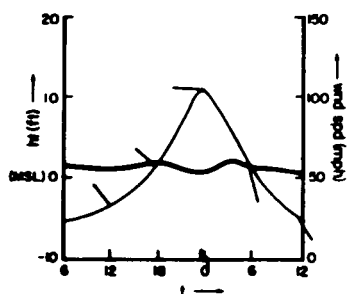
1. PORT MANSFIELD (48, 8)



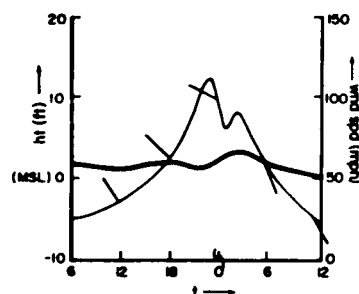
2. BAFFIN BAY (19, 3)



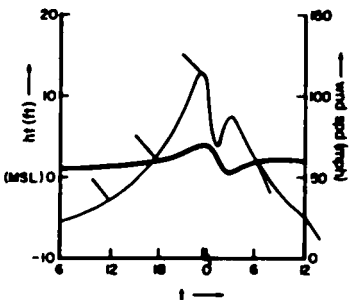
3. PADRI IS. RANGER STA. (24, 35)



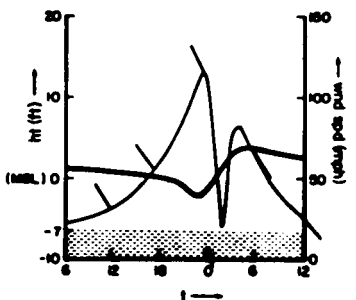
4. MUSTANG PASS (25, 45)



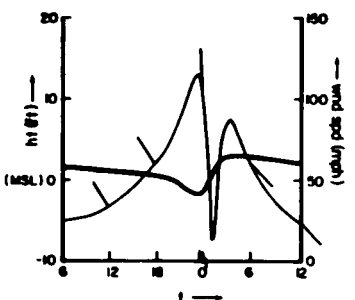
5. NAWAL AIR STA. (20, 46)



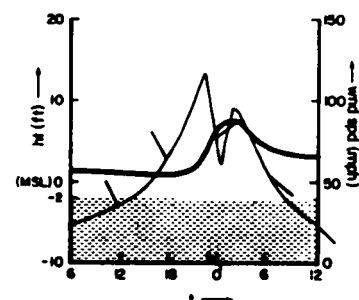
6. CORPUS CHRISTI (32, 53)



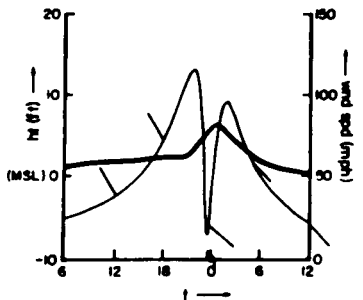
7. INGLESIDE (21, 56)



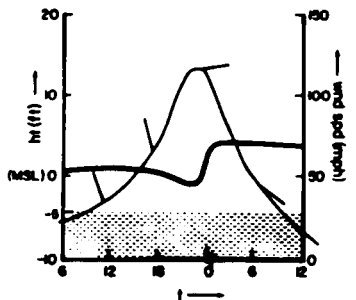
8. ARANSAS PASS (28, 57)



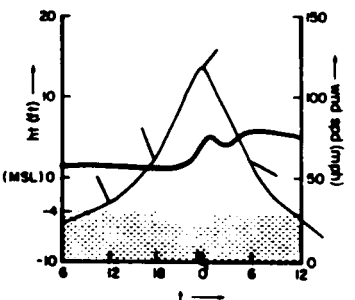
9. PORT ARANSAS (31, 53)



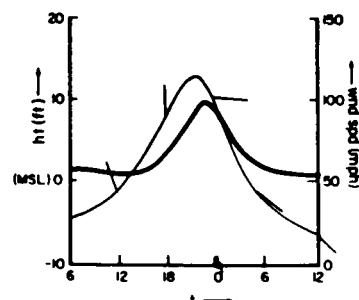
10. COPANO BRIDGE (35, 63)



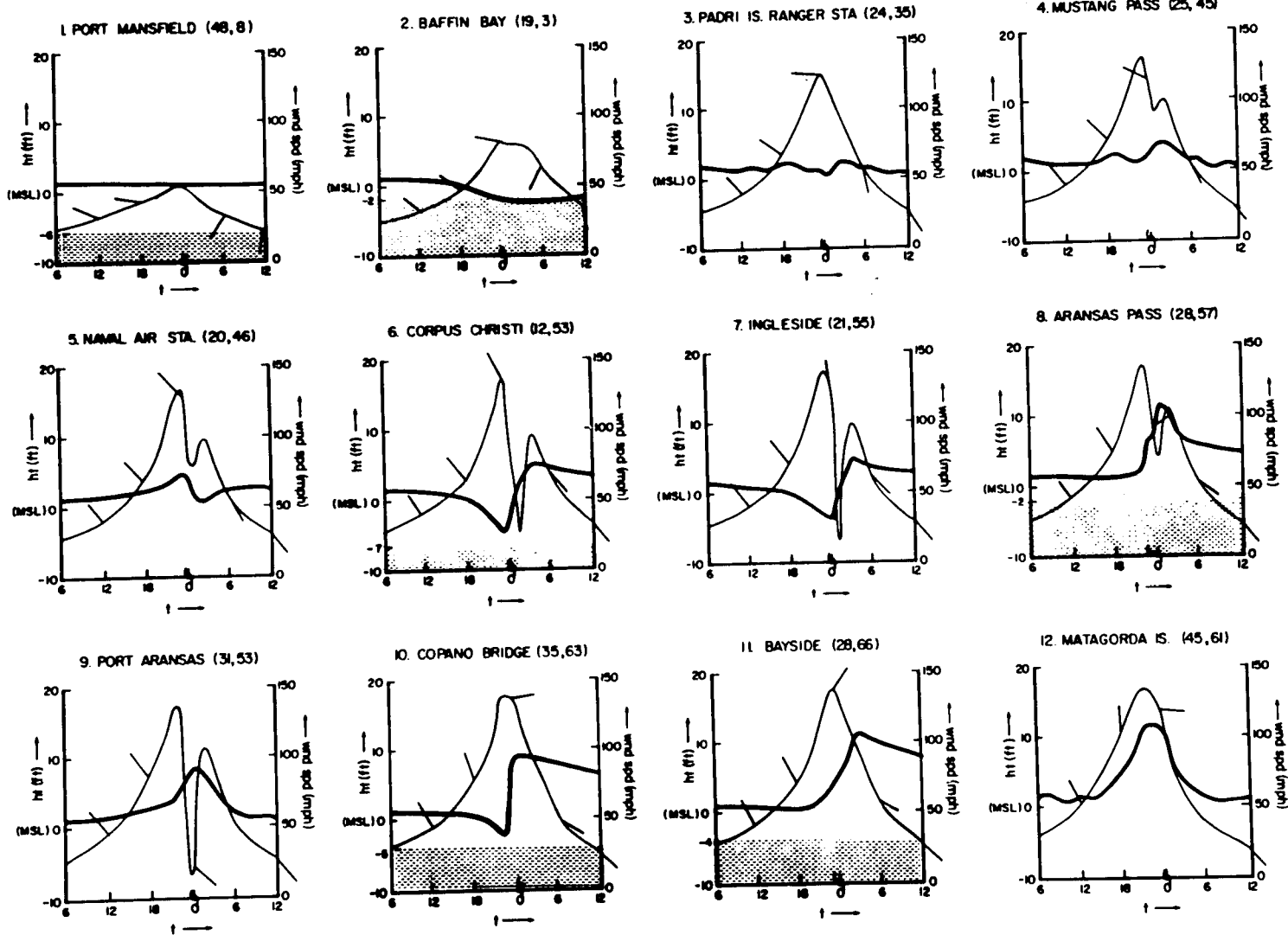
11. BAYSIDE (28, 66)

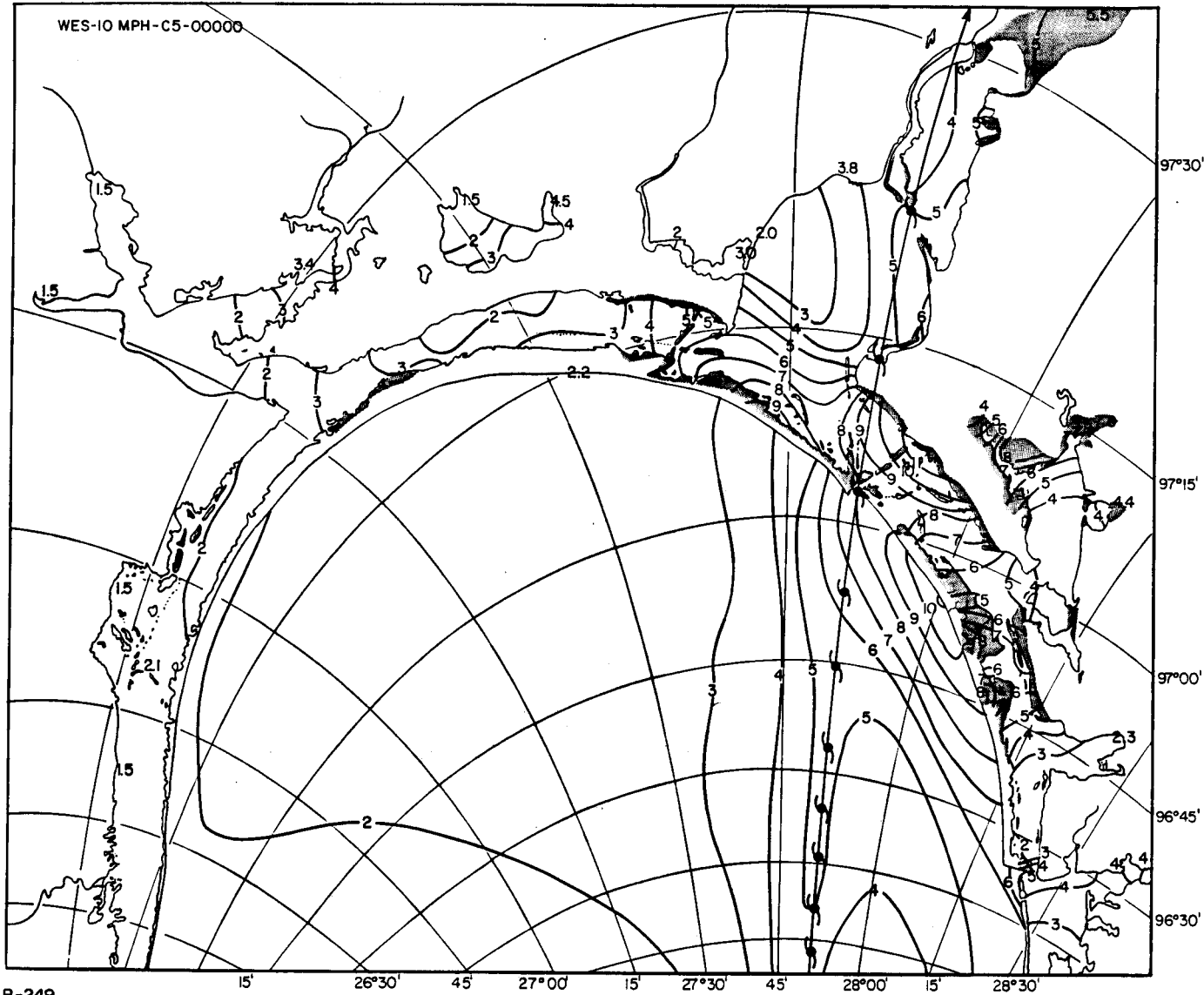


12. MATAGORDA IS. (45, 61)

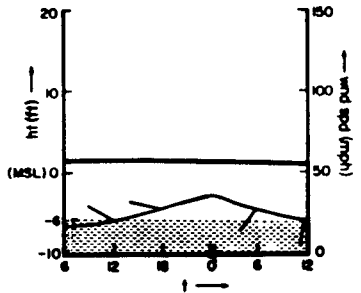




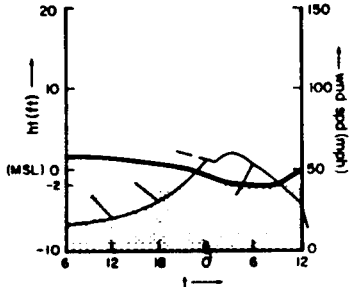




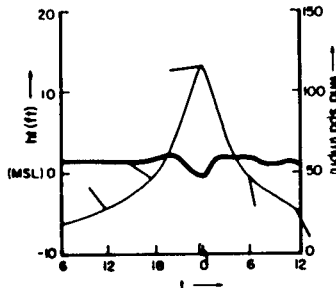
1. PORT MANSFIELD (48, 8)



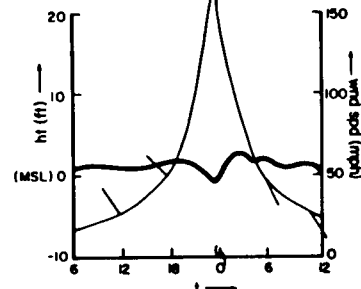
2. BAFFIN BAY (19, 3)



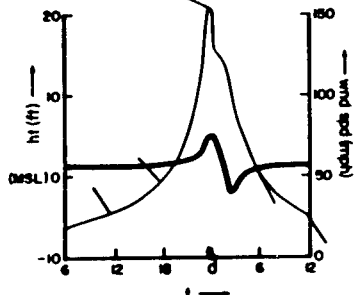
3. PADRI IS. RANGER STA. (24, 35)



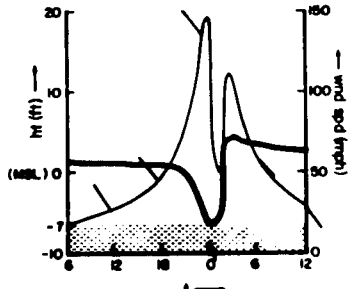
4. MUSTANG PASS (25, 45)



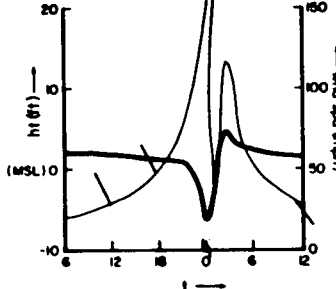
5. NAWAL AIR STA. (20, 46)



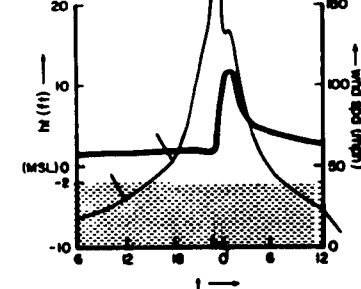
6. CORPUS CHRISTI (12, 53)



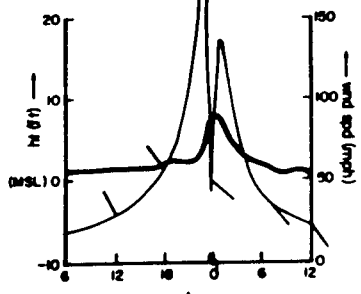
7. INGLESIDE (21, 55)



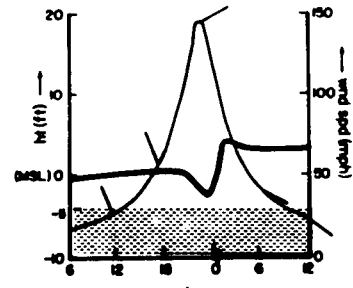
8. ARANSAS PASS (28, 57)



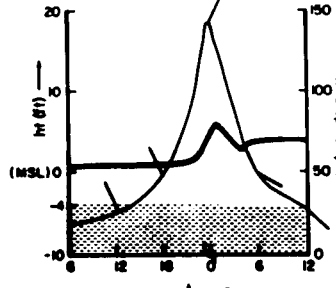
9. PORT ARANSAS (31, 53)



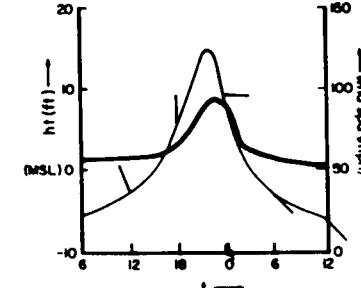
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)



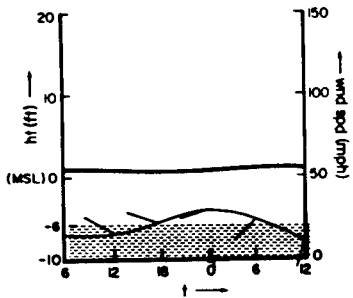
12. MATAGORDA IS. (45, 61)



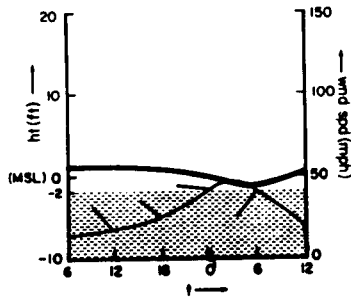




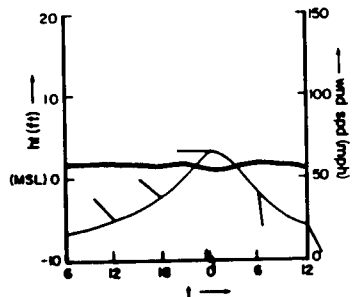
1. PORT MANSFIELD (48, 8)



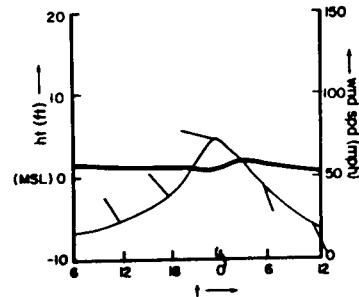
2. BAFFIN BAY (19, 3)



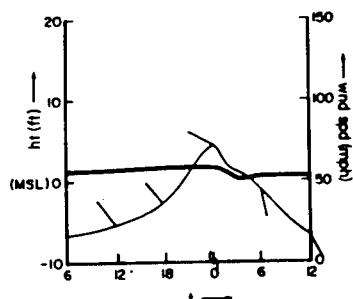
3. PADRI IS. RANGER STA. (24, 35)



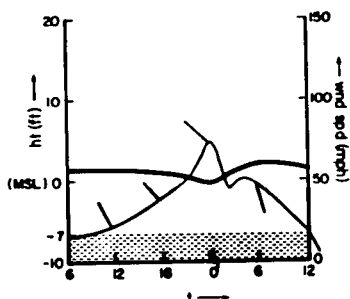
4. MUSTANG PASS (25, 45)



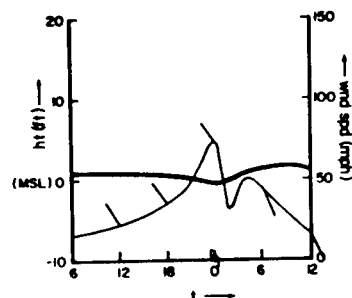
5. NAVAL AIR STA. (20, 46)



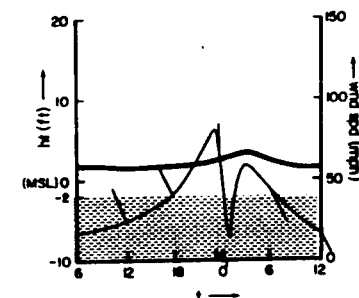
6. CORPUS CHRISTI (12, 53)



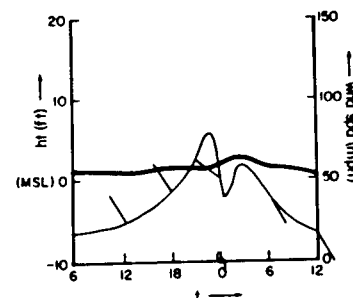
7. INGLESIDE (21, 55)



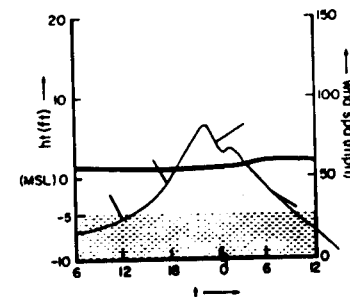
8. ARANSAS PASS (28, 57)



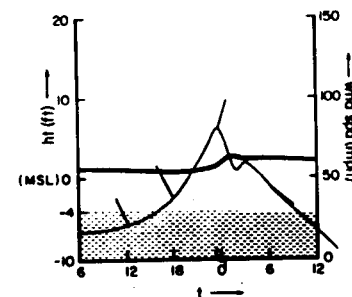
9. PORT ARANSAS (31, 53)



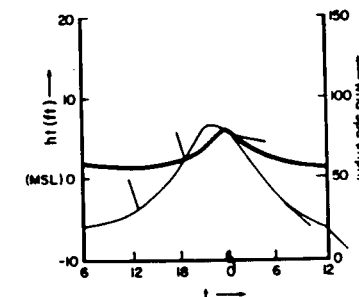
10. COPANO BRIDGE (35, 63)



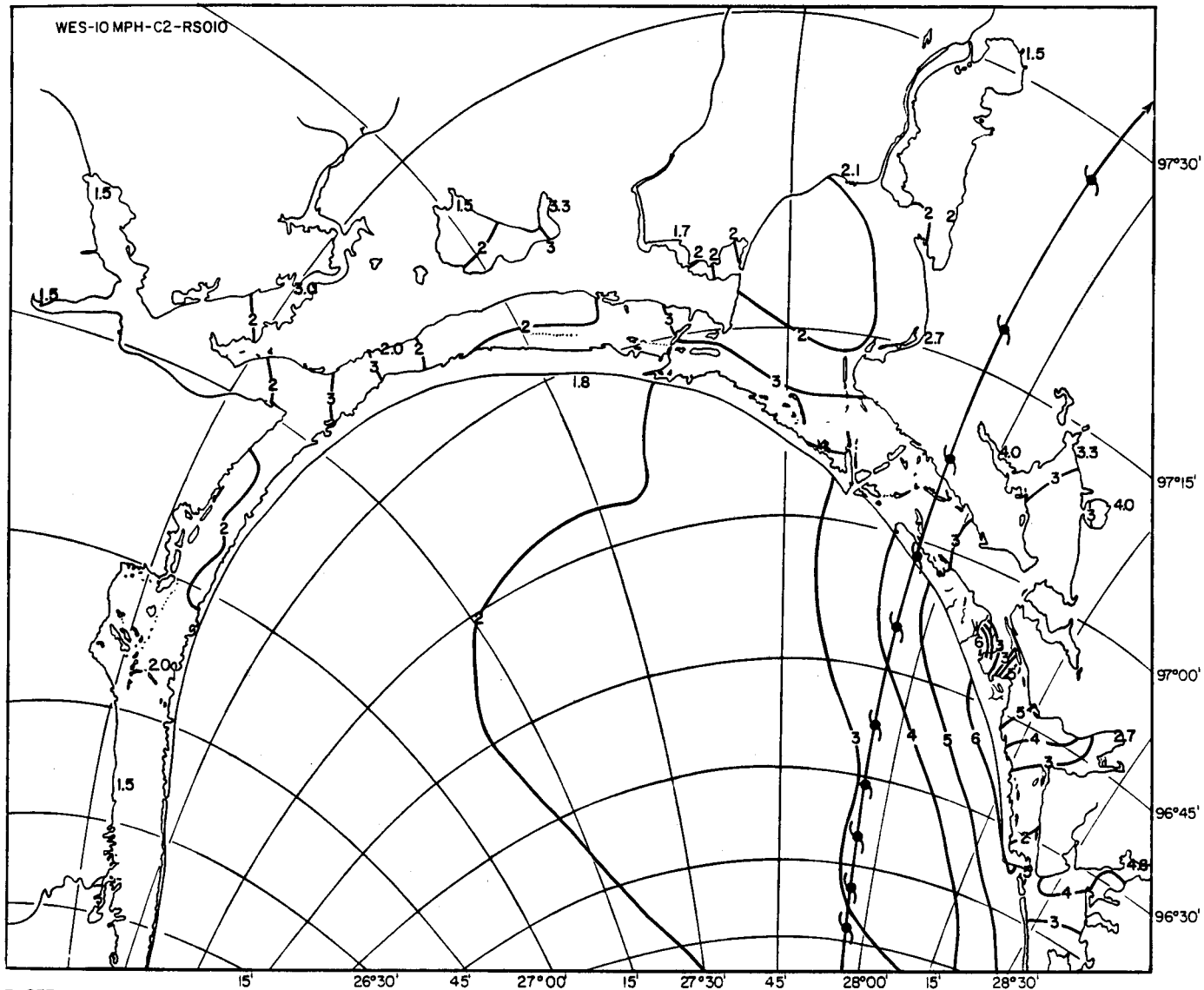
11. BAYSIDE (28, 66)



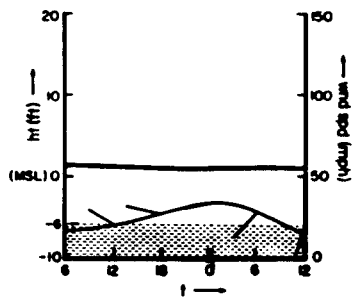
12. MATAGORDA IS. (45, 61)



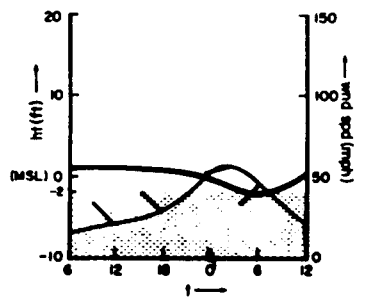
WES-10 MPH-C2-RS010



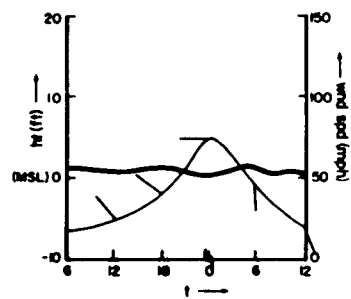
1. PORT MANSFIELD (48, 8)



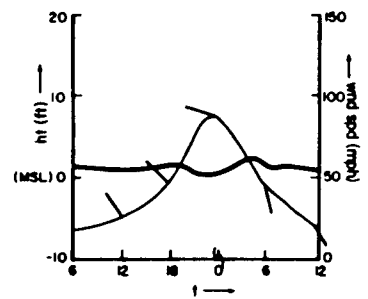
2. BAFFIN BAY (19, 3)



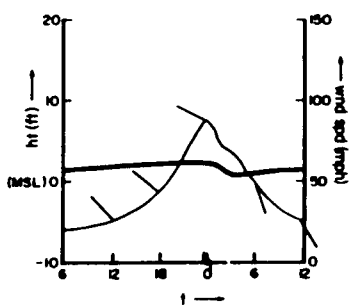
3. PADRI IS. RANGER STA. (24, 35)



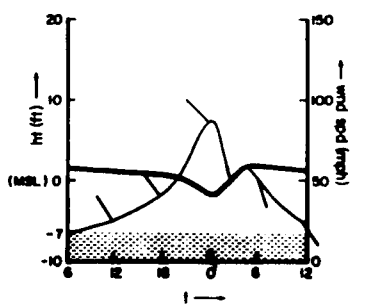
4. MUSTANG PASS (25, 45)



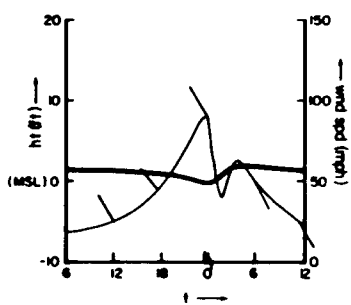
5. NAVAL AIR STA. (20, 46)



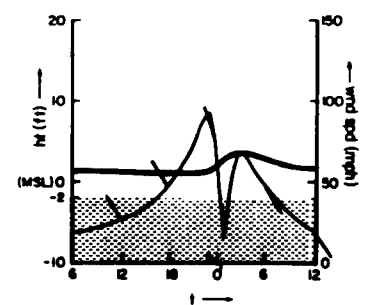
6. CORPUS CHRISTI (02, 53)



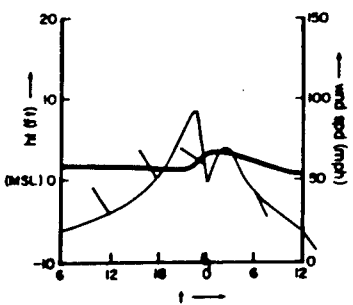
7. INGLESIDE (21, 55)



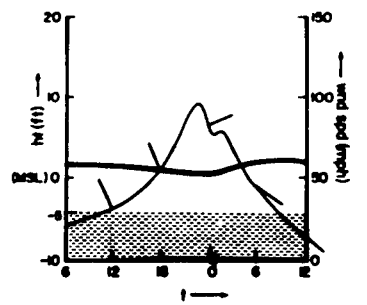
8. ARANSAS PASS (28, 57)



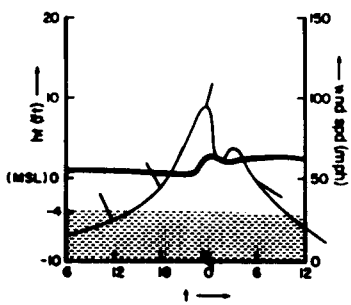
9. PORT ARANSAS (31, 53)



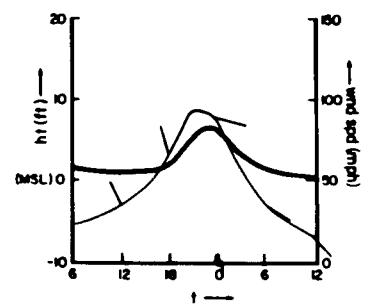
10. COPANO BRIDGE (35, 63)



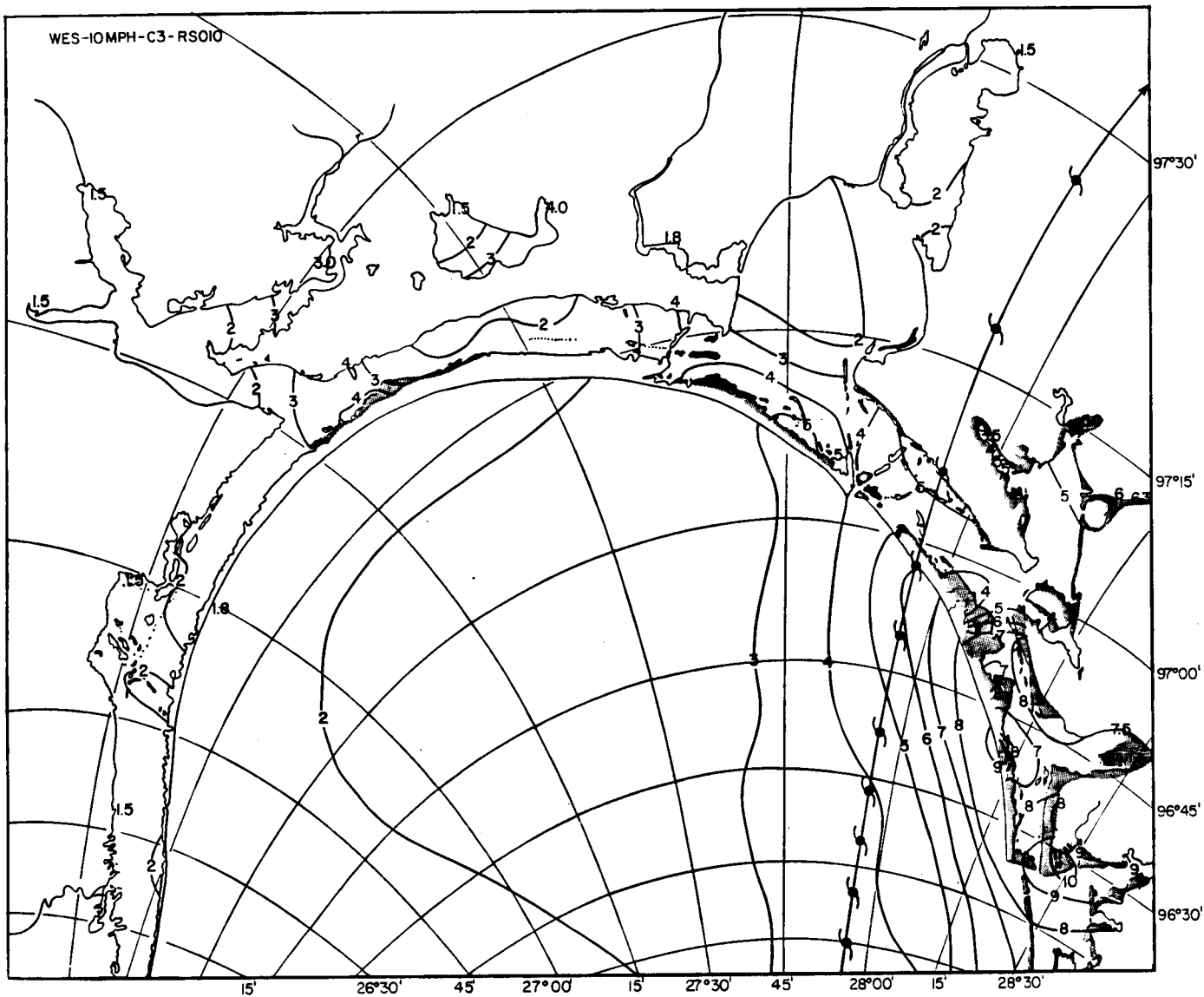
11. BAYSIDE (28, 66)



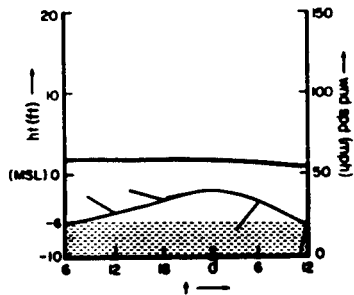
12. MATAGORDA IS. (45, 61)



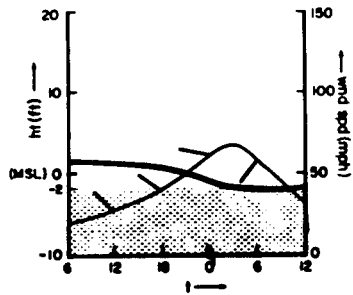
WES-IOMPH-C3-RS010



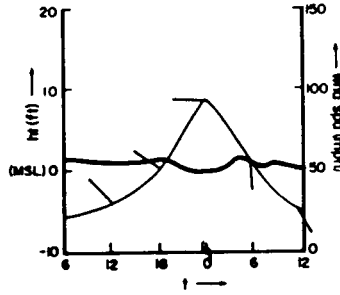
1. PORT MANSFIELD (48, 8)



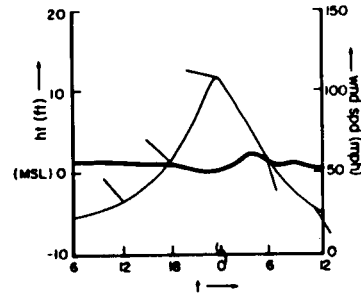
2. BAFFIN BAY (19, 3)



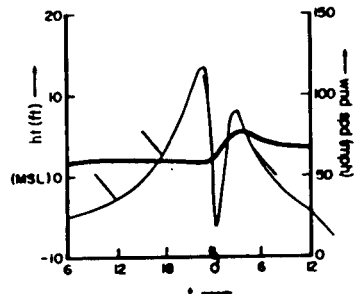
3. PADRI IS. RANGER STA. (24, 35)



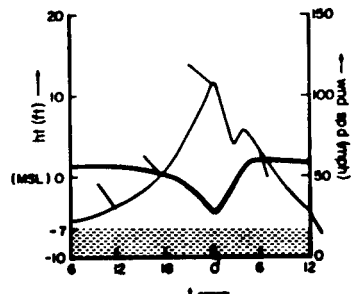
4. MUSTANG PASS (25, 45)



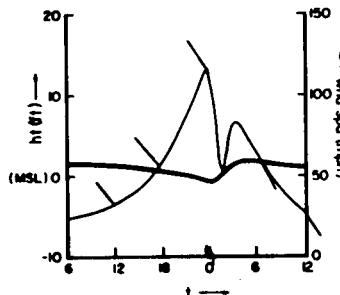
5. NAVAL AIR STA. (20, 46)



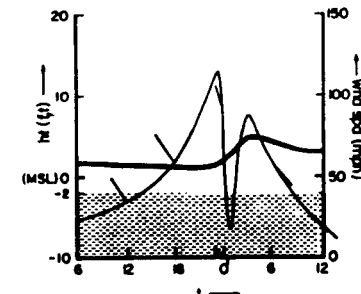
6. CORPUS CHRISTI (12, 53)



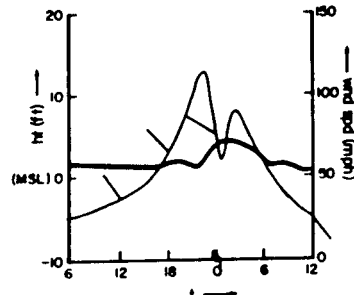
7. INGLESIDE (21, 55)



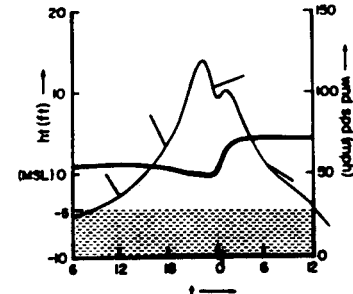
8. ARANSAS PASS (28, 57)



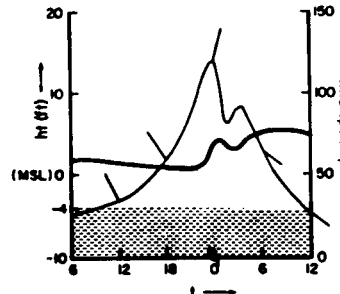
9. PORT ARANSAS (31, 53)



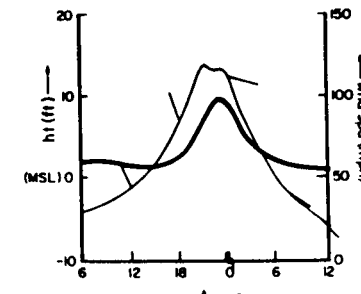
10. COPANO BRIDGE (35, 63)



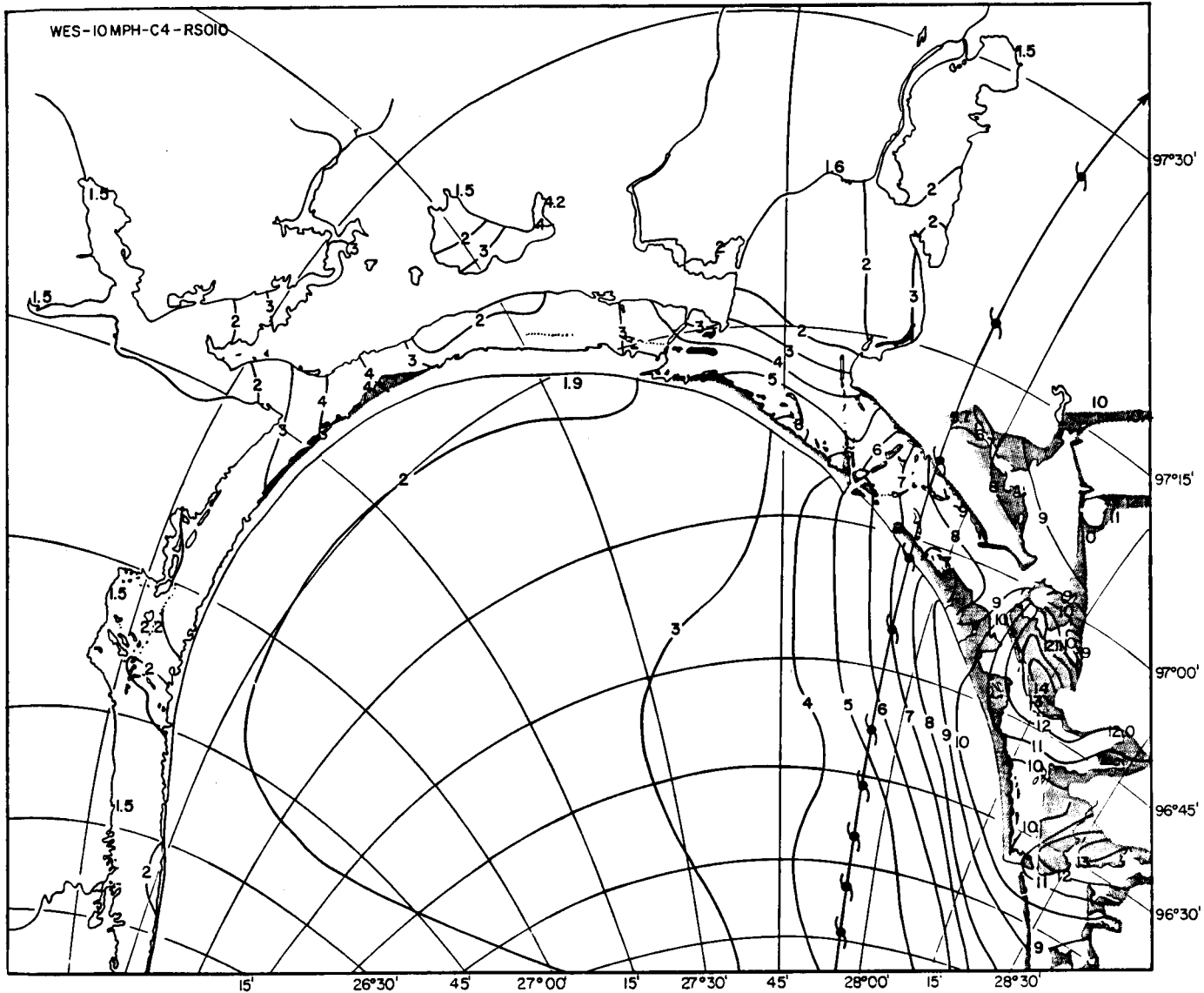
11. BAYSIDE (28, 66)



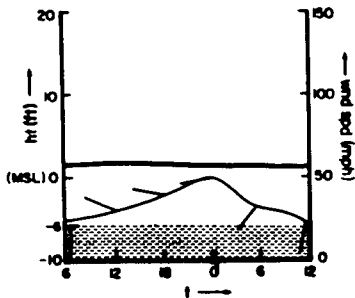
12. MATAGORDA IS. (45, 61)



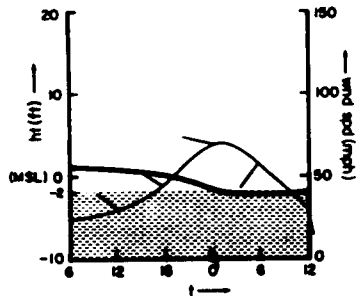
WES-10MPH-C4-RS010



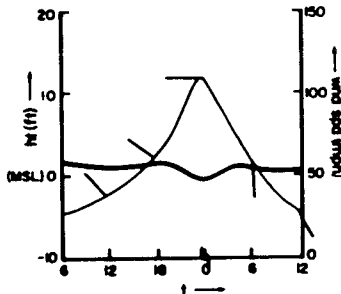
1. PORT MANSFIELD (48, 8)



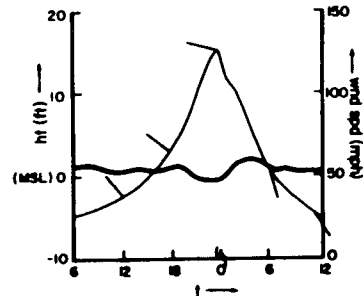
2. BAFFIN BAY (19, 3)



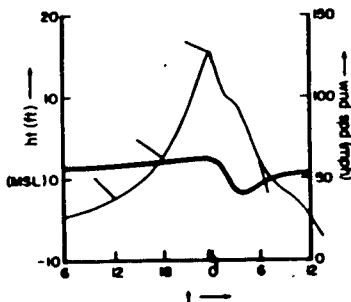
3. PADRI IS. RANGER STA. (24, 35)



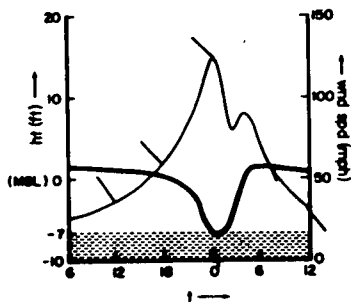
4. MUSTANG PASS (25, 45)



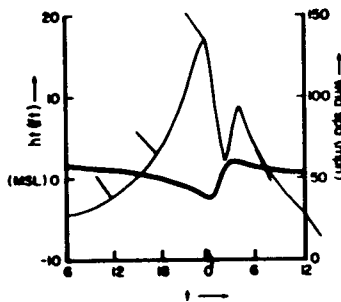
5. NAWAL AIR STA. (20, 46)



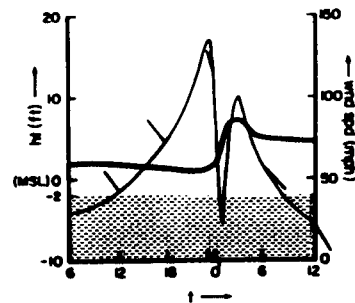
6. CORPUS CHRISTI (02, 53)



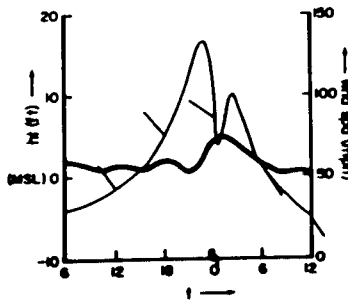
7. INGLESIDE (21, 55)



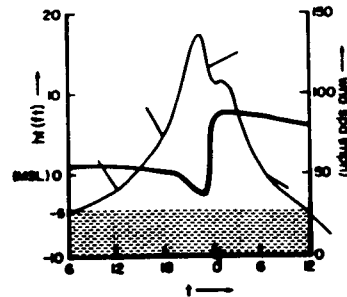
8. ARANSAS PASS (28, 57)



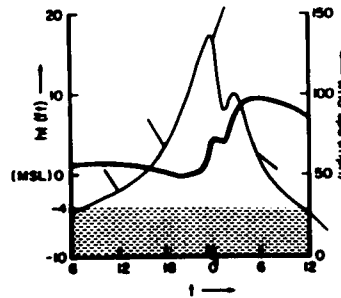
9. PORT ARANSAS (31, 53)



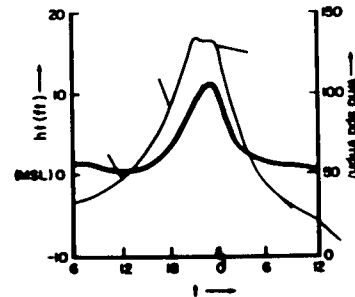
10. COPANO BRIDGE (35, 63)



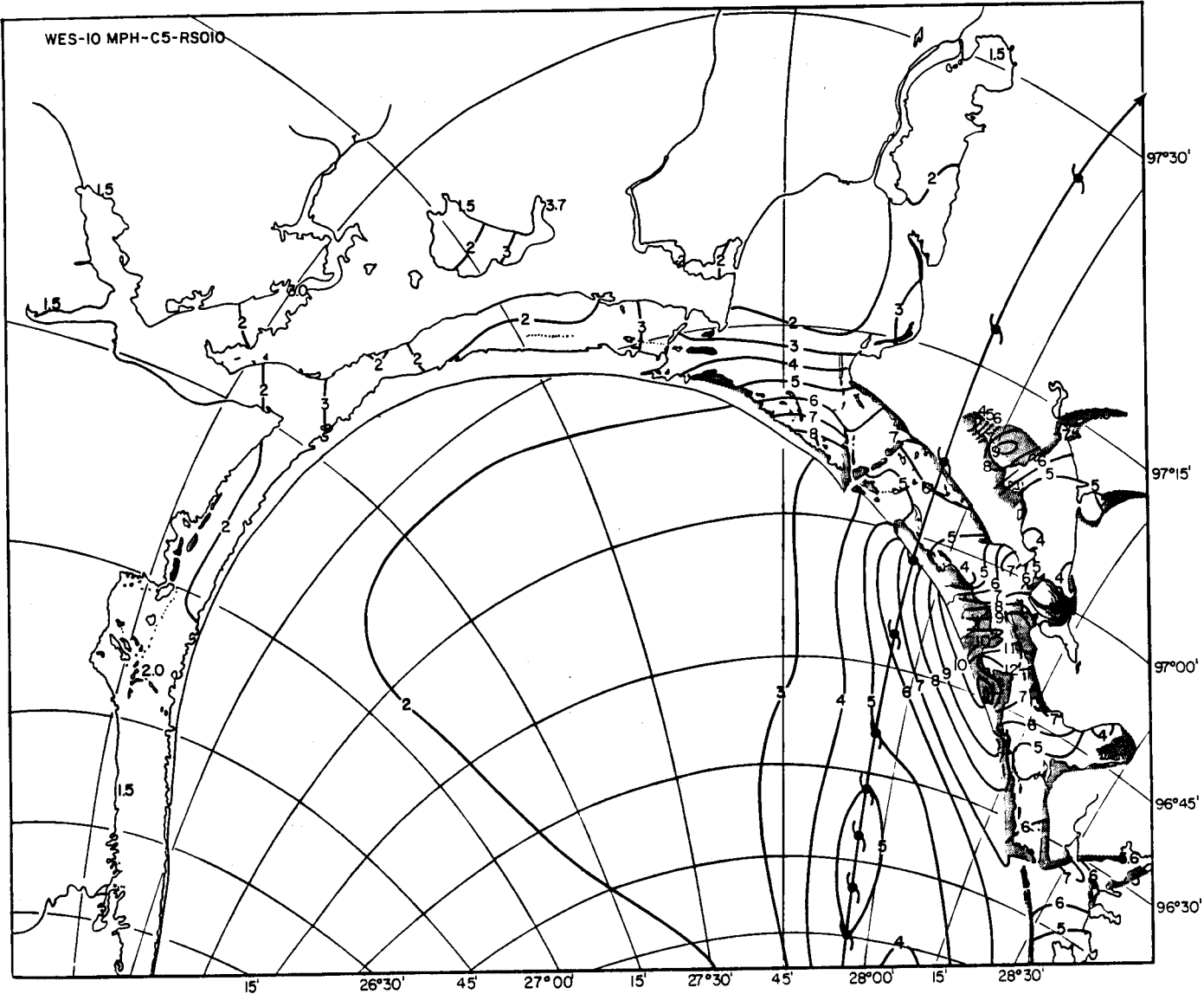
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)



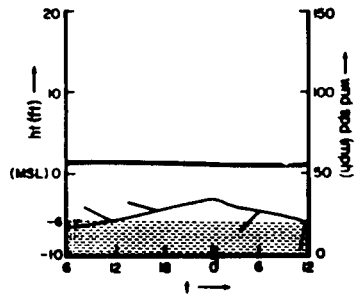
WES-10 MPH-C5-RSD10



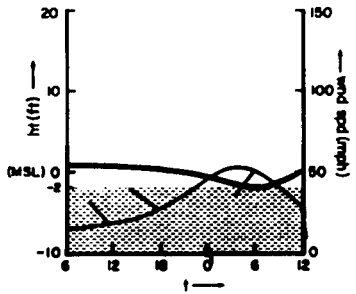
B-259



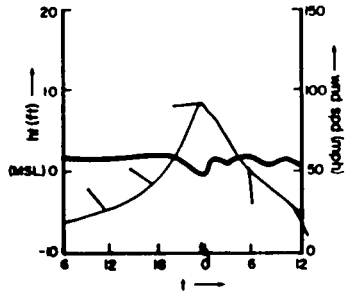
1. PORT MANSFIELD (48, 8)



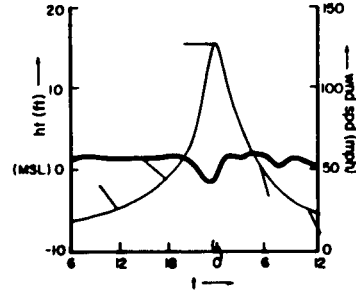
2. BAFFIN BAY (19, 3)



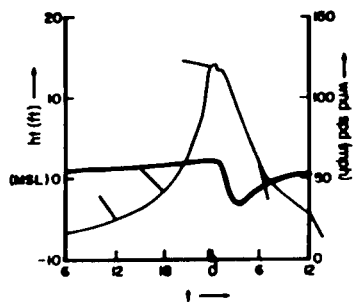
3. PADRI IS. RANGER STA. (24, 35)



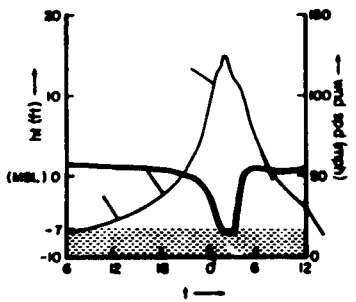
4. MUSTANG PASS (25, 45)



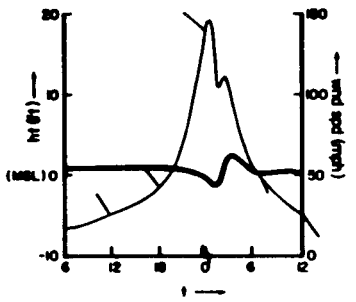
5. NAWAL AIR STA. (20, 46)



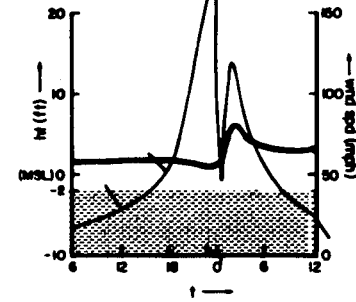
6. CORPUS CHRISTI (62, 53)



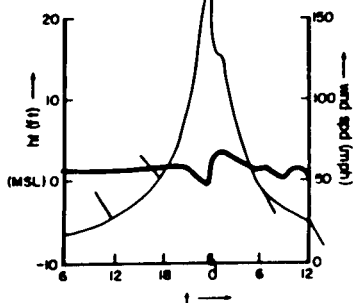
7. INGLESIDE (21, 56)



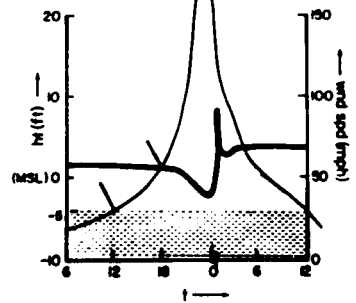
8. ARANSAS PASS (28, 57)



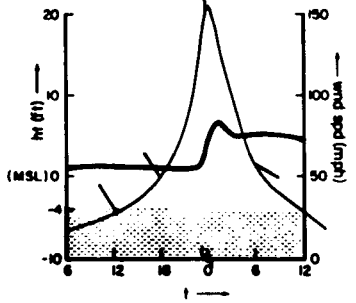
9. PORT ARANSAS (31, 53)



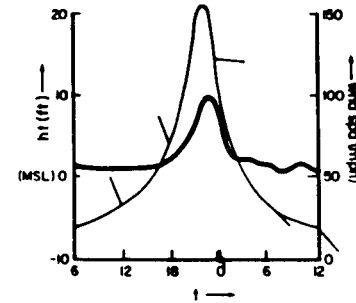
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)

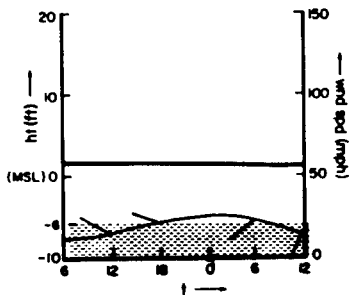


12. MATAGORDA IS. (45, 61)

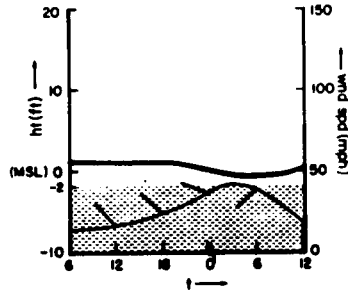




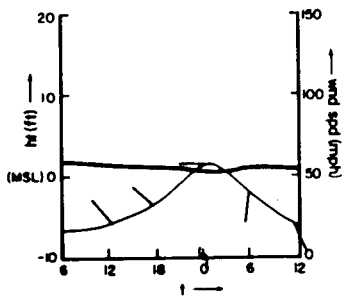
1. PORT MANSFIELD (48, 8)



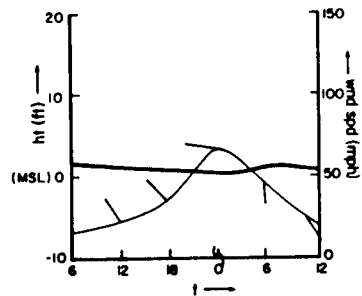
2. BAFFIN BAY (19, 3)



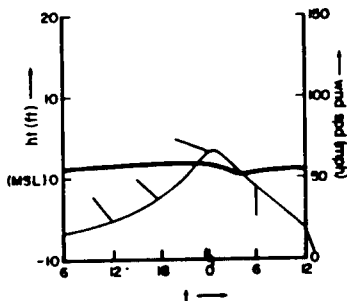
3. PADRI IS. RANGER STA. (24, 35)



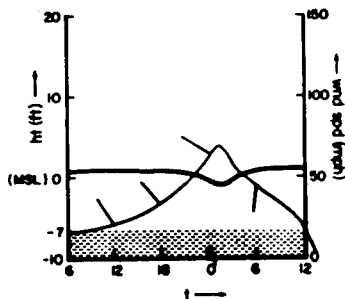
4. MUSTANG PASS (25, 45)



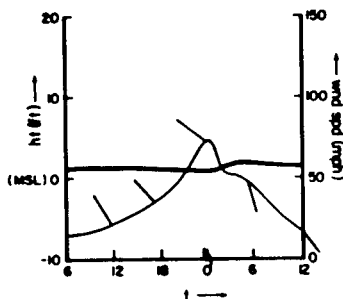
5. NAVAL AIR STA. (20, 46)



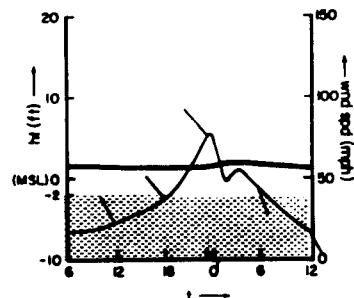
6. CORPUS CHRISTI (12, 53)



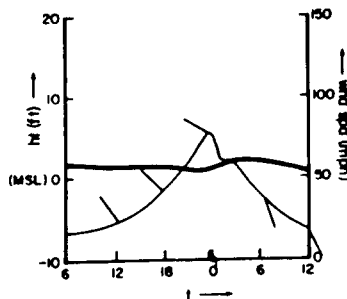
7. INGLESIDE (21, 55)



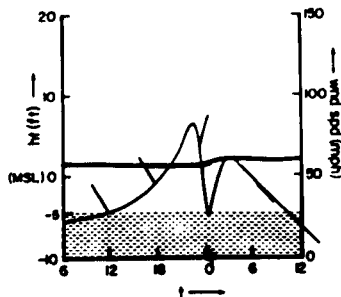
8. ARANSAS PASS (28, 57)



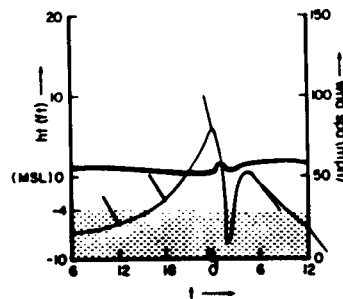
9. PORT ARANSAS (31, 53)



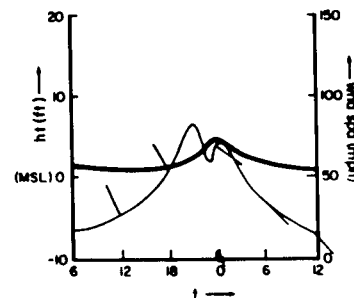
10. COPANO BRIDGE (35, 63)

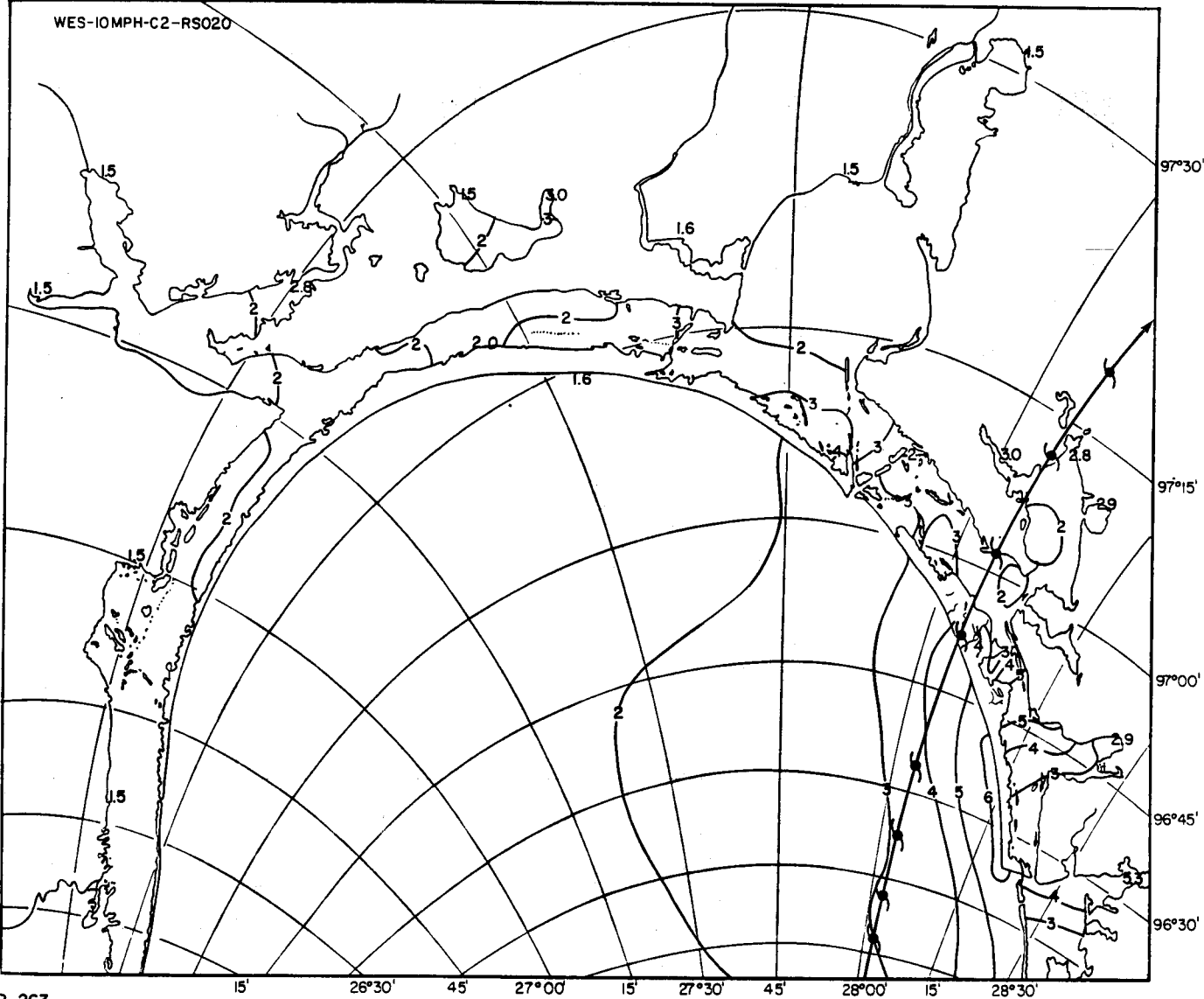


11. BAYSIDE (28, 66)

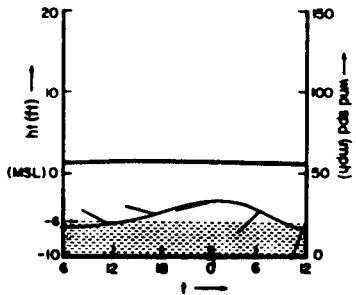


12. MATAGORDA IS. (45, 61)

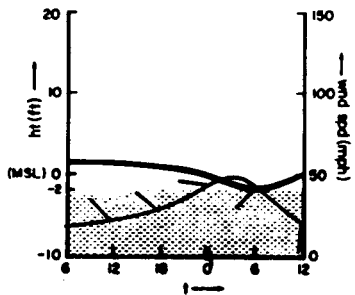




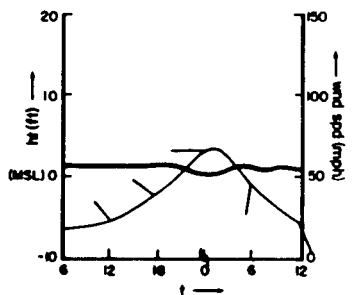
1. PORT MANSFIELD (48, 8)



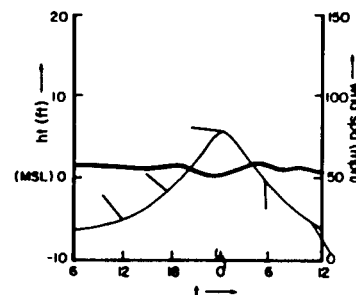
2. BAFFIN BAY (19, 3)



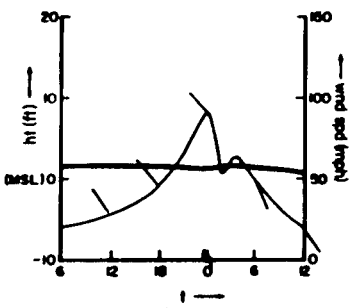
3. PADRI IS. RANGER STA. (24, 35)



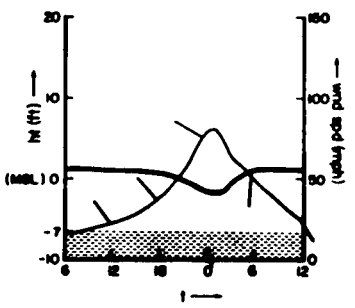
4. MUSTANG PASS (25, 45)



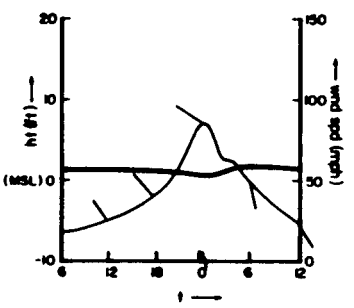
5. NAWAL AIR STA. (20, 46)



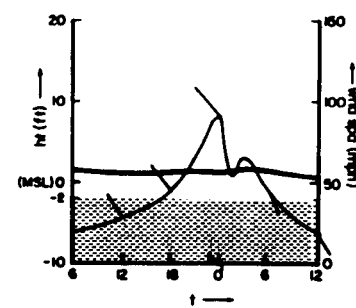
6. CORPUS CHRISTI (12, 53)



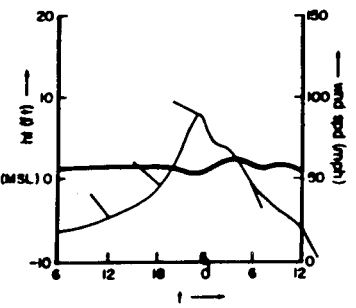
7. INGLESIDE (21, 55)



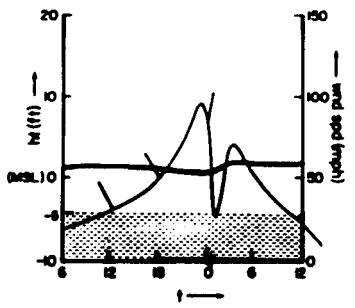
8. ARANSAS PASS (28, 57)



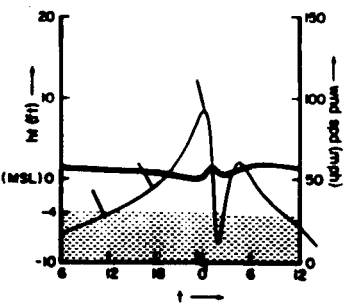
9. PORT ARANSAS (31, 53)



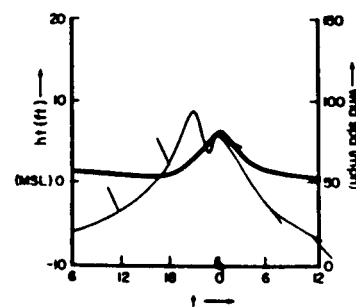
10. COPANO BRIDGE (35, 63)



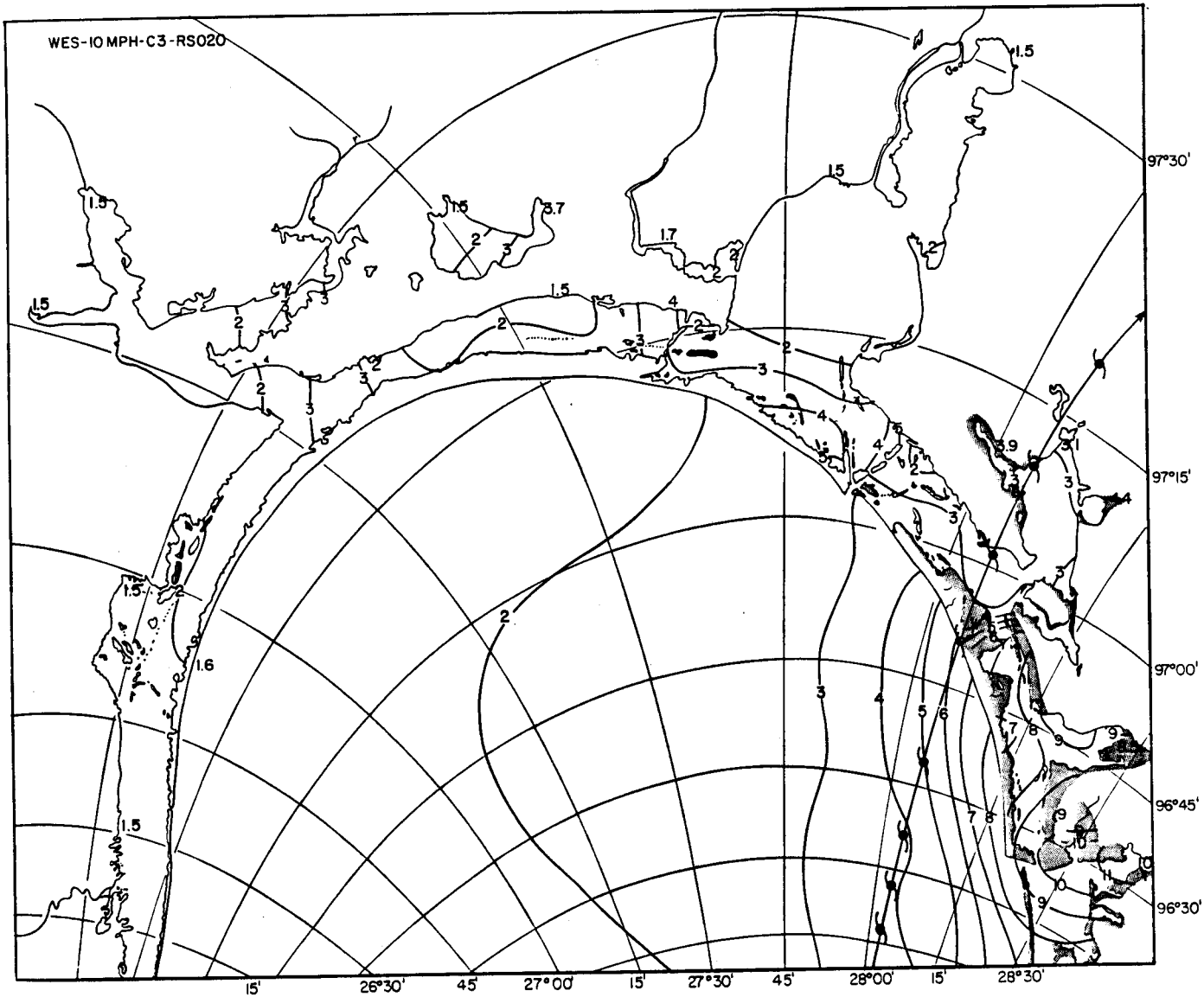
11. BAYSIDE (28, 66)



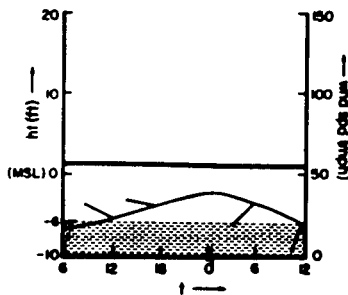
12. MATAGORDA IS. (45, 61)



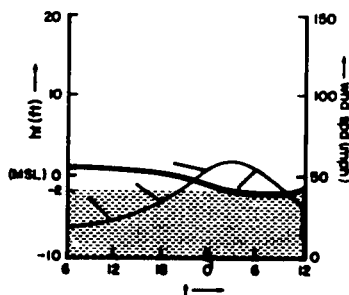
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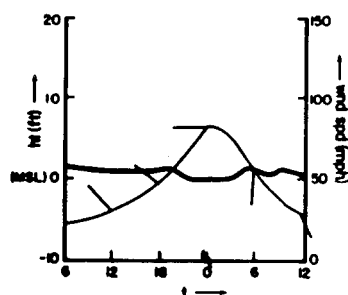
1. PORT MANSFIELD (48, 8)



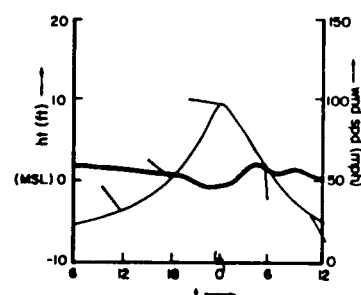
2. BAFFIN BAY (19, 3)



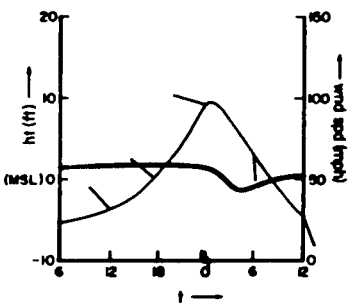
3. PADRI IS. RANGER STA. (24, 35)



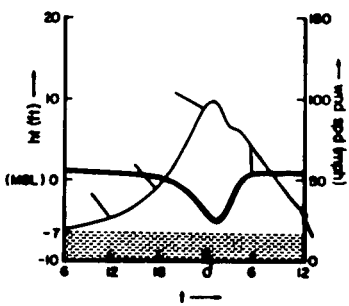
4. MUSTANG PASS (25, 45)



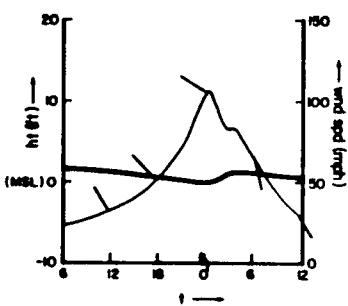
5. NAVAL AIR STA. (20, 46)



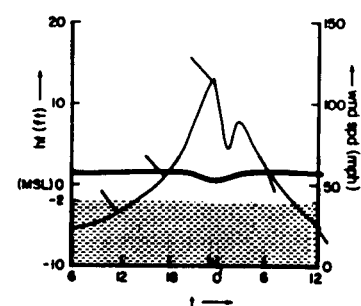
6. CORPUS CHRISTI (2, 53)



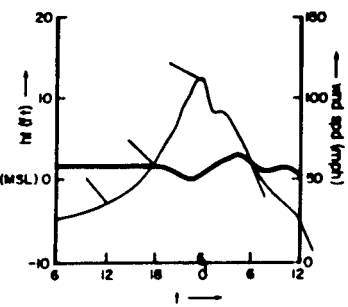
7. INGLESIDE (21, 55)



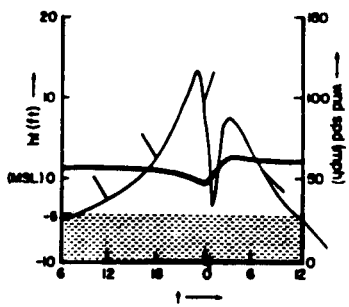
8. ARANSAS PASS (28, 57)



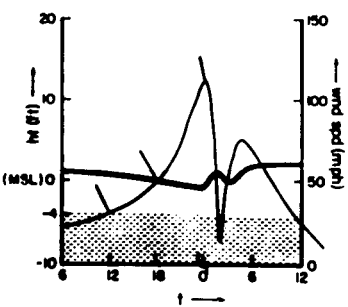
9. PORT ARANSAS (31, 53)



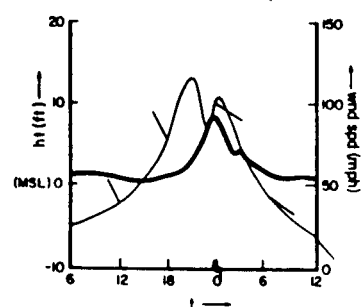
10. COPRANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)



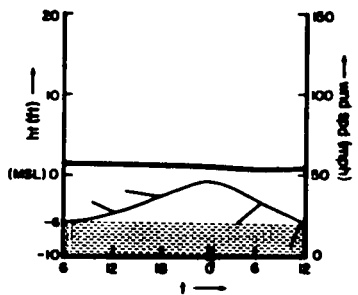
12. MATAGORDA IS. (45, 61)



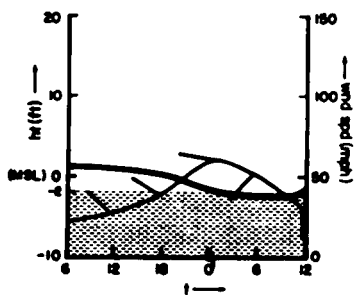




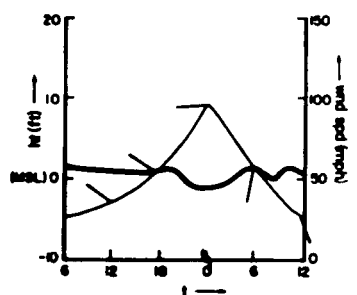
1. PORT MANSFIELD (48, 8)



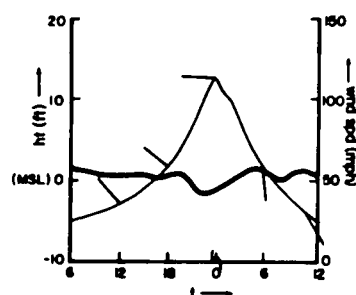
2. BAFFIN BAY (19, 3)



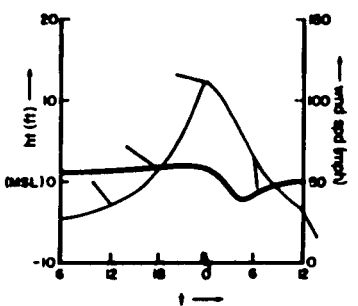
3. PADRI IS. RANGER STA. (24, 35)



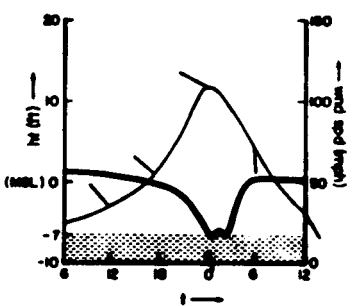
4. MUSTANG PASS (25, 45)



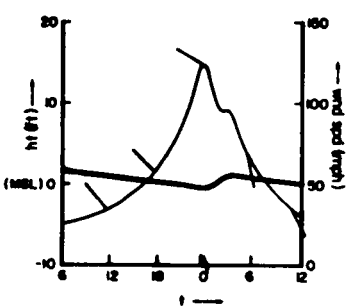
5. NAWAL AIR STA. (20, 46)



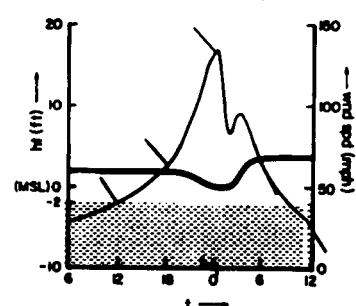
6. CORPUS CHRISTI (62, 53)



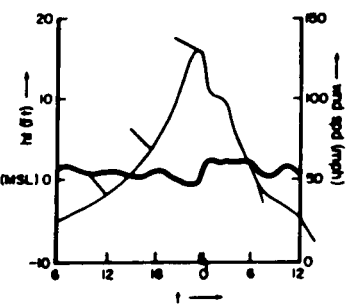
7. INGLESIDE (21, 55)



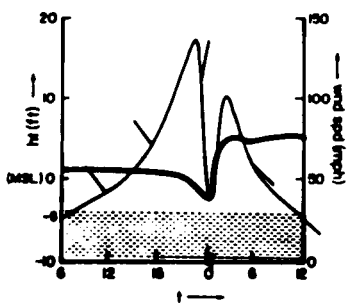
8. ARANSAS PASS (28, 57)



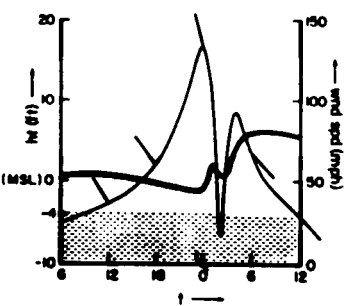
9. PORT ARANSAS (31, 53)



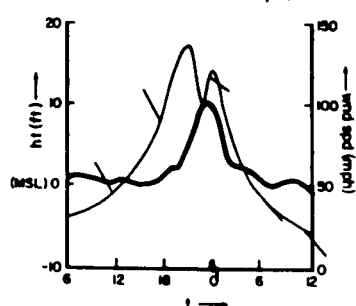
10. COPANO BRIDGE (35, 63)

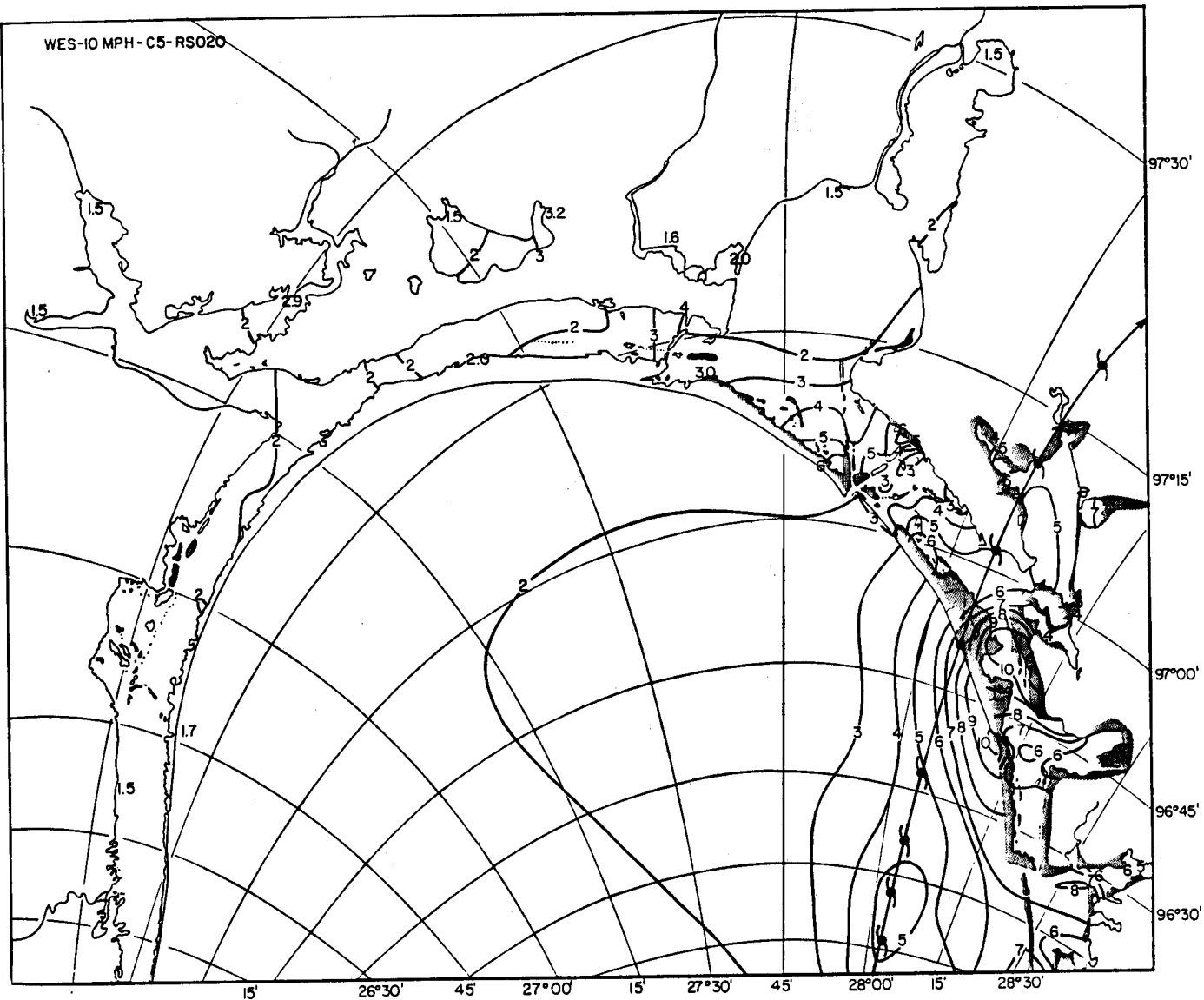


11. BAYSIDE (28, 66)

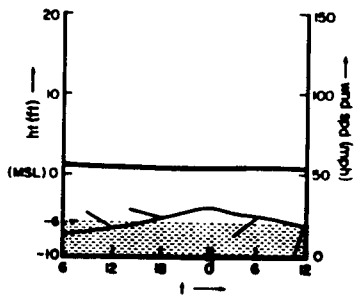


12. MATAGORDA IS. (45, 61)

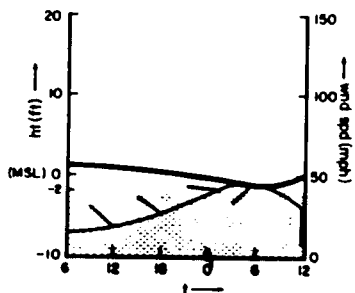




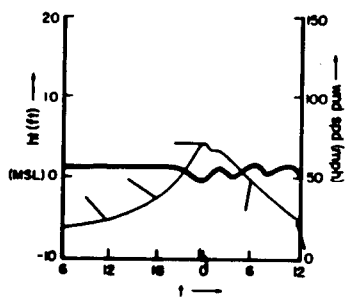
1. PORT MANSFIELD (48, 8)



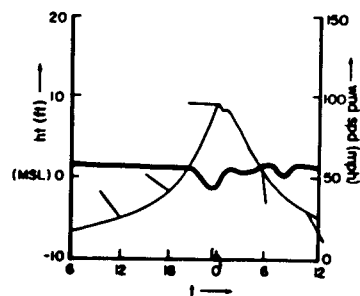
2. BAFFIN BAY (19, 3)



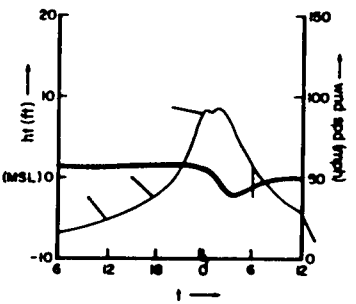
3. PADRI IS. RANGER STA. (24, 35)



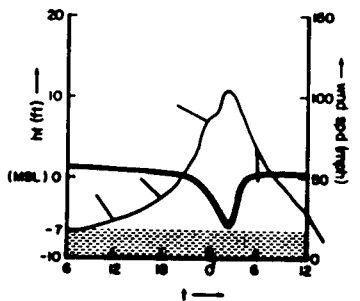
4. MUSTANG PASS (25, 45)



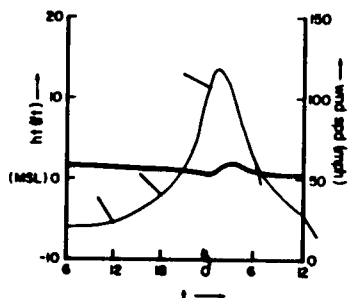
5. NAVAL AIR STA. (20, 46)



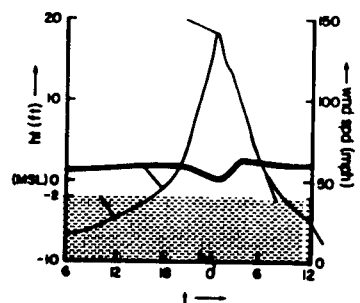
6. CORPUS CHRISTI (22, 53)



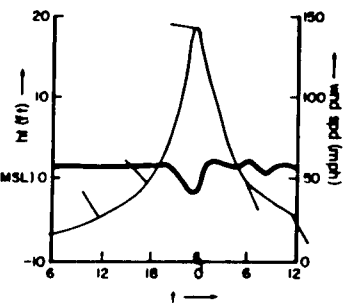
7. INGLESIDE (21, 55)



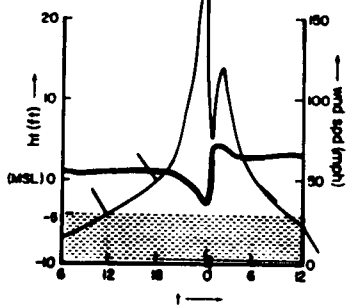
8. ARANSAS PASS (28, 57)



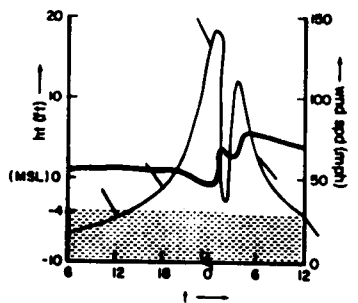
9. PORT ARANSAS (31, 53)



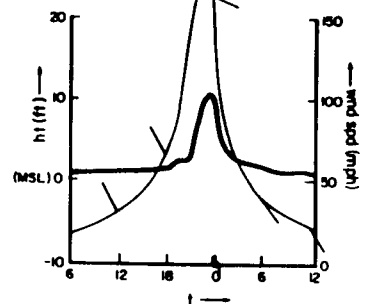
10. COPANO BRIDGE (35, 63)

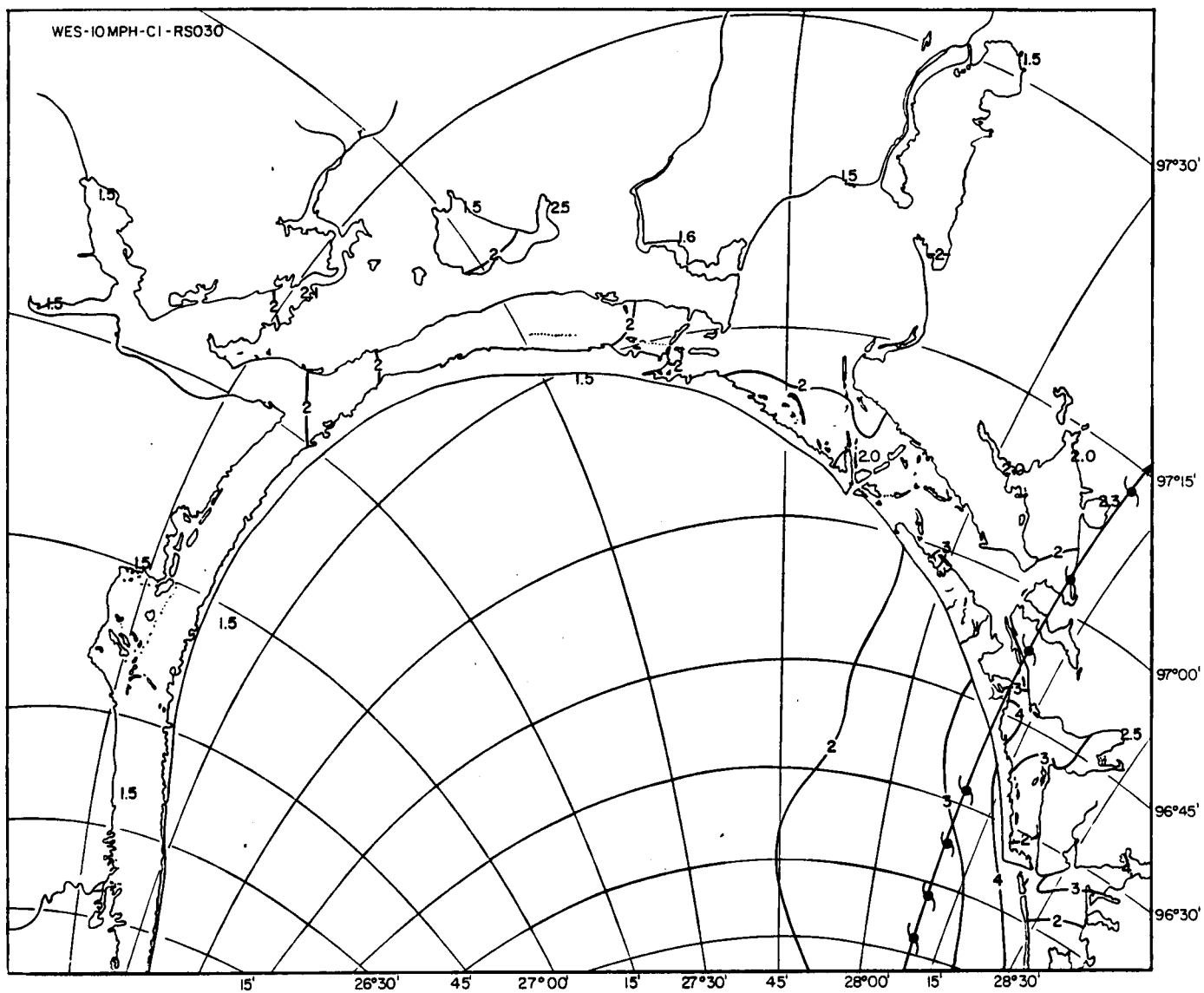


11. BAYSIDE (28, 66)

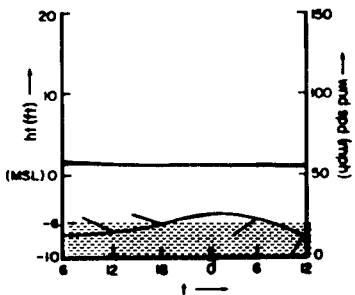


12. MATAGORDA IS. (45, 61)

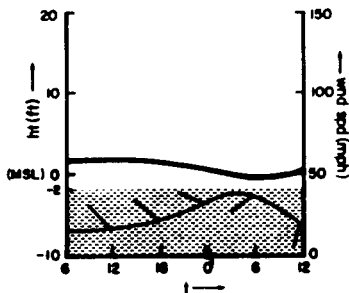




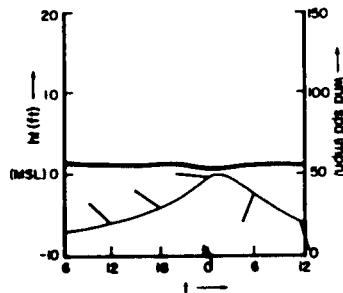
1. PORT MANSFIELD (48, 8)



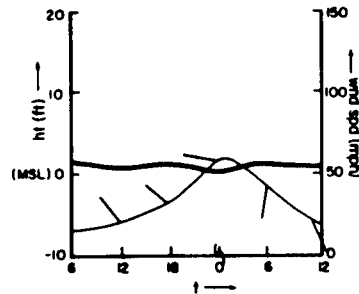
2. BAFFIN BAY (19, 3)



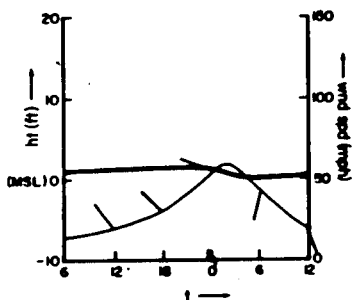
3. PADRI IS. RANGER STA. (24, 35)



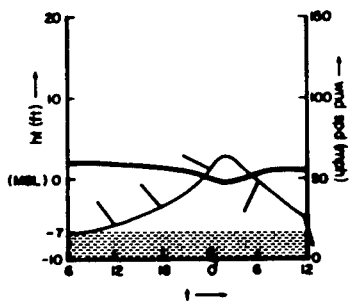
4. MUSTANG PASS (25, 45)



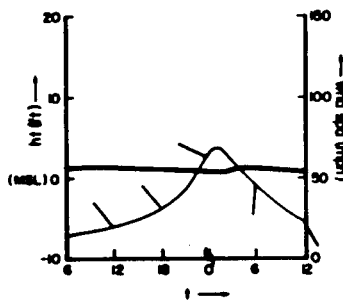
5. NAWAL AIR STA. (20, 46)



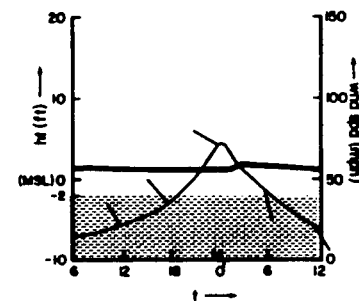
6. CORPUS CHRISTI (12, 53)



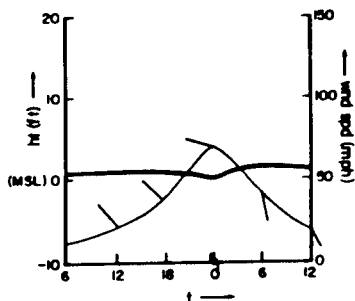
7. INGLESIDE (21, 55)



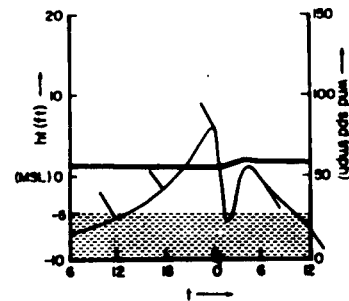
8. ARANSAS PASS (28, 57)



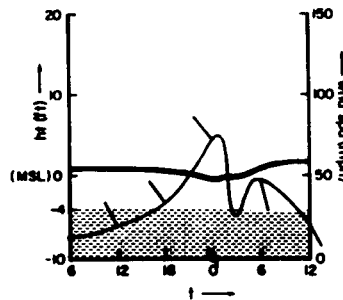
9. PORT ARANSAS (31, 53)



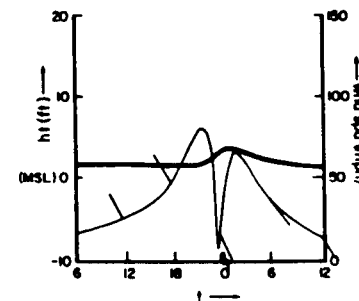
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 65)

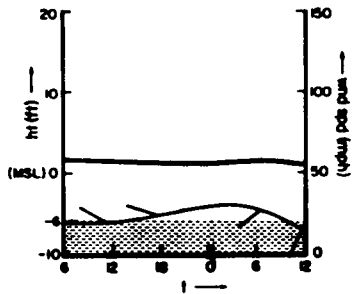


12. MATAGORDA IS. (45, 61)

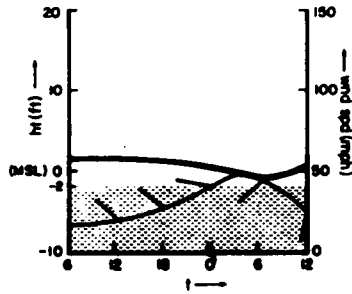




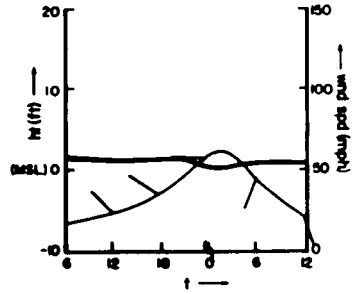
1. PORT MANSFIELD (46, 8)



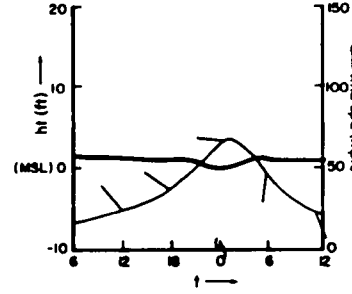
2. BAFFIN BAY (19, 3)



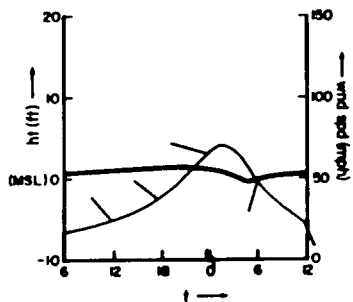
3. PADRI IS. RANGER STA. (24, 35)



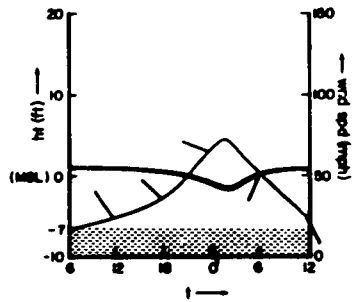
4. MUSTANG PASS (25, 45)



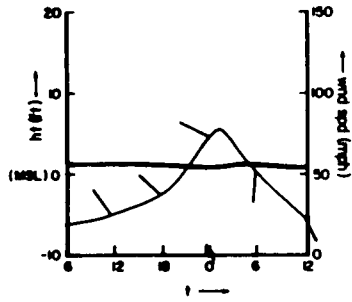
5. NAVAL AIR STA. (20, 46)



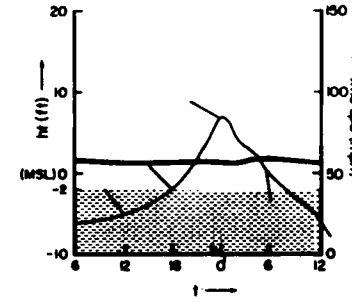
6. CORPUS CHRISTI (12, 53)



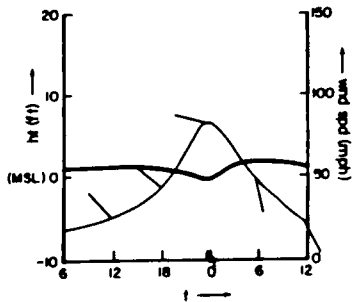
7. INGLESIDE (21, 55)



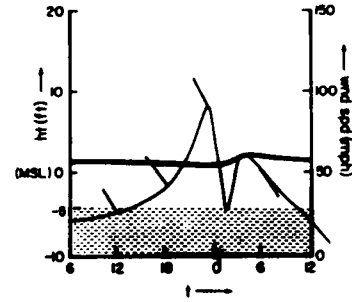
8. ARANSAS PASS (28, 57)



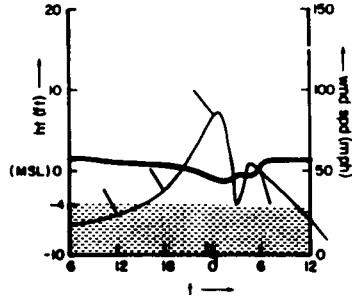
9. PORT ARANSAS (31, 53)



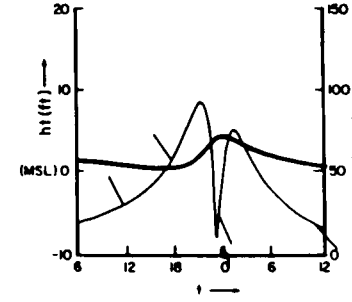
10. COPANO BRIDGE (35, 63)



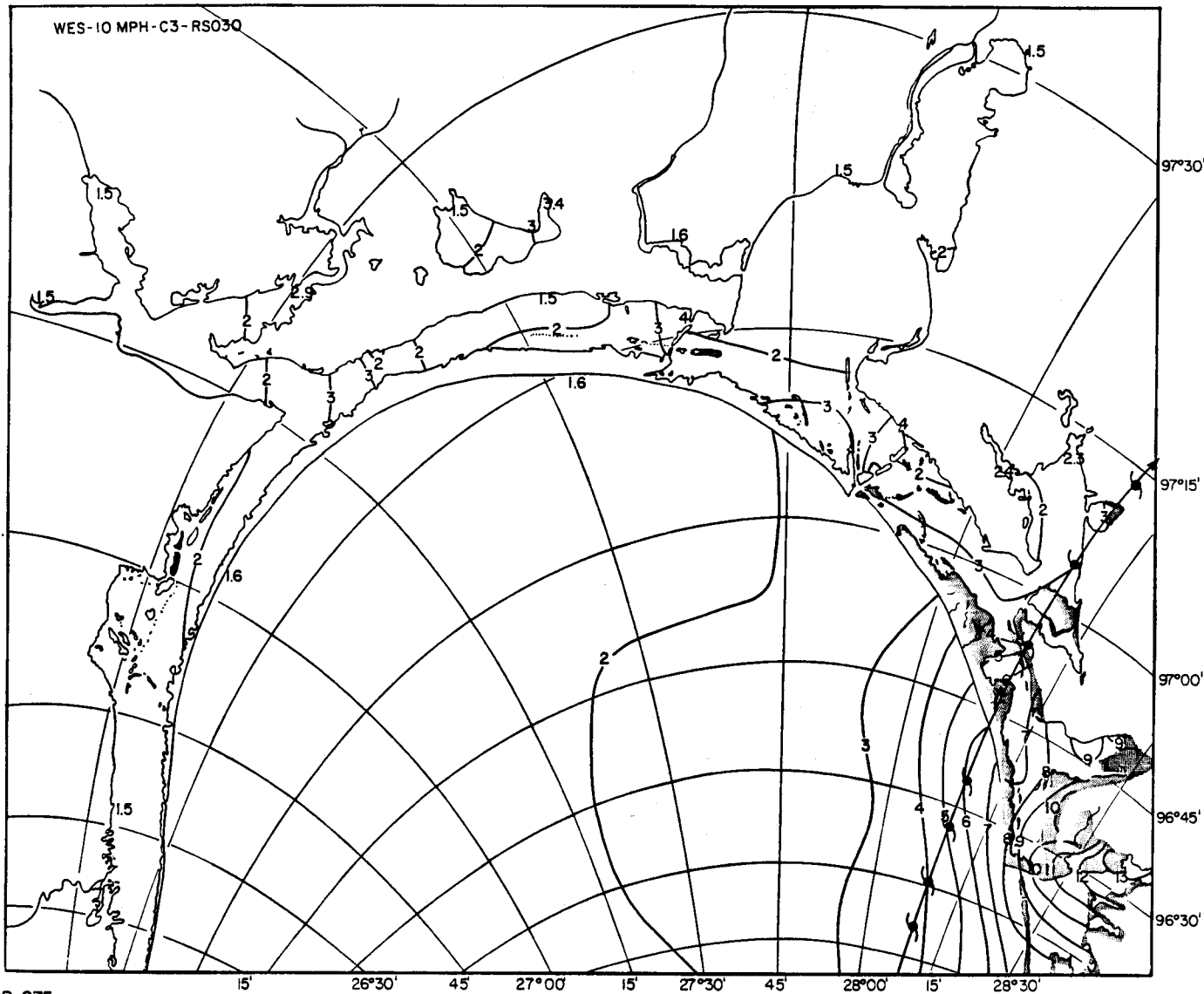
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

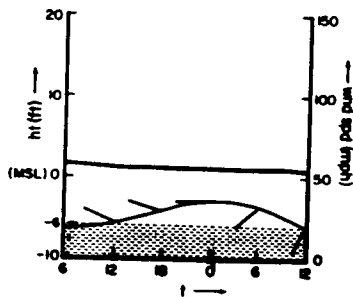


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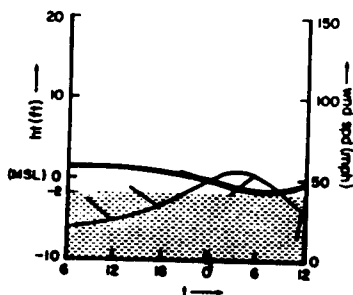




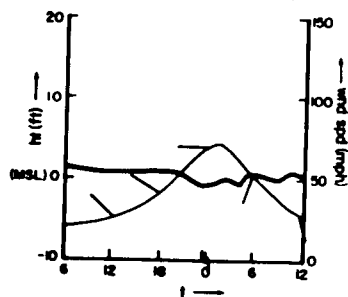
1. PORT MANSFIELD (48, 8)



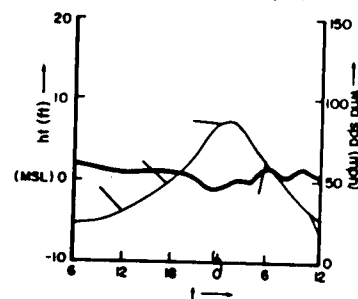
2. BAFFIN BAY (19, 3)



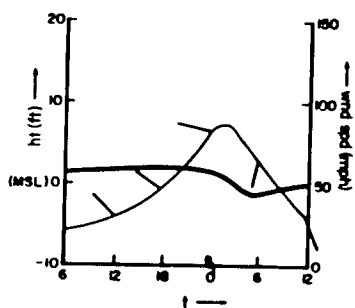
3. PADRI IS. RANGER STA. (24, 35)



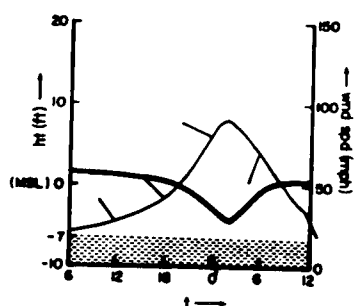
4. MUSTANG PASS (25, 45)



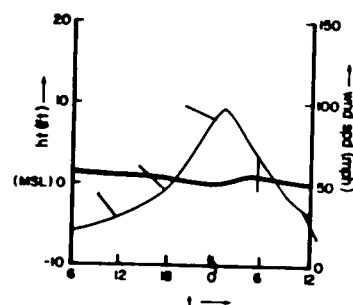
5. NAVAL AIR STA. (20, 46)



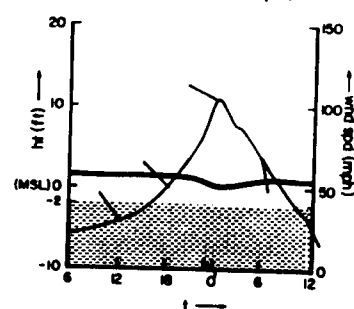
6. CORPUS CHRISTI (02, 53)



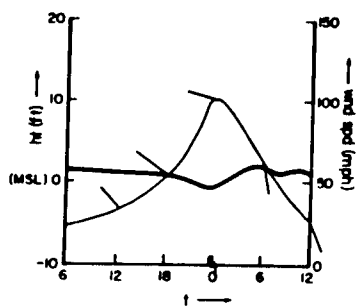
7. INGLESIDE (21, 55)



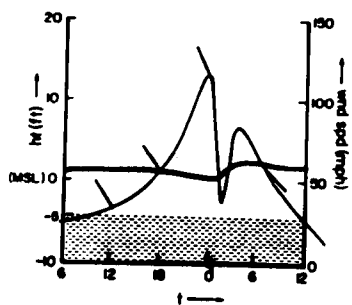
8. ARANSAS PASS (28, 57)



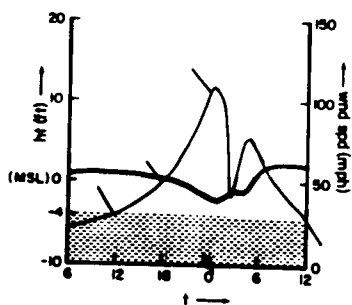
9. PORT ARANSAS (31, 53)



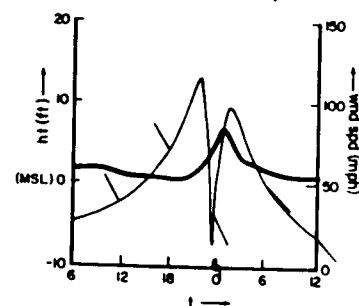
10. COPANO BRIDGE (35, 63)



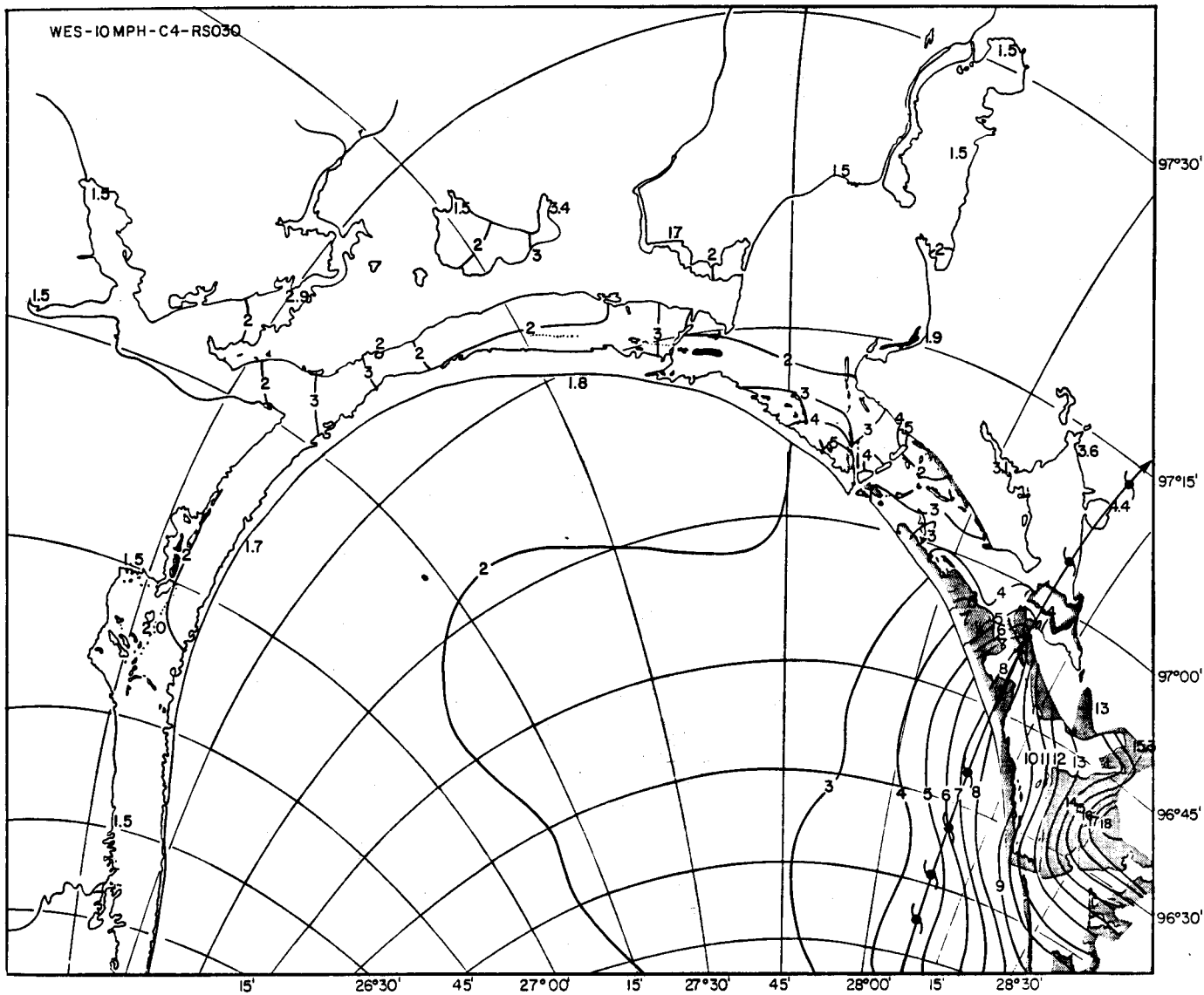
11. BAYSIDE (28, 66)



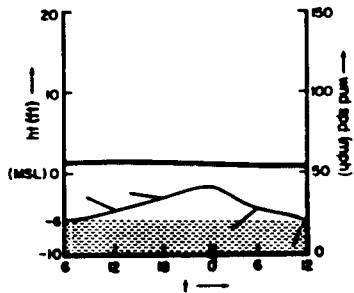
12. MATAGORDA IS. (45, 61)



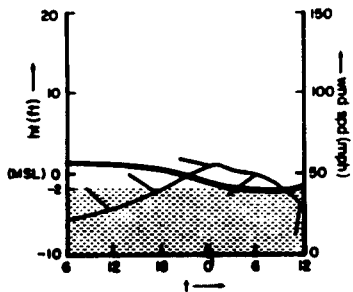
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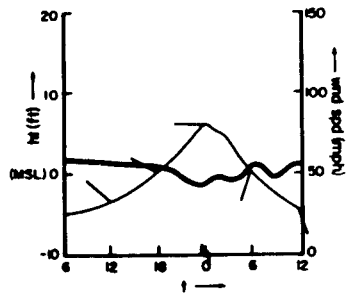
1. PORT MANSFIELD (48, 8)



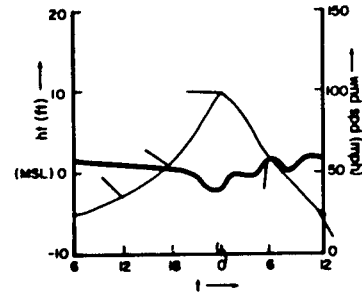
2. BAFFIN BAY (19, 3)



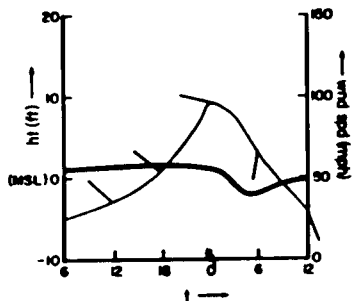
3. PADRI IS. RANGER STA. (24, 35)



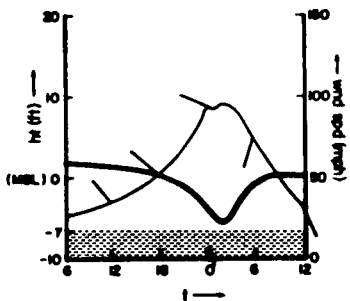
4. MUSTANG PASS (25, 45)



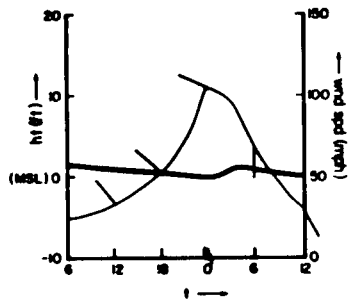
5. NAWAL AIR STA. (20, 46)



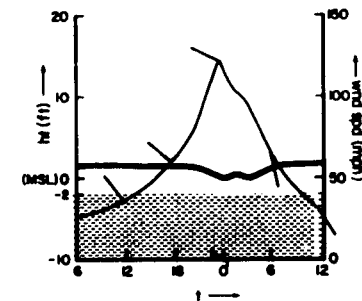
6. CORPUS CHRISTI (2, 53)



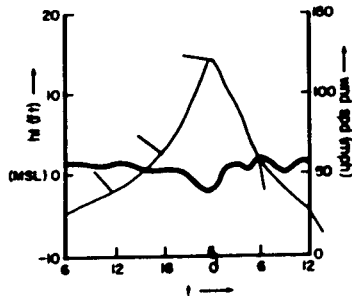
7. INGLESIDE (21, 55)



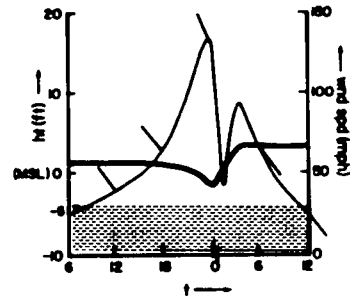
8. ARANSAS PASS (28, 57)



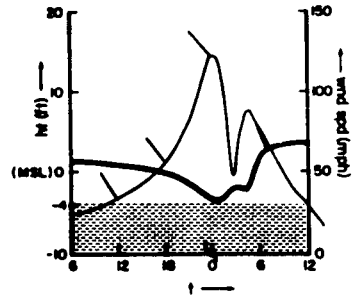
9. PORT ARANSAS (31, 53)



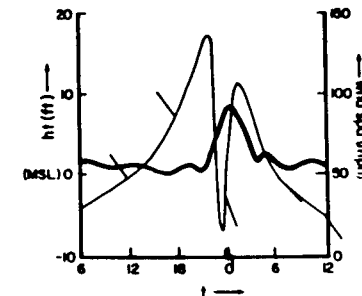
10. COPANO BRIDGE (35, 63)



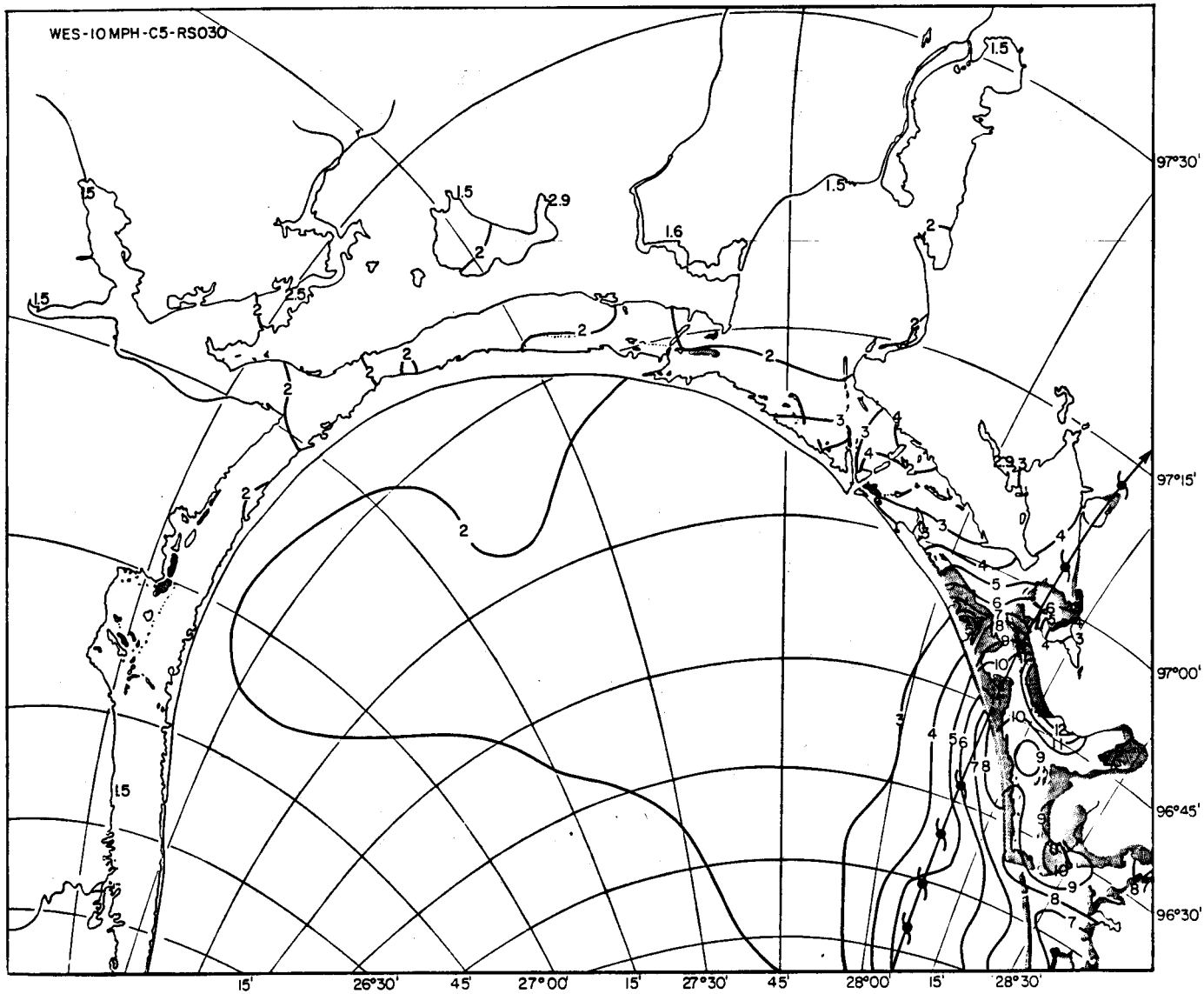
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

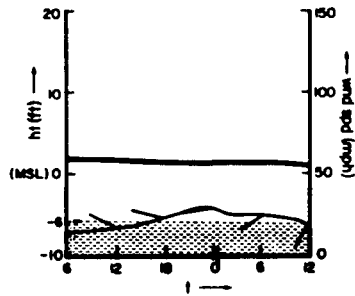


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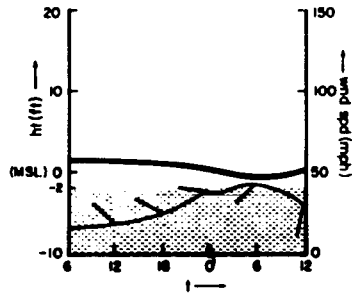


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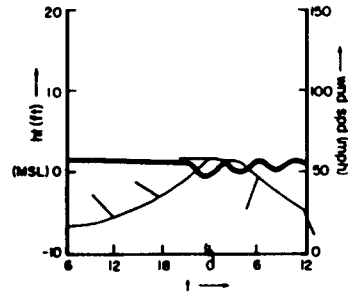
1. PORT MANSFIELD (48, 8)



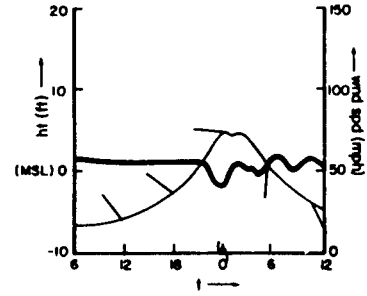
2. BAFFIN BAY (19, 3)



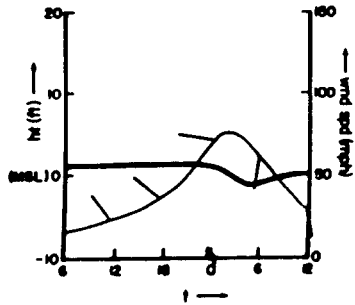
3. PADRI IS. RANGER STA. (24, 35)



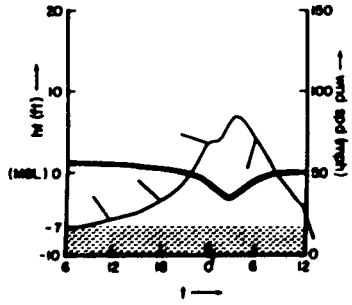
4. MUSTANG PASS (25, 45)



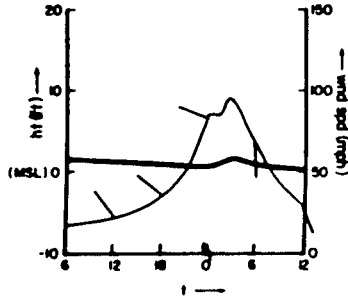
5. NAWAL AIR STA. (20, 46)



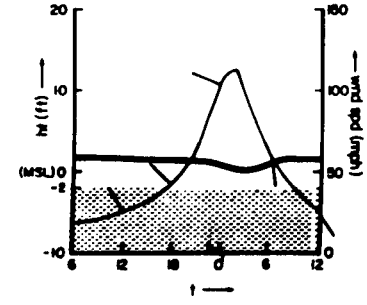
6. CORPUS CHRISTI (12, 53)



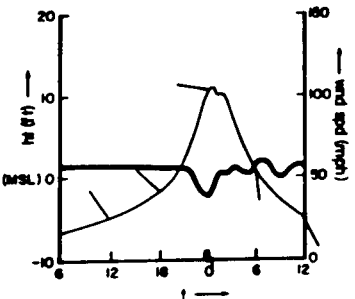
7. INGLESIDE (21, 55)



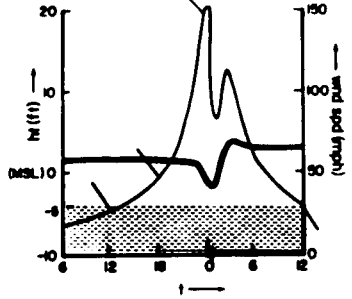
8. ARANSAS PASS (28, 57)



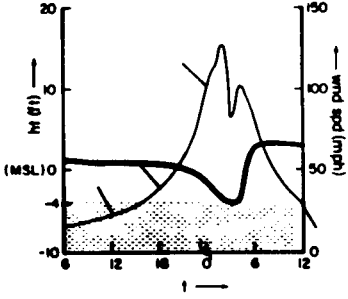
9. PORT ARANSAS (31, 53)



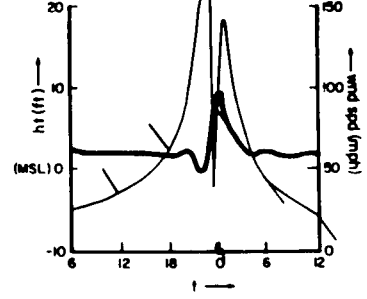
10. COPANO BRIDGE (35, 63)



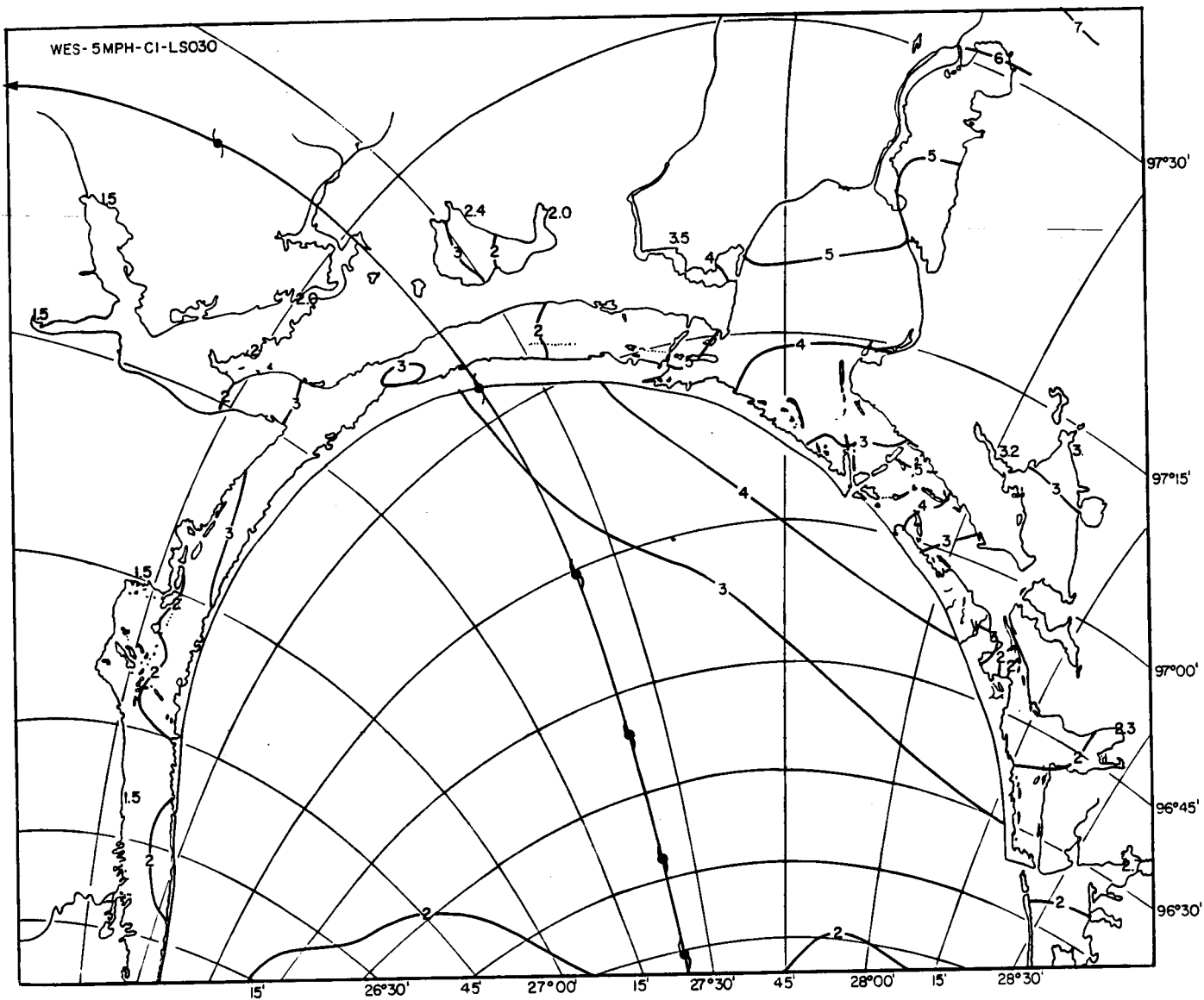
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

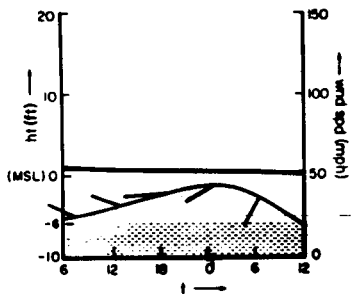


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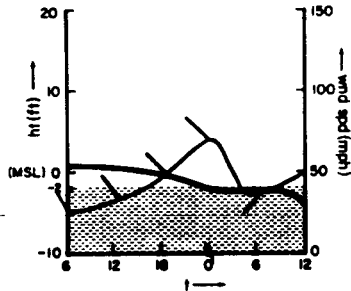


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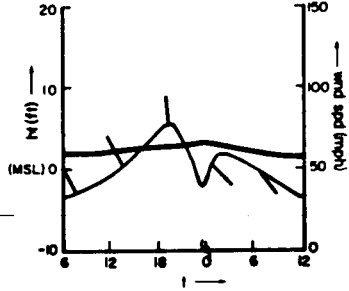
1. PORT MANSFIELD (48, 8)



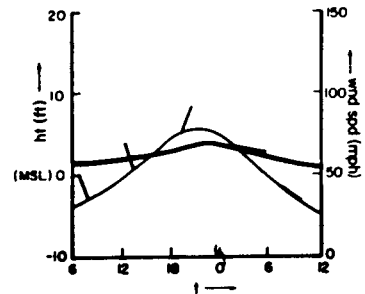
2. BAFFIN BAY (19, 3)



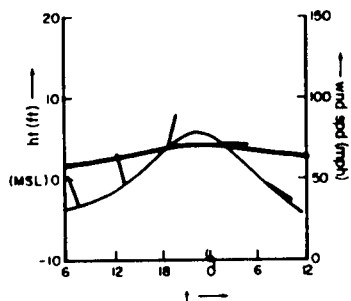
3. PADRI IS. RANGER STA. (24, 35)



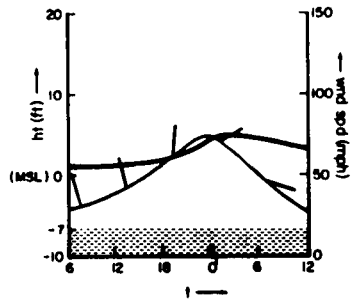
4. MUSTANG PASS (25, 45)



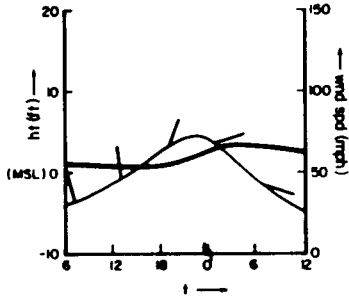
5. NAVAL AIR STA. (20, 46)



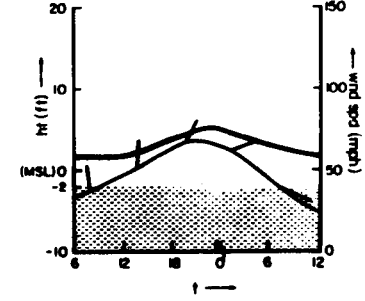
6. CORPUS CHRISTI (12, 53)



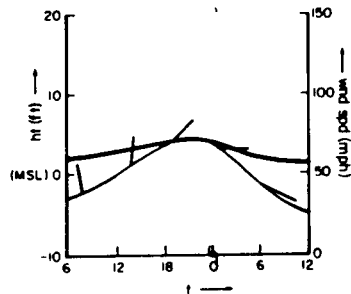
7. INGLESIDE (21, 55)



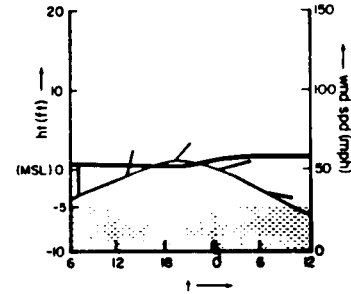
8. ARANSAS PASS (28, 57)



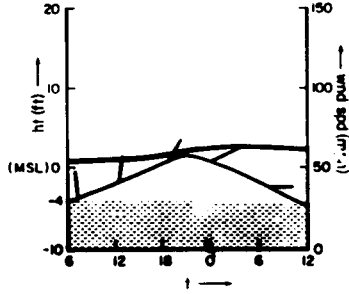
9. PORT ARANSAS (31, 53)



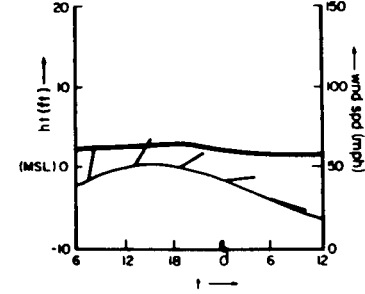
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)



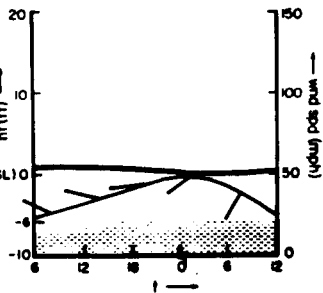
12. MATAGORDA IS. (45, 61)



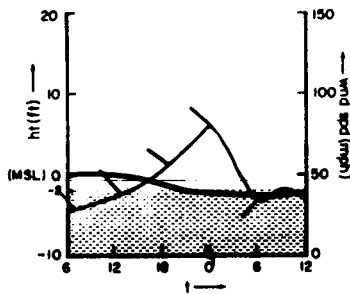




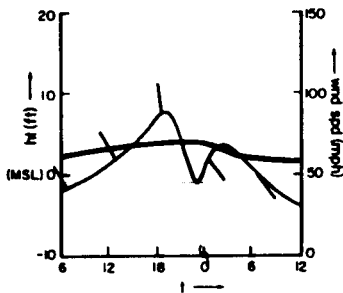
1. PORT MANSFIELD (48,8)



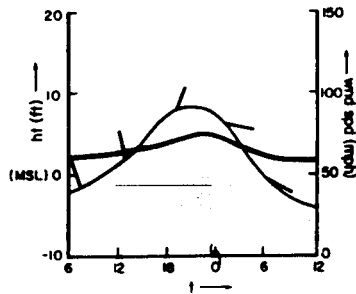
2. BAFFIN BAY (19,3)



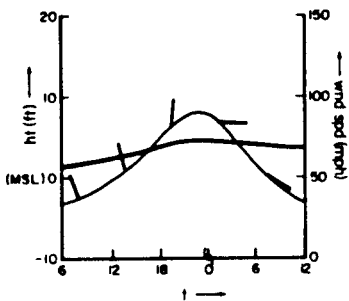
3. PADRI IS. RANGER STA. (24,35)



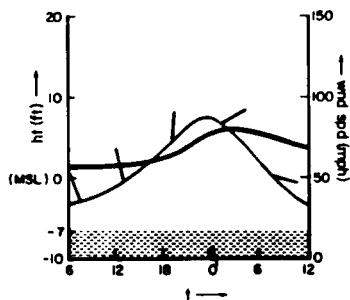
4. MUSTANG PASS (25,45)



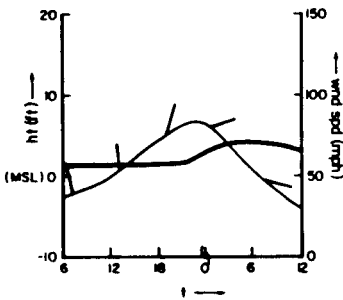
5. NAVAL AIR STA. (20,46)



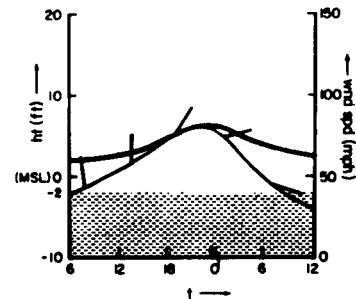
6. CORPUS CHRISTI (12,53)



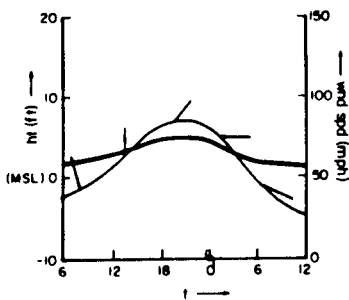
7. INGLESIDE (21,55)



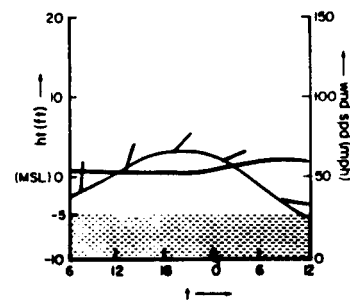
8. ARANSAS PASS (28,57)



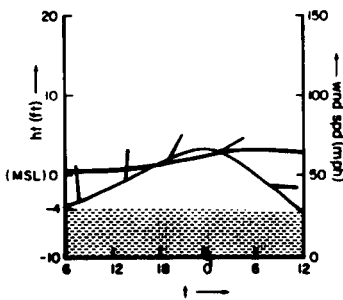
9. PORT ARANSAS (31,53)



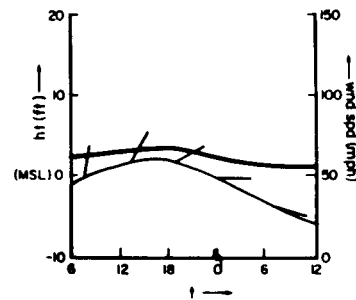
10. COPANO BRIDGE (35,63)



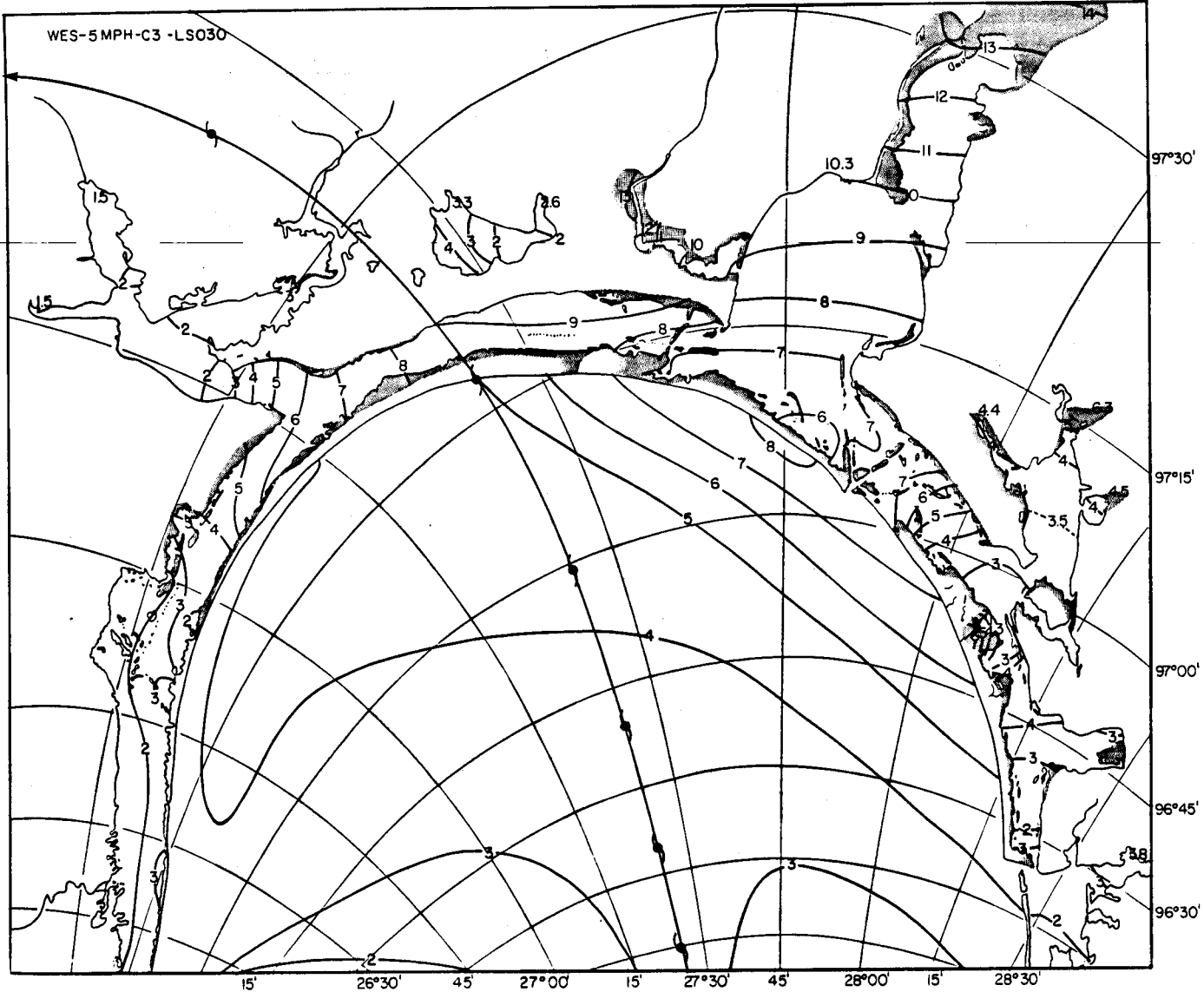
11. BAYSIDE (28,66)



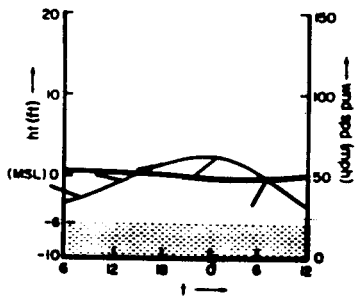
12. MATAGORDA IS. (45,61)



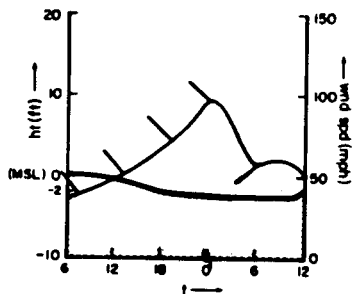
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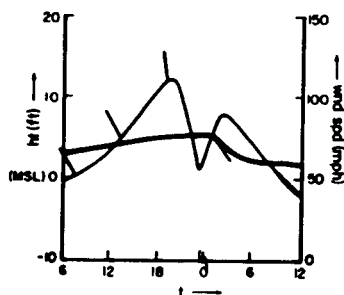
1. PORT MANSFIELD (48, 8)



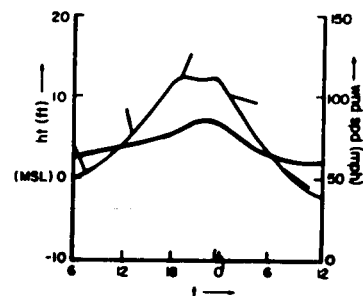
2. BAFFIN BAY (19, 3)



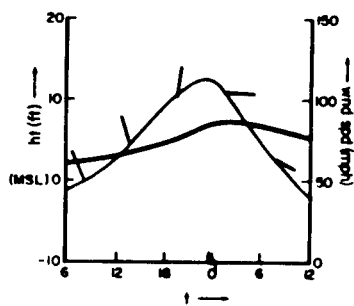
3. PADRI IS. RANGER STA. (24, 35)



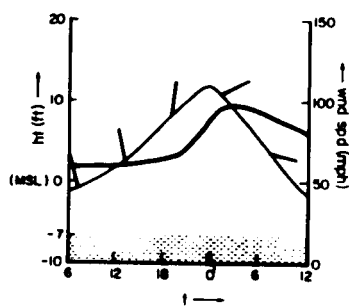
4. MUSTANG PASS (25, 45)



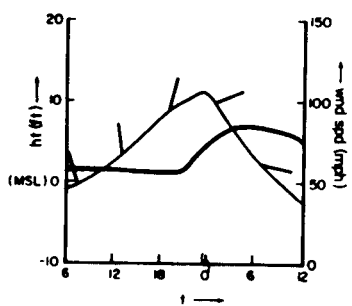
5. NAVAL AIR STA. (20, 46)



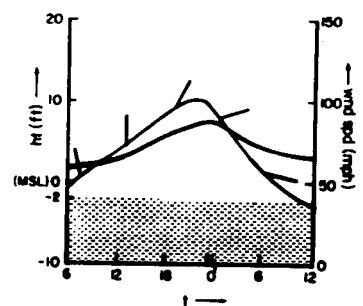
6. CORPUS CHRISTI (12, 53)



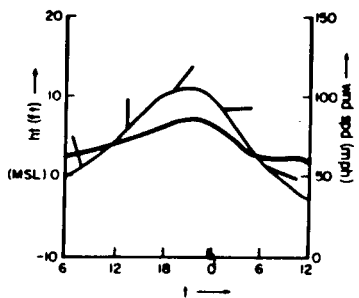
7. INGLESIDE (21, 55)



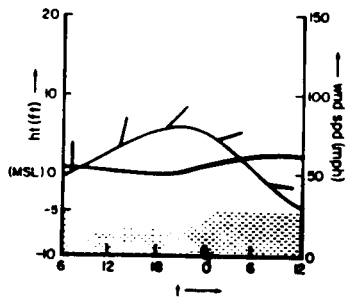
8. ARANSAS PASS (28, 57)



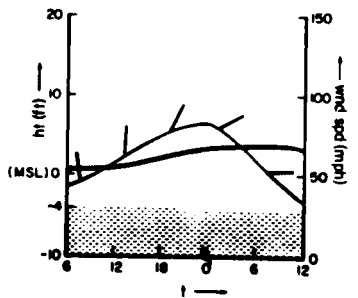
9. PORT ARANSAS (31, 53)



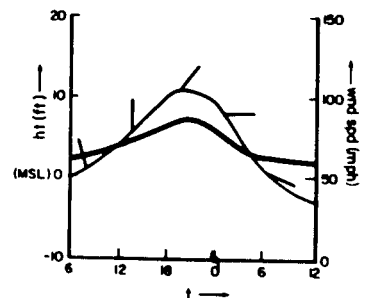
10. COPANO BRIDGE (35, 63)



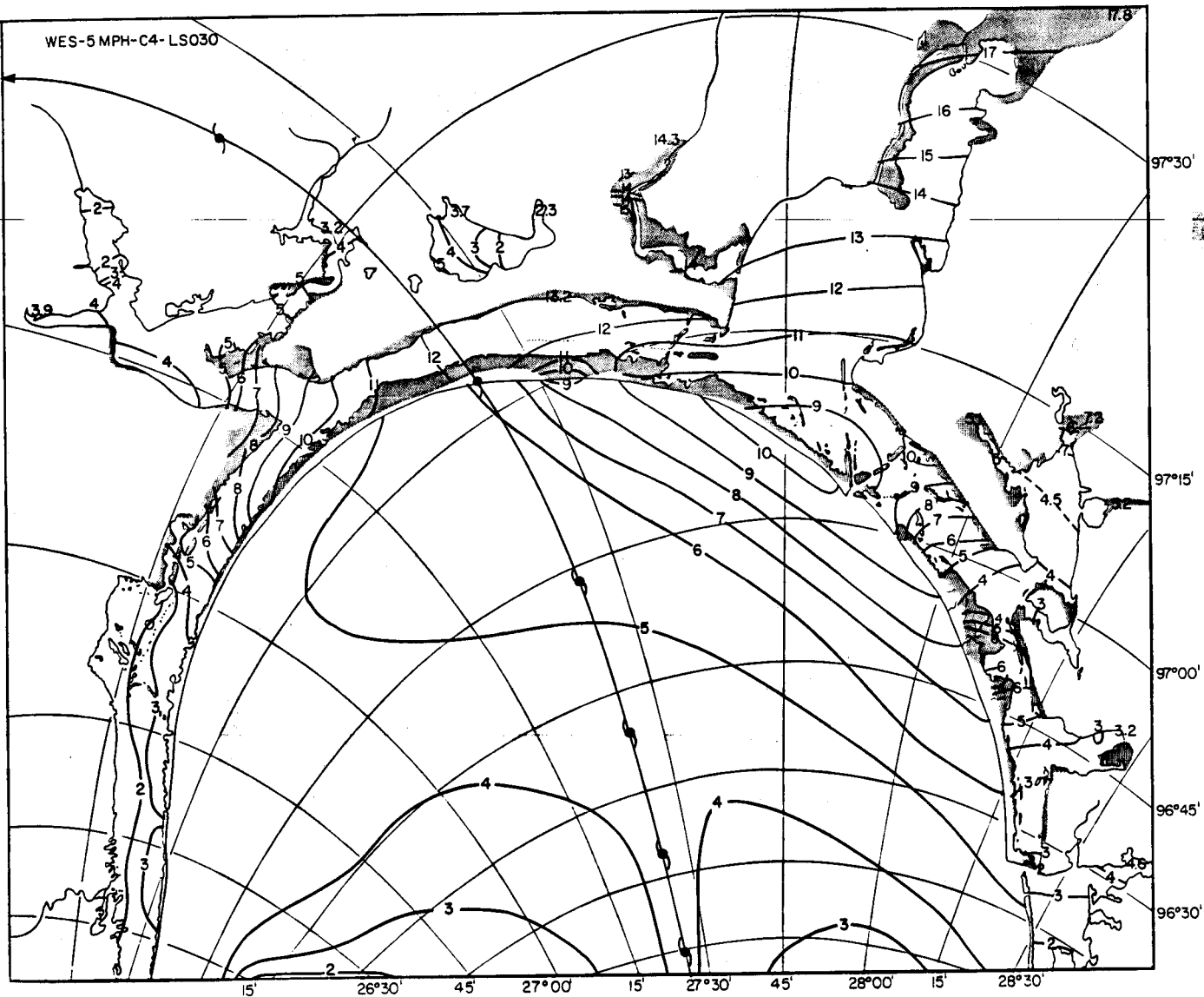
11. BAYSIDE (28, 66)



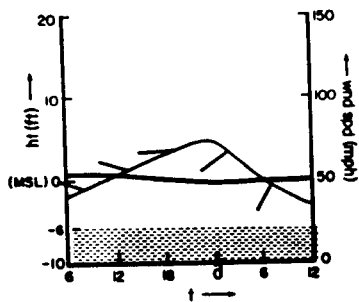
12. MATAGORDA IS. (45, 61)



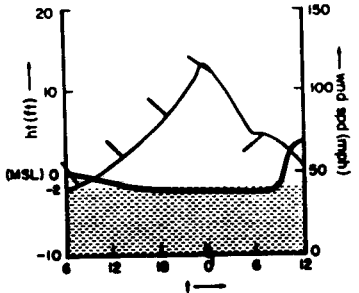
WES-5 MPH-C4-LSO30



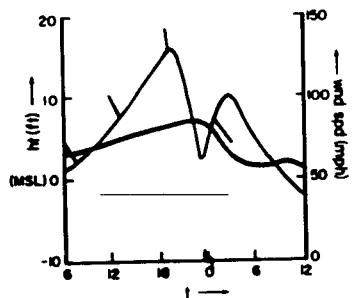
1. PORT MANSFIELD (48, 8)



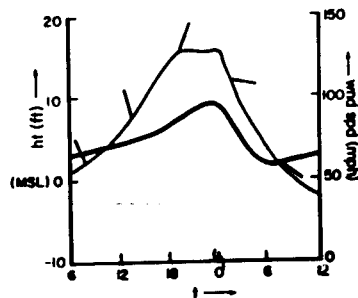
2. BAFFIN BAY (19, 3)



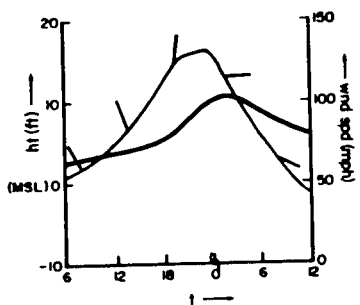
3. PADRI IS. RANGER STA. (24, 35)



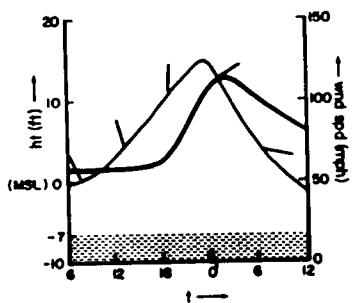
4. MUSTANG PASS (25, 45)



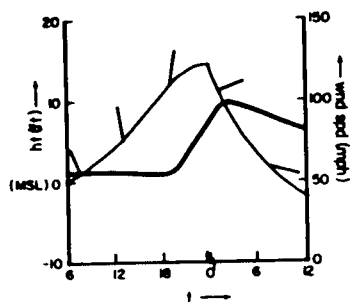
5. NAVAL AIR STA. (20, 46)



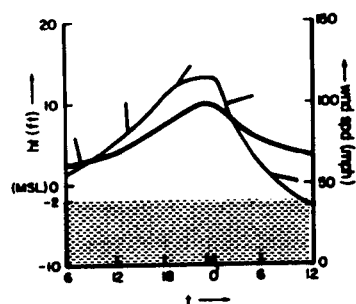
6. CORPUS CHRISTI (12, 53)



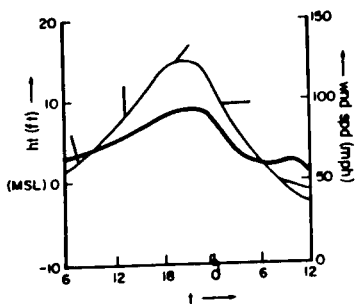
7. INGLESIDE (21, 55)



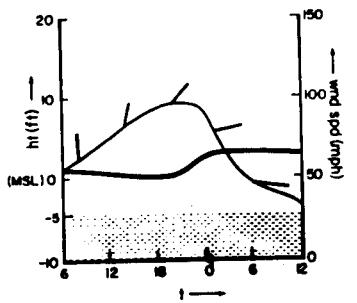
8. ARANSAS PASS (28, 57)



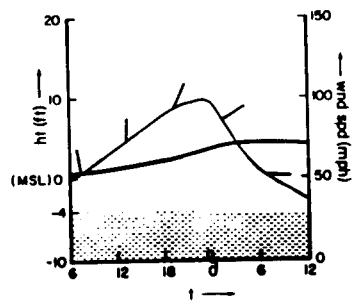
9. PORT ARANSAS (31, 53)



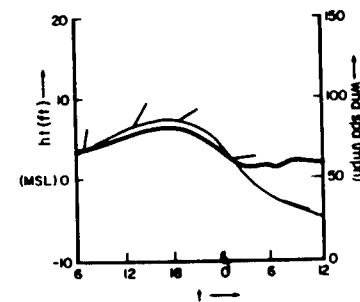
10. COPANO BRIDGE (35, 63)



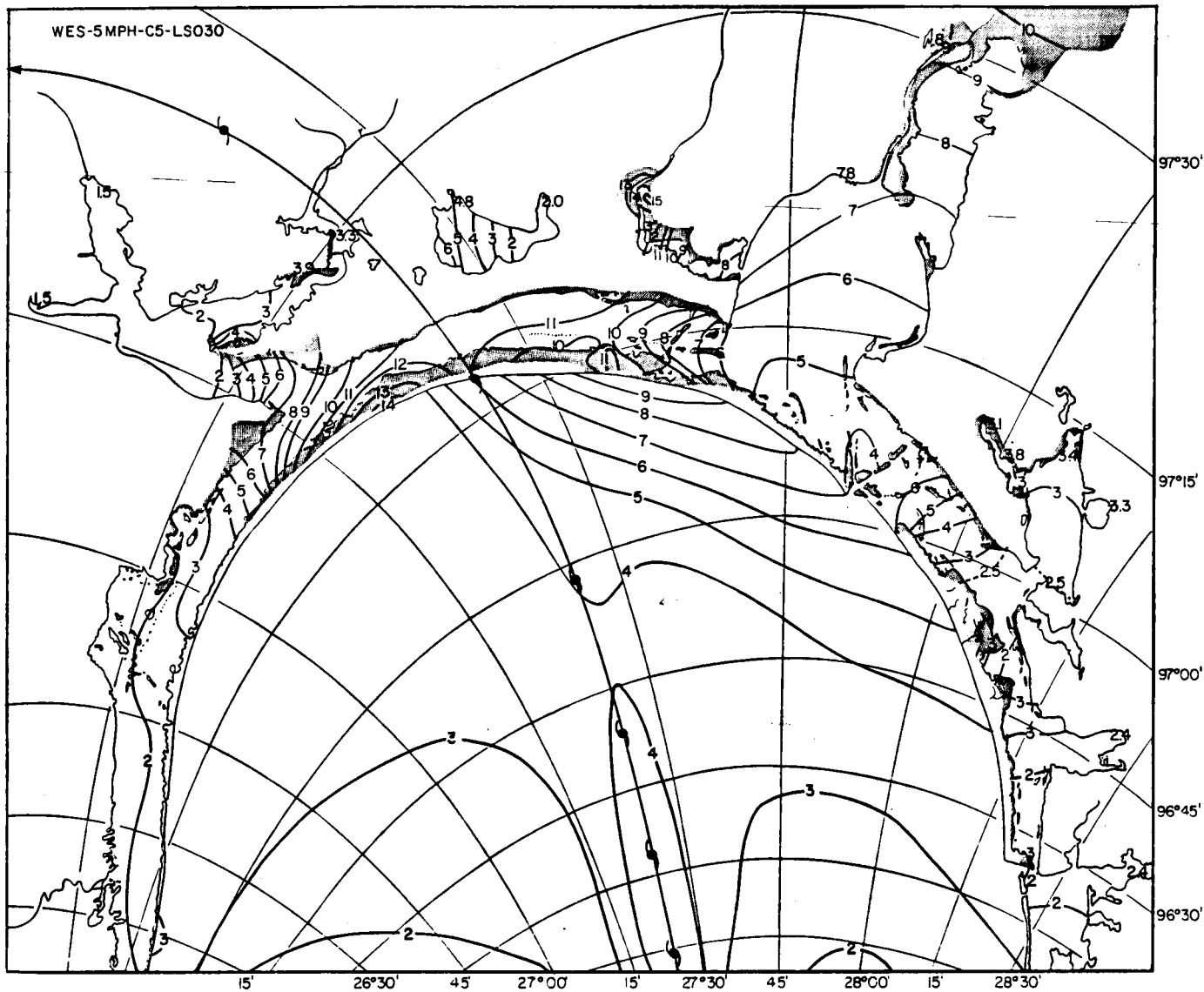
11. BAYSIDE (28, 66)



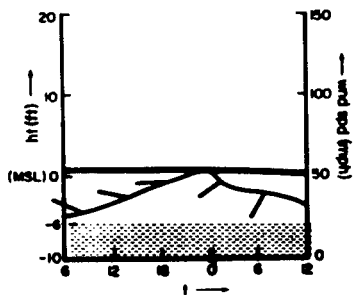
12. MATAGORDA IS. (45, 61)



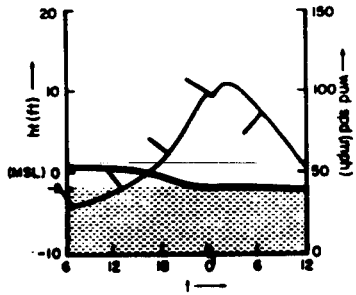
WES-5MPH-C5-LS030



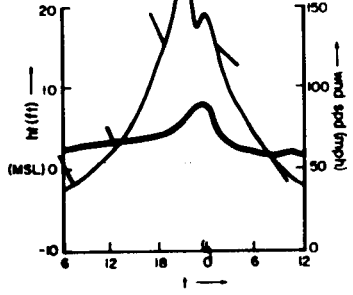
1. PORT MANSFIELD (48,8)



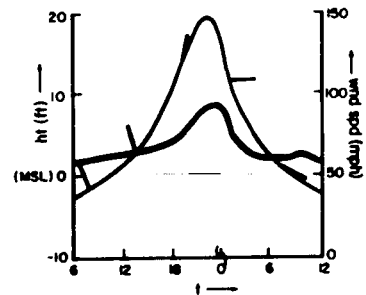
2. BAFFIN BAY (19,3)



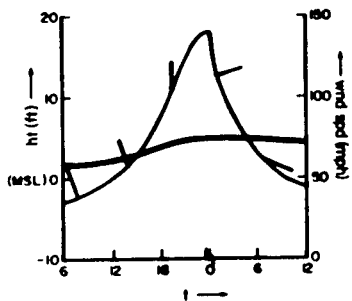
3. PADRI IS. RANGER STA. (24,35)



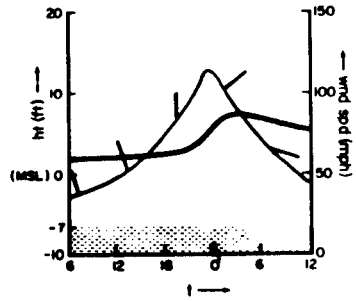
4. MUSTANG PASS (25,45)



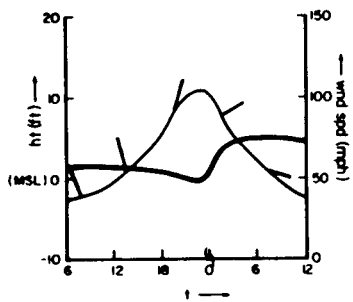
5. NAVAL AIR STA. (20,46)



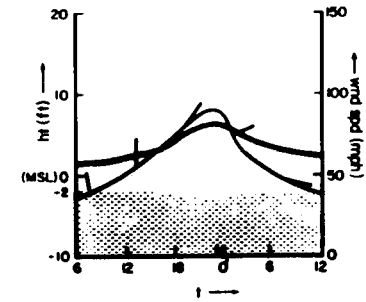
6. CORPUS CHRISTI (12,53)



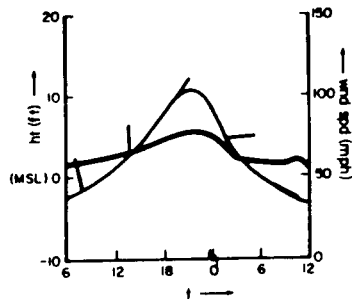
7. INGLESIDE (21,55)



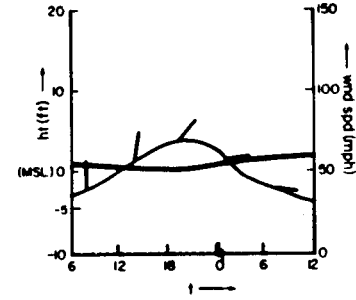
8. ARANSAS PASS (28,57)



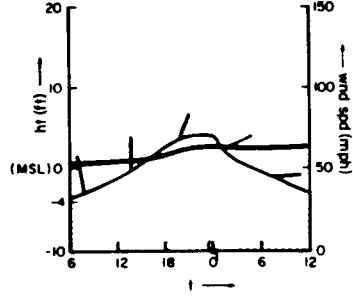
9. PORT ARANSAS (31,53)



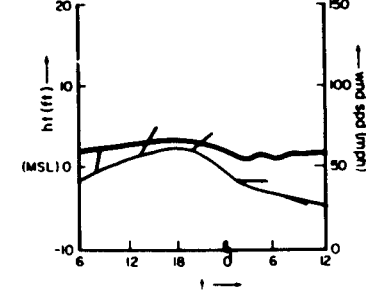
10. COPANO BRIDGE (35,63)



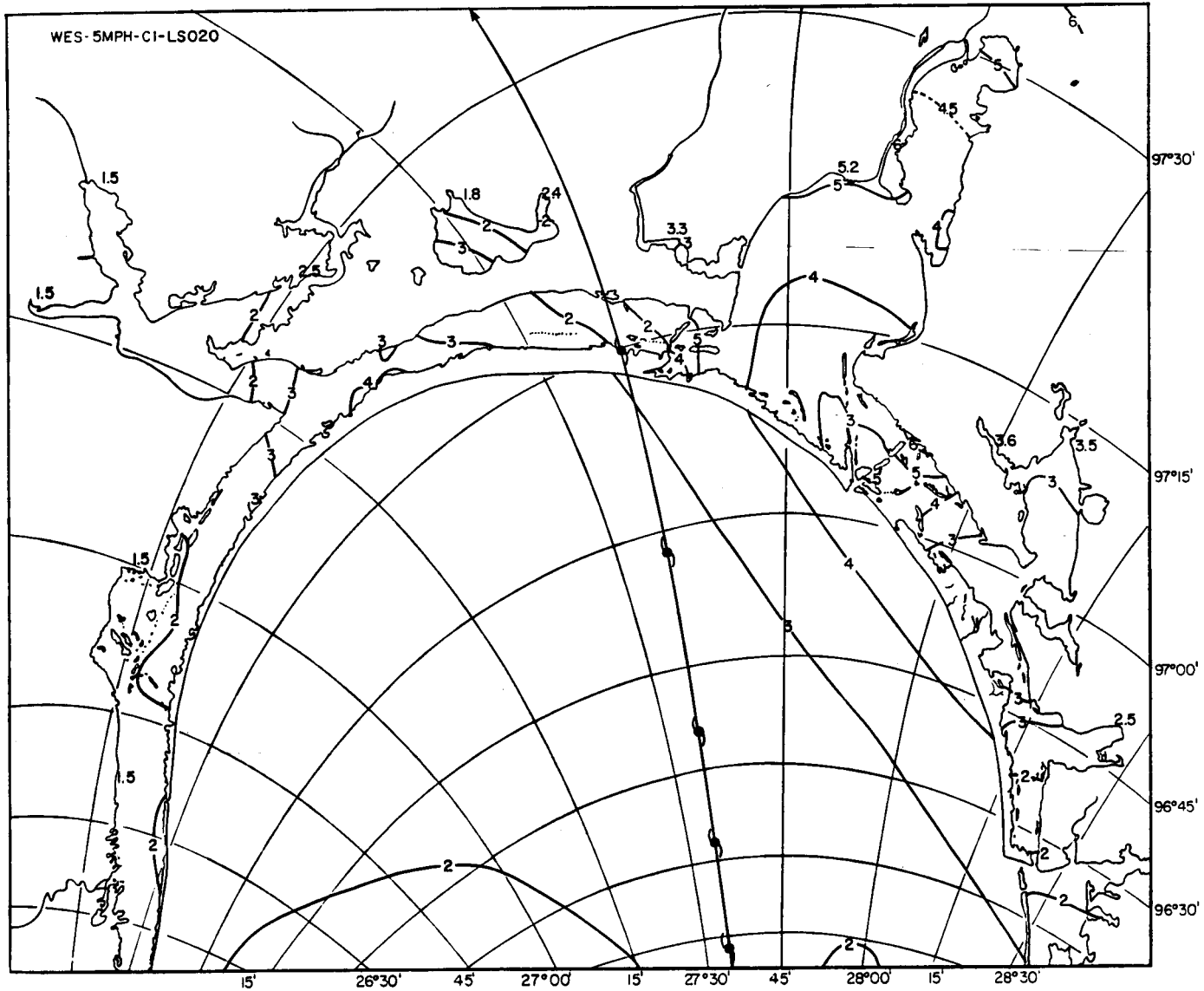
11. BAYSIDE (28,66)



12. MATAGORDA IS. (45,61)

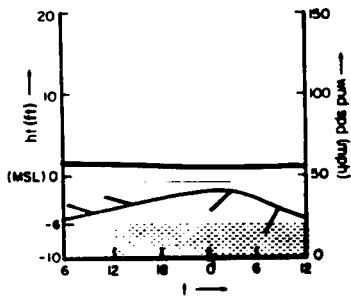


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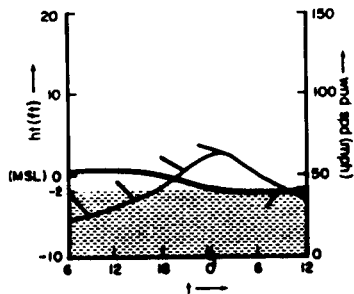




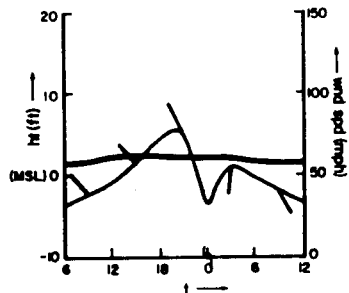
1. PORT MANSFIELD (48, 8)



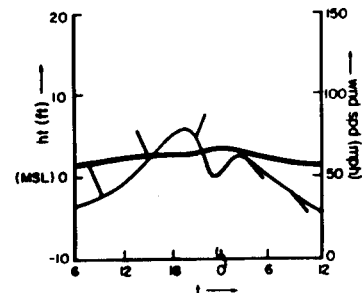
2. BAFFIN BAY (19, 3)



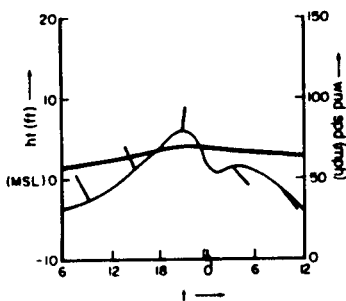
3. PADRI IS. RANGER STA. (24, 35)



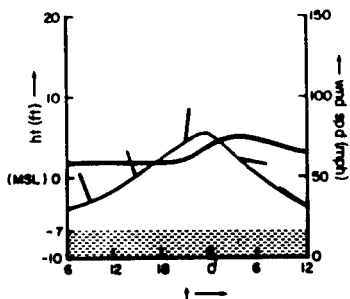
4. MUSTANG PASS (25, 45)



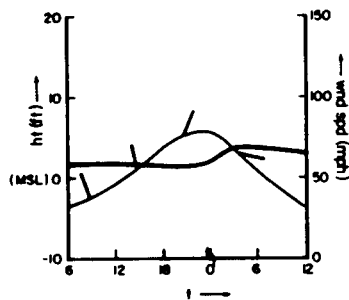
5. NAVAL AIR STA. (20, 46)



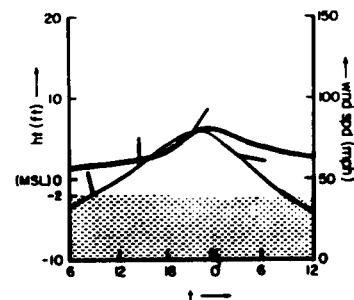
6. CORPUS CHRISTI (12, 53)



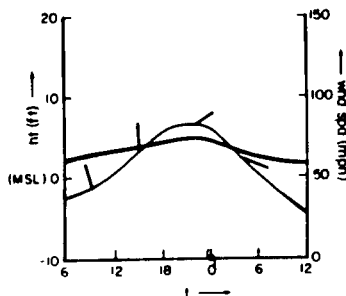
7. INGLESIDE (21, 55)



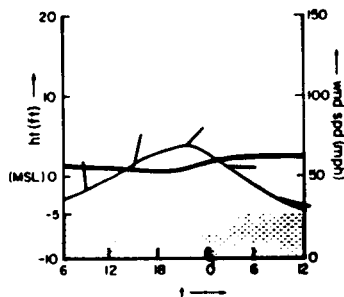
8. ARANSAS PASS (28, 57)



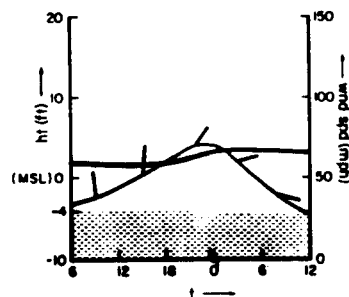
9. PORT ARANSAS (31, 53)



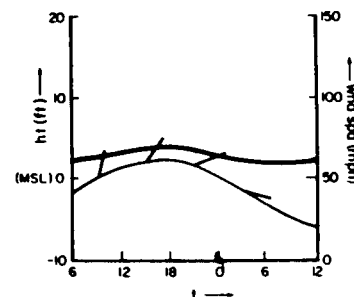
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)

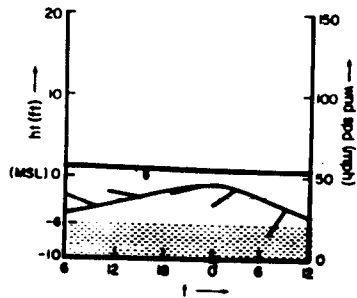


12. MATAGORDA IS. (45, 61)

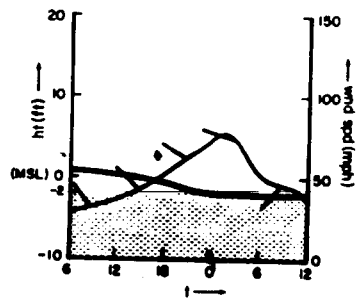




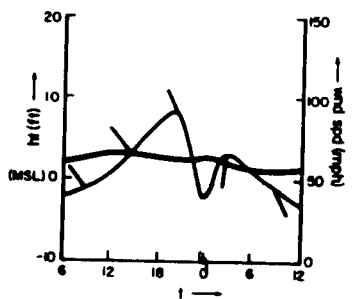
1. PORT MANSFIELD (48, 8)



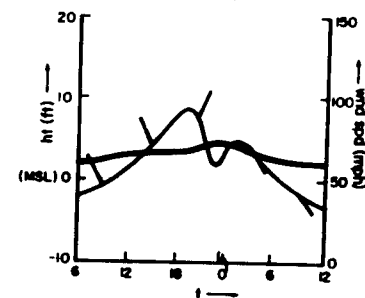
2. BAFFIN BAY (19, 3)



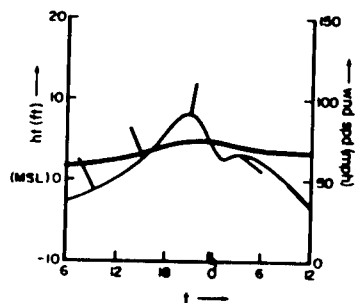
3. PADRI IS. RANGER STA. (24, 35)



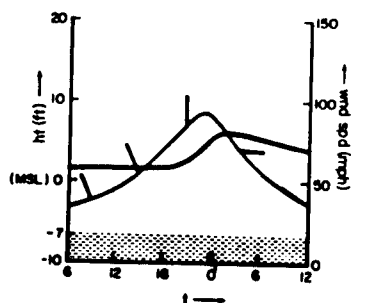
4. MUSTANG PASS (25, 45)



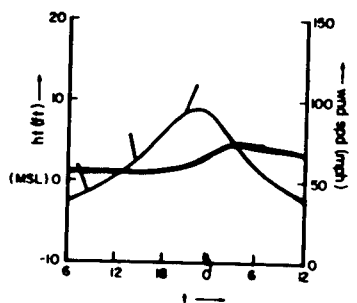
5. NAVAL AIR STA. (20, 46)



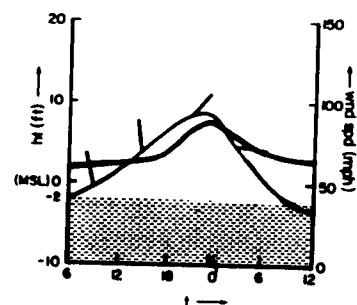
6. CORPUS CHRISTI (12, 53)



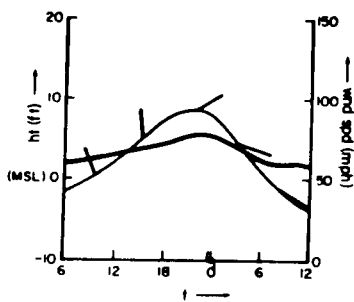
7. INGLESIDE (21, 55)



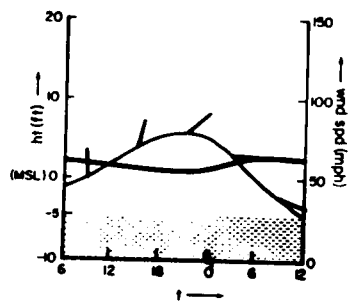
8. ARANSAS PASS (28, 57)



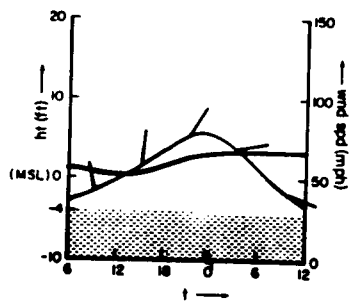
9. PORT ARANSAS (31, 53)



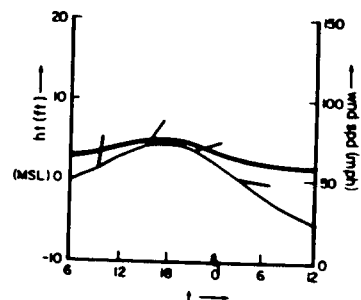
10. COPANO BRIDGE (35, 63)



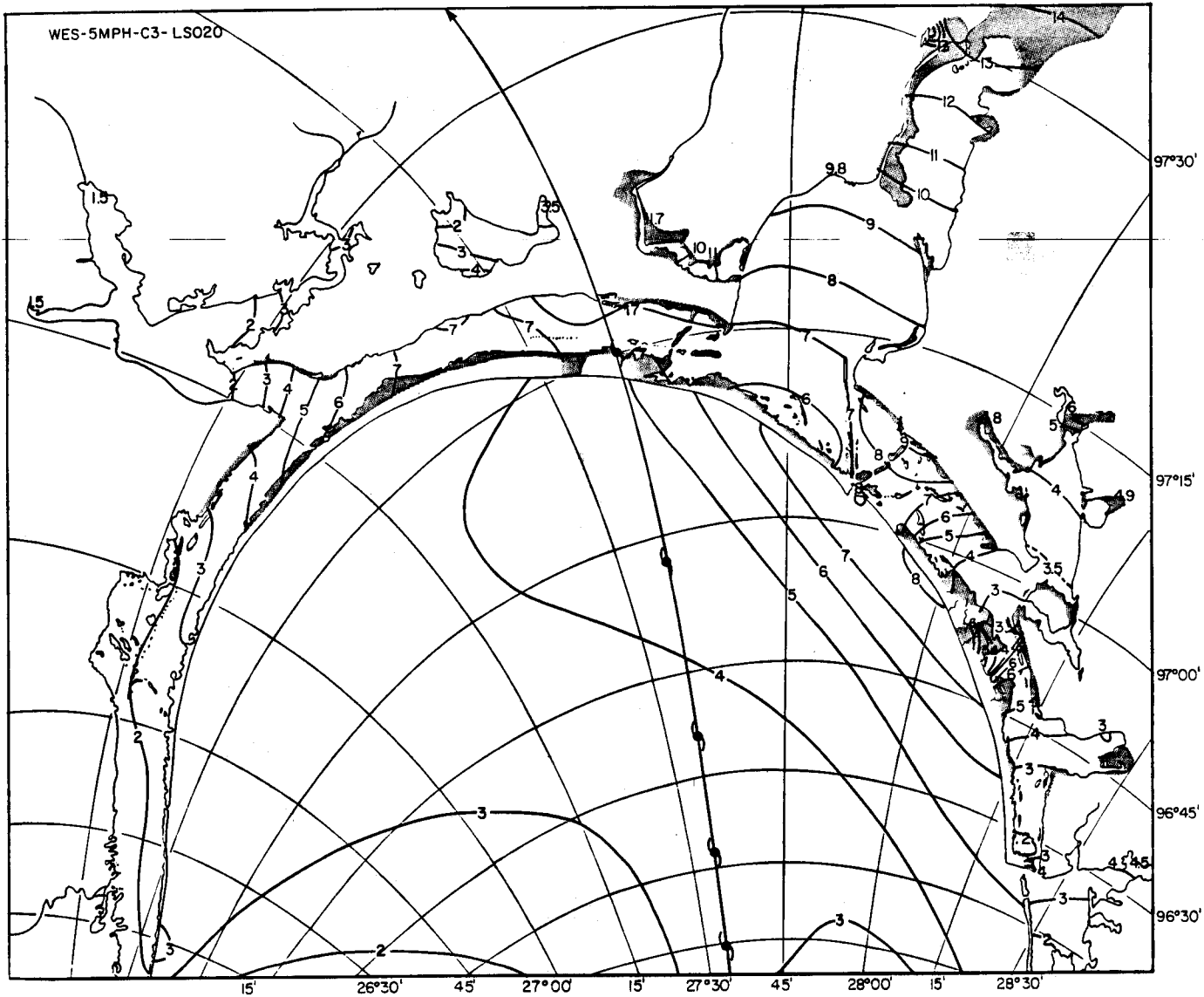
11. BAYSIDE (28, 66)



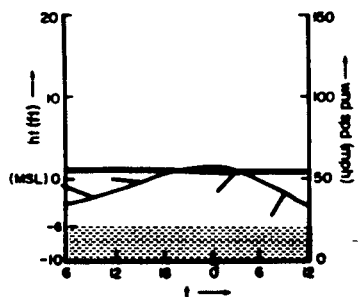
12. MATAGORDA IS. (45, 61)



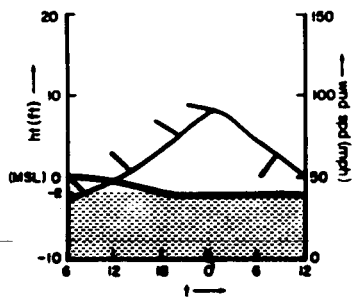
WES-5MPH-C3-LS020



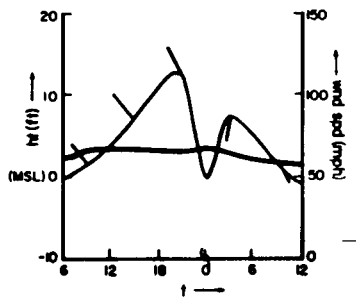
1. PORT MANSFIELD (48,8)



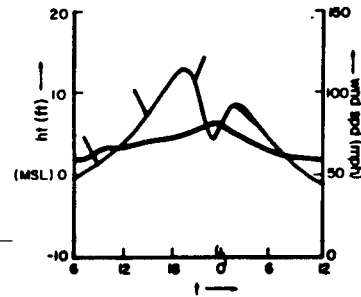
2. BAFFIN BAY (19,3)



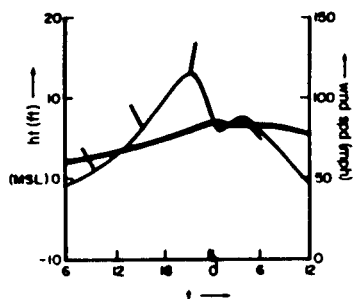
3. PADRI IS. RANGER STA. (24,35)



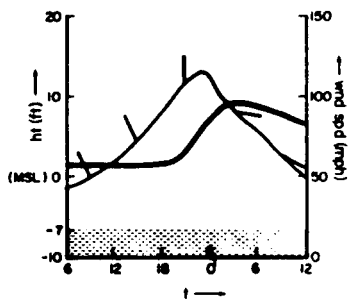
4. MUSTANG PASS (25,45)



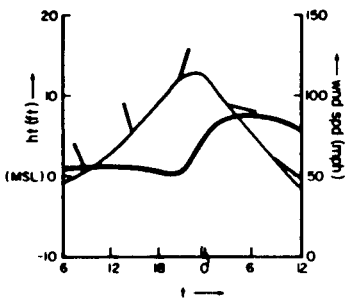
5. NAVAL AIR STA. (20,46)



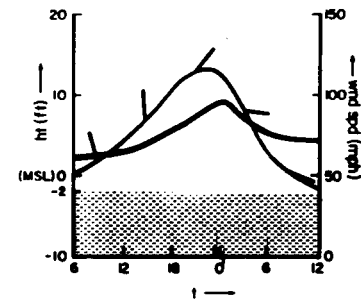
6. CORPUS CHRISTI (2,53)



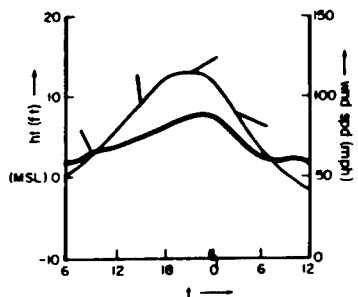
7. INGLESIDE (21,55)



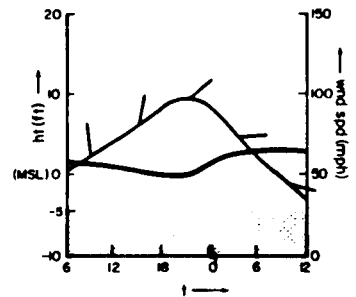
8. ARANSAS PASS (28,57)



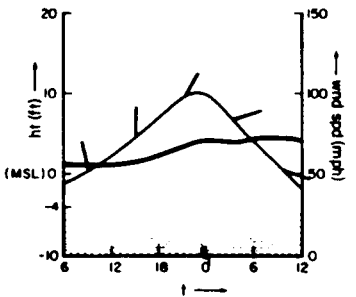
9. PORT ARANSAS (31,53)



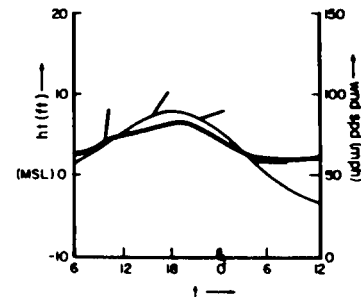
10. COPANO BRIDGE (35,63)



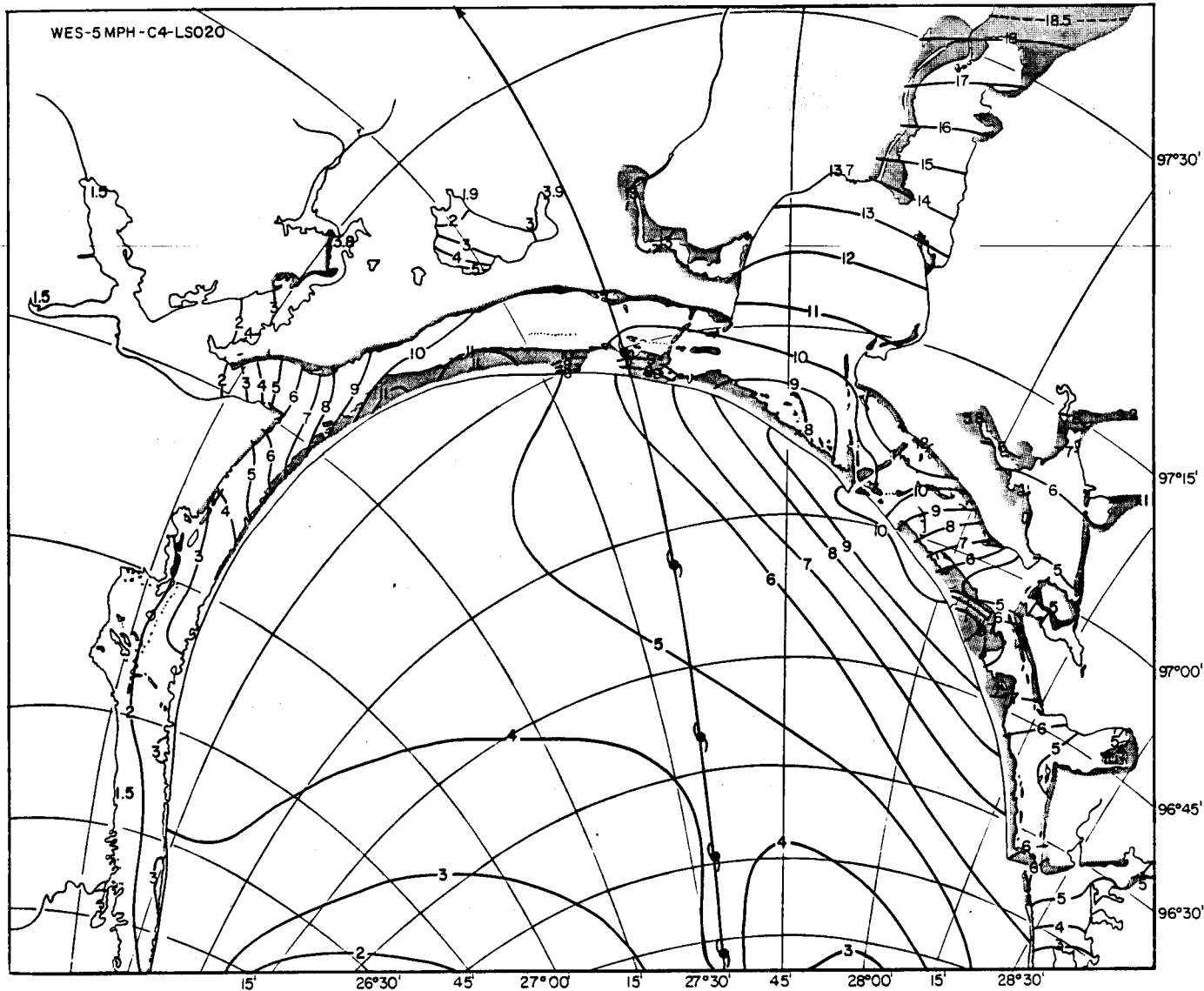
11. BAYSIDE (28,66)



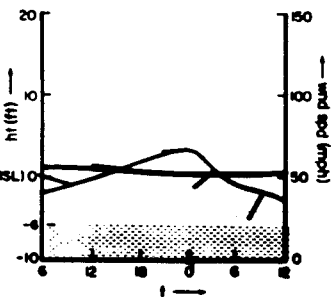
12. MATAGORDA IS. (45,61)



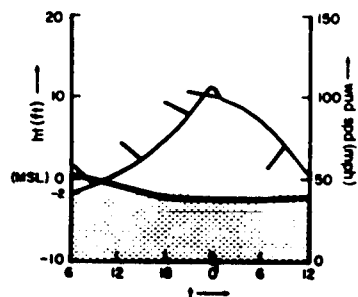
WES-5 MPH - C4-LS020



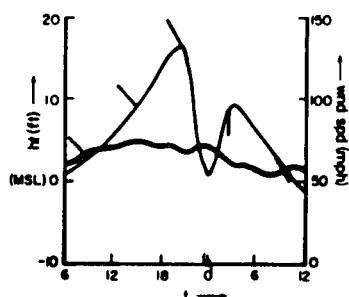
1. PORT MANSFIELD (48, 8)



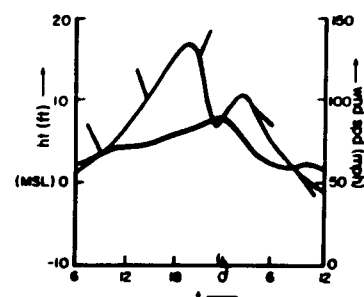
2. BAFFIN BAY (19, 3)



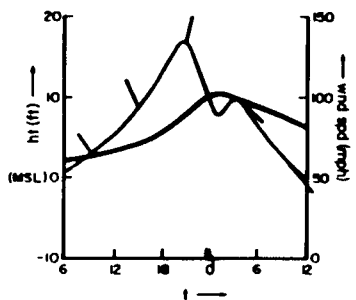
3. PADRI IS. RANGER STA. (24, 35)



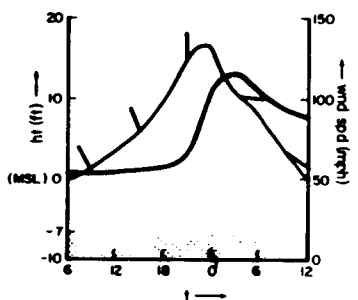
4. MUSTANG PASS (25, 45)



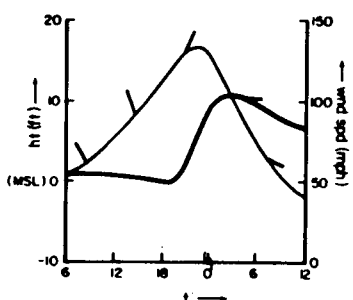
5. NAVAL AIR STA. (20, 46)



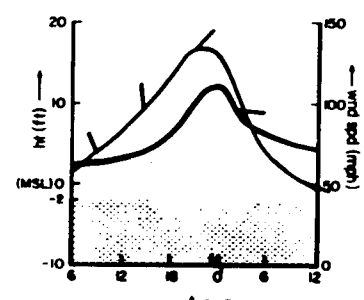
6. CORPUS CHRISTI (2, 53)



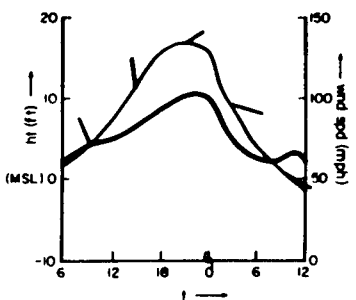
7. INGLESIDE (21, 55)



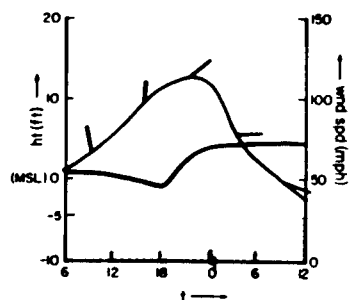
8. ARANSAS PASS (28, 57)



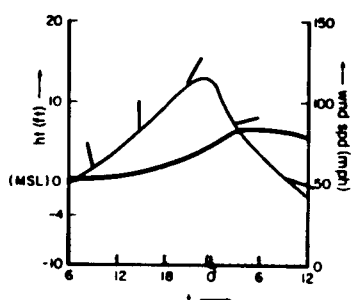
9. PORT ARANSAS (31, 53)



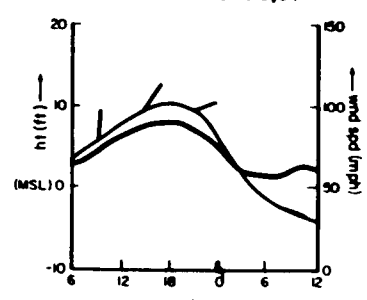
10. COPANO BRIDGE (35, 63)



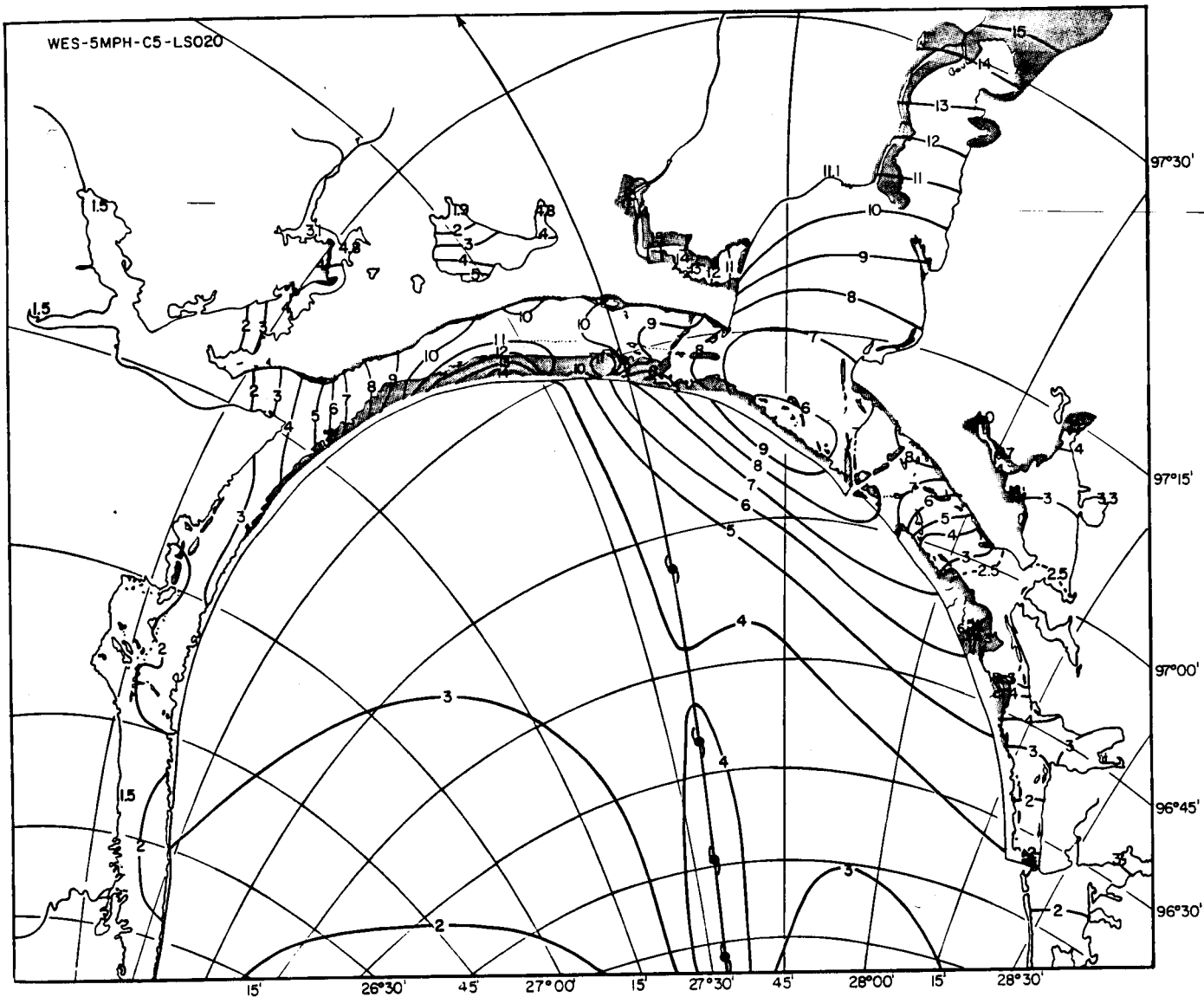
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

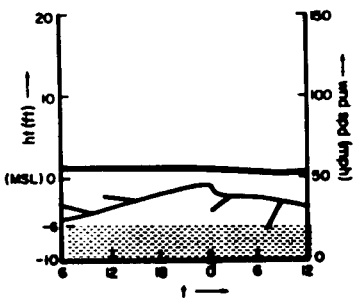


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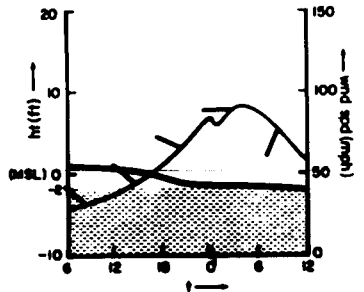




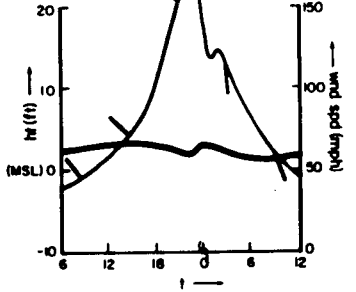
1. PORT MANSFIELD (48, 8)



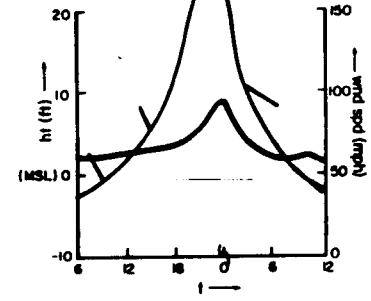
2. BAFFIN BAY (19, 3)



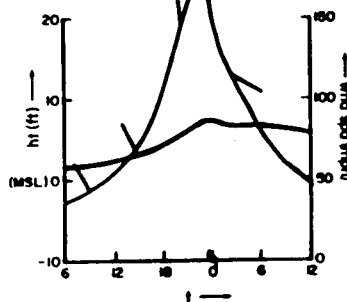
3. PADRI IS. RANGER STA. (24, 35)



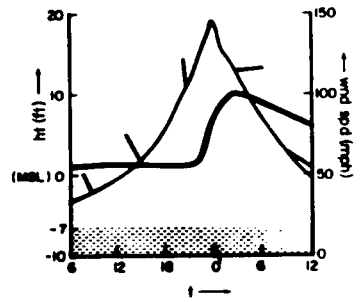
4. MUSTANG PASS (25, 45)



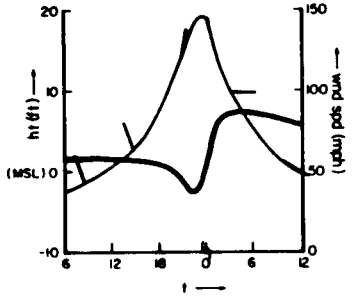
5. NAVAL AIR STA. (20, 46)



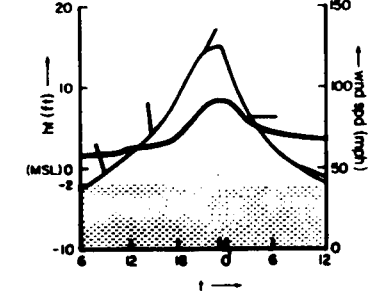
6. CORPUS CHRISTI (12, 53)



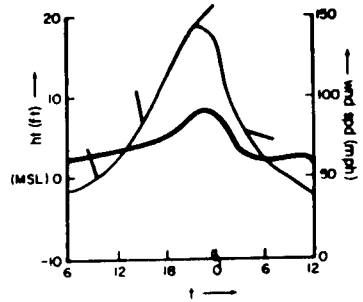
7. INGLESIDE (21, 55)



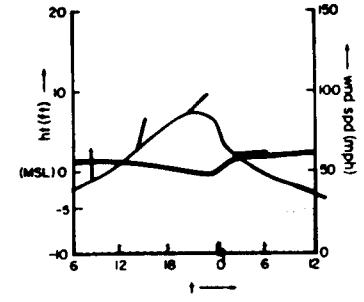
8. ARANSAS PASS (28, 57)



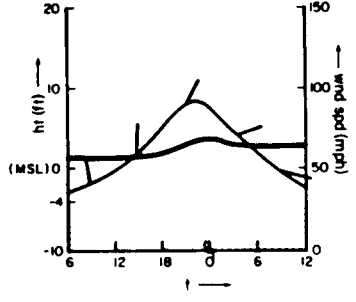
9. PORT ARANSAS (34, 53)



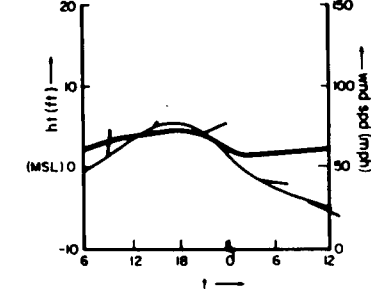
10. COPANO BRIDGE (35, 63)



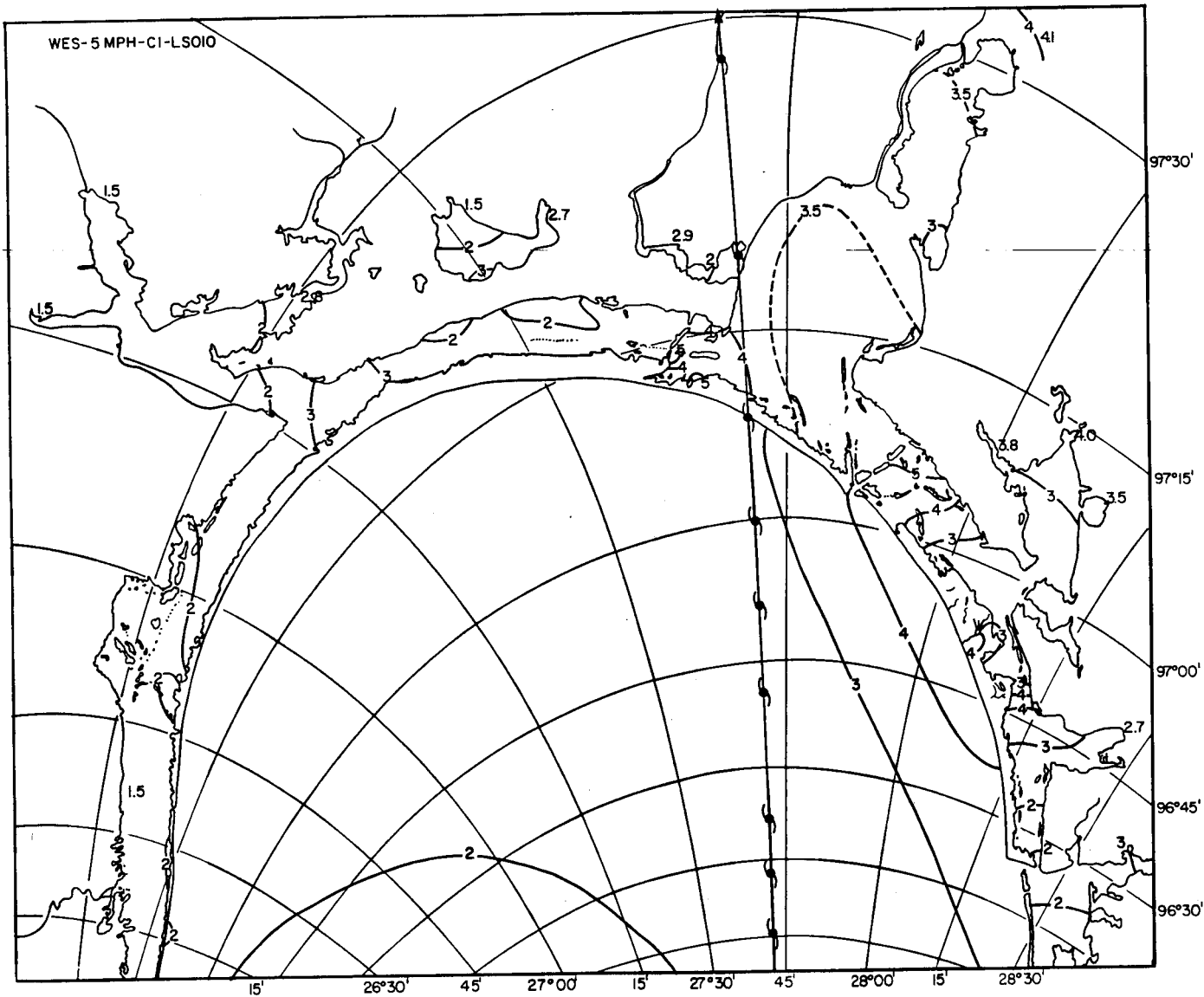
11. BAYSIDE (28, 66)



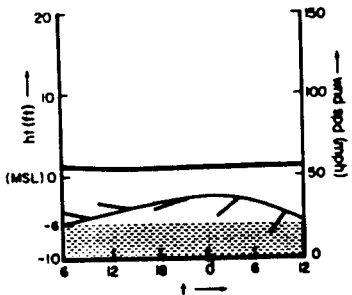
12. MATAGORDA IS (45, 61)



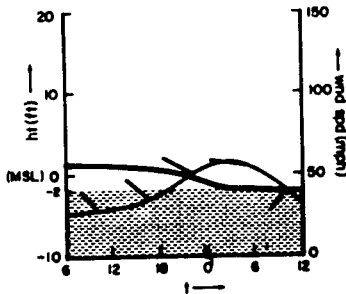
WES-5 MPH-CI-LSOIO



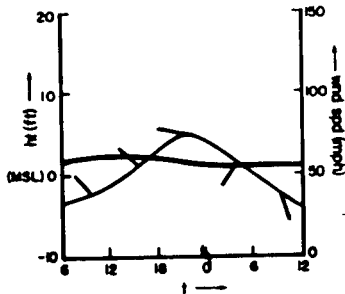
1. PORT MANSFIELD (48, 8)



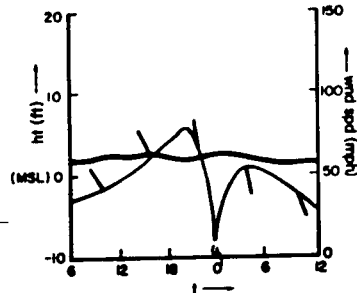
2. BAFFIN BAY (19, 3)



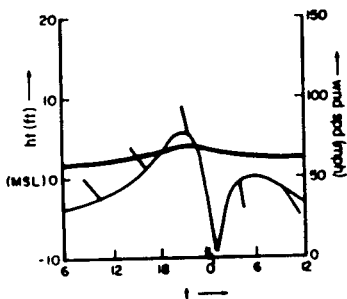
3. PADRI IS. RANGER STA. (24, 35)



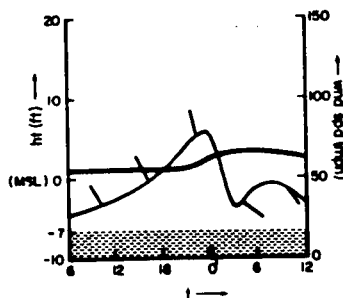
4. MUSTANG PASS (25, 45)



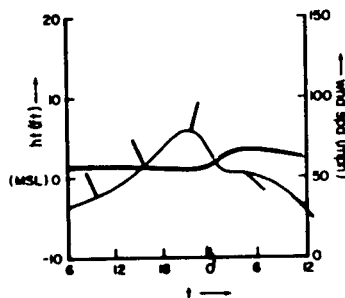
5. NAVAL AIR STA. (20, 46)



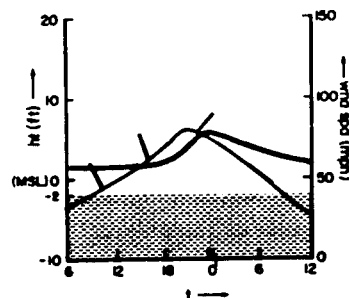
6. CORPUS CHRISTI (12, 53)



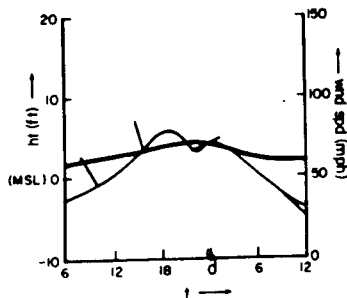
7. INGLESIDE (21, 55)



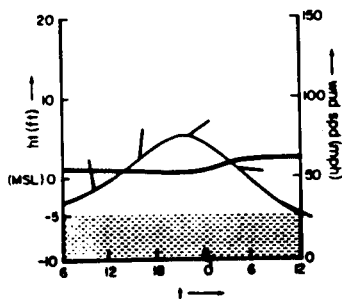
8. ARANSAS PASS (28, 57)



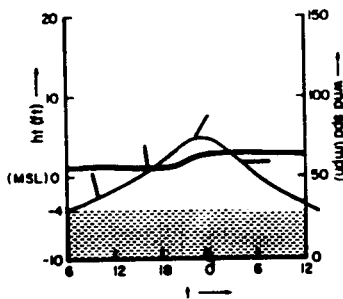
9. PORT ARANSAS (31, 53)



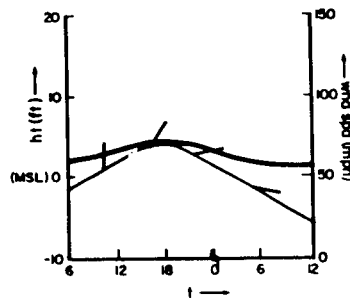
10. COPANO BRIDGE (35, 63)



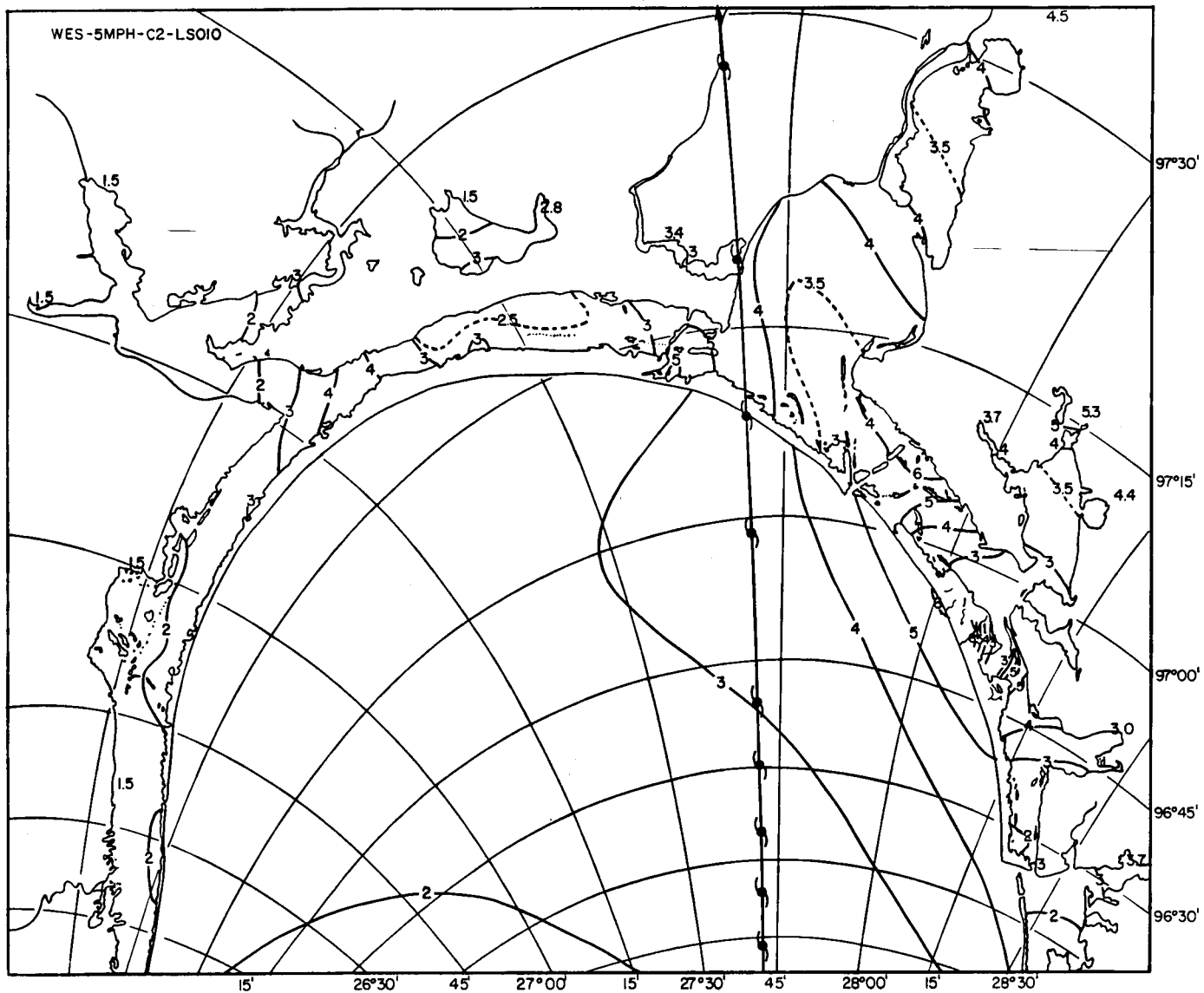
11. BAYSIDE (28, 66)



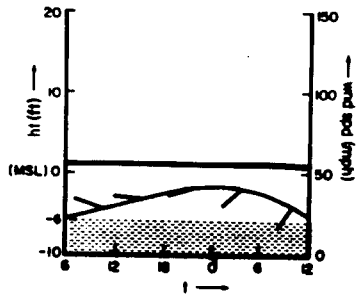
12. MATAGORDA IS. (45, 61)



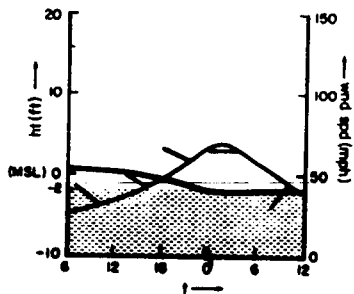
WES-5MPH-C2-LS010



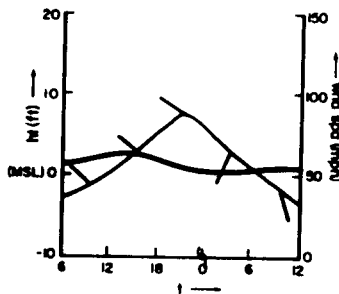
1. PORT MANSFIELD (48, 8)



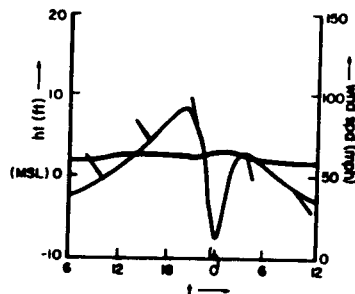
2. BAFFIN BAY (19, 3)



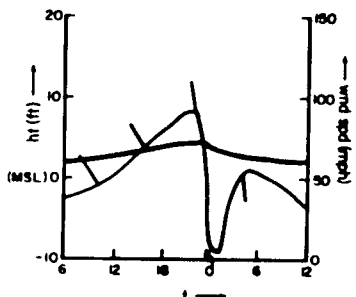
3. PADRI IS. RANGER STA. (24, 35)



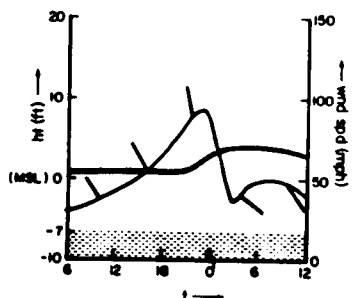
4. MUSTANG PASS (25, 45)



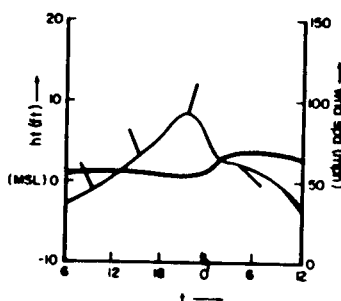
5. NAVAL AIR STA. (20, 46)



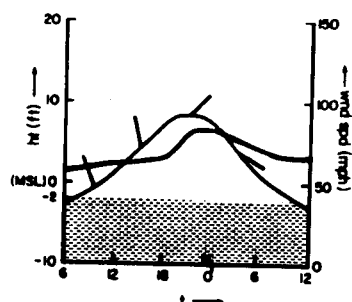
6. CORPUS CHRISTI (12, 53)



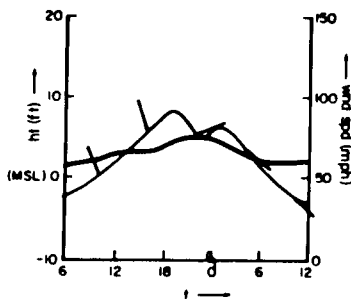
7. INGLESIDE (21, 55)



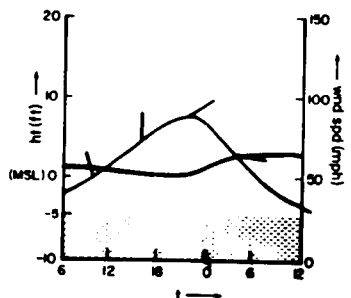
8. ARANSAS PASS (28, 57)



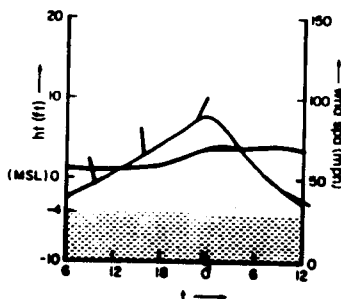
9. PORT ARANSAS (34, 53)



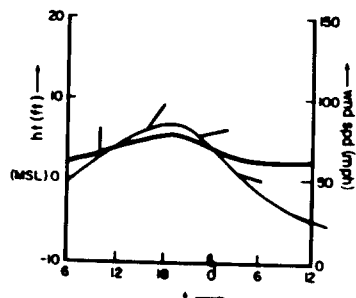
10. COPANO BRIDGE (35, 63)



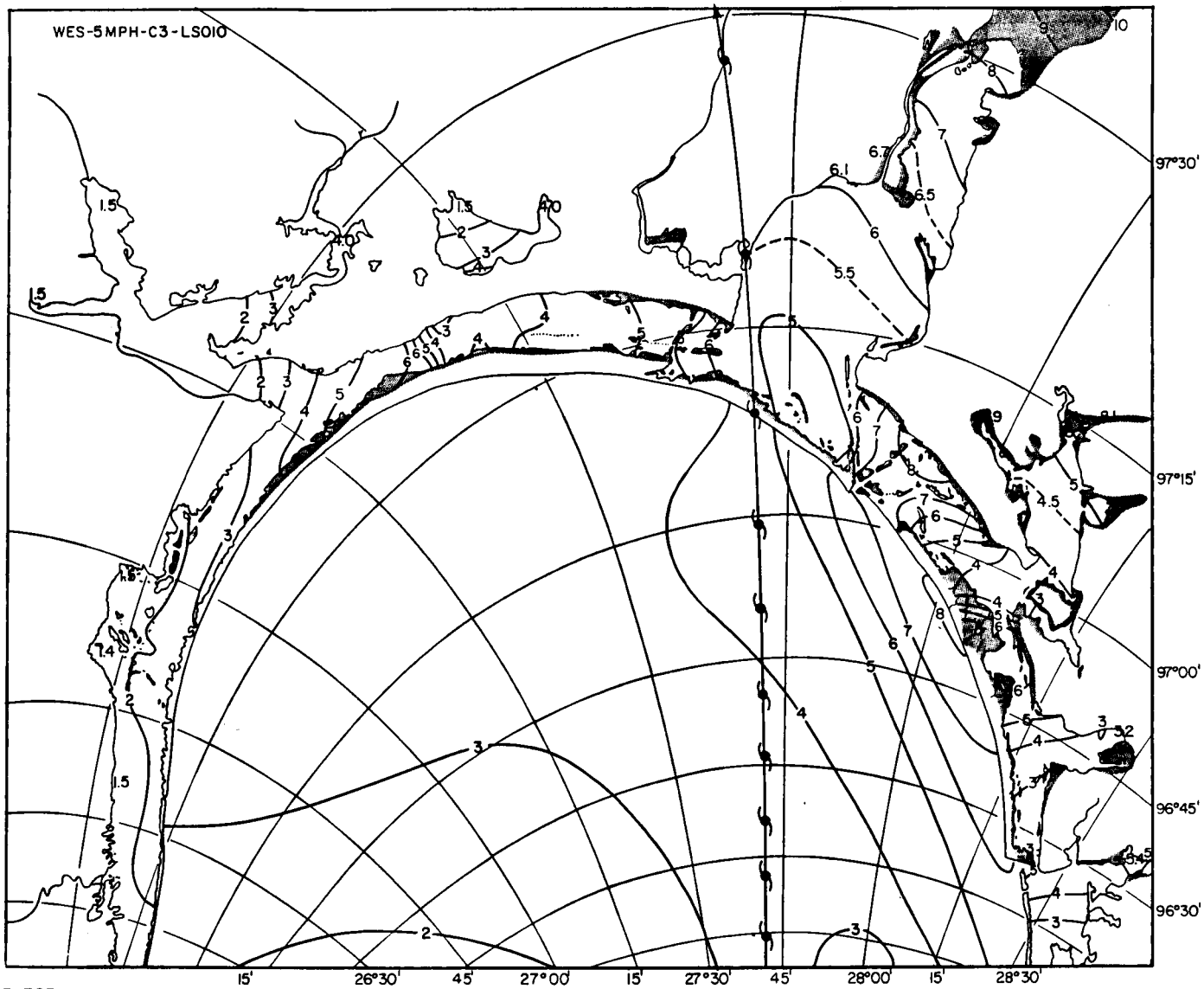
11. BAYSIDE (28, 66)



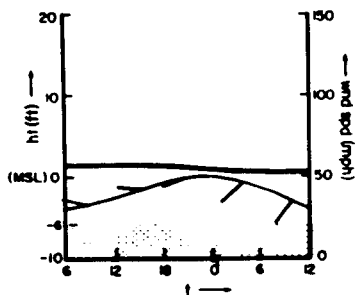
12. MATAGORDA IS. (45, 61)



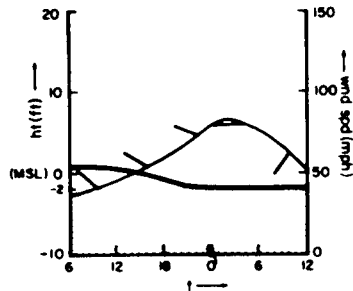
WES-5MPH-C3-LSO10



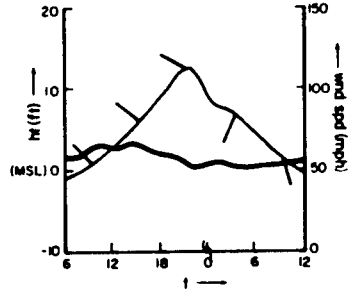
1. PORT MANSFIELD (48, 8)



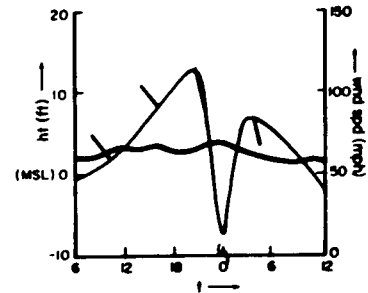
2. BAFFIN BAY (19, 3)



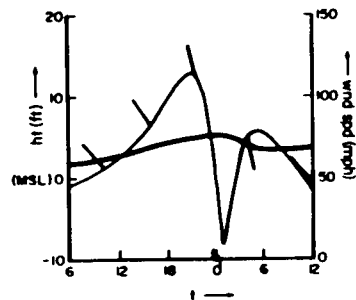
3. PADRI IS. RANGER STA. (24, 35)



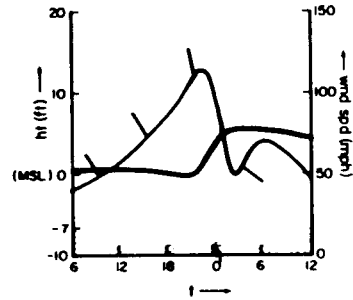
4. MUSTANG PASS (25, 45)



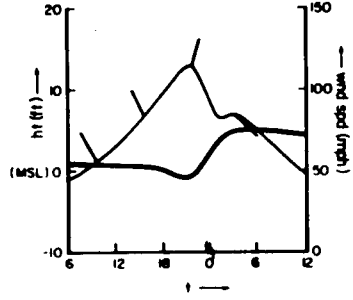
5. NAVAL AIR STA. (20, 46)



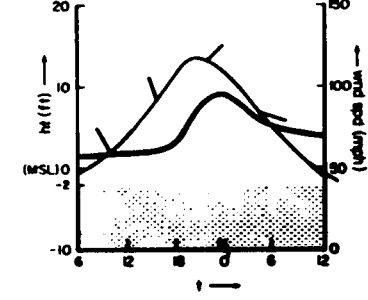
6. CORPUS CHRISTI (12, 53)



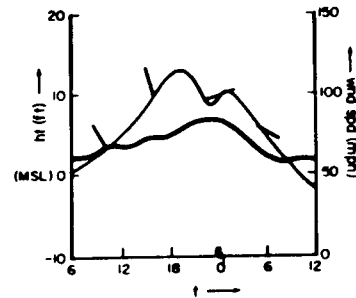
7. INGLESIDE (21, 55)



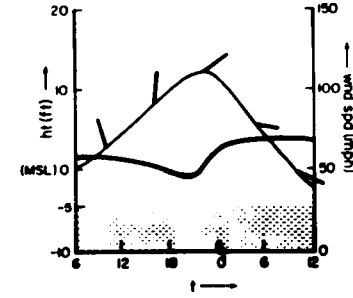
8. ARANSAS PASS (28, 57)



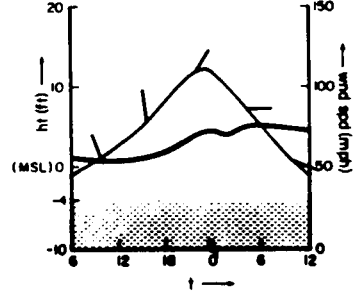
9. PORT ARANSAS (34, 53)



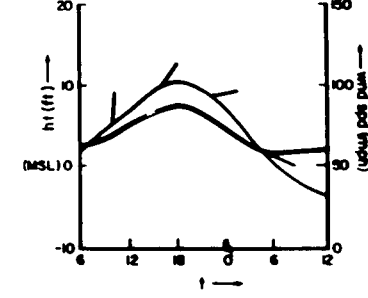
10. COPANO BRIDGE (35, 63)



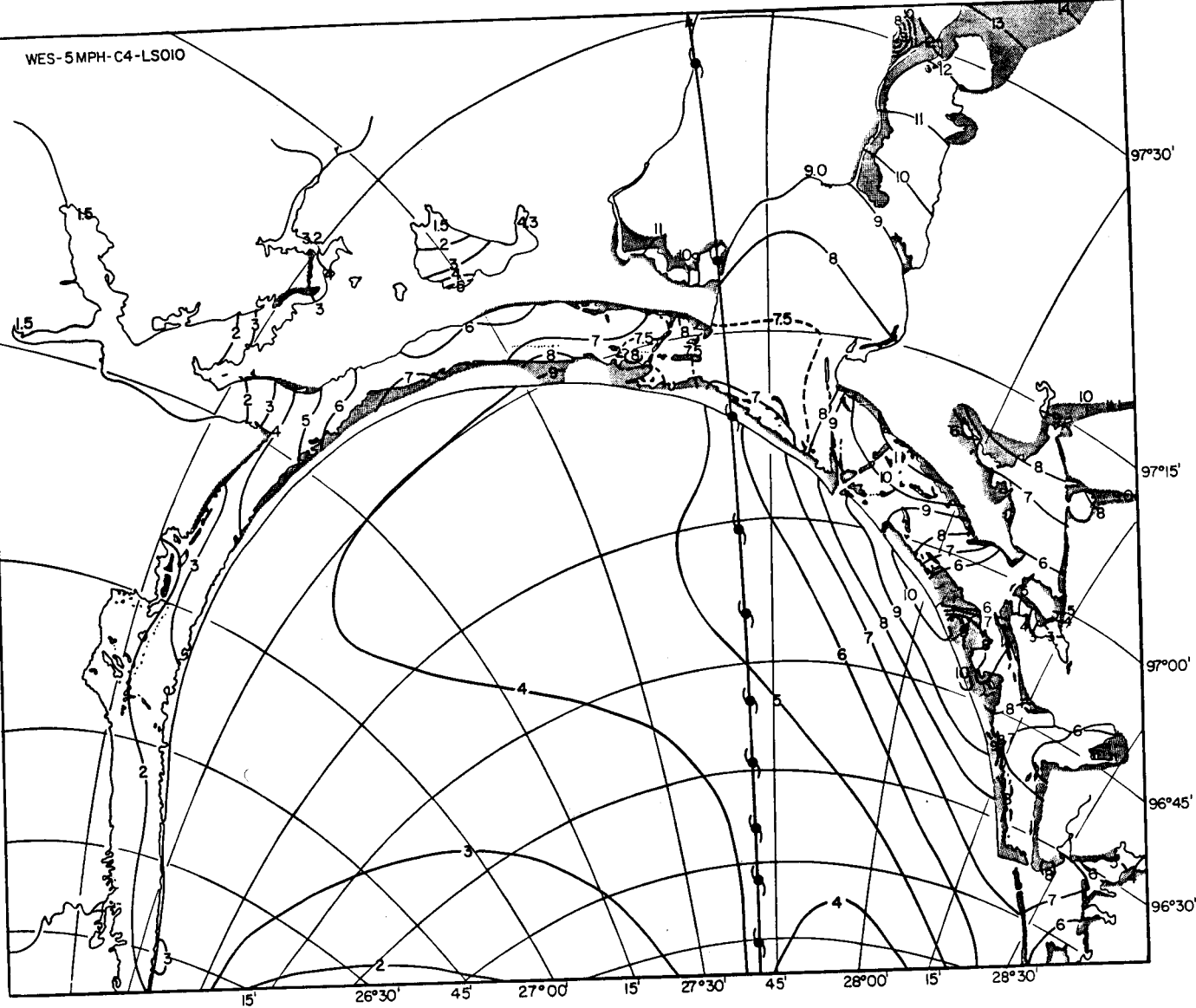
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 64)



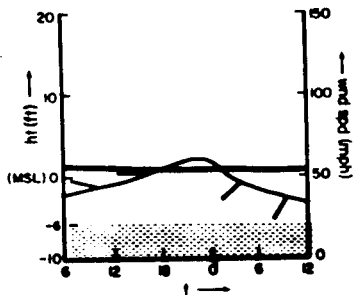
WES-5 MPH-C4-LSOIO



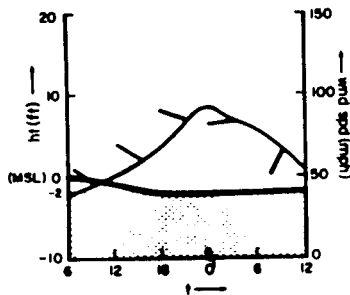
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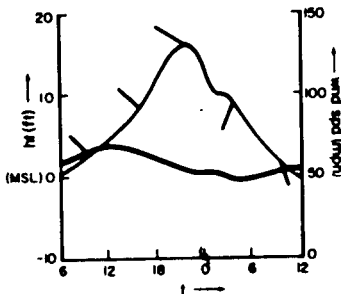
1. PORT MANSFIELD (48,8)



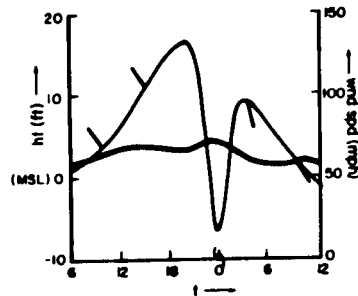
2. BAFFIN BAY (19,3)



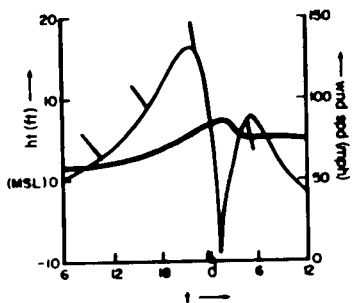
3. PADRI IS. RANGER STA. (24,35)



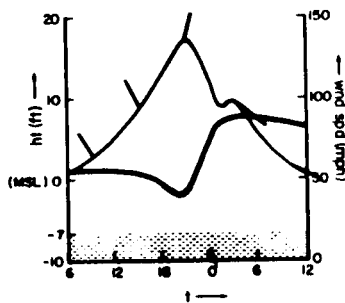
4. MUSTANG PASS (25,45)



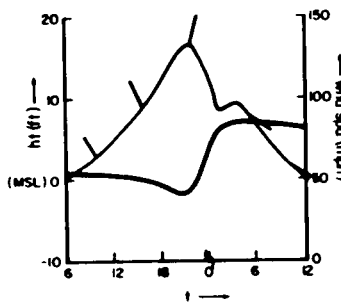
5. NAVAL AIR STA. (20,46)



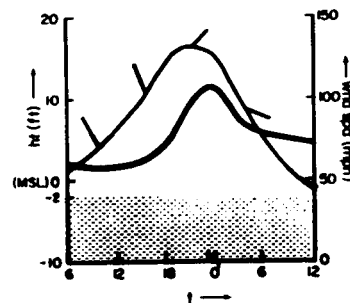
6. CORPUS CHRISTI (12,53)



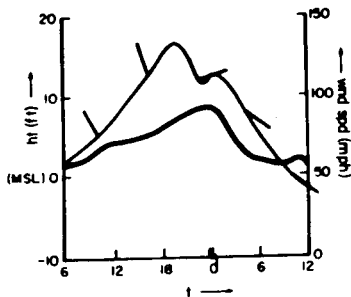
7. INGLESIDE (21,55)



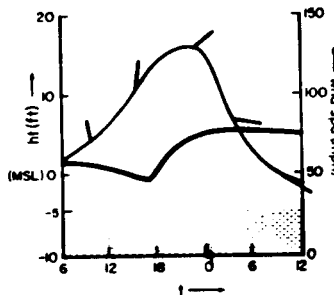
8. ARANSAS PASS (28,57)



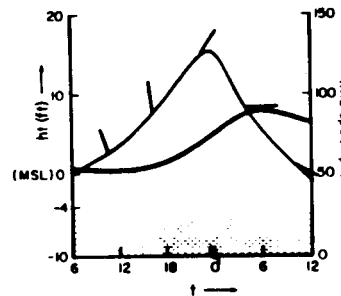
9. PORT ARANSAS (31,53)



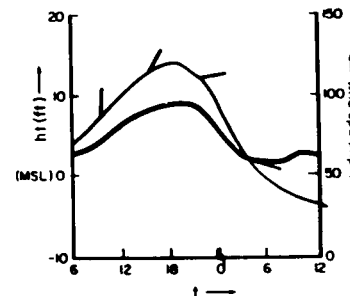
10. CORPANO BRIDGE (35,63)



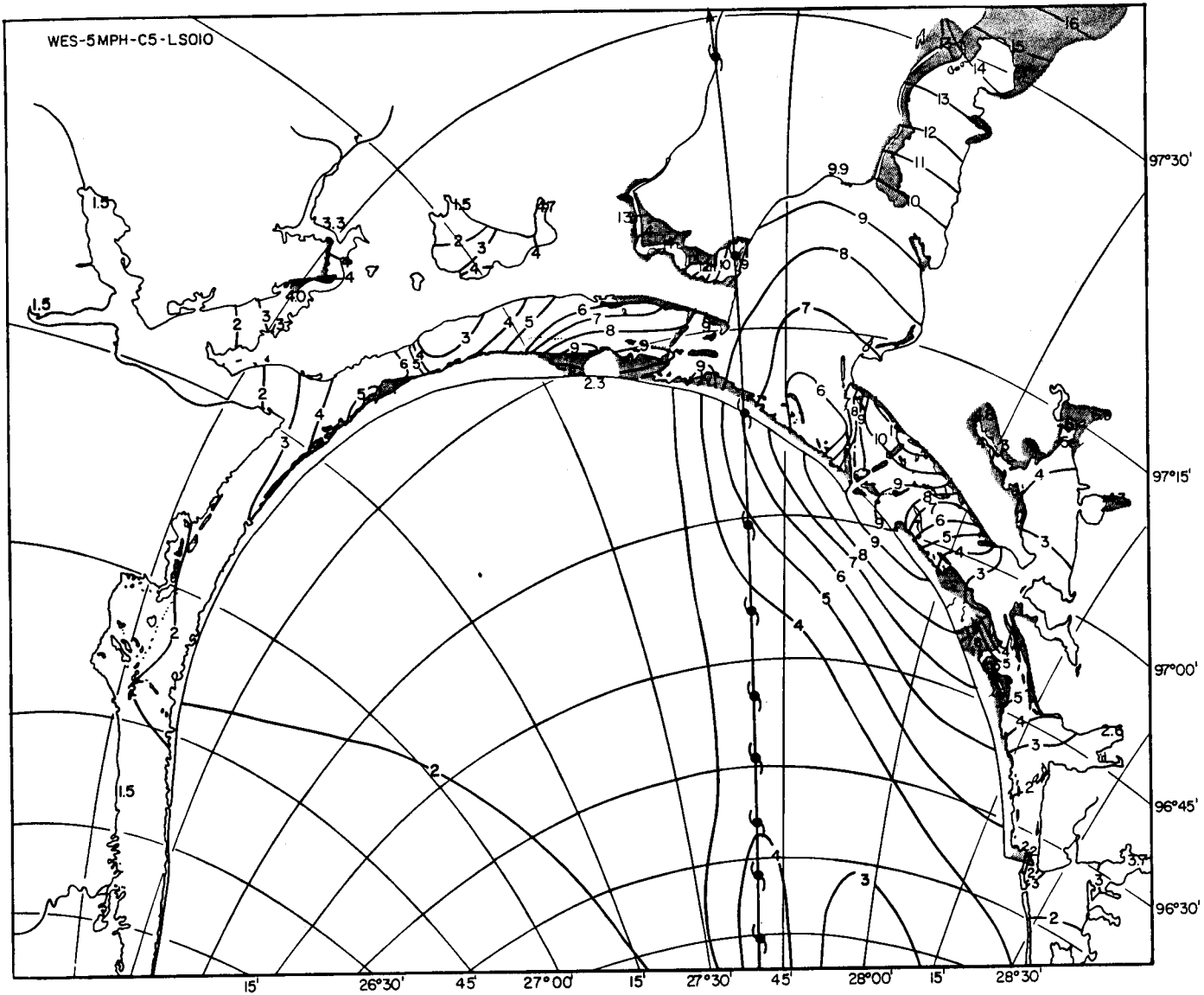
11. BAYSIDE (28,66)



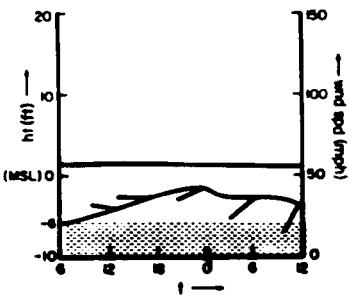
12. MATAGORDA IS. (45,61)



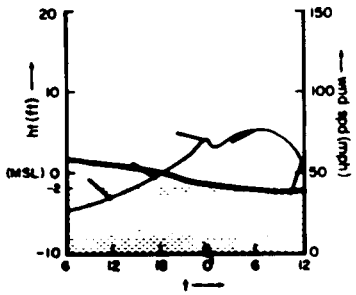
WES-5MPH-C5-LSOIO



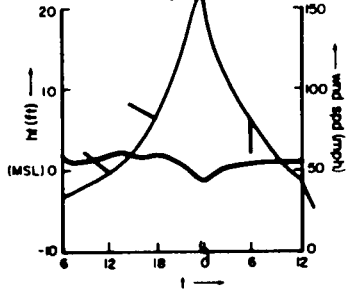
1. PORT MANSFIELD (48,8)



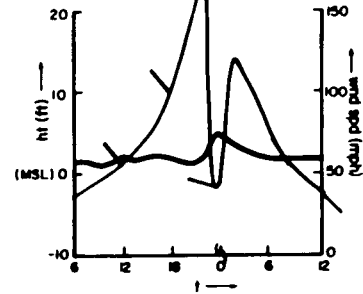
2. BAFFIN BAY (19,3)



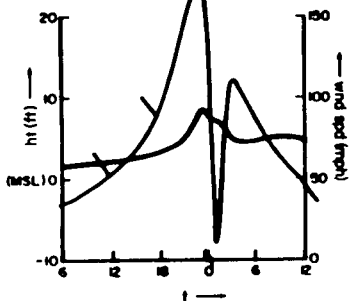
3. PADRI IS. RANGER STA. (24,35)



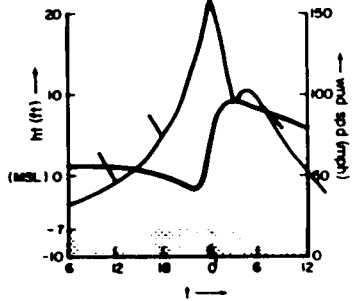
4. MUSTANG PASS (25,45)



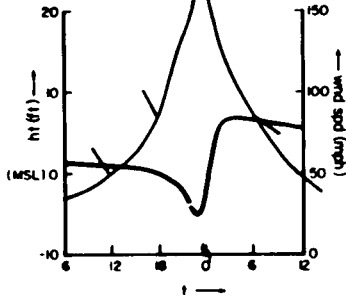
5. NAMAL AIR STA. (20,46)



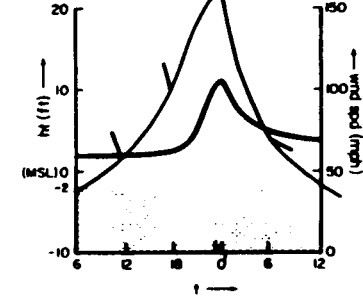
6. CORPUS CHRISTI (12,53)



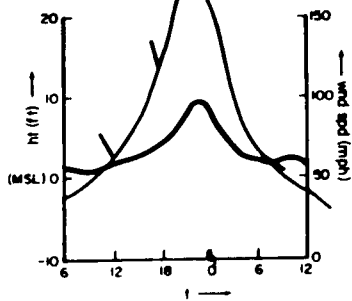
7. INGLESIDE (21,55)



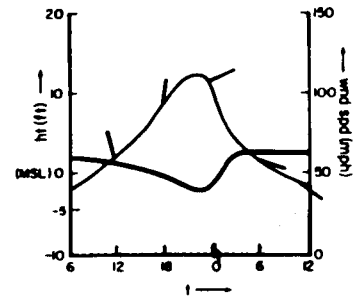
8. ARANSAS PASS (28,57)



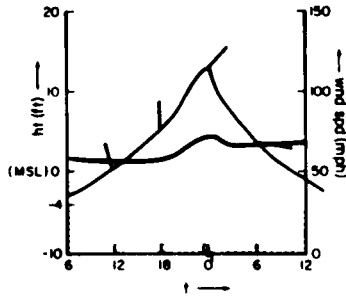
9. PORT ARANSAS (31,53)



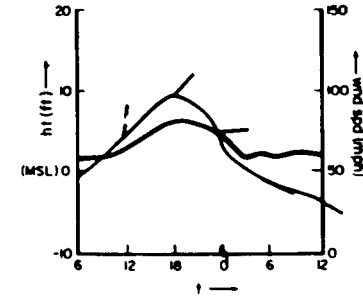
10. COPANO BRIDGE (35,63)



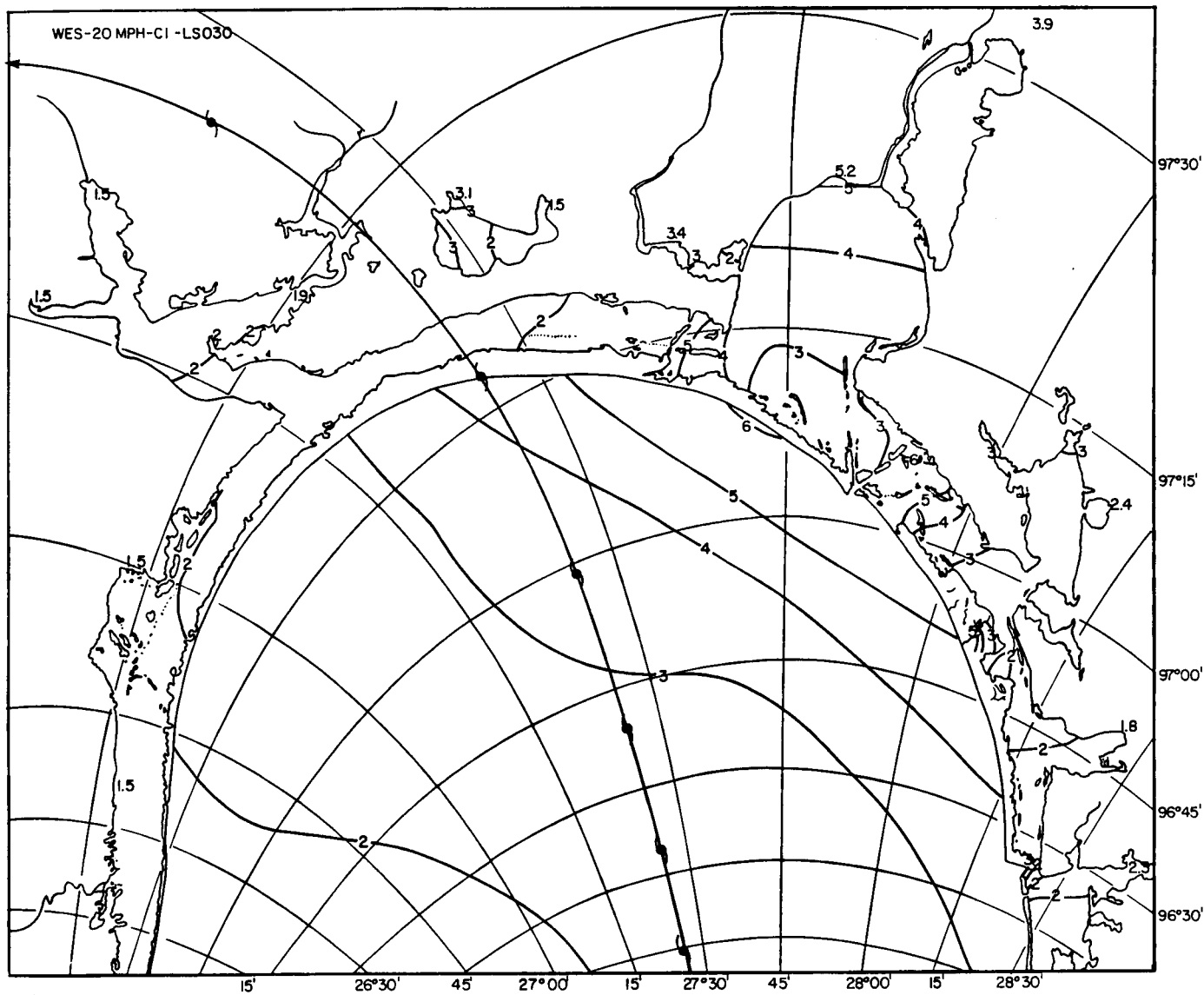
11. BAYSIDE (28,66)



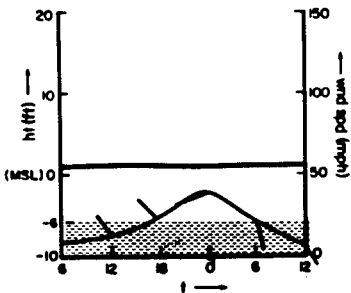
12. MATAGORDA IS. (45,61)



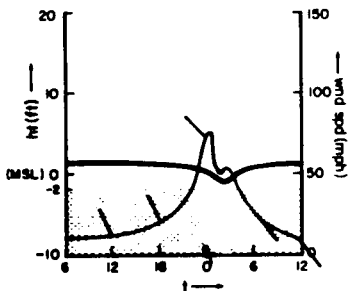
WES-20 MPH-CI -LS030



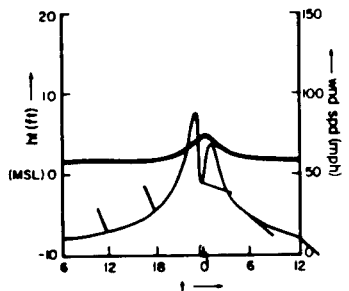
1. PORT MANSFIELD (48,8)



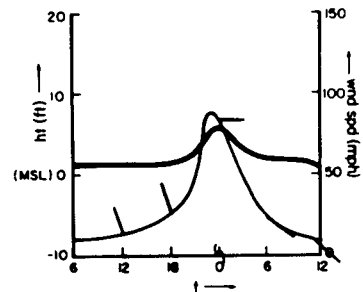
2. BAFFIN BAY (19,3)



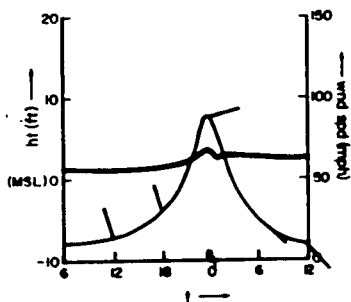
3. PADRI IS. RANGER STA. (24,35)



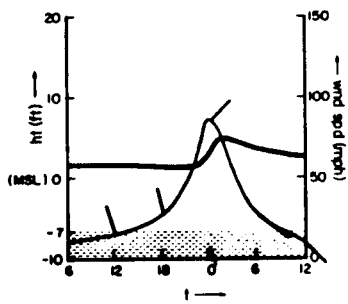
4. MUSTANG PASS (25,45)



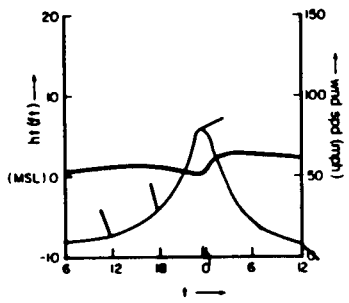
5. NAVAL AIR STA. (20,46)



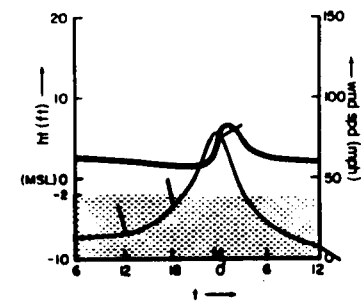
6. CORPUS CHRISTI (12,53)



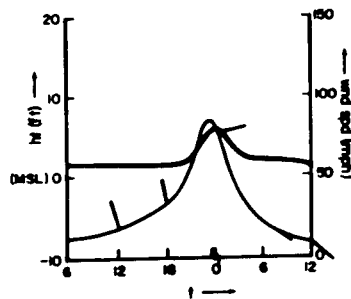
7. INGLESIDE (21,55)



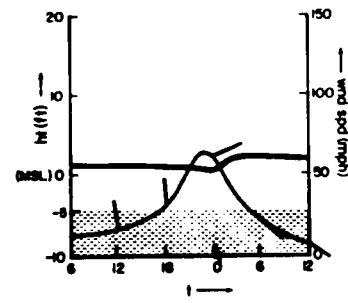
8. ARANSAS PASS (28,57)



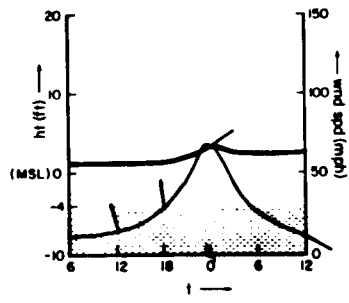
9. PORT ARANSAS (31,53)



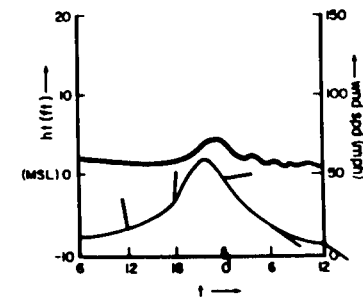
10. COPANO BRIDGE (35,63)



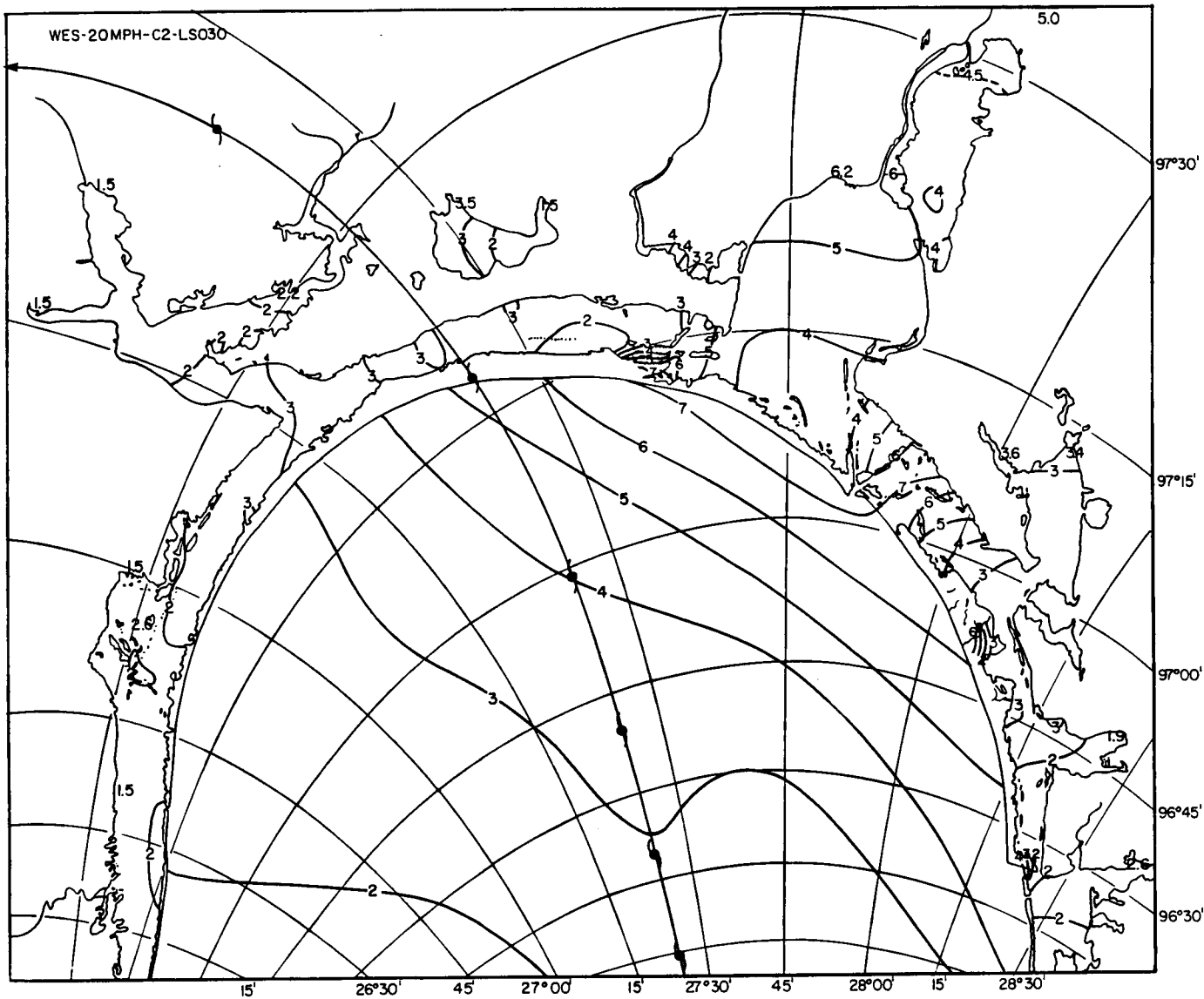
11. BAYSIDE (28,66)



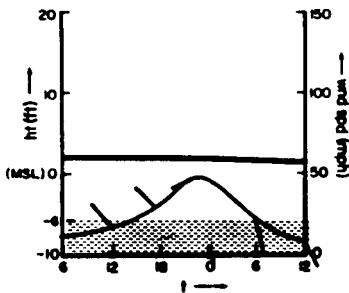
12. MATAGORDA IS. (45,61)



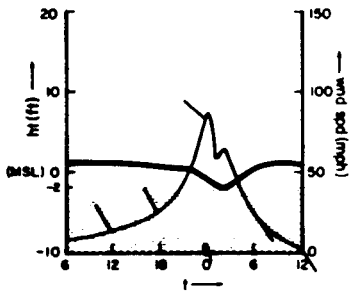
WES-20MPH-C2-LS030



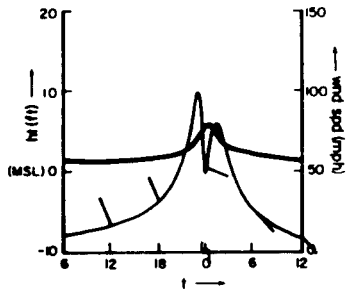
1. PORT MANSFIELD (48,8)



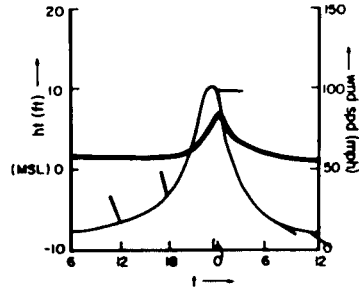
2. BAFFIN BAY (19,3)



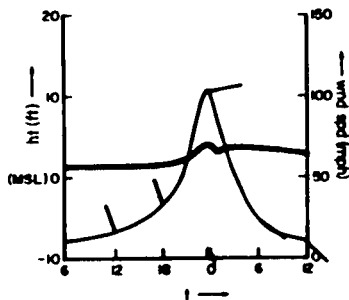
3. PADRI IS RANGER STA (24,35)



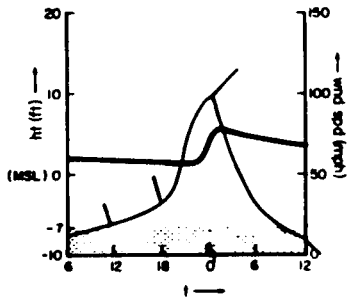
4. MUSTANG PASS (25, 45)



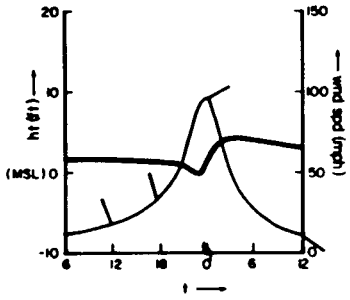
5. NAVAL AIR STA. (20,46)



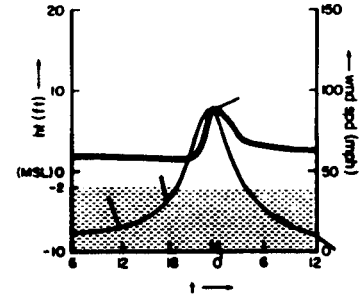
6. CORPUS CHRISTI (12,53)



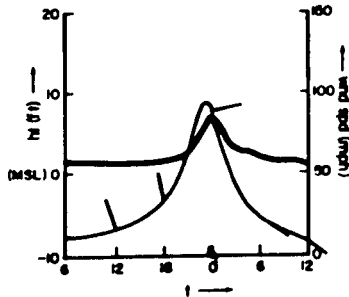
7. INGLESIDE (21,55)



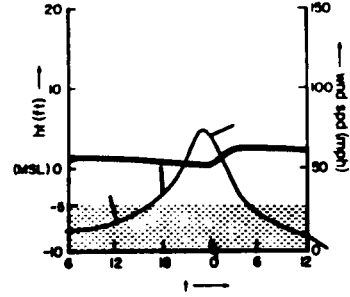
8. ARANSAS PASS (28,57)



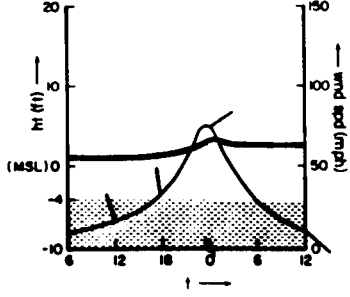
9. PORT ARANSAS (31,53)



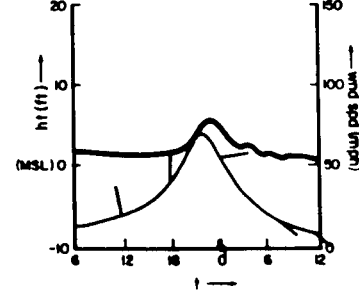
10. COPANO BRIDGE (35,63)



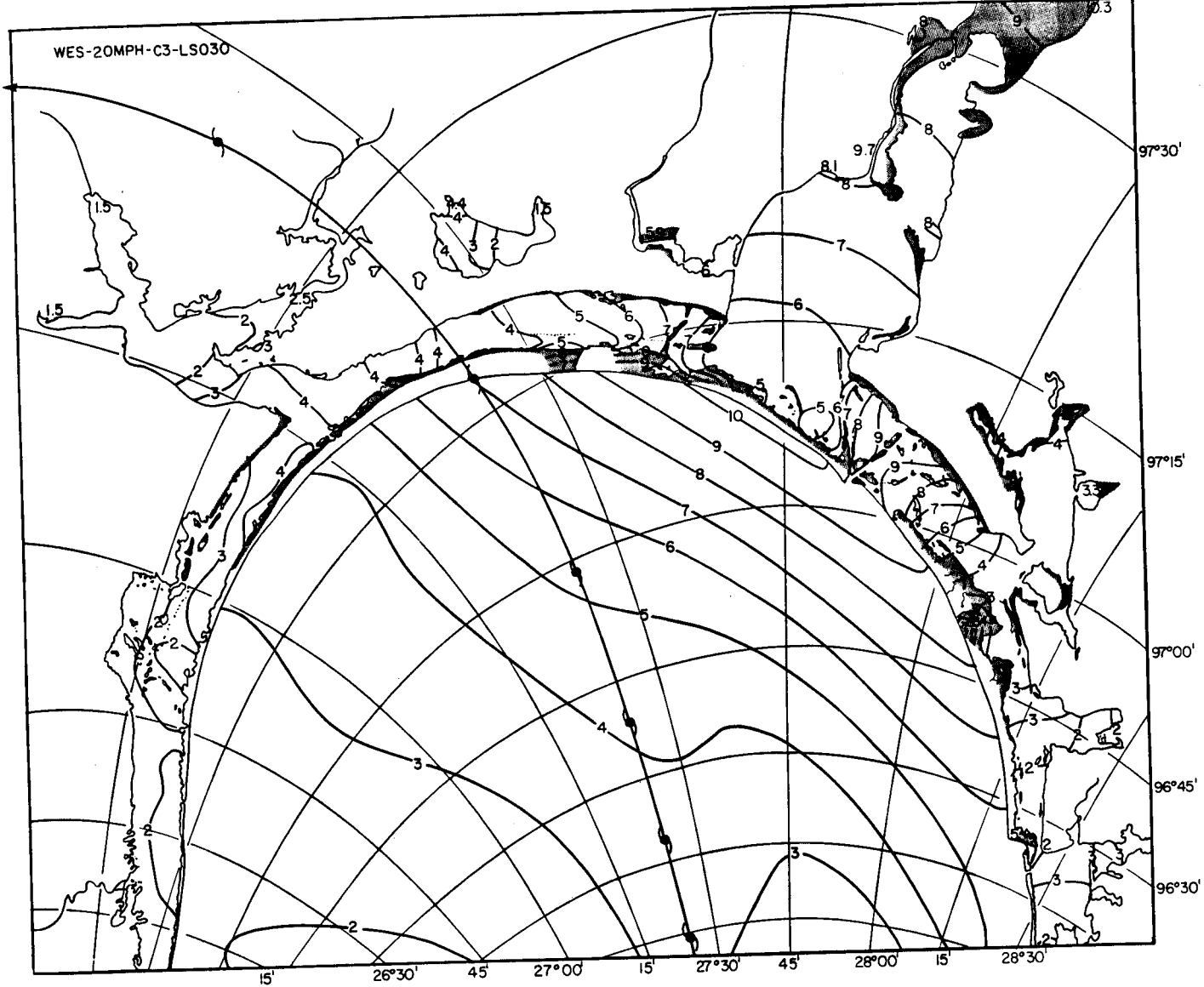
11. BAYSIDE (28,66)



12. MATAGORDA IS. (45,61)

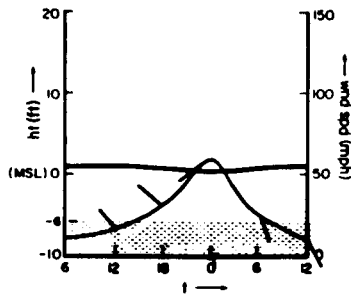


WES-20MPH-C3-LS030

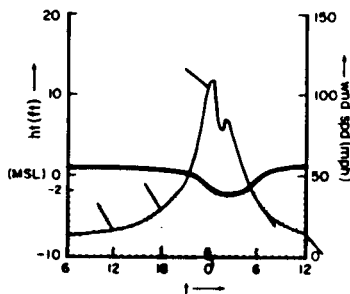




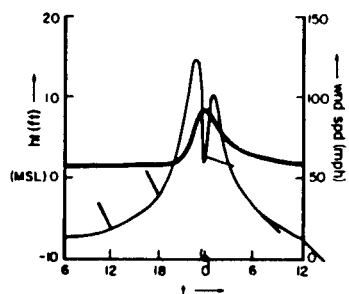
1 PORT MANSFIELD (48, 8)



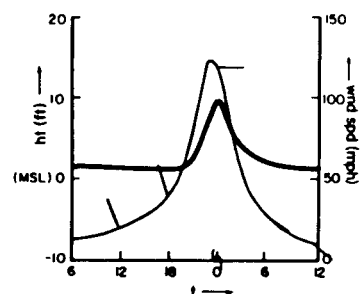
2 BAFFIN BAY (19, 3)



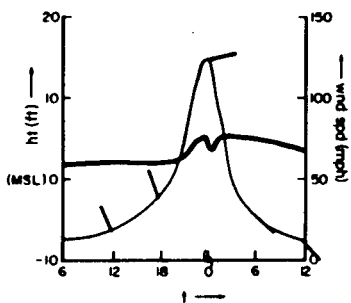
3 PADRI IS RANGER STA. (24, 35)



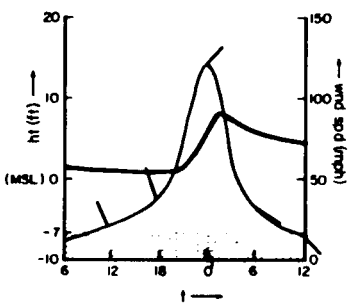
4 MUSTANG PASS (25, 45)



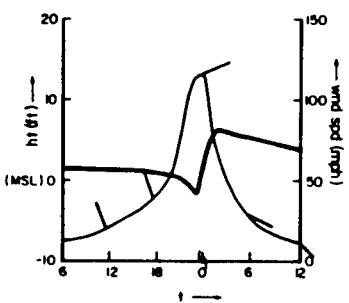
5 NAVAL AIR STA. (20, 46)



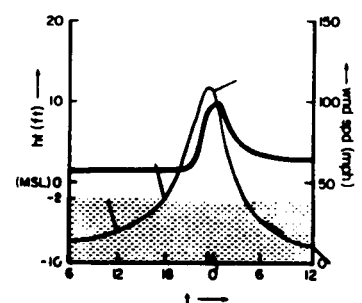
6 CORPUS CHRISTI (12, 53)



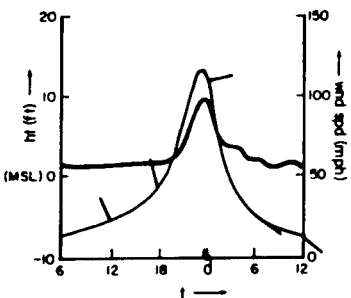
7 INGLESIDE (21, 55)



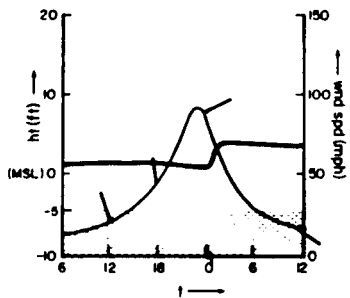
8 ARANSAS PASS (28, 57)



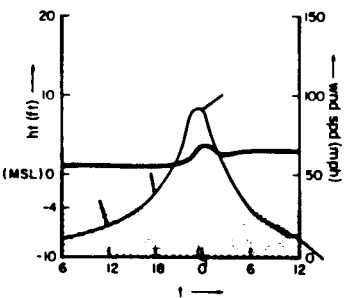
9 PORT ARANSAS (31, 53)



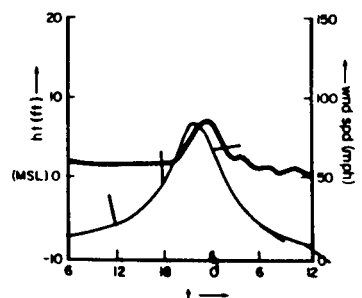
10 COPANO BRIDGE (35, 63)



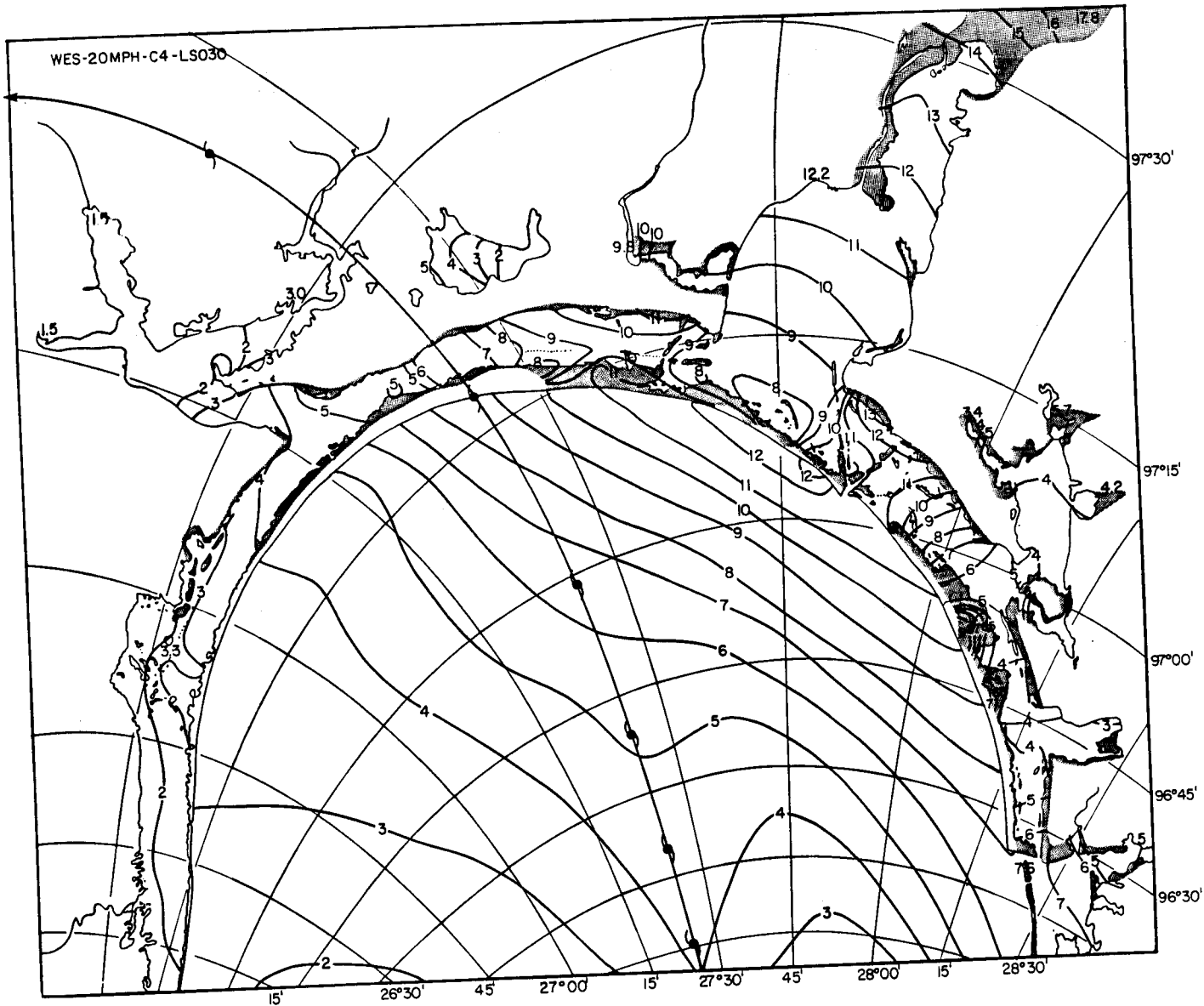
11 BAYSIDE (28, 66)



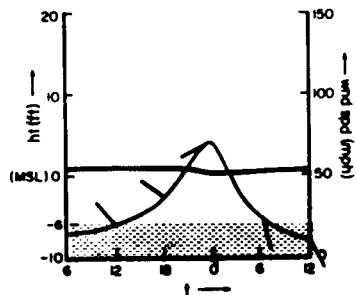
12 MATAGORDA IS. (45, 61)



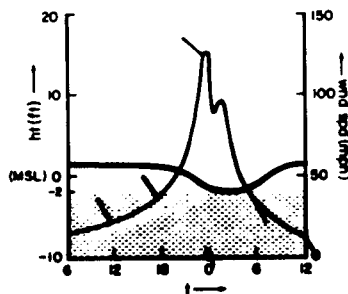
WES-20MPH-C4-LSO30



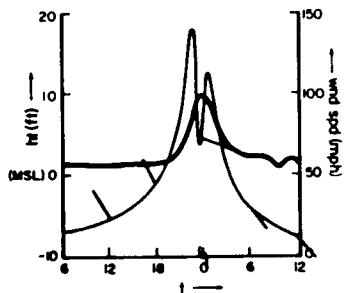
1. PORT MANSFIELD (48, 8)



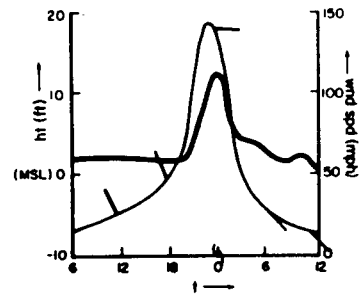
2. BAFFIN BAY (19, 3)



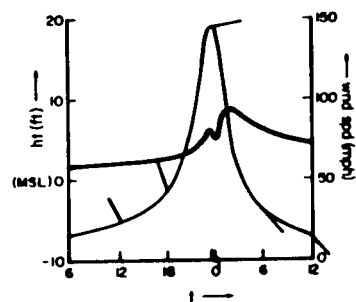
3. PADRI IS. RANGER STA. (24, 35)



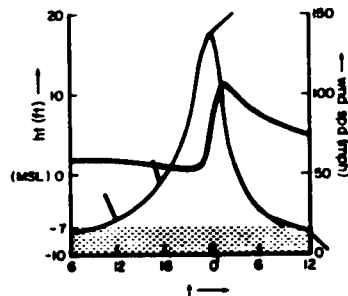
4. MUSTANG PASS (25, 45)



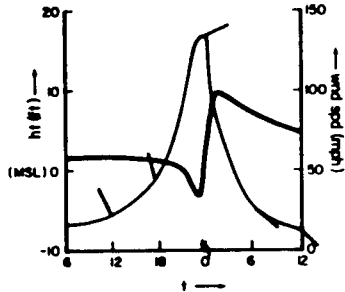
5. NAVAL AIR STA. (20, 46)



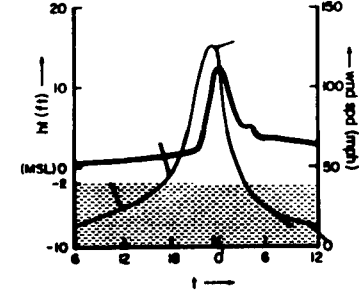
6. CORPUS CHRISTI (12, 53)



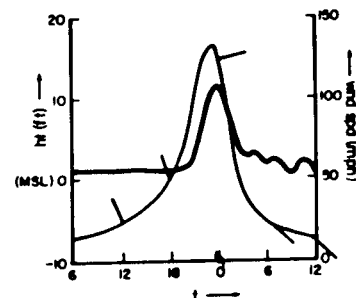
7. INGLESIDE (21, 55)



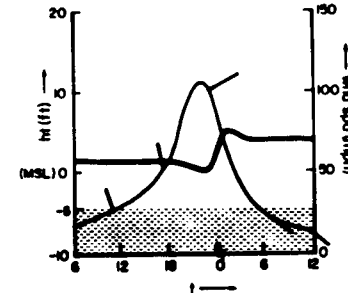
8. ARANSAS PASS (28, 57)



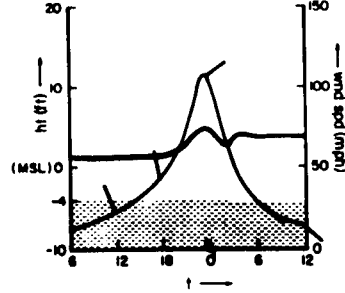
9. PORT ARANSAS (31, 53)



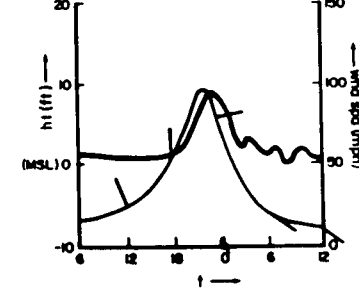
10. COPANO BRIDGE (35, 63)

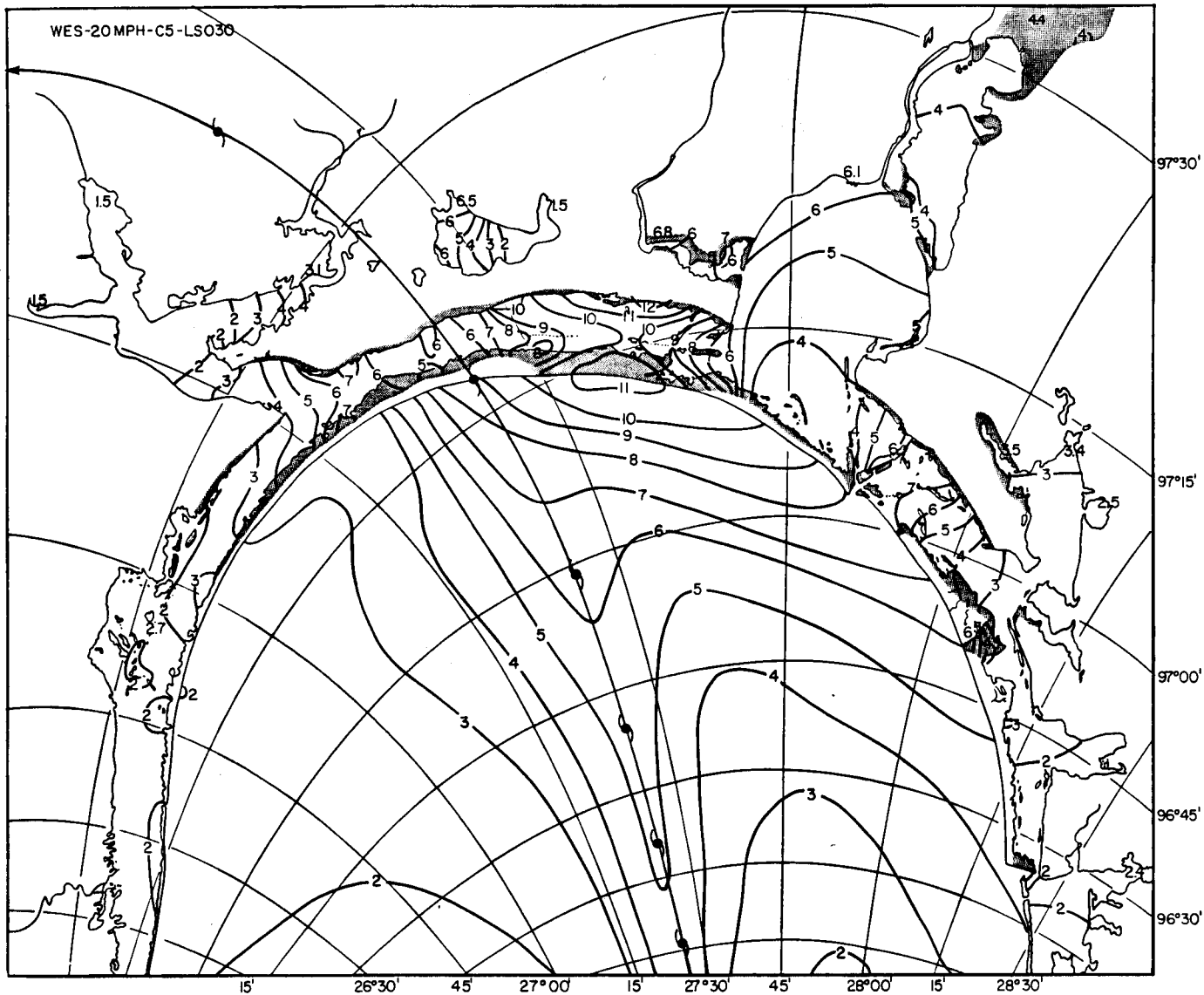


11. BAYSIDE (28, 66)

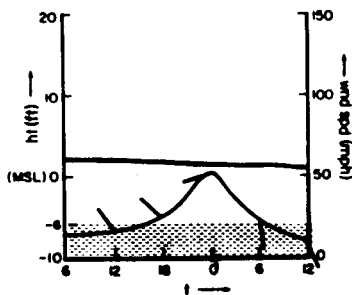


12. MATAGORDA IS. (45, 61)

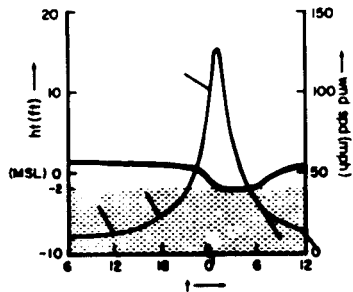




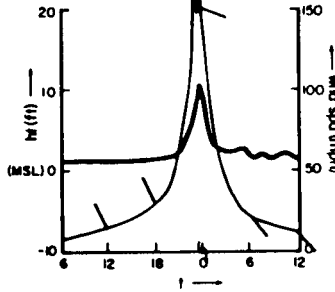
1. PORT MANSFIELD (48, 8)



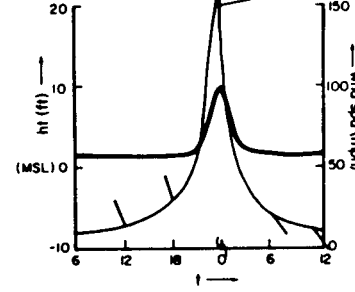
2. BAFFIN BAY (19, 3)



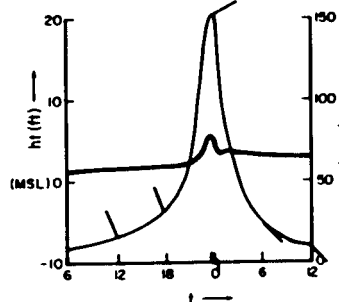
3. PADRI IS. RANGER STA. (24, 35)



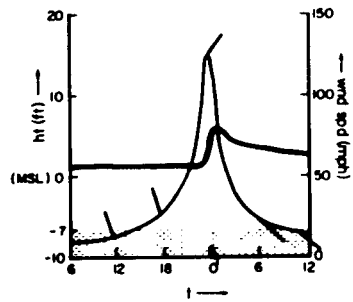
4. MUSTANG PASS (25, 45)



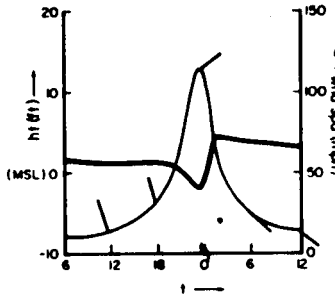
5. NAVAL AIR STA. (20, 46)



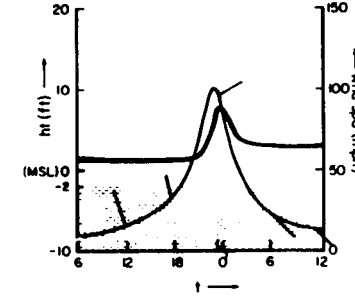
6. CORPUS CHRISTI (12, 53)



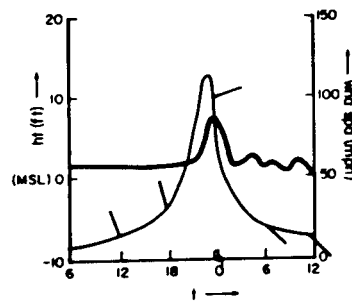
7. INGLESIDE (21, 55)



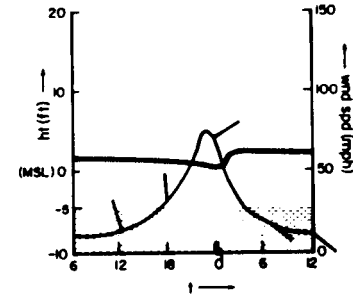
8. ARANSAS PASS (28, 57)



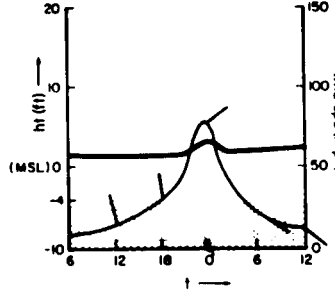
9. PORT ARANSAS (31, 53)



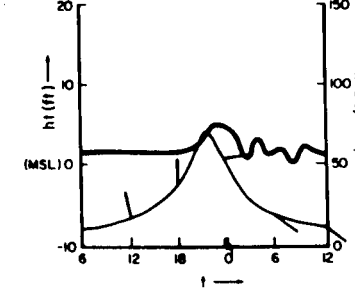
10. COPANO BRIDGE (35, 63)



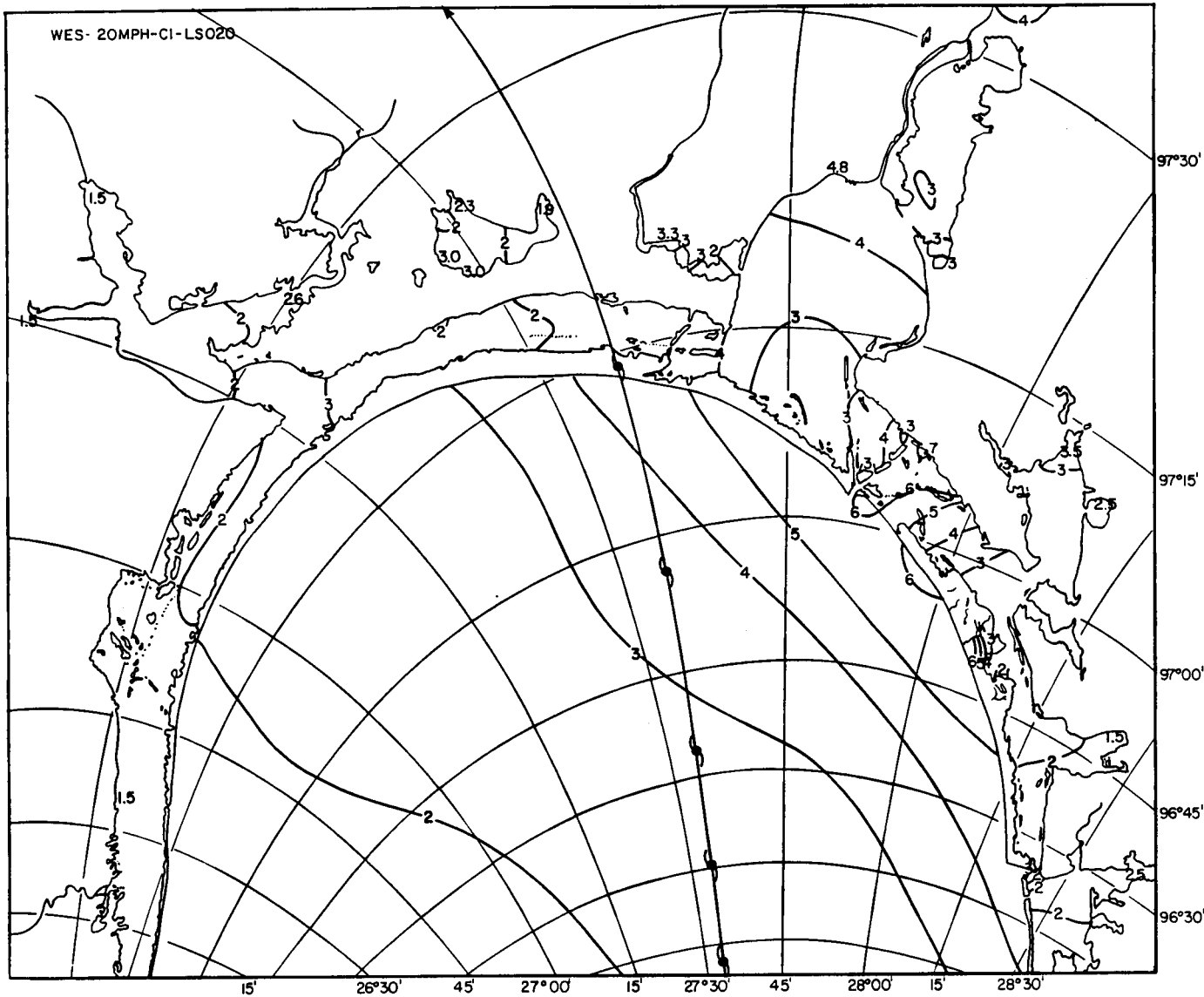
11. BAYSIDE (28, 66)



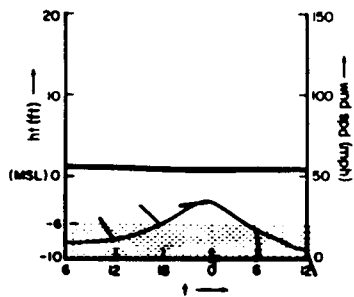
12. MATAGORDA IS. (45, 61)



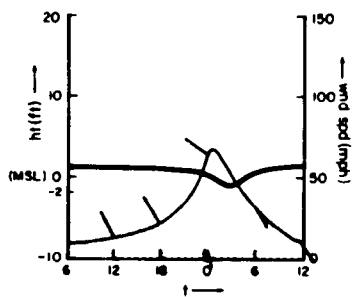
WES- 20MPH-CI-LS020



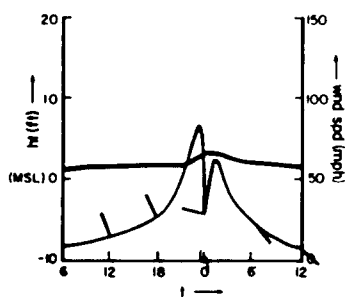
1 PORT MANSFIELD (48, 8)



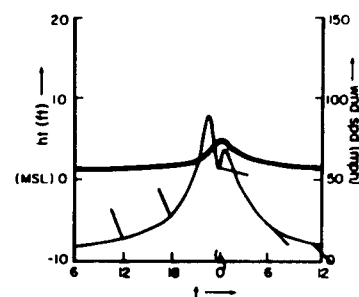
2 BAFFIN BAY (19, 3)



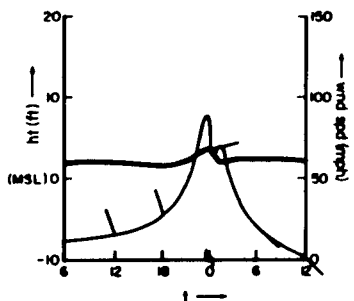
3 PADRI IS RANGER STA (24, 35)



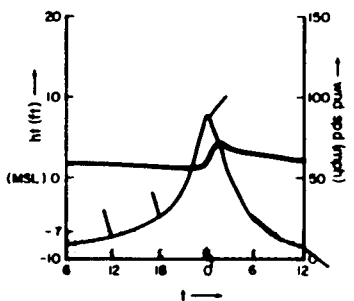
4 MUSTANG PASS (25, 45)



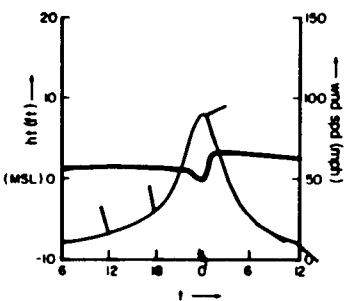
5 NAVAL AIR STA. (20, 46)



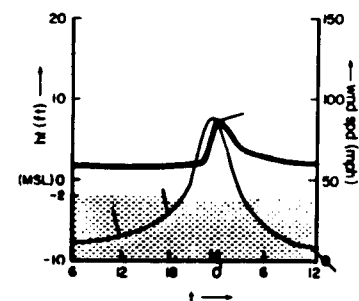
6 CORPUS CHRISTI (12, 53)



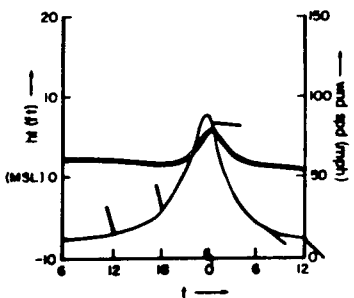
7 INGLESIDE (21, 55)



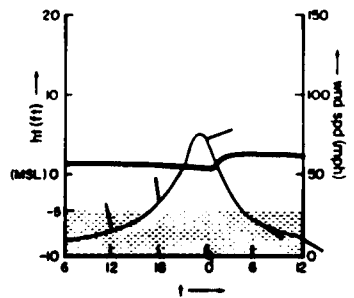
8 ARANSAS PASS (28, 57)



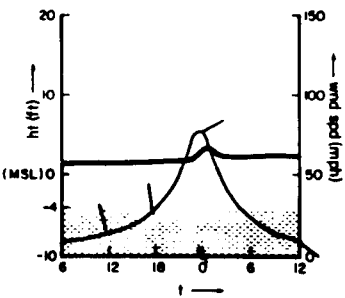
9 PORT ARANSAS (31, 53)



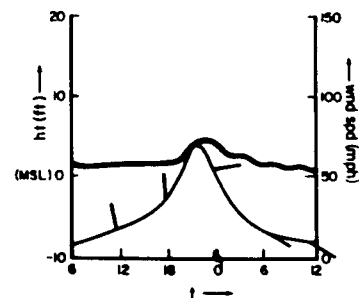
10 COPANO BRIDGE (35, 63)

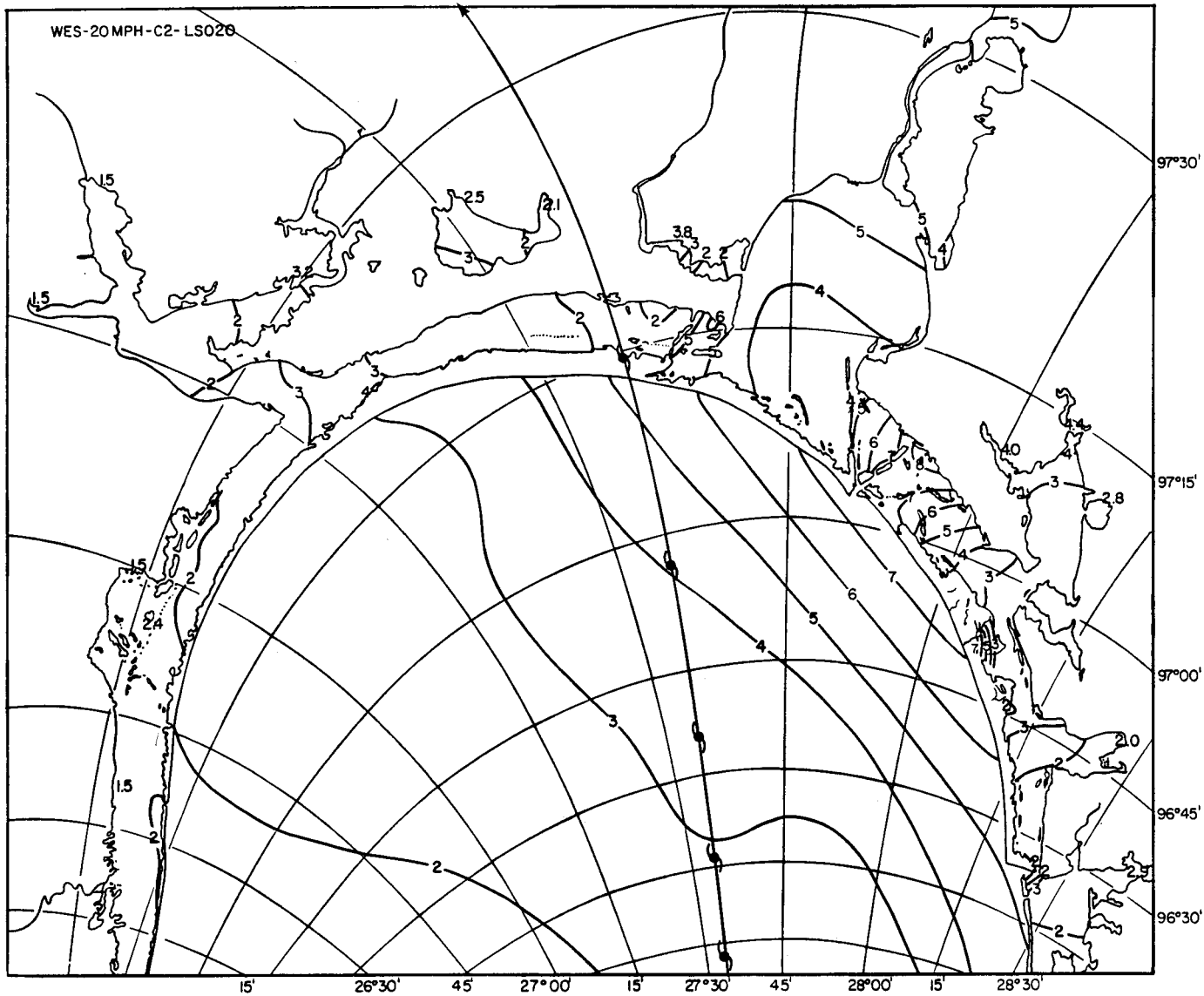


11 BAYSIDE (28, 66)



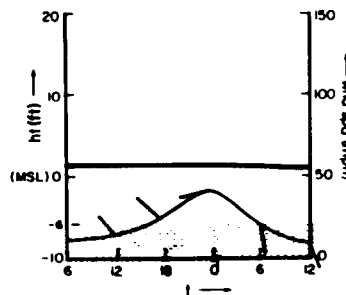
12 MATAGORDA IS. (45, 61)



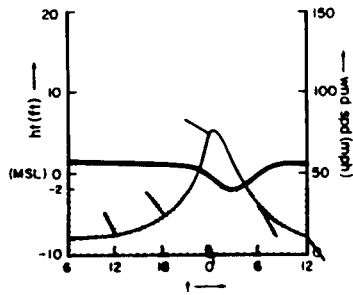




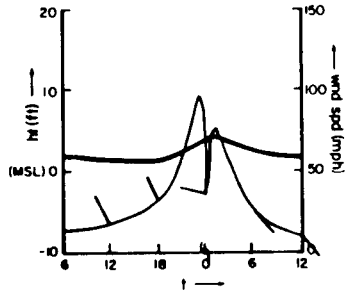
1 PORT MANSFIELD (48,8)



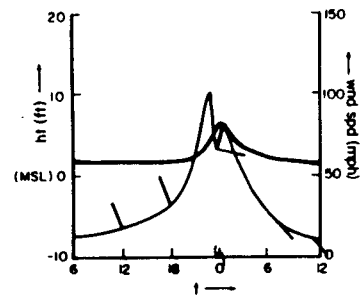
2 BAFFIN BAY (19,3)



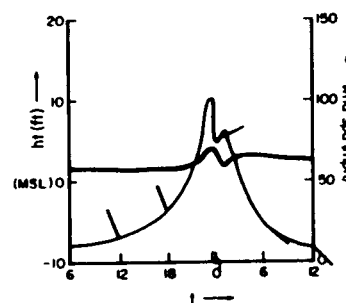
3 PADRI IS RANGER STA (24,35)



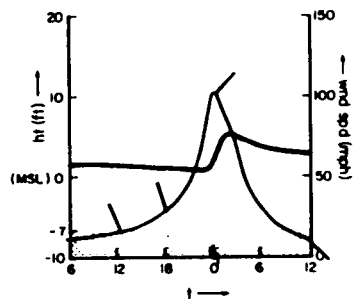
4 MUSTANG PASS (25,45)



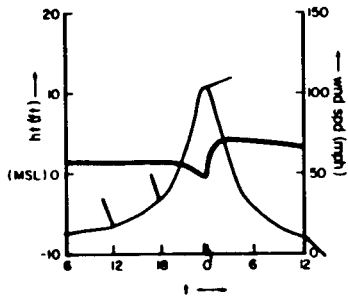
5 NAVAL AIR STA. (20,46)



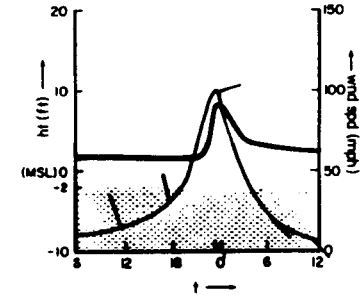
6 CORPUS CHRISTI (12,53)



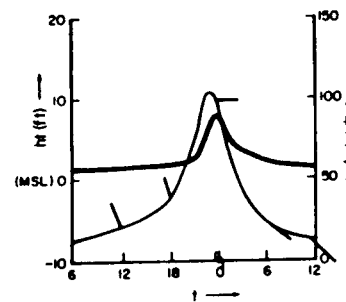
7 INGLESIDE (21,55)



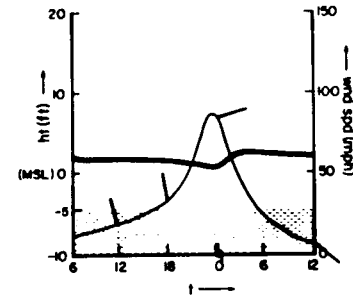
8 ARANSAS PASS (28,57)



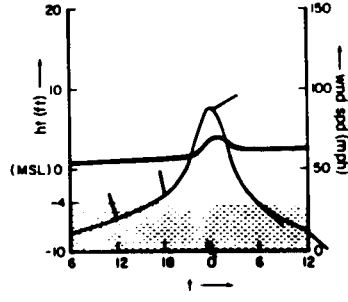
9 PORT ARANSAS (31,53)



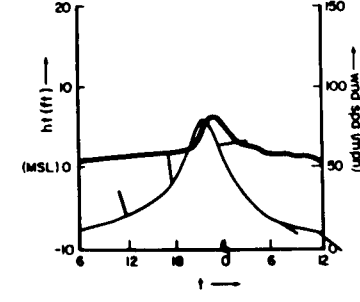
10 COPANO BRIDGE (35,63)

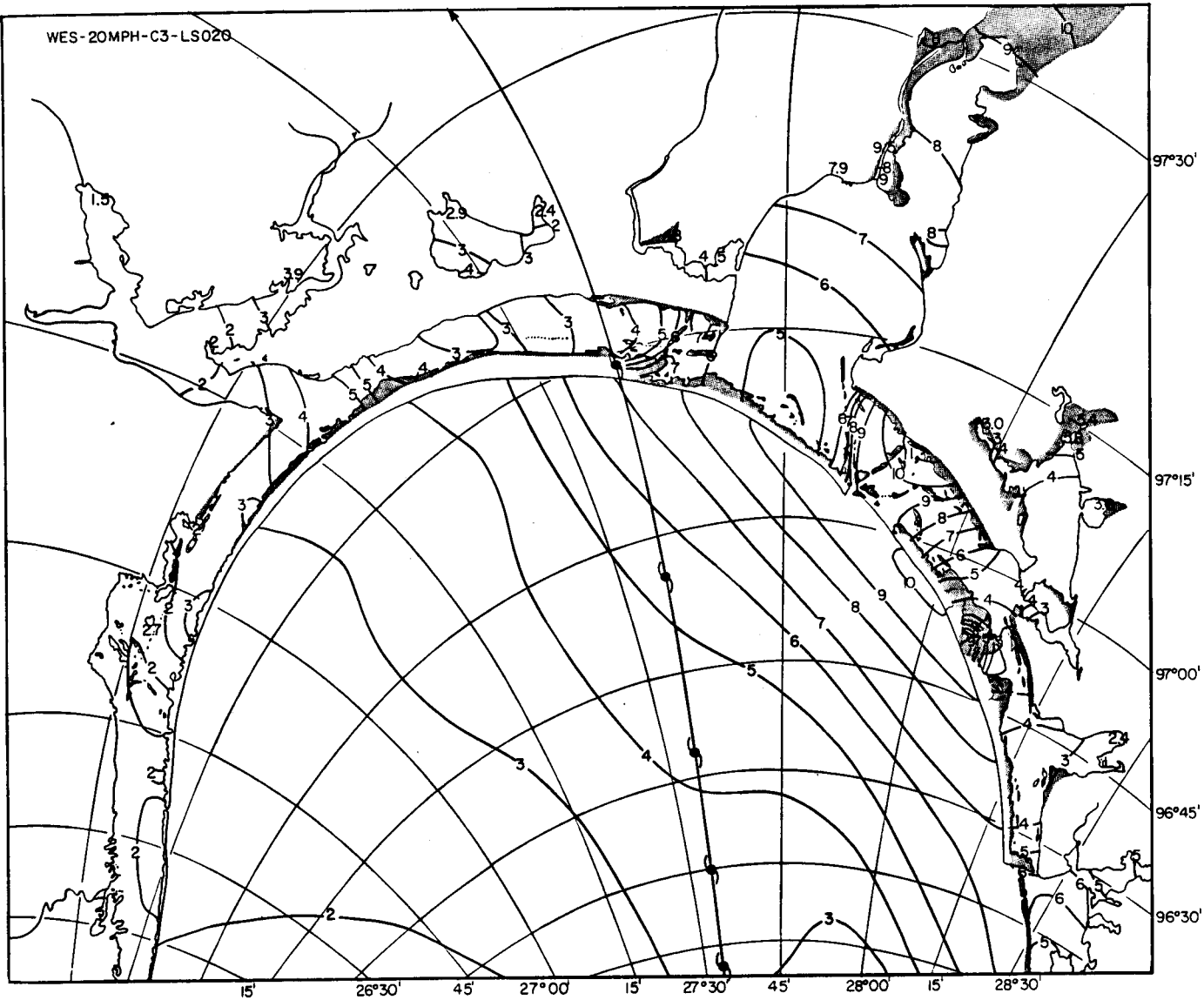


11 BAYSIDE (28,66)

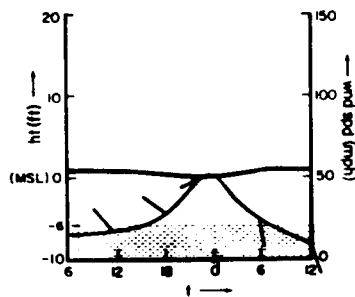


12 MATAGORDA IS. (45,61)

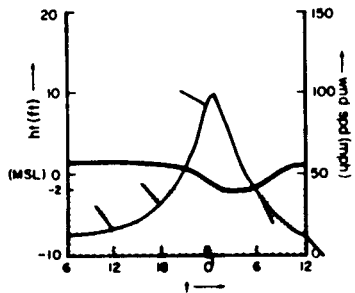




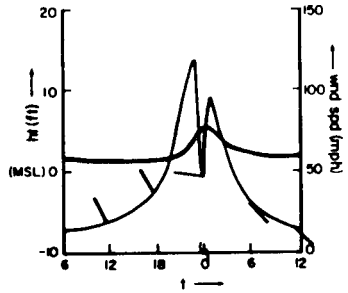
1. PORT MANSFIELD (48, 8)



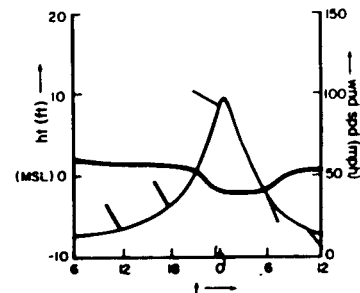
2. BAFFIN BAY (19, 3)



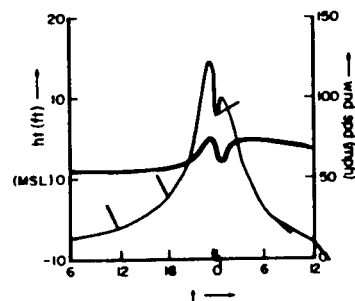
3. PADRI IS. RANGER STA. (24, 35)



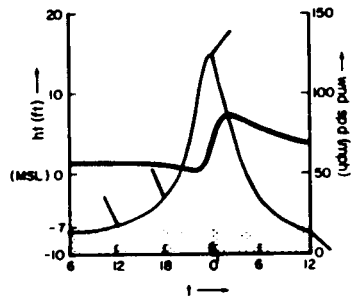
4. MUSTANG PASS (25, 45)



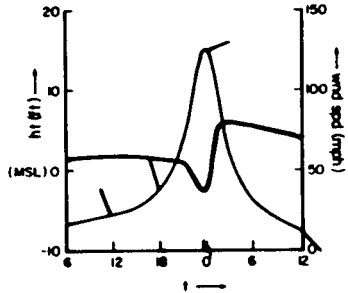
5. NAVAL AIR STA. (20, 46)



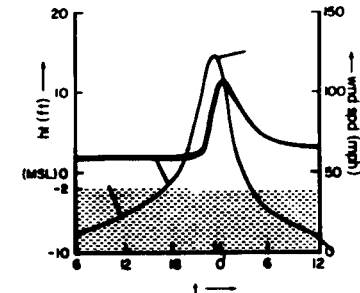
6. CORPUS CHRISTI (12, 53)



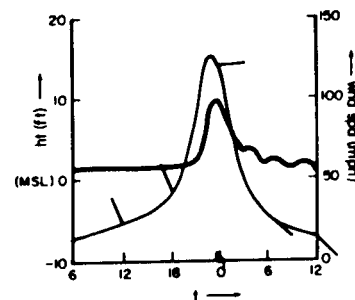
7. INGLESIDE (21, 55)



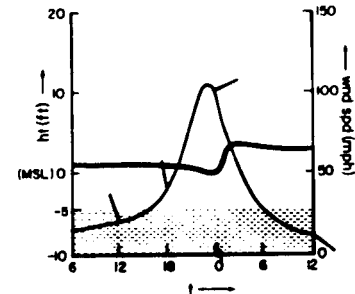
8. ARANSAS PASS (28, 57)



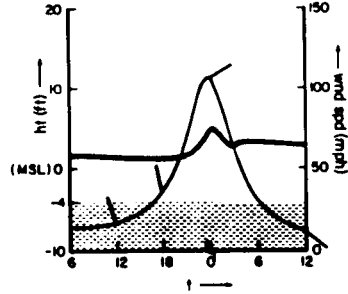
9. PORT ARANSAS (31, 53)



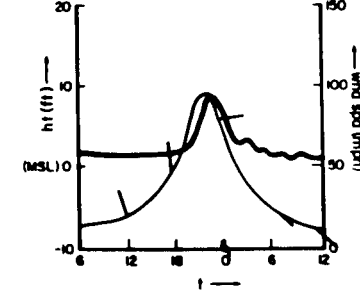
10. COPANO BRIDGE (35, 63)



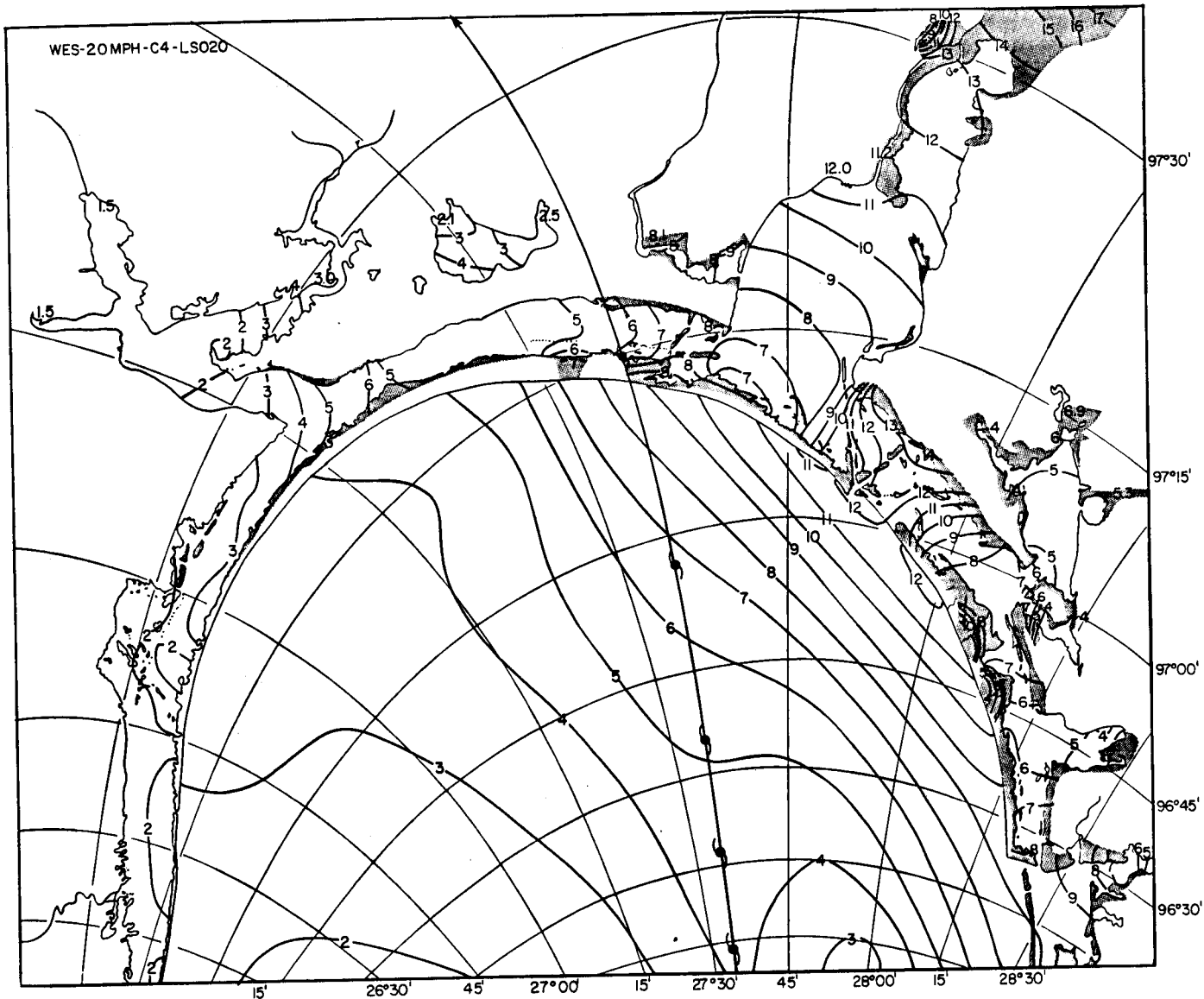
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

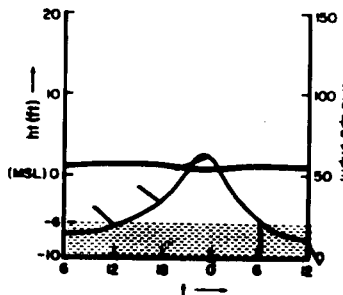


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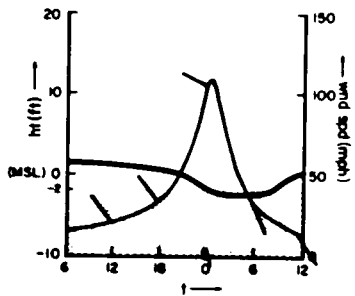


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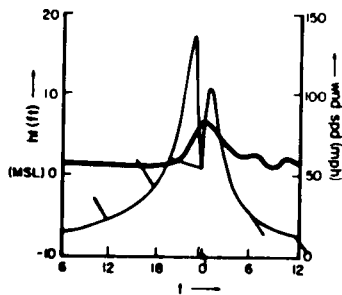
1. PORT MANSFIELD (48, 8)



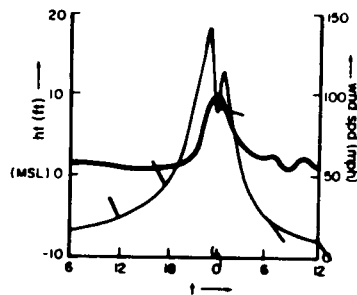
2. BAFFIN BAY (19, 3)



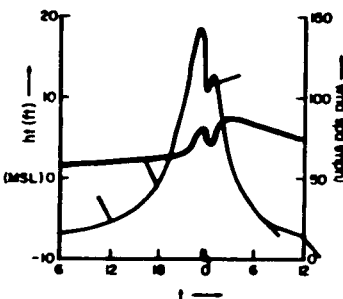
3. PADRI IS RANGER STA (24, 35)



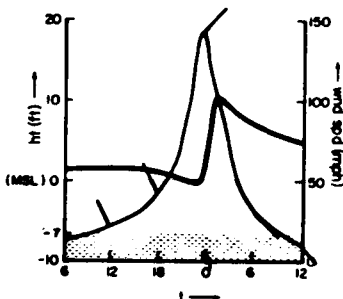
4. MUSTANG PASS (25, 45)



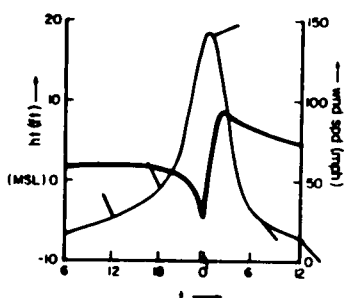
5. NAWAL AIR STA. (20, 46)



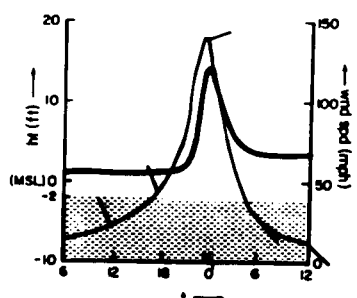
6. CORPUS CHRISTI (12, 53)



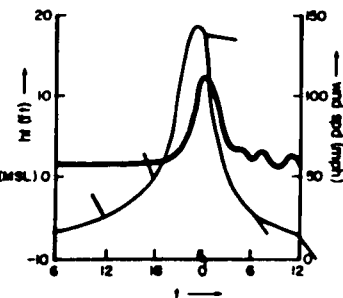
7. INGLESIDE (21, 55)



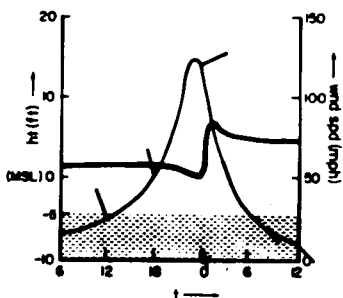
8. ARANSAS PASS (28, 57)



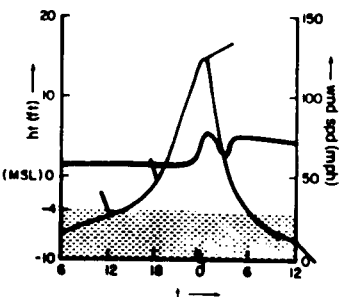
9. PORT ARANSAS (31, 53)



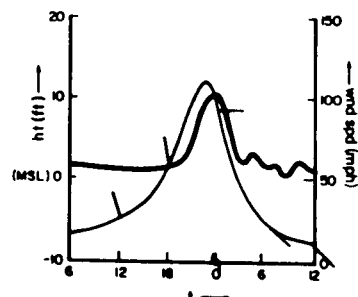
10. COPANO BRIDGE (35, 63)



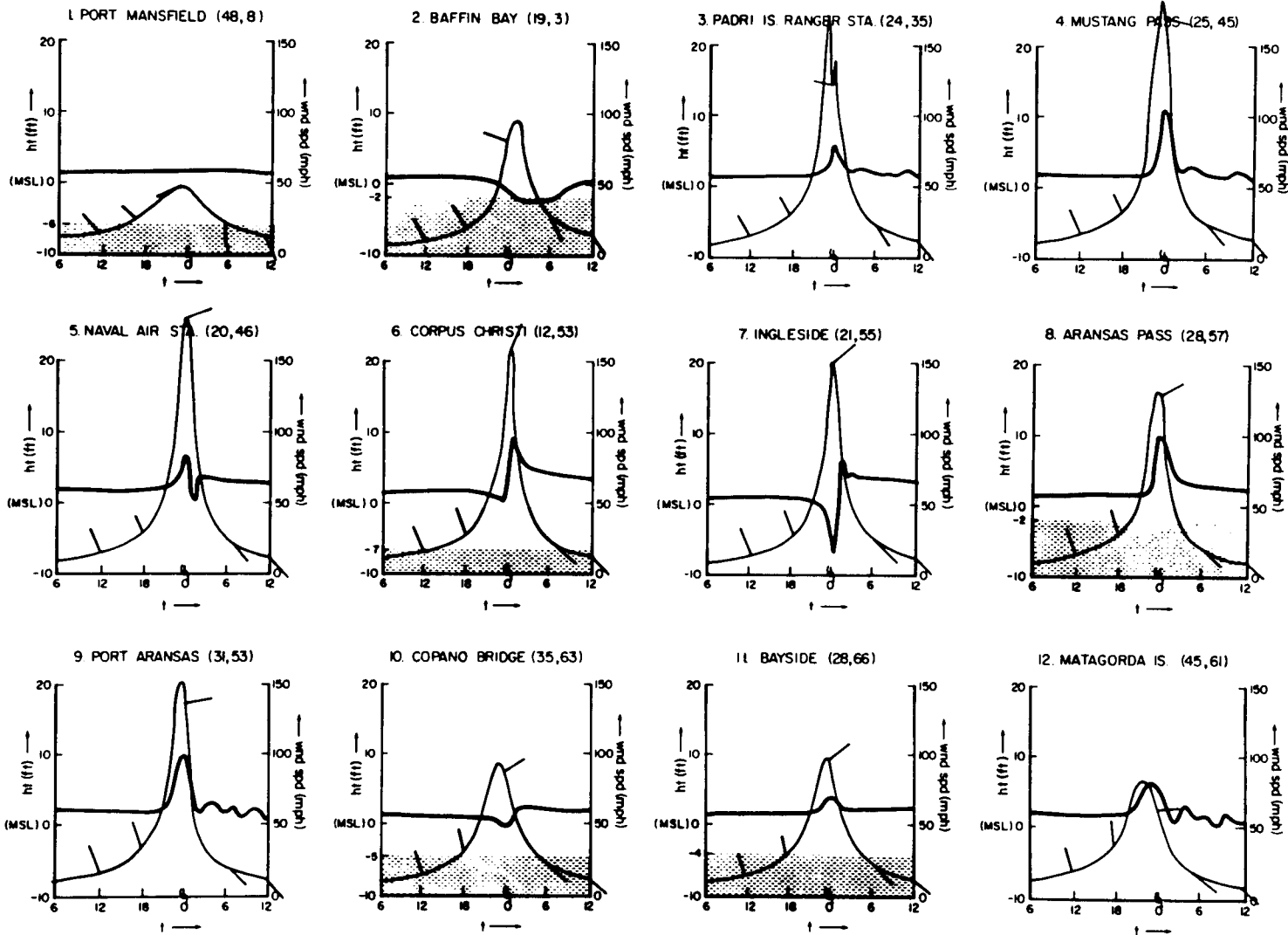
11. BAYSIDE (28, 66)



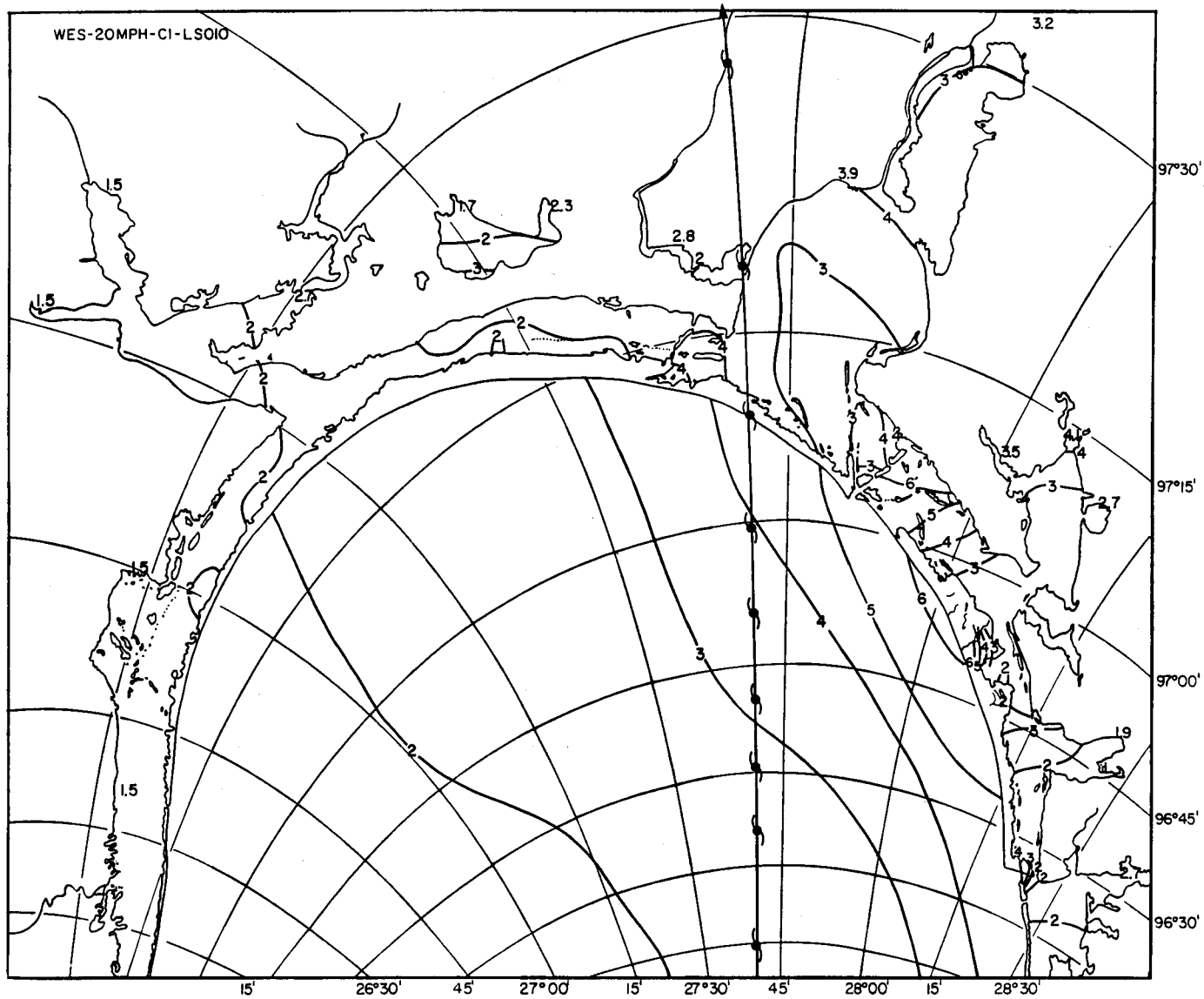
12. MATAGORDA IS. (45, 61)



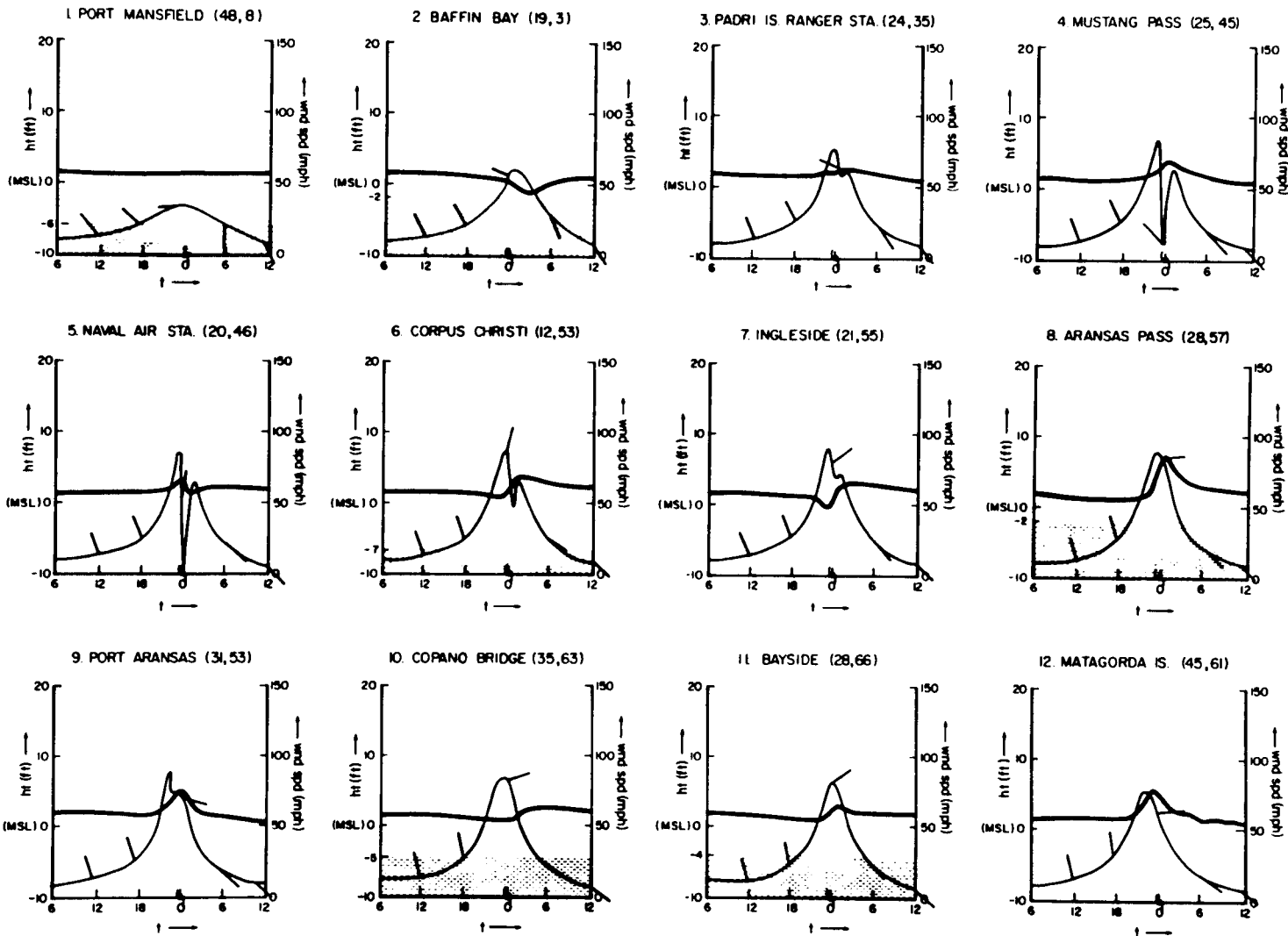




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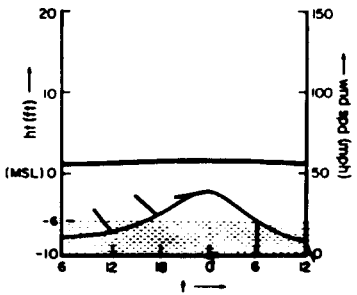




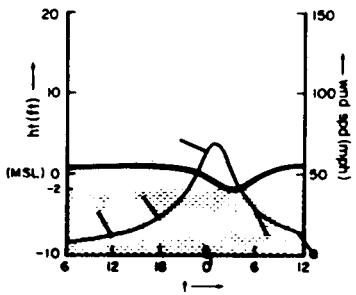




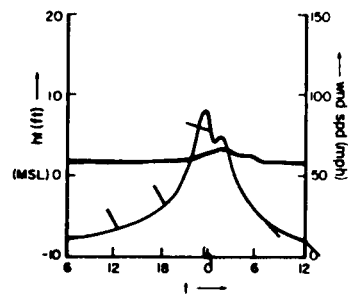
1. PORT MANSFIELD (48,8)



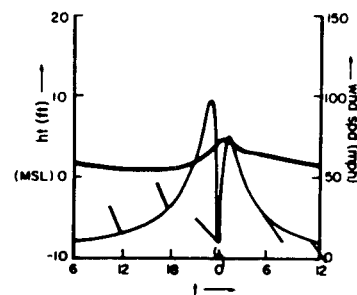
2. BAFFIN BAY (19,3)



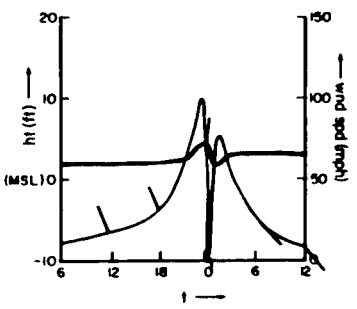
3. PADRI IS. RANGER STA. (24,35)



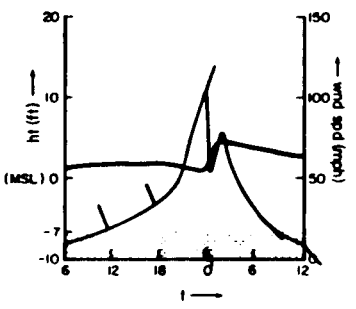
4. MUSTANG PASS (25,45)



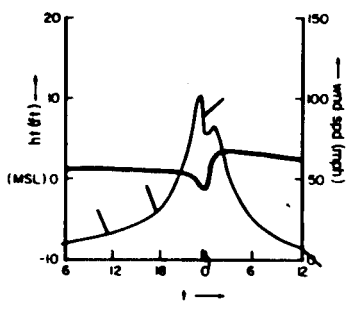
5. NAVAL AIR STA. (20,46)



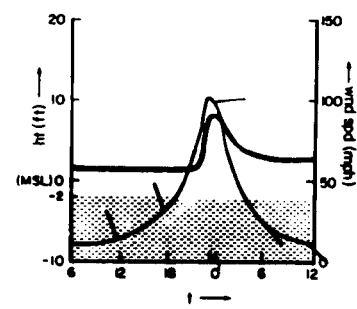
6. CORPUS CHRISTI (12,53)



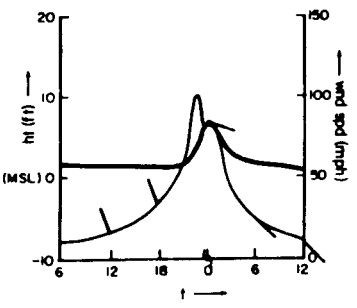
7. INGLESIDE (21,55)



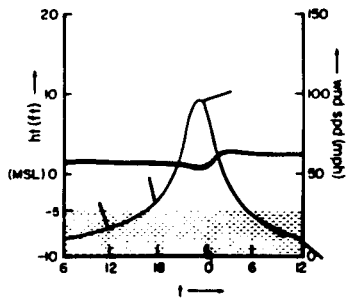
8. ARANSAS PASS (28,57)



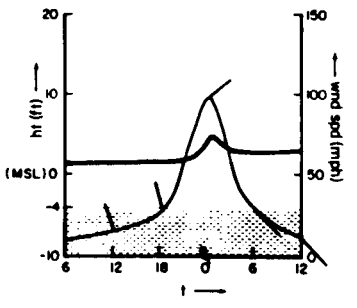
9. PORT ARANSAS (31,53)



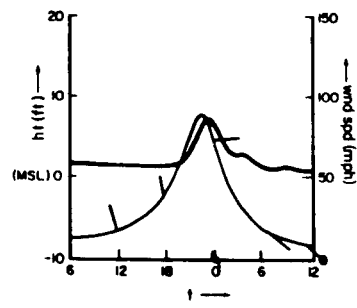
10. COPANO BRIDGE (35,63)



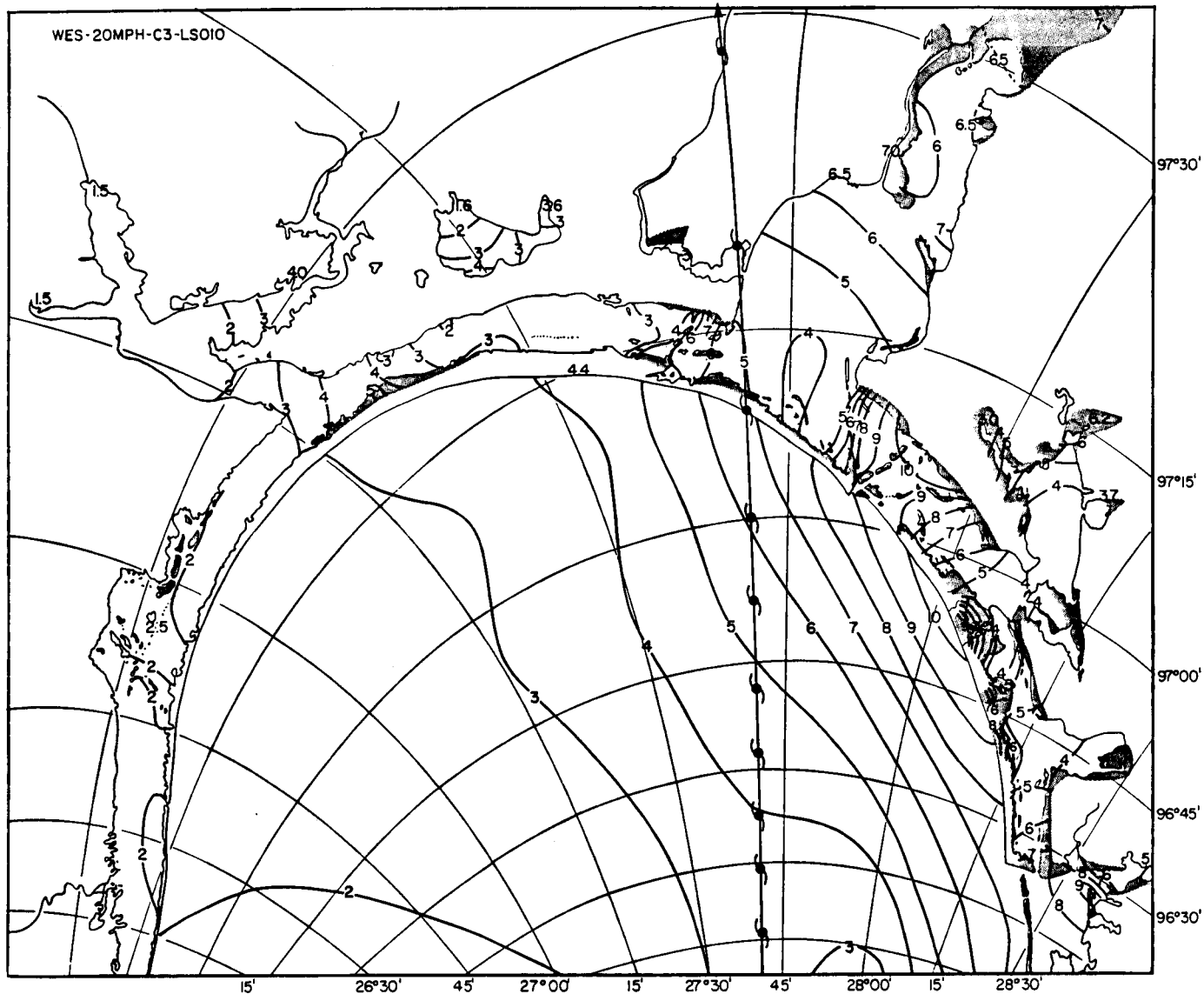
11. BAYSIDE (28,66)



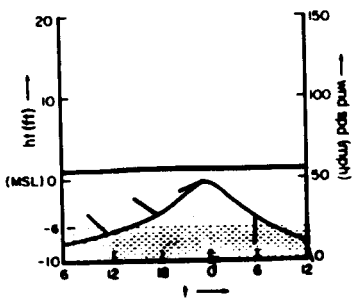
12. MATAGORDA IS. (45,61)



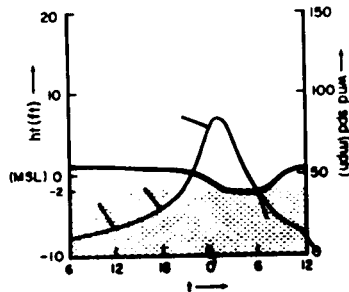
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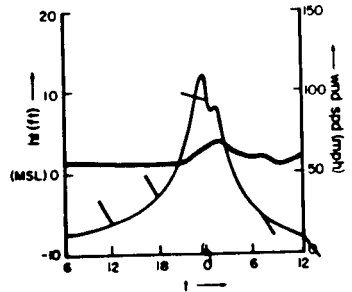
1. PORT MANSFIELD (48, 8)



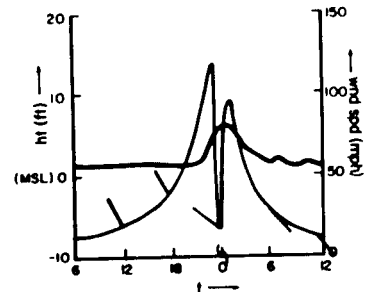
2. BAFFIN BAY (19, 3)



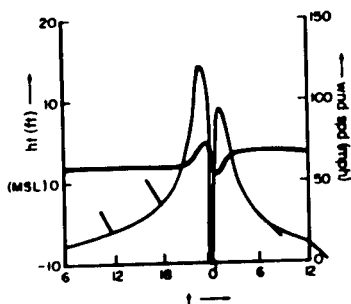
3. PADRI IS. RANGER STA. (24, 35)



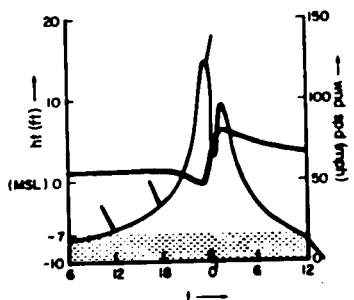
4. MUSTANG PASS (25, 45)



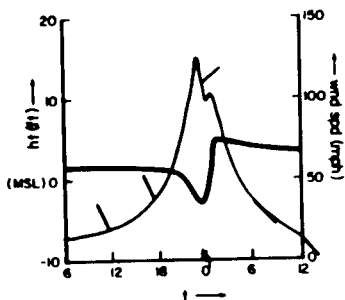
5. NAVAL AIR STA. (20, 46)



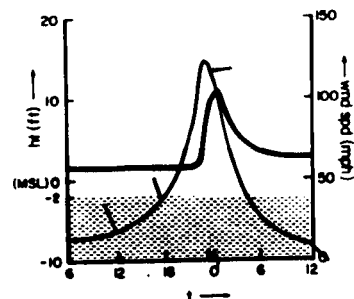
6. CORPUS CHRISTI (12, 53)



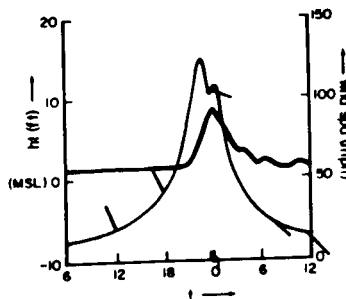
7. INGLESIDE (21, 55)



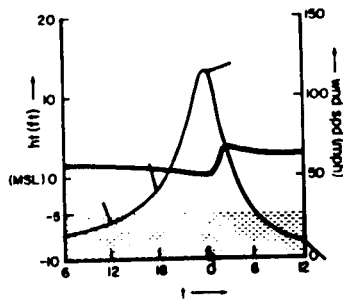
8. ARANSAS PASS (28, 57)



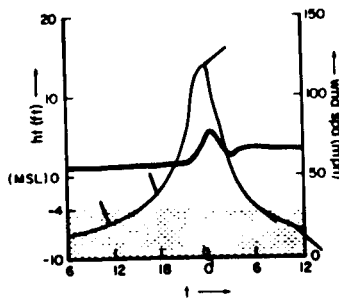
9. PORT ARANSAS (31, 53)



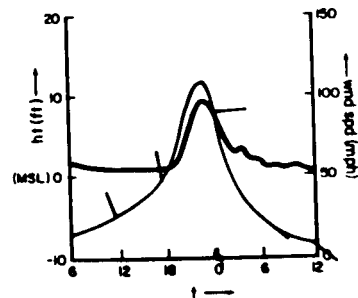
10. COPANO BRIDGE (35, 63)



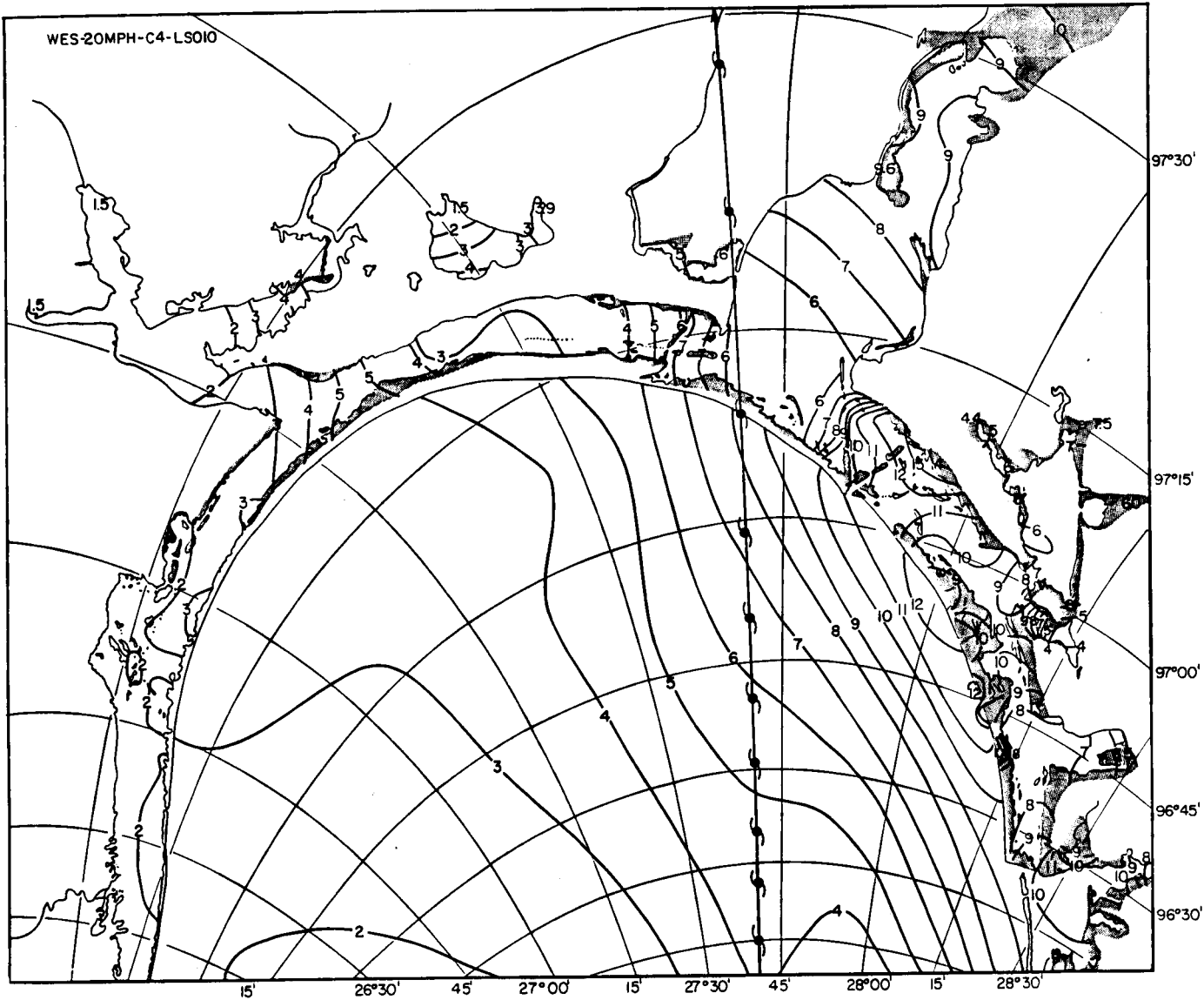
11. BAYSIDE (28, 66)



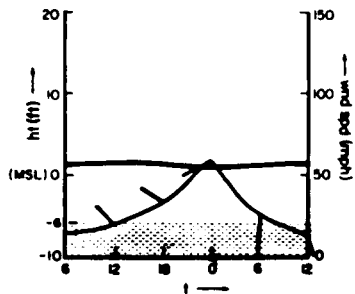
12. MATAGORDA IS. (45, 61)



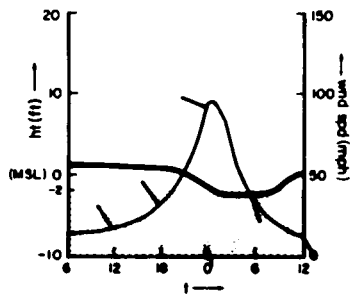
WES-20MPH-C4-LS010



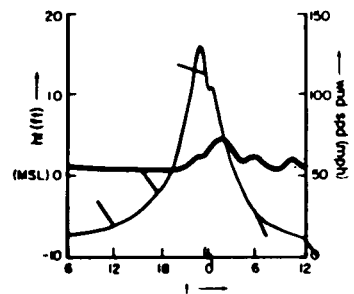
1. PORT MANSFIELD (48, 8)



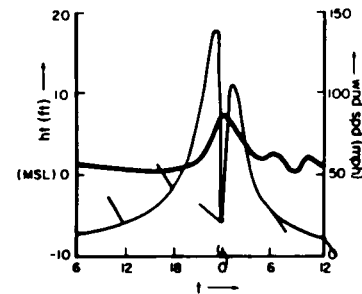
2. BAFFIN BAY (19, 3)



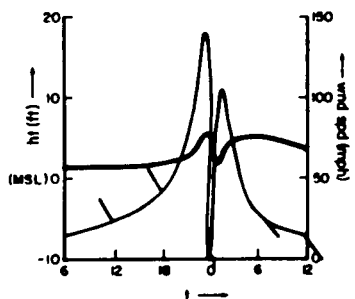
3. PADRI IS. RANGER STA (24, 35)



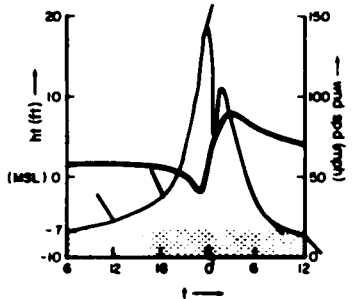
4. MUSTANG PASS (25, 45)



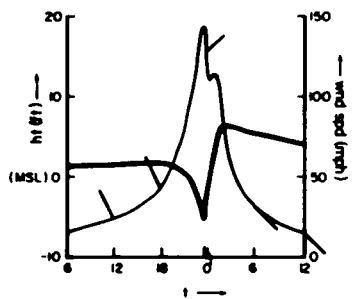
5. NAVAL AIR STA. (20, 46)



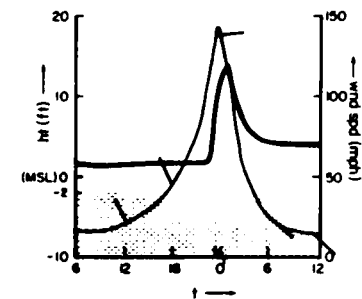
6. CORPUS CHRISTI (2, 53)



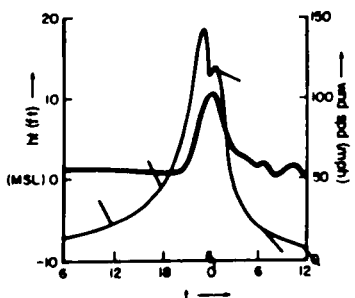
7. INGLESIDE (21, 55)



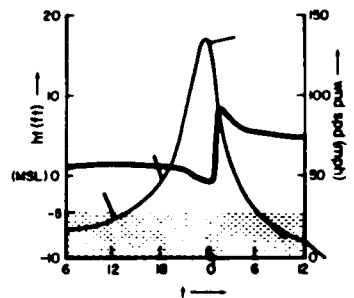
8. ARANSAS PASS (28, 57)



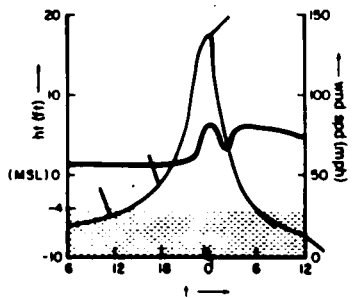
9. PORT ARANSAS (31, 53)



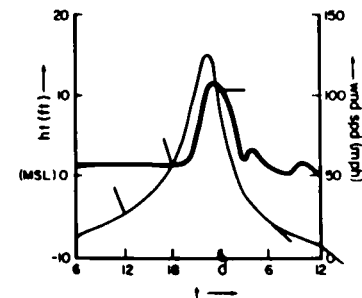
10. COPANO BRIDGE (35, 63)



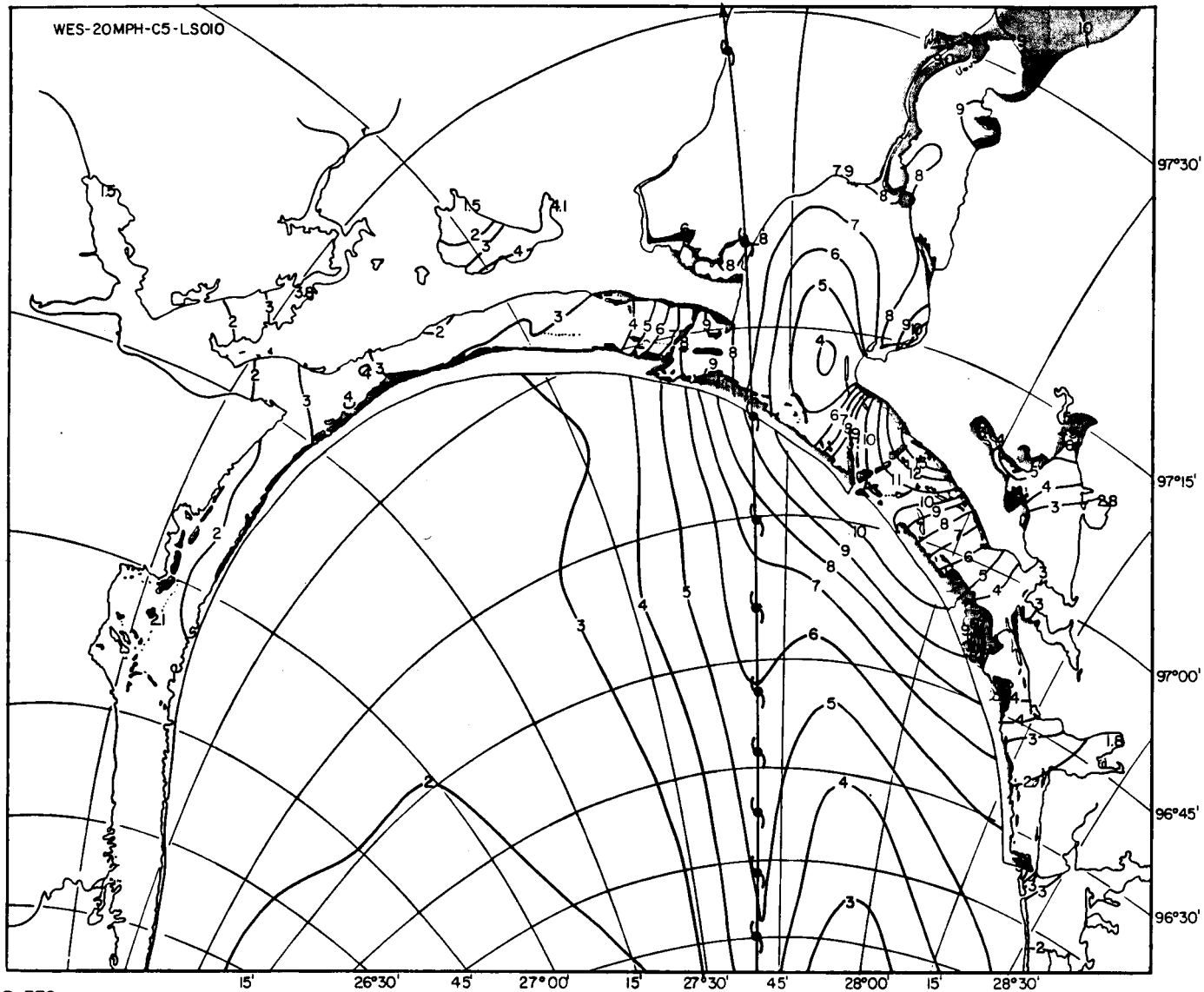
11. BAYSIDE (28, 66)



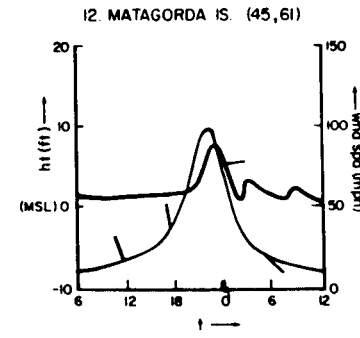
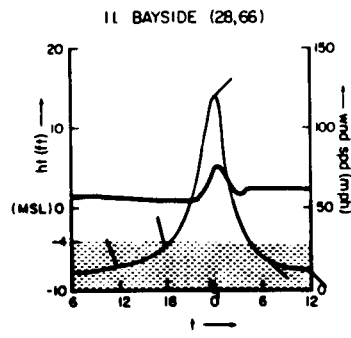
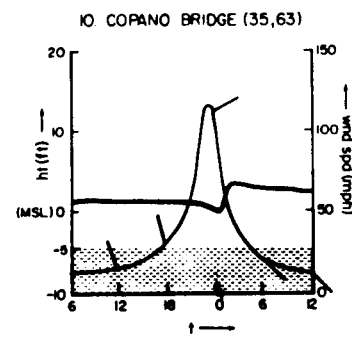
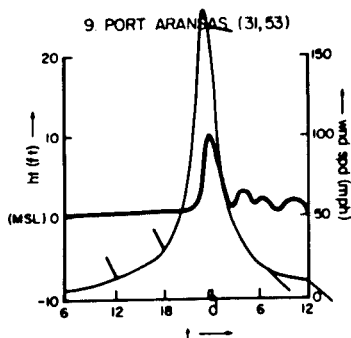
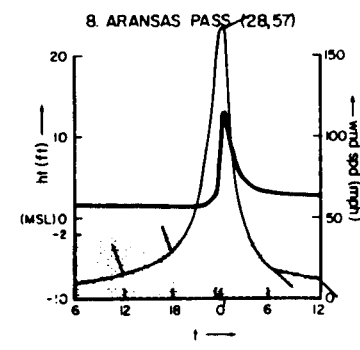
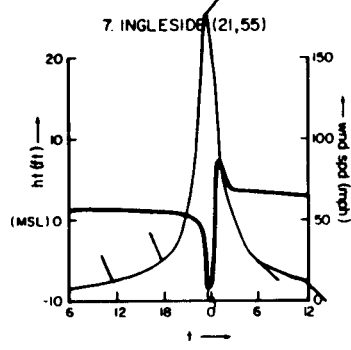
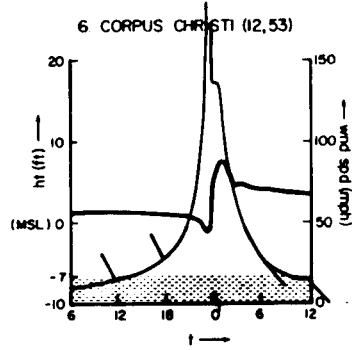
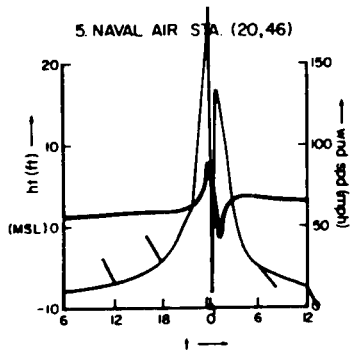
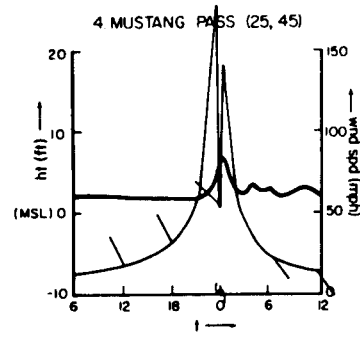
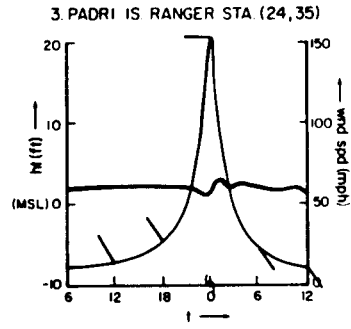
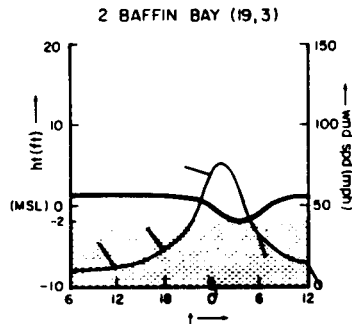
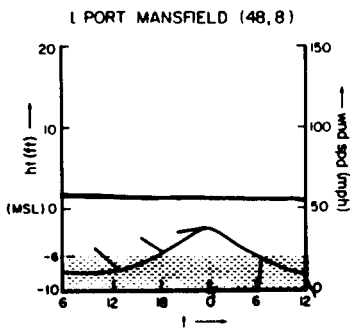
12. MATAGORDA IS (45, 61)



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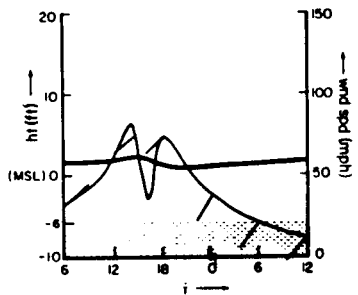




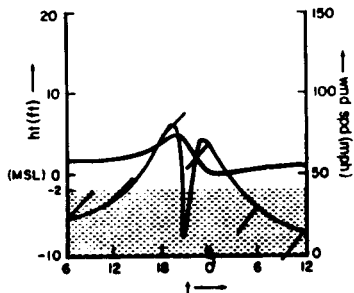




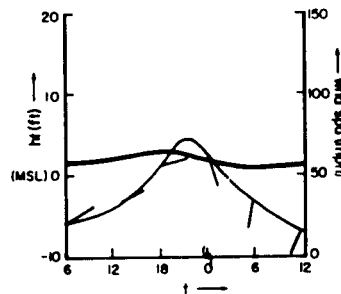
1. PORT MANSFIELD (48, 8)



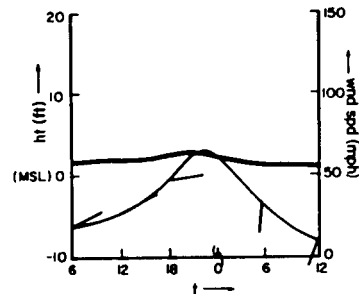
2. BAFFIN BAY (19, 3)



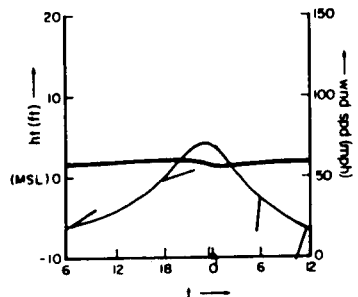
3. PADRI IS. RANGER STA. (24, 35)



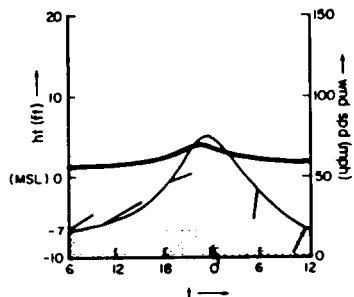
4. MUSTANG PASS (25, 45)



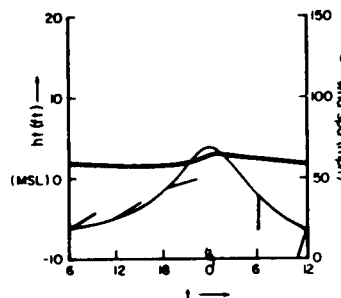
5. NAVAL AIR STA. (20, 46)



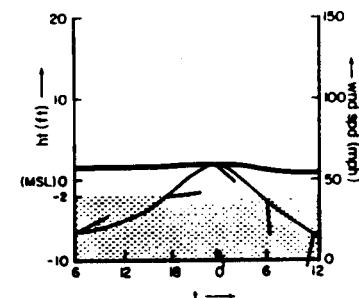
6. CORPUS CHRISTI (12, 53)



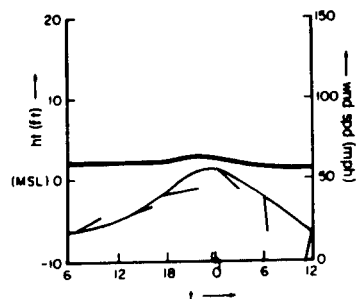
7. INGLESIDE (21, 55)



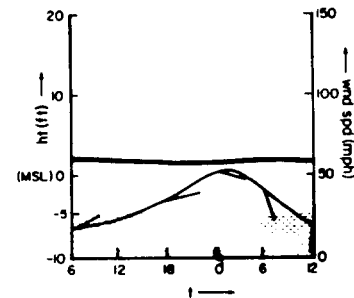
8. ARANSAS PASS (28, 57)



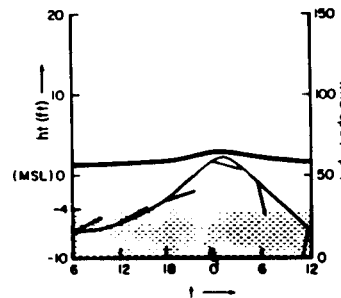
9. PORT ARANSAS (31, 53)



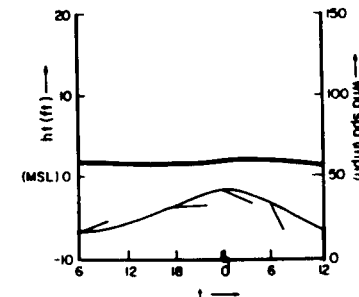
10. COPANO BRIDGE (35, 63)



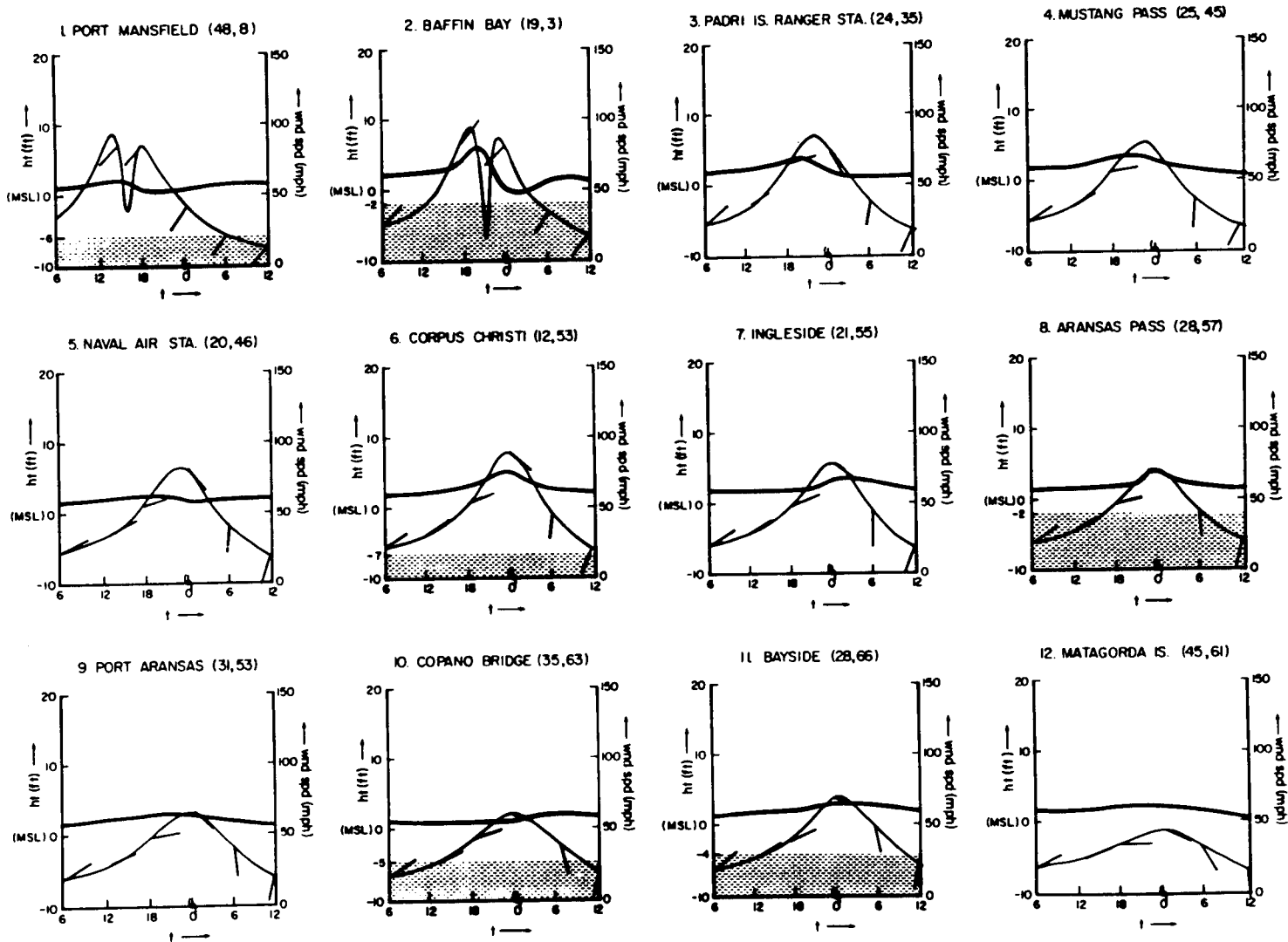
11. BAYSIDE (28, 66)

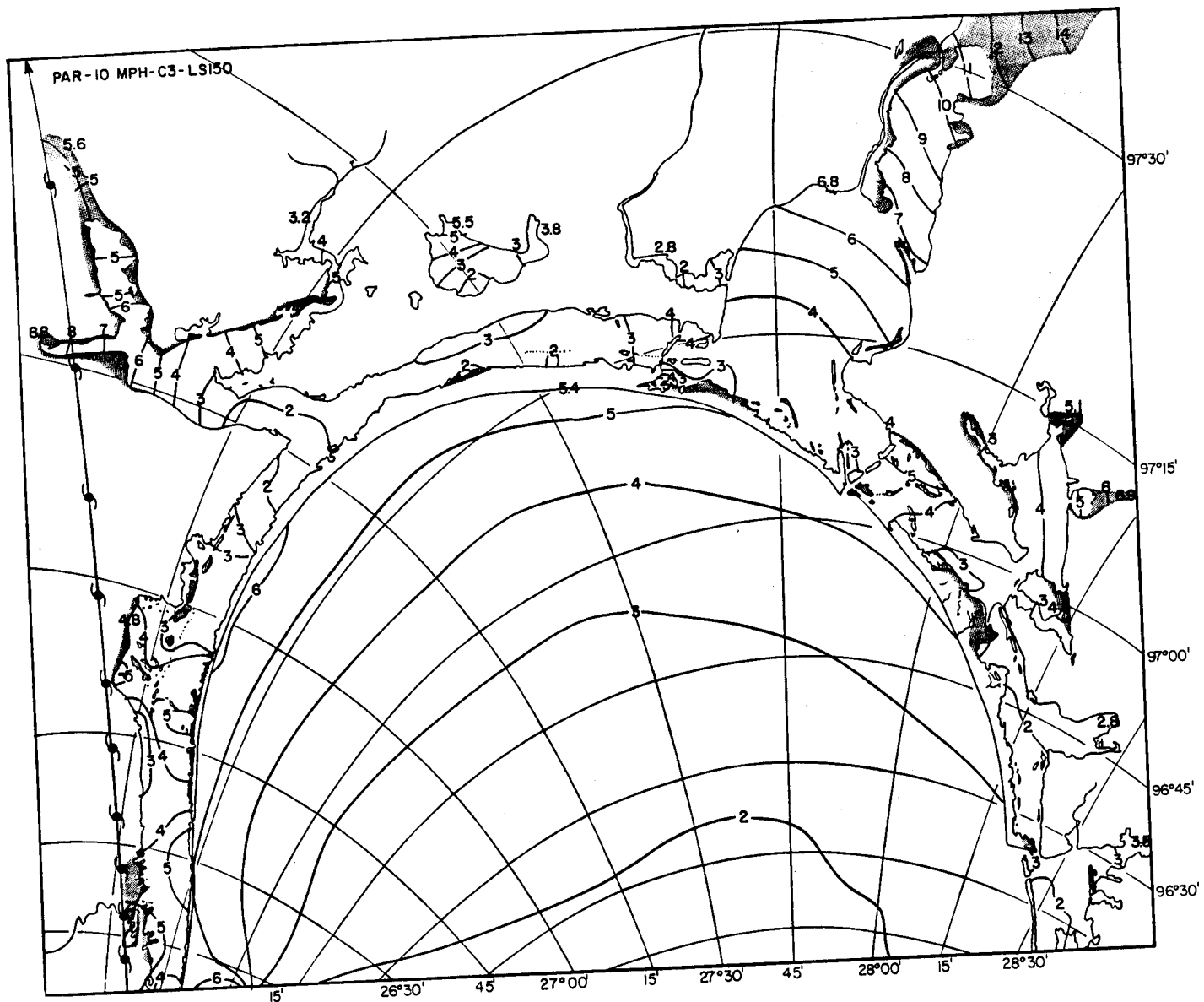


12. MATAGORDA IS. (45, 61)

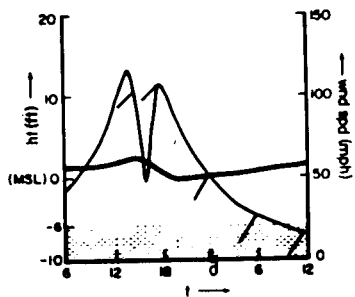




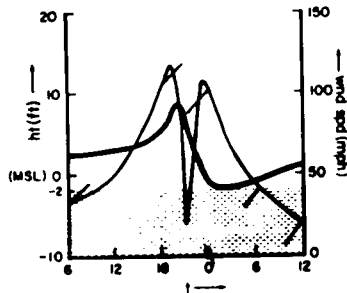




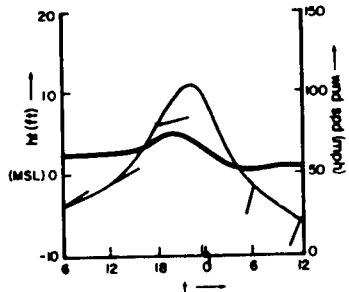
1. PORT MANSFIELD (48, 8)



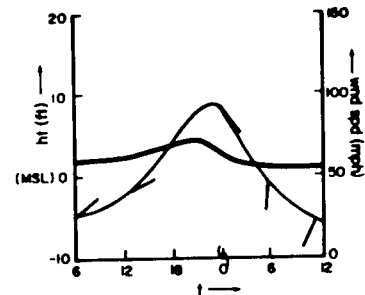
2. BAFFIN BAY (19, 3)



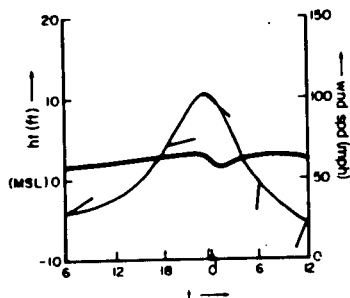
3. PADRI IS. RANGER STA. (24, 35)



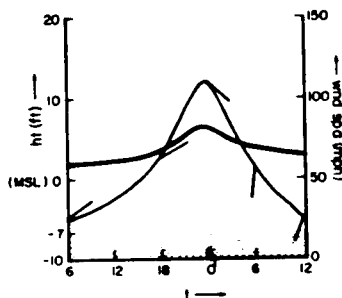
4. MUSTANG PASS (25, 45)



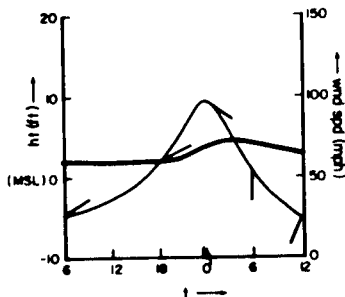
5. NAVAL AIR STA. (20, 46)



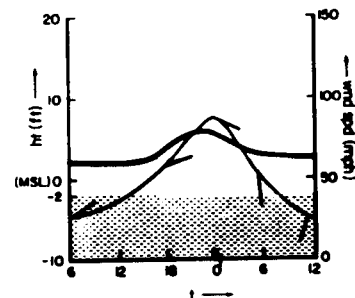
6. CORPUS CHRISTI (12, 53)



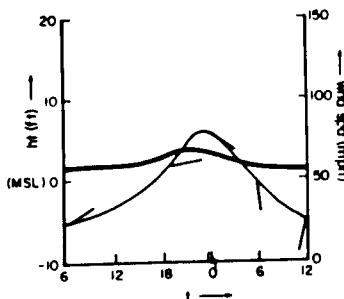
7. INGLESIDE (21, 55)



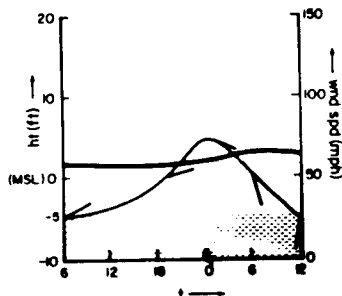
8. ARANSAS PASS (28, 57)



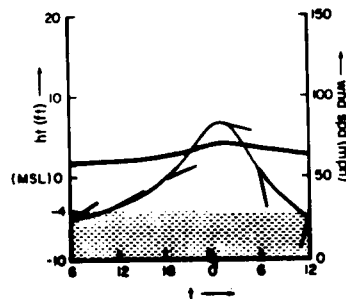
9. PORT ARANSAS (31, 53)



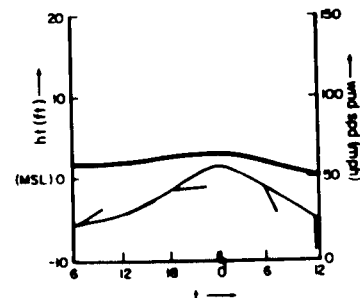
10. COPANO BRIDGE (35, 63)



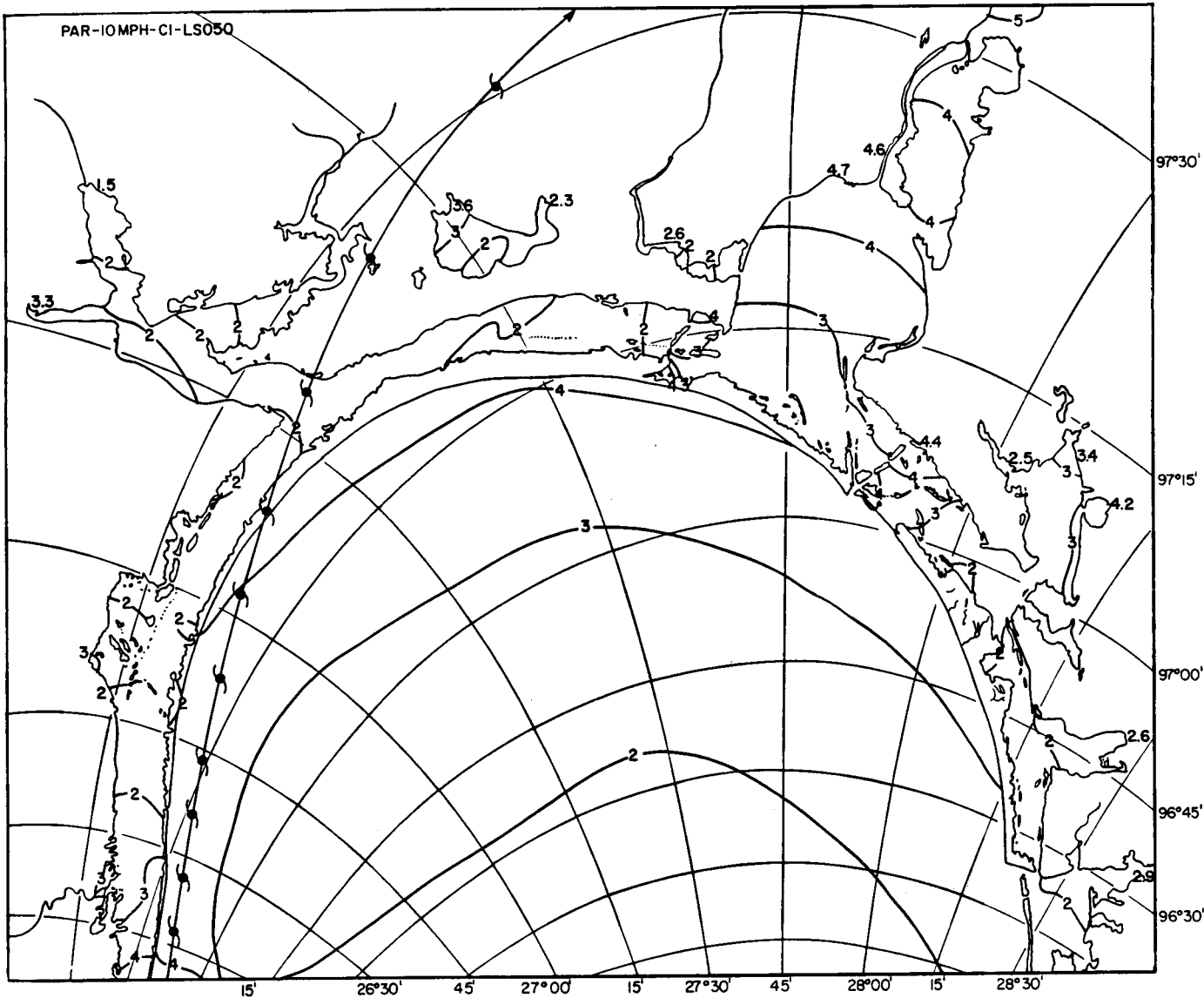
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

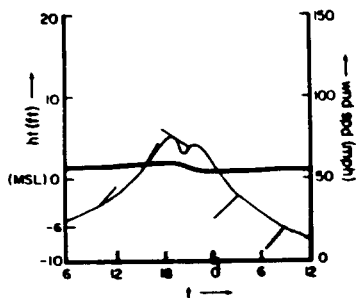


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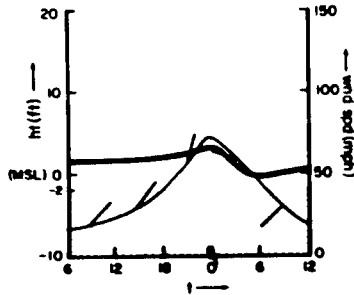




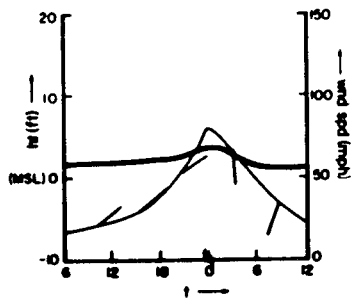
1. PORT MANSFIELD (48,8)



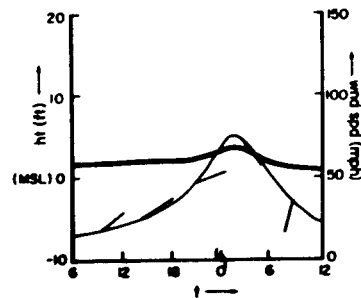
2. BAFFIN BAY (19,3)



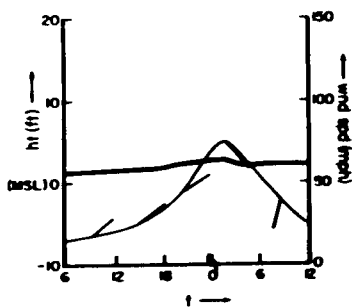
3. PADRI IS. RANGER STA. (24,35)



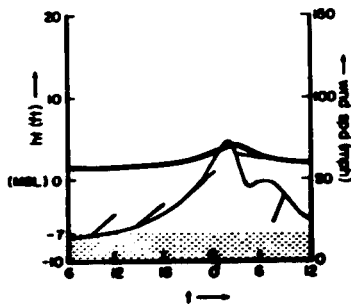
4. MUSTANG PASS (25,45)



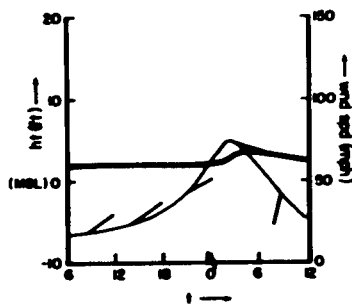
5. NAVAL AIR STA. (20,46)



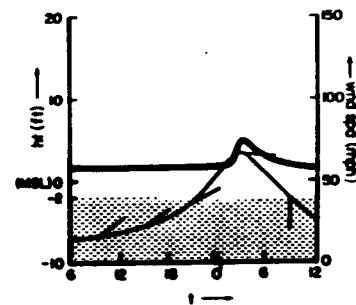
6. CORPUS CHRISTI (12,53)



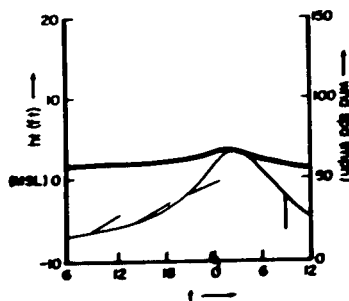
7. INGLESIDE (21,55)



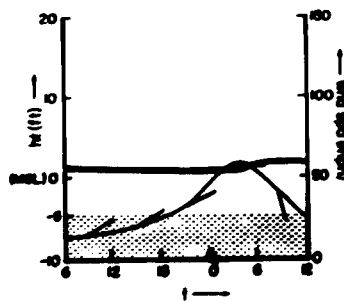
8. ARANSAS PASS (28,57)



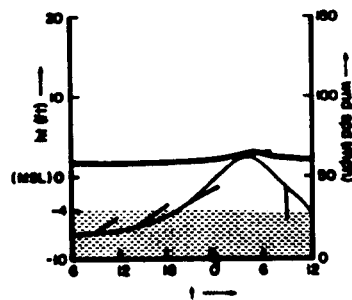
9. PORT ARANSAS (31,53)



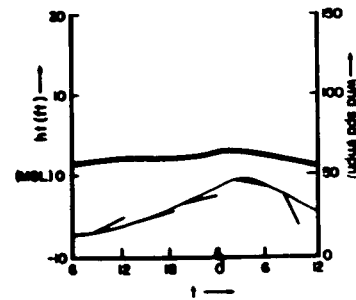
10. COPANO BRIDGE (35,63)



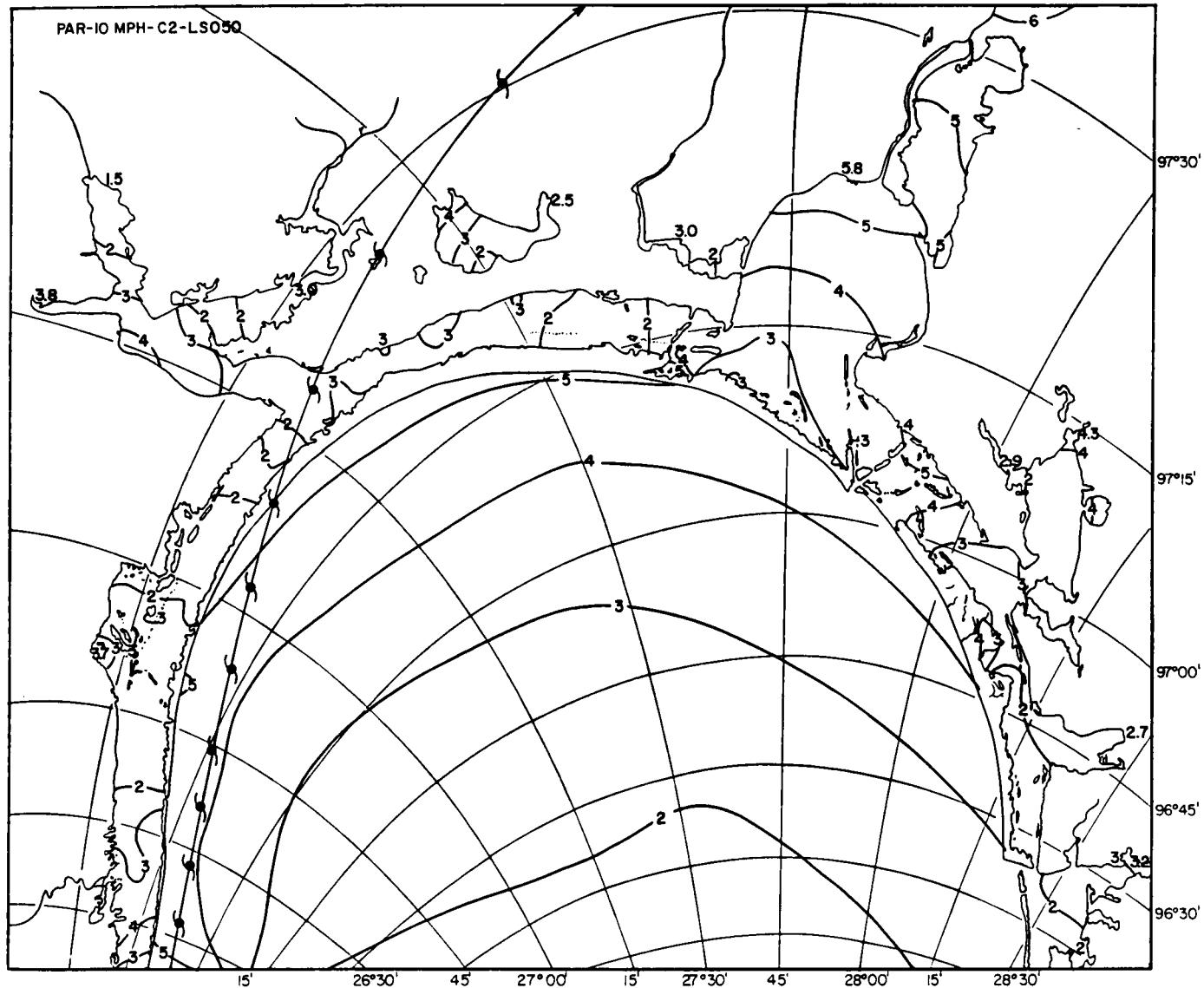
11. BAYSIDE (28,66)



12. MATAGORDA IS. (45,61)

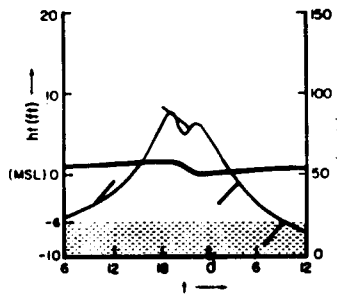


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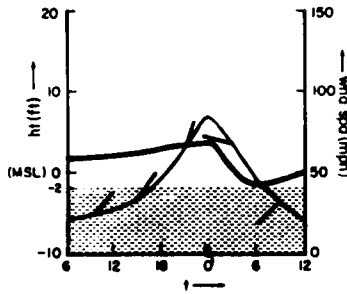


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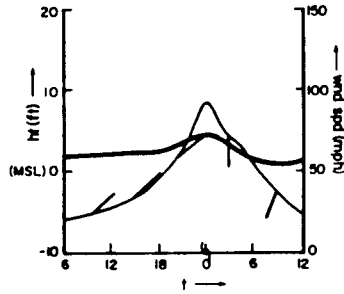
1. PORT MANSFIELD (48, 8)



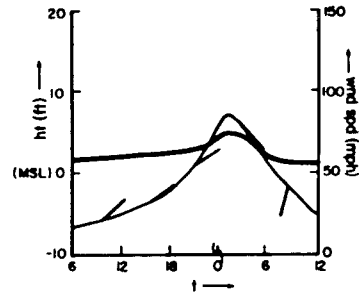
2. BAFFIN BAY (19, 3)



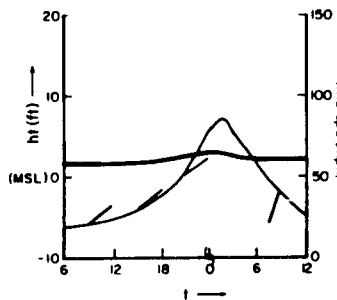
3. PADRI IS. RANGER STA. (24, 35)



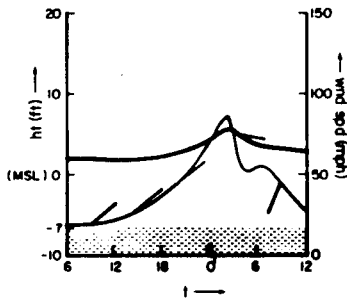
4. MUSTANG PASS (25, 45)



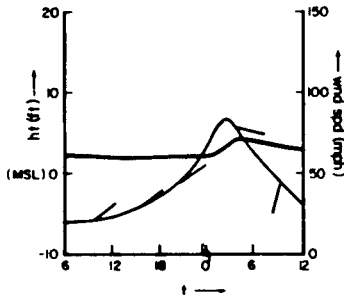
5. NAVAL AIR STA. (20, 46)



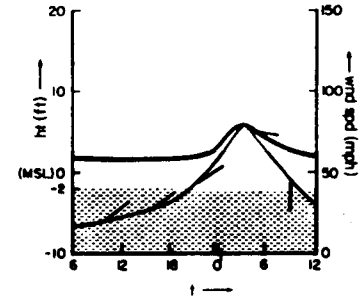
6. CORPUS CHRISTI (12, 53)



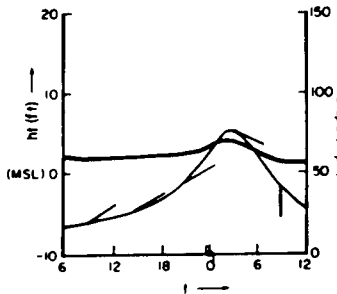
7. INGLESIDE (21, 55)



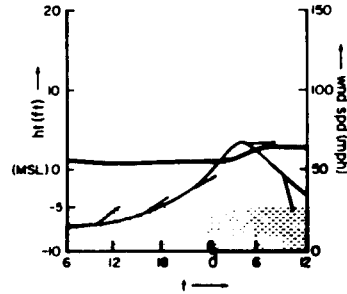
8. ARANSAS PASS (28, 57)



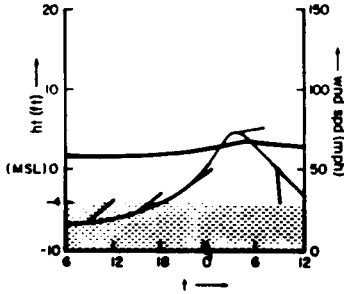
9. PORT ARANSAS (31, 53)



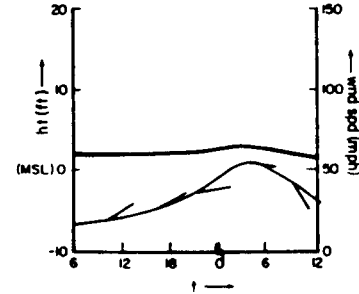
10. COPANO BRIDGE (35, 63)



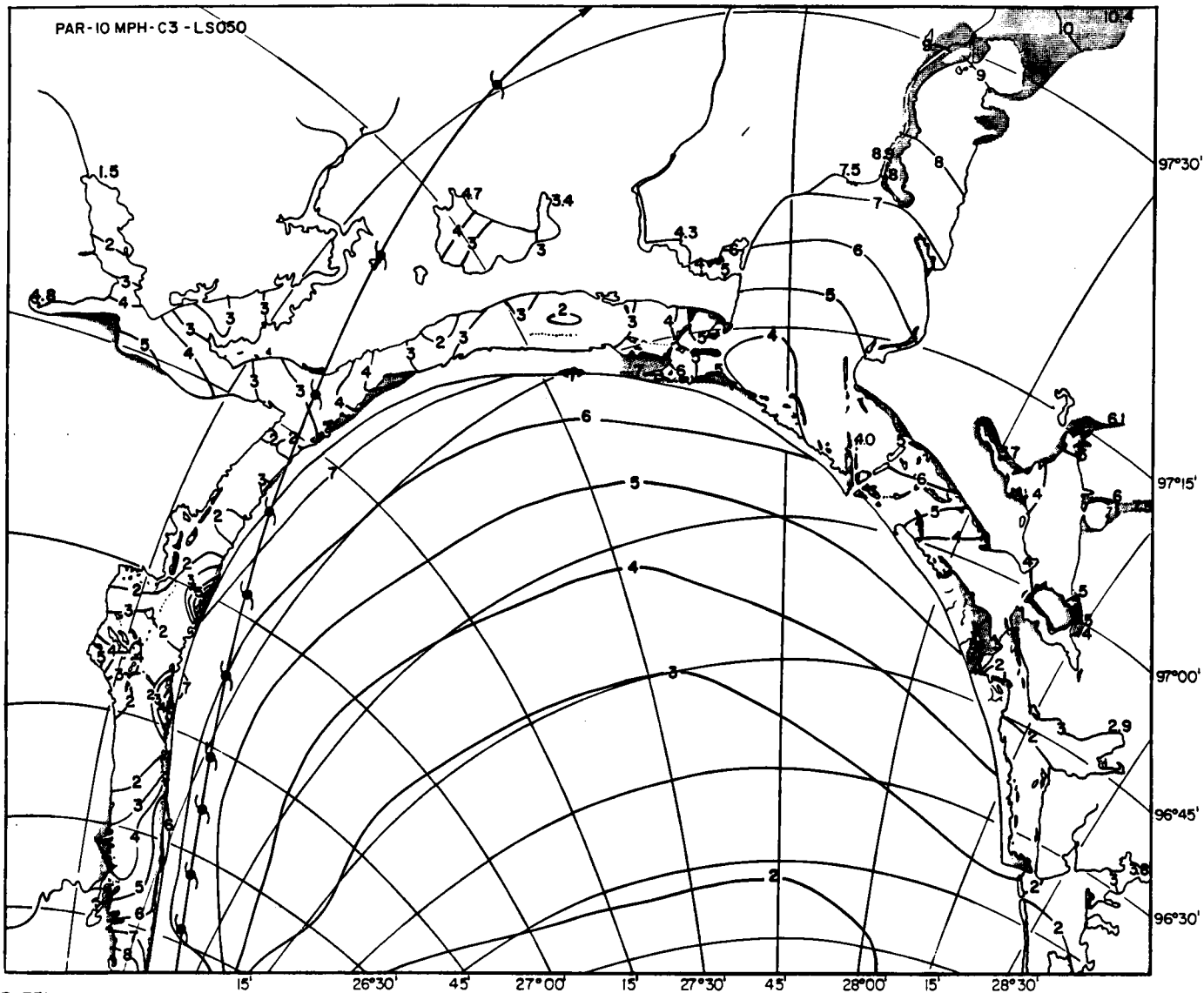
11. BAYSIDE (28, 66)



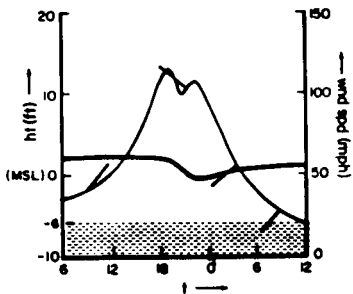
12. MATAGORDA IS. (45, 61)



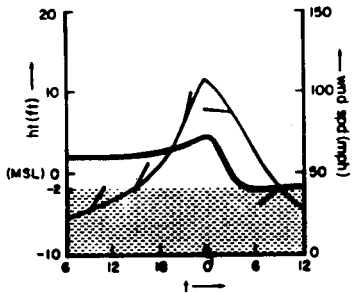
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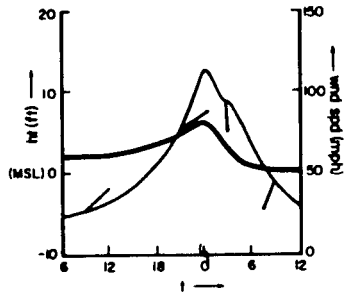
1. PORT MANSFIELD (48, 8)



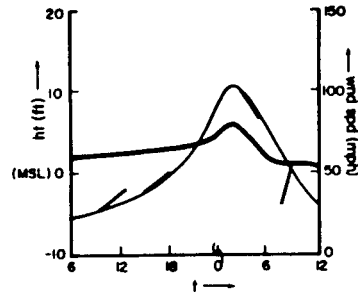
2. BAFFIN BAY (19, 3)



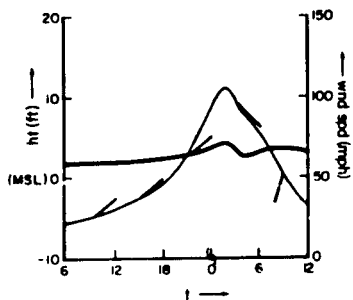
3. PADRI IS. RANGER STA. (24, 35)



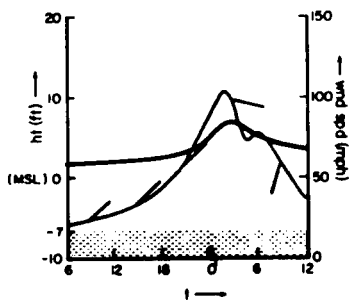
4. MUSTANG PASS (25, 45)



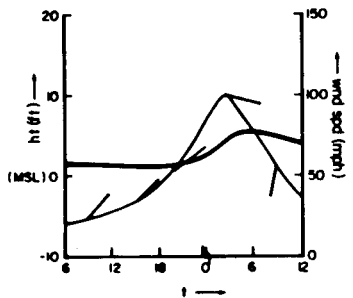
5. NAVAL AIR STA. (20, 46)



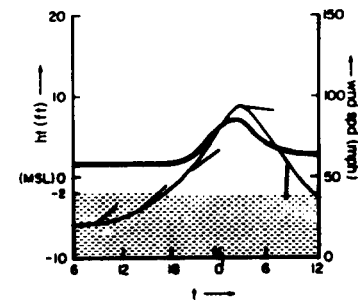
6. CORPUS CHRISTI (12, 53)



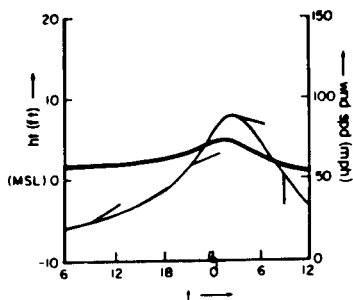
7. INGLESIDE (21, 55)



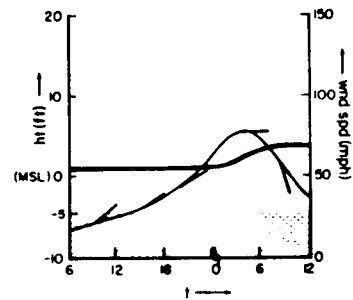
8. ARANSAS PASS (28, 57)



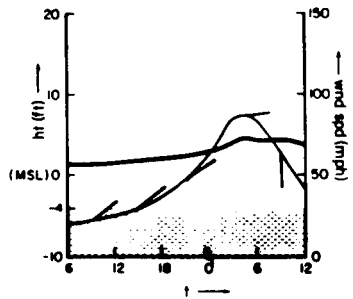
9. PORT ARANSAS (31, 53)



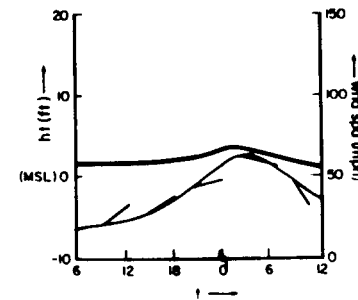
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)

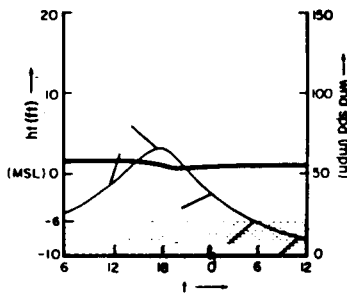


12. MATAGORDA IS. (45, 61)

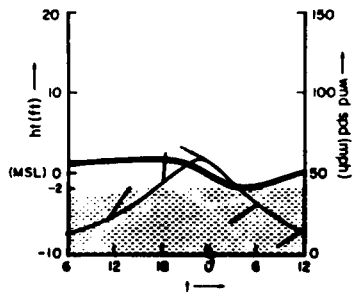




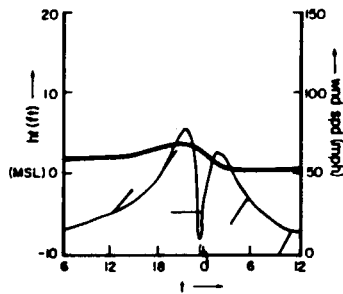
1. PORT MANSFIELD (48, 8)



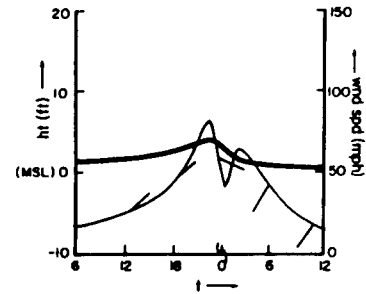
2. BAFFIN BAY (19, 3)



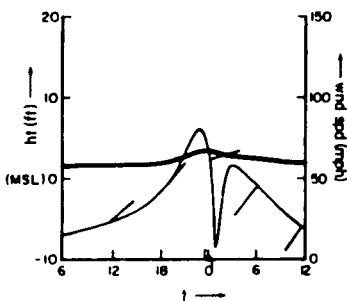
3. PADRI IS. RANGER STA. (24, 35)



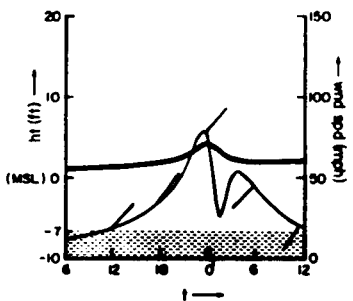
4. MUSTANG PASS (25, 45)



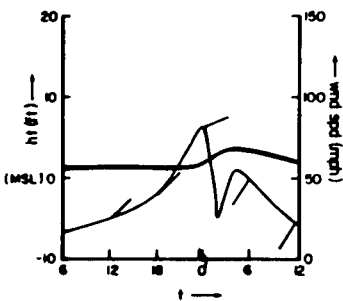
5. NAVAL AIR STA. (20, 46)



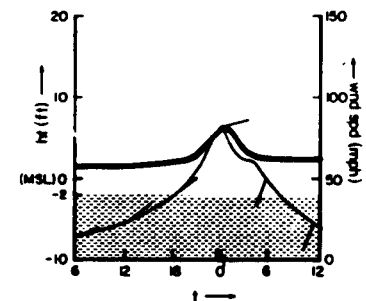
6. CORPUS CHRISTI (12, 53)



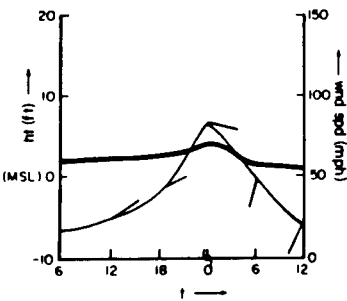
7. INGLESIDE (21, 55)



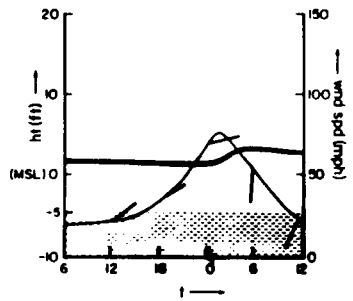
8. ARANSAS PASS (28, 57)



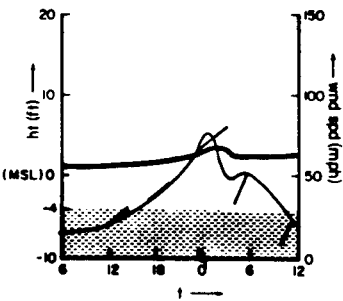
9. PORT ARANSAS (31, 53)



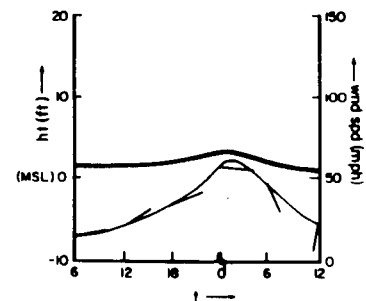
10. COPANO BRIDGE (35, 63)



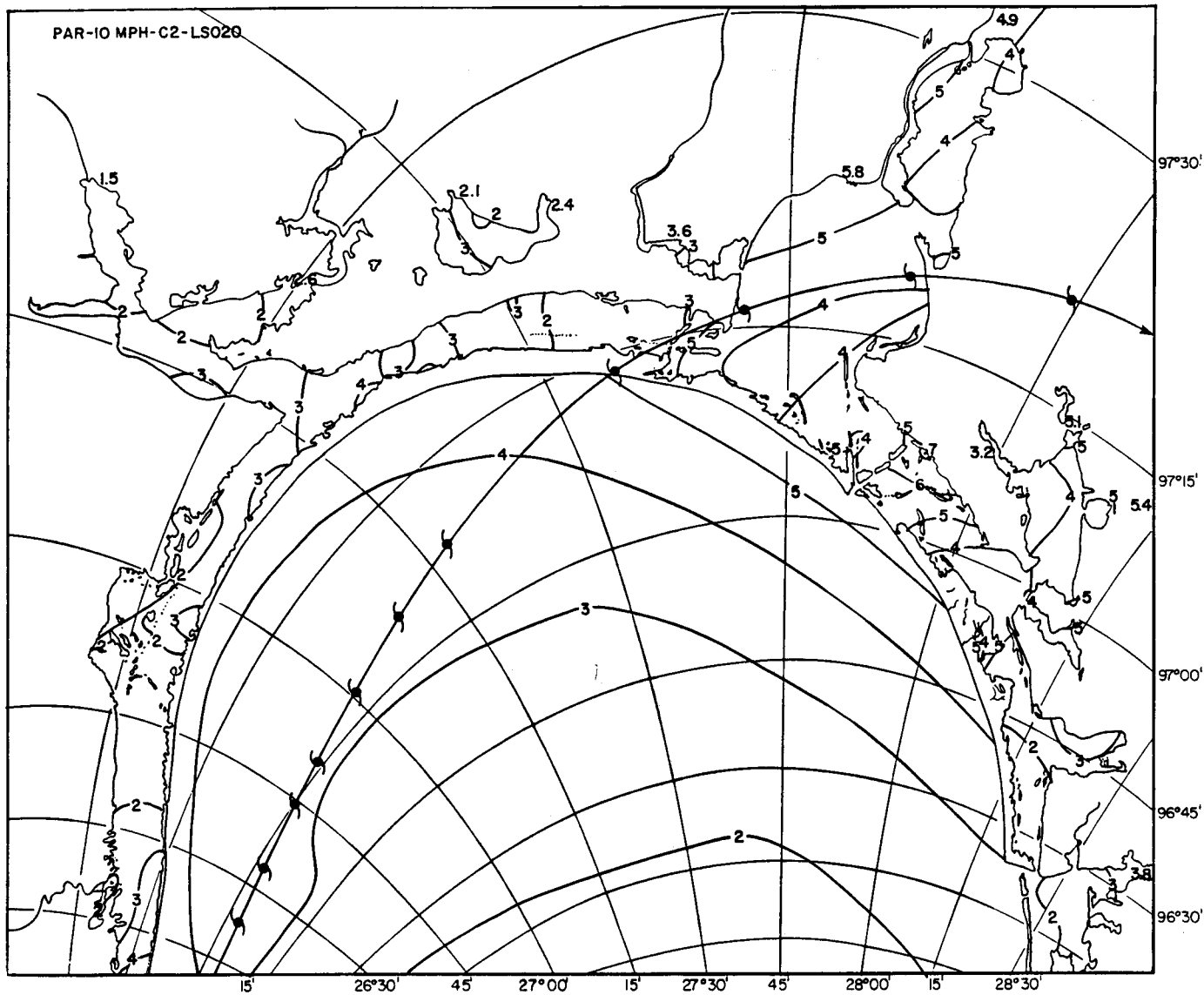
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

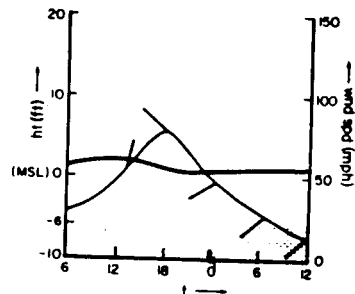


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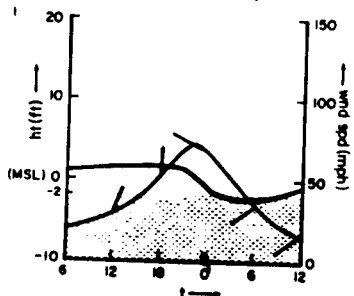




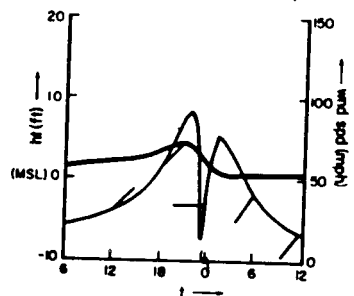
1. PORT MANSFIELD (48, 8)



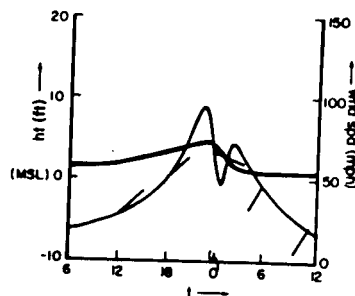
2. BAFFIN BAY (19, 3)



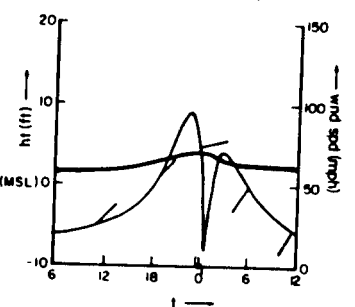
3. PADRI IS. RANGER STA. (24, 35)



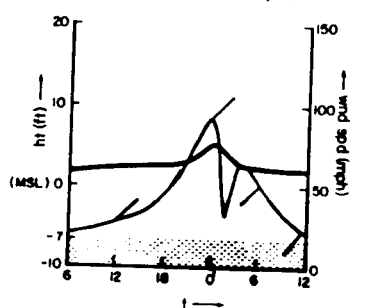
4. MUSTANG PASS (25, 45)



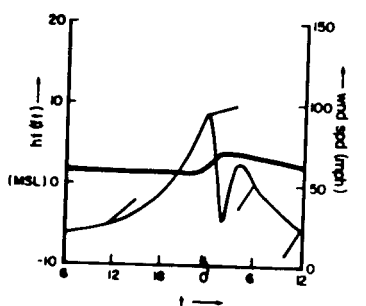
5. NAVAL AIR STA. (20, 46)



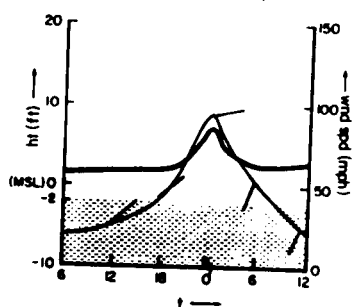
6. CORPUS CHRISTI (12, 53)



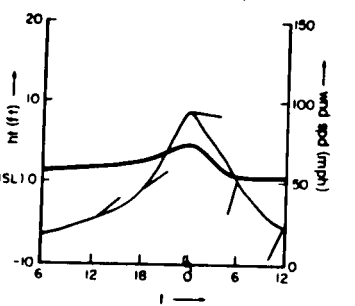
7. INGLESIDE (21, 55)



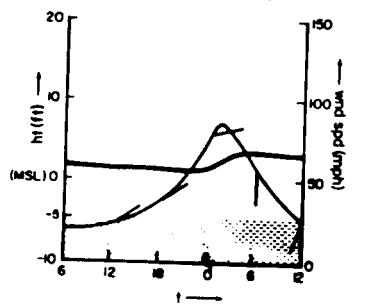
8. ARANSAS PASS (28, 57)



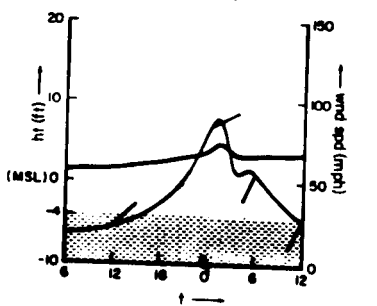
9. PORT ARANSAS (31, 53)



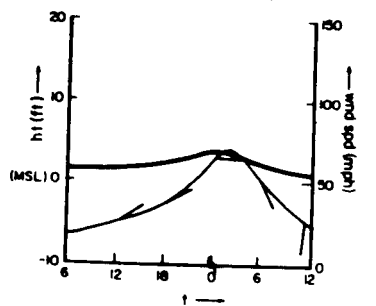
10. COPANO BRIDGE (35, 63)



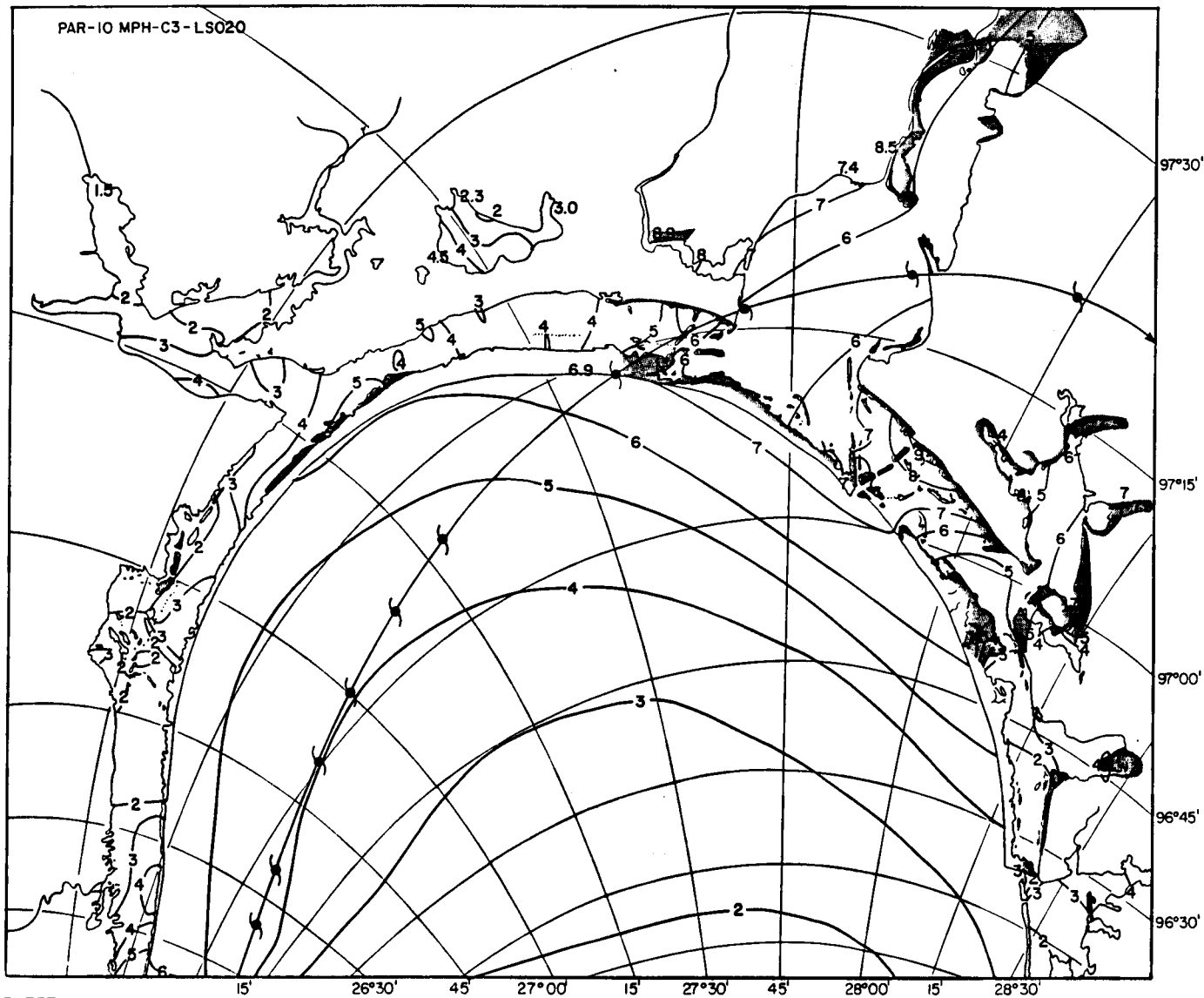
11. BAYSIDE (28, 66)



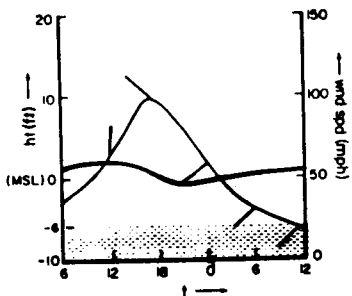
12. MATAGORDA IS. (45, 61)



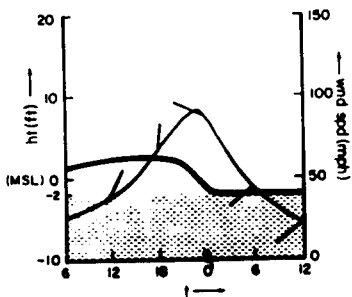
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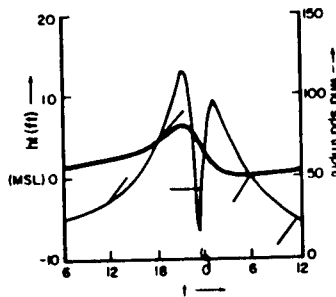
1. PORT MANSFIELD (48, 8)



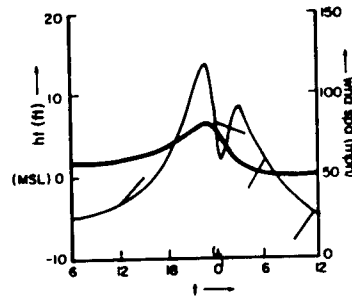
2. BAFFIN BAY (19, 3)



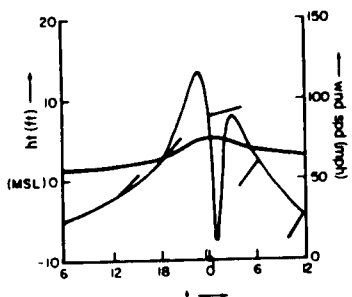
3. PADRI IS. RANGER STA. (24, 35)



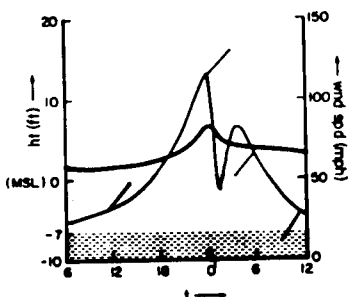
4. MUSTANG PASS (25, 45)



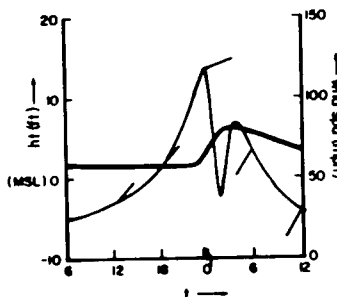
5. NAVAL AIR STA. (20, 46)



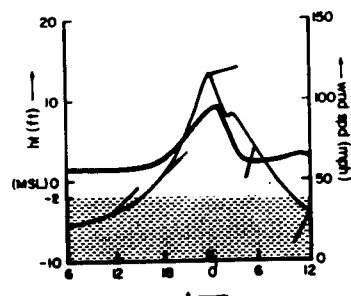
6. CORPUS CHRISTI (12, 53)



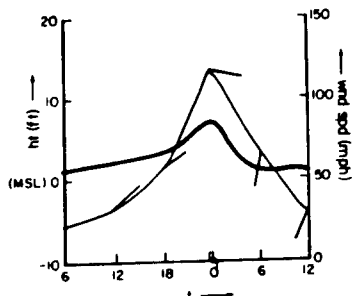
7. INGLESIDE (21, 55)



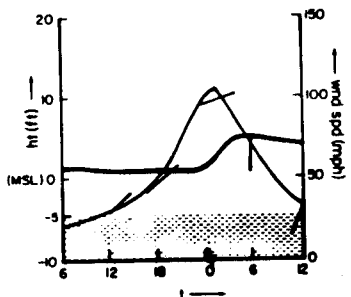
8. ARANSAS PASS (28, 57)



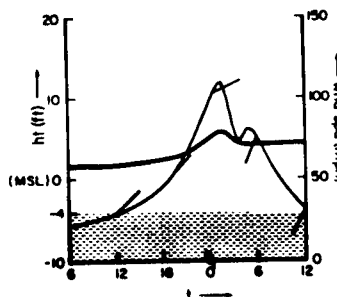
9. PORT ARANSAS (31, 53)



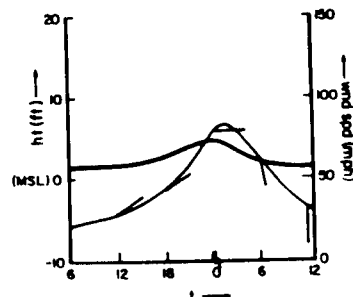
10. COPANO BRIDGE (35, 63)



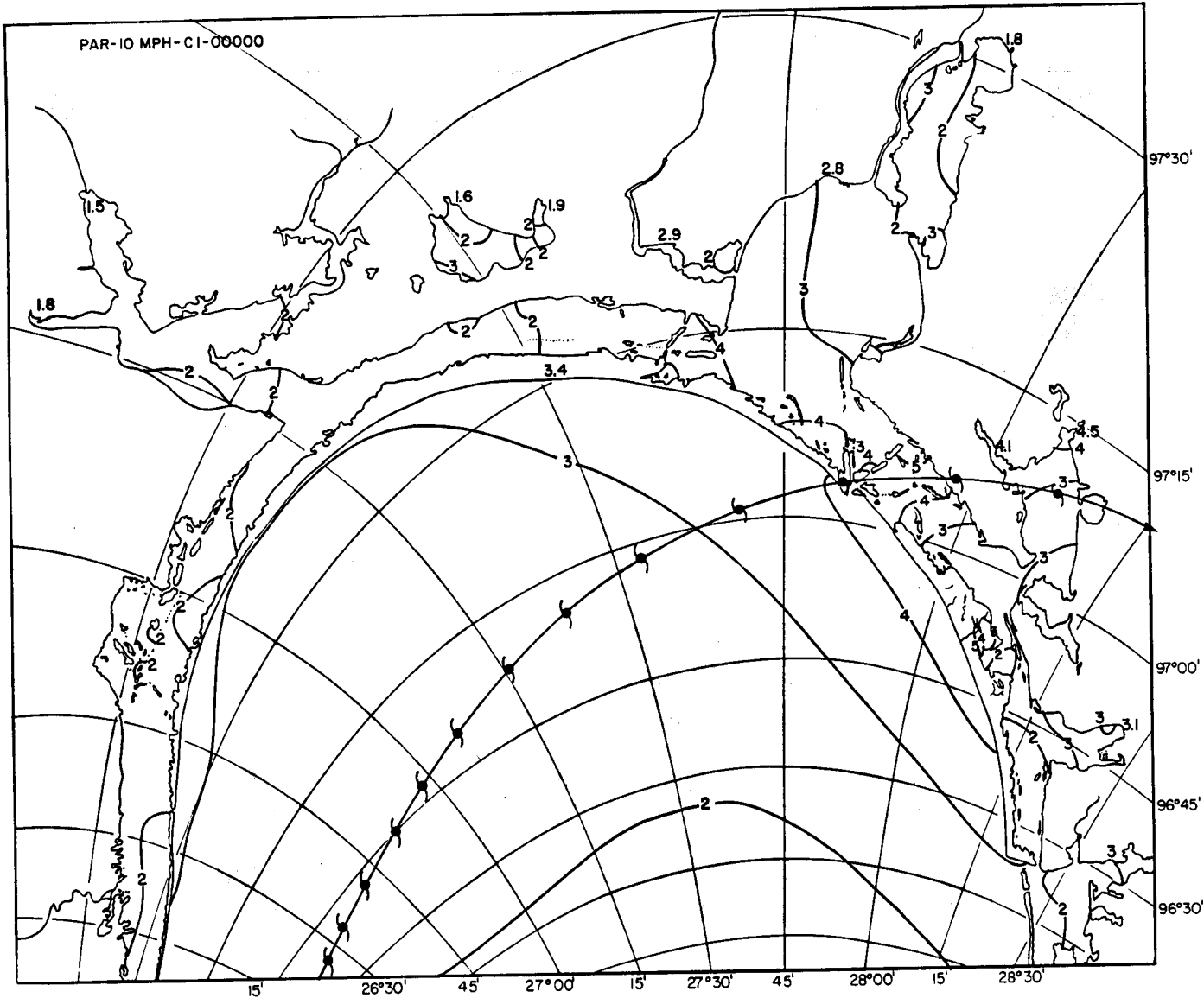
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

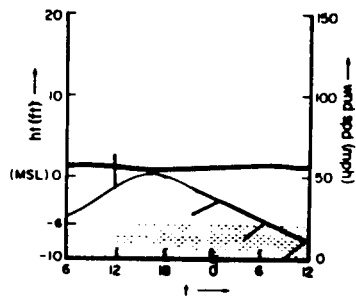


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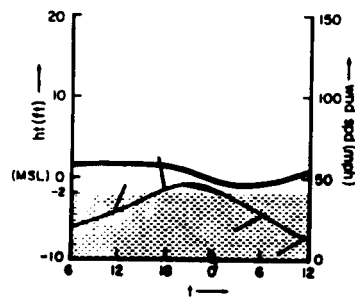


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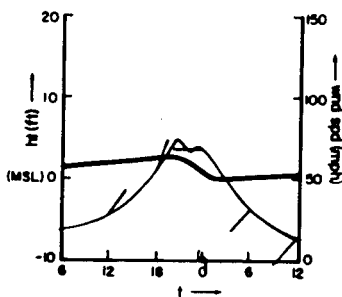
1. PORT MANSFIELD (48, 8)



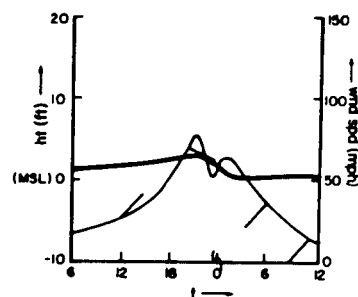
2. BAFFIN BAY (19, 3)



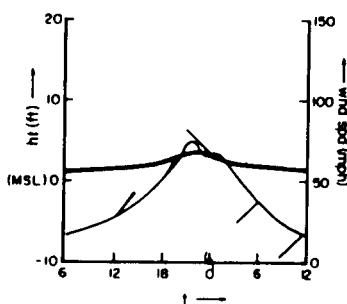
3. PADRI IS. RANGER STA. (24, 35)



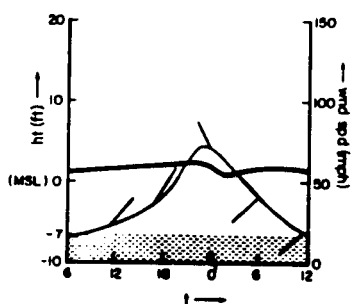
4. MUSTANG PASS (25, 45)



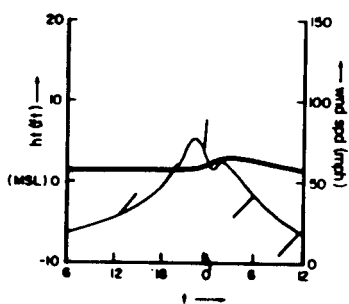
5. NAVAL AIR STA. (20, 46)



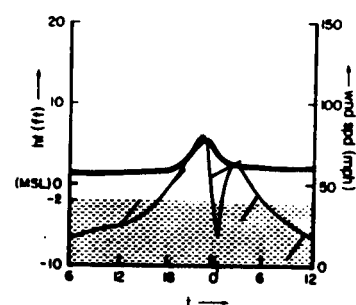
6. CORPUS CHRISTI (12, 53)



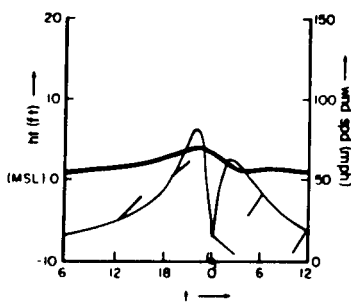
7. INGLESIDE (21, 55)



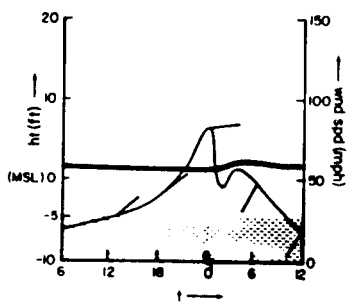
8. ARANSAS PASS (28, 57)



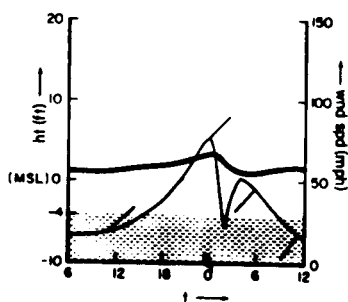
9. PORT ARANSAS (31, 53)



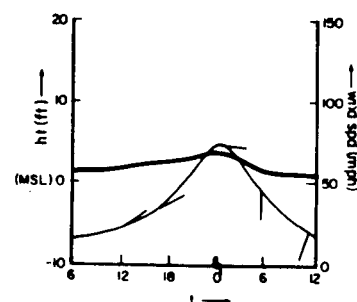
10. COPANO BRIDGE (35, 63)



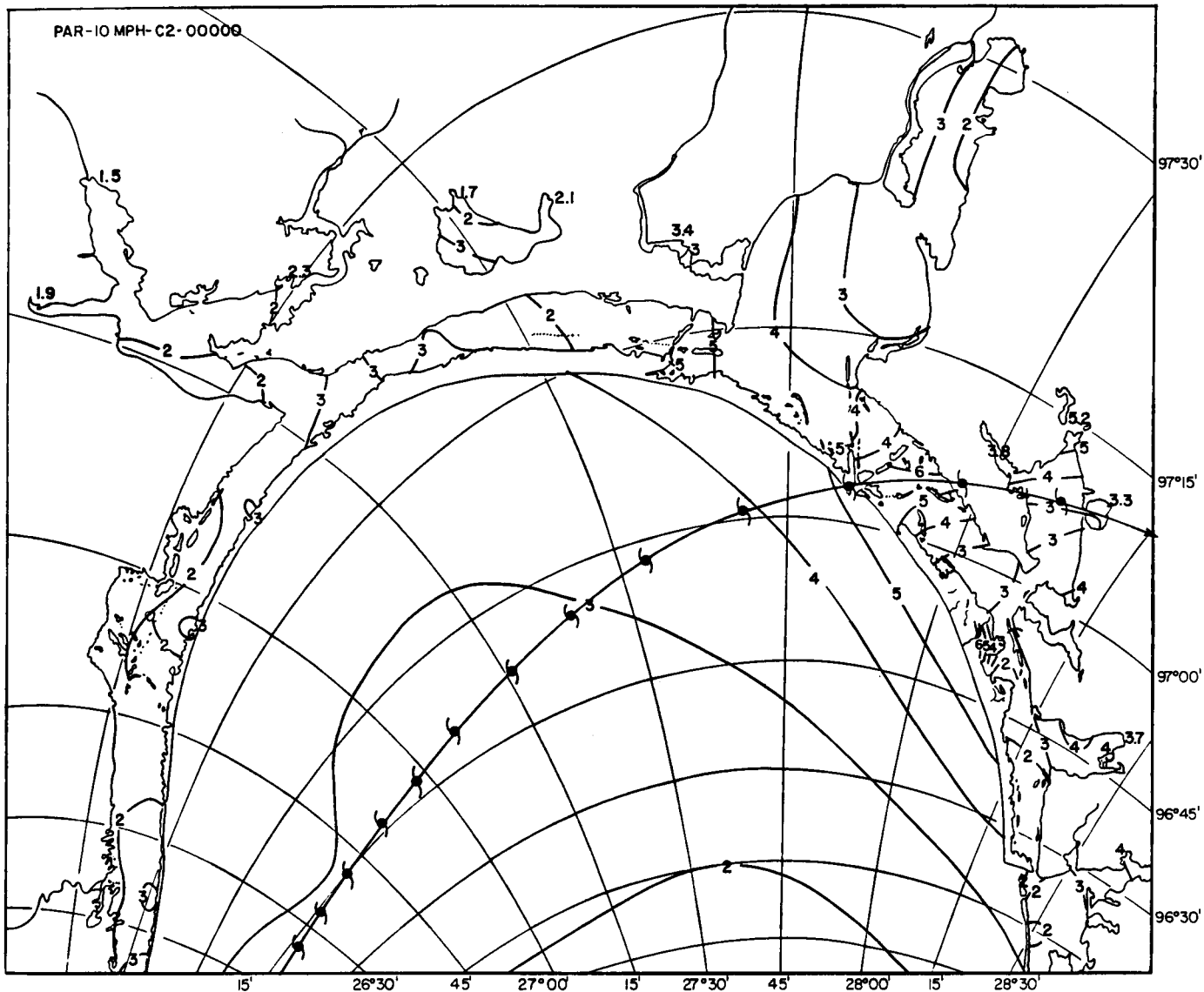
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

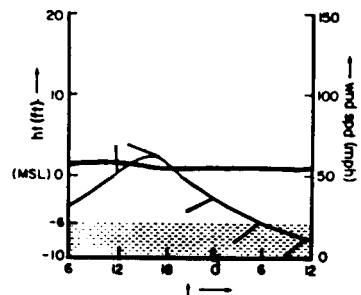


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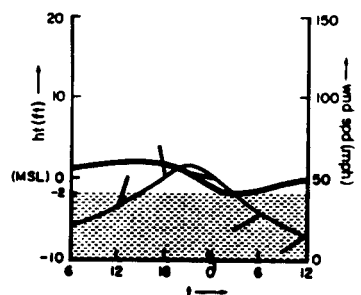


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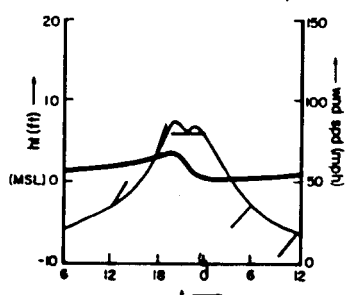
1. PORT MANSFIELD (48, 8)



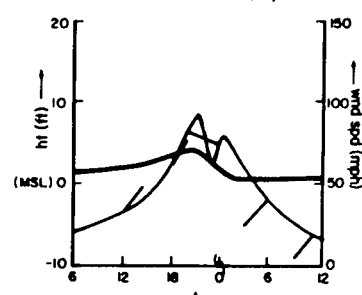
2. BAFFIN BAY (19, 3)



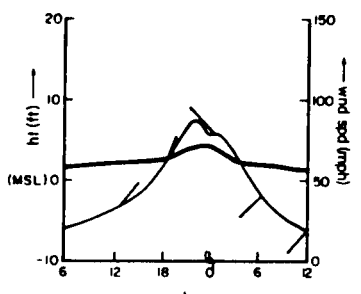
3. PADRI IS. RANGER STA. (24, 35)



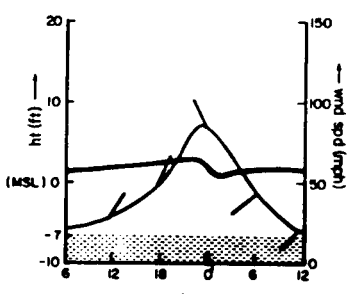
4. MUSTANG PASS (25, 45)



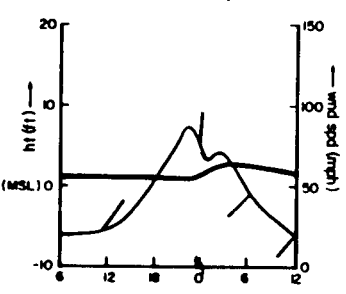
5. NAVAL AIR STA. (20, 46)



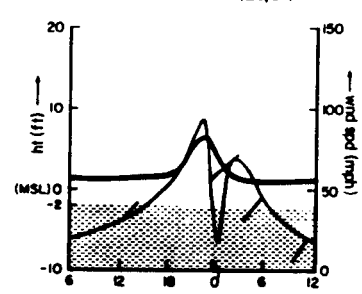
6. CORPUS CHRISTI (12, 53)



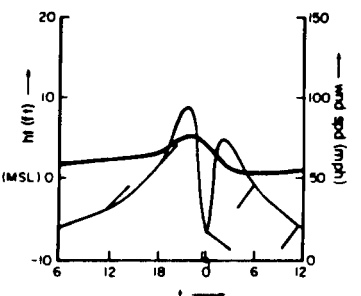
7. INGLESIDE (21, 55)



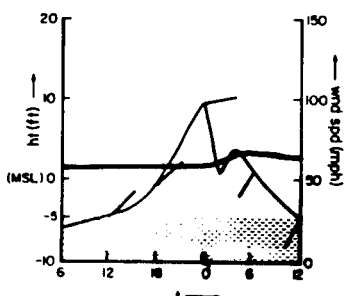
8. ARANSAS PASS (28, 57)



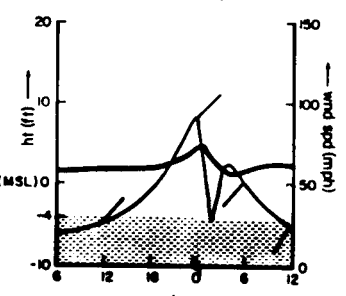
9. PORT ARANSAS (31, 53)



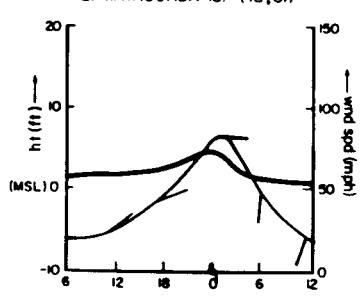
10. COPANO BRIDGE (35, 63)



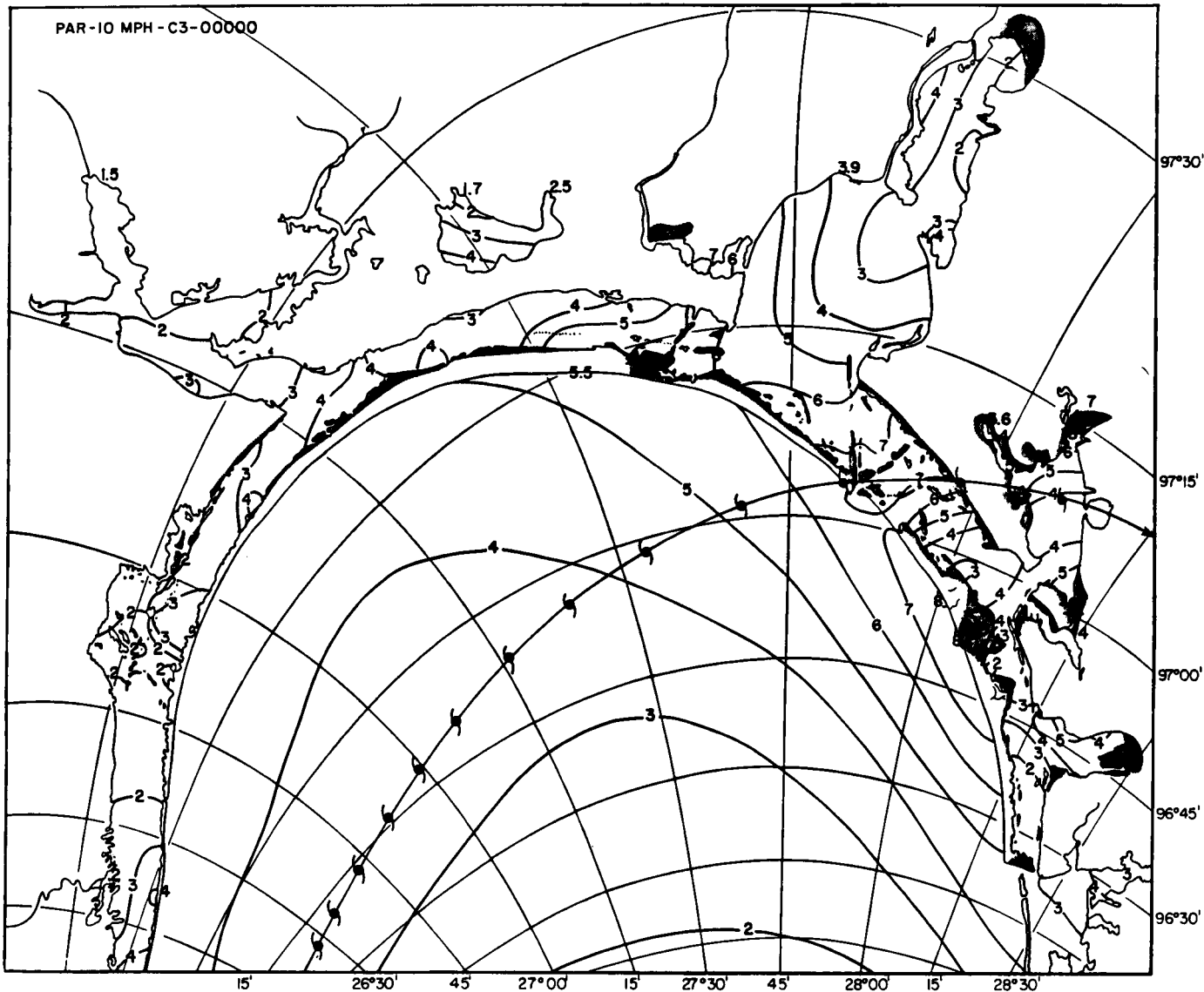
11. BAYSIDE (28, 65)



12. MATAGORDA IS. (45, 61)

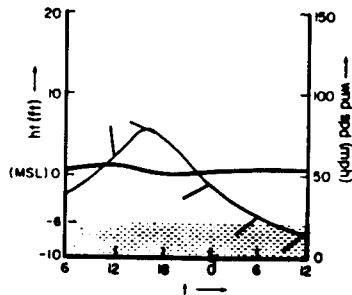


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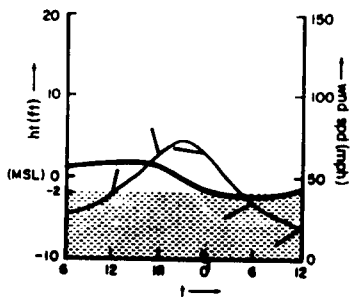




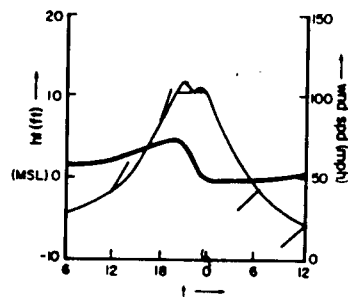
1. PORT MANSFIELD (48, 8)



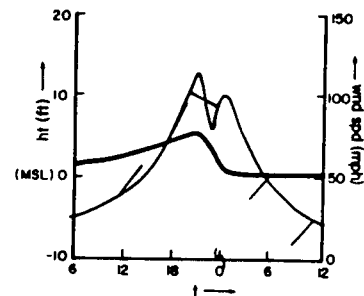
2. BAFFIN BAY (19, 3)



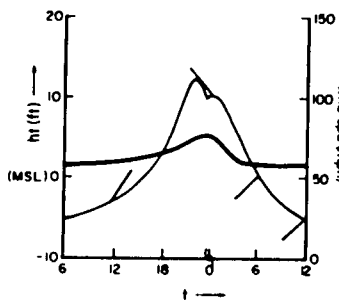
3. PADRI IS. RANGER STA. (24, 35)



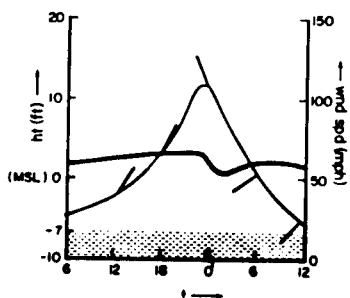
4. MUSTANG PASS (25, 45)



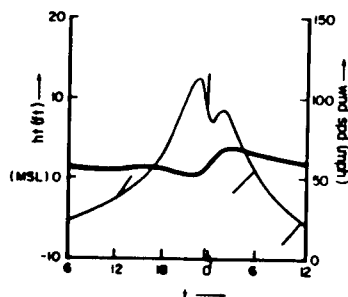
5. NAVAL AIR STA. (20, 46)



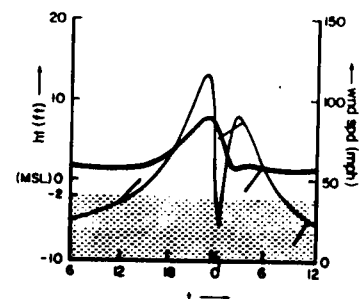
6. CORPUS CHRISTI (12, 53)



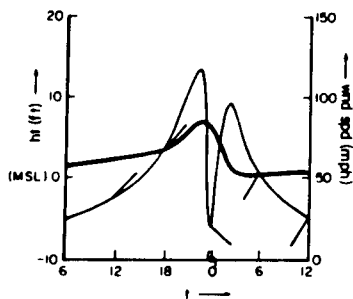
7. INGLESIDE (21, 55)



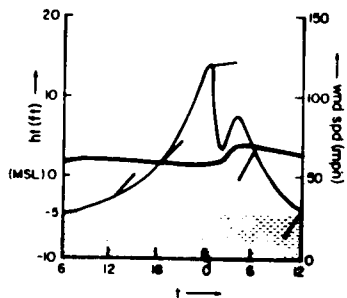
8. ARANSAS PASS (28, 57)



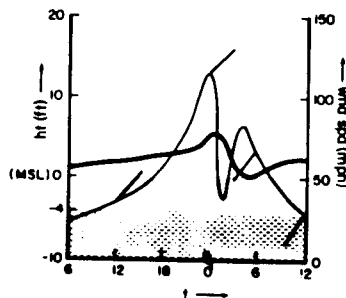
9. PORT ARANSAS (31, 53)



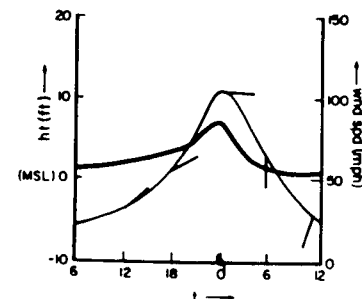
10. COPANO BRIDGE (35, 63)



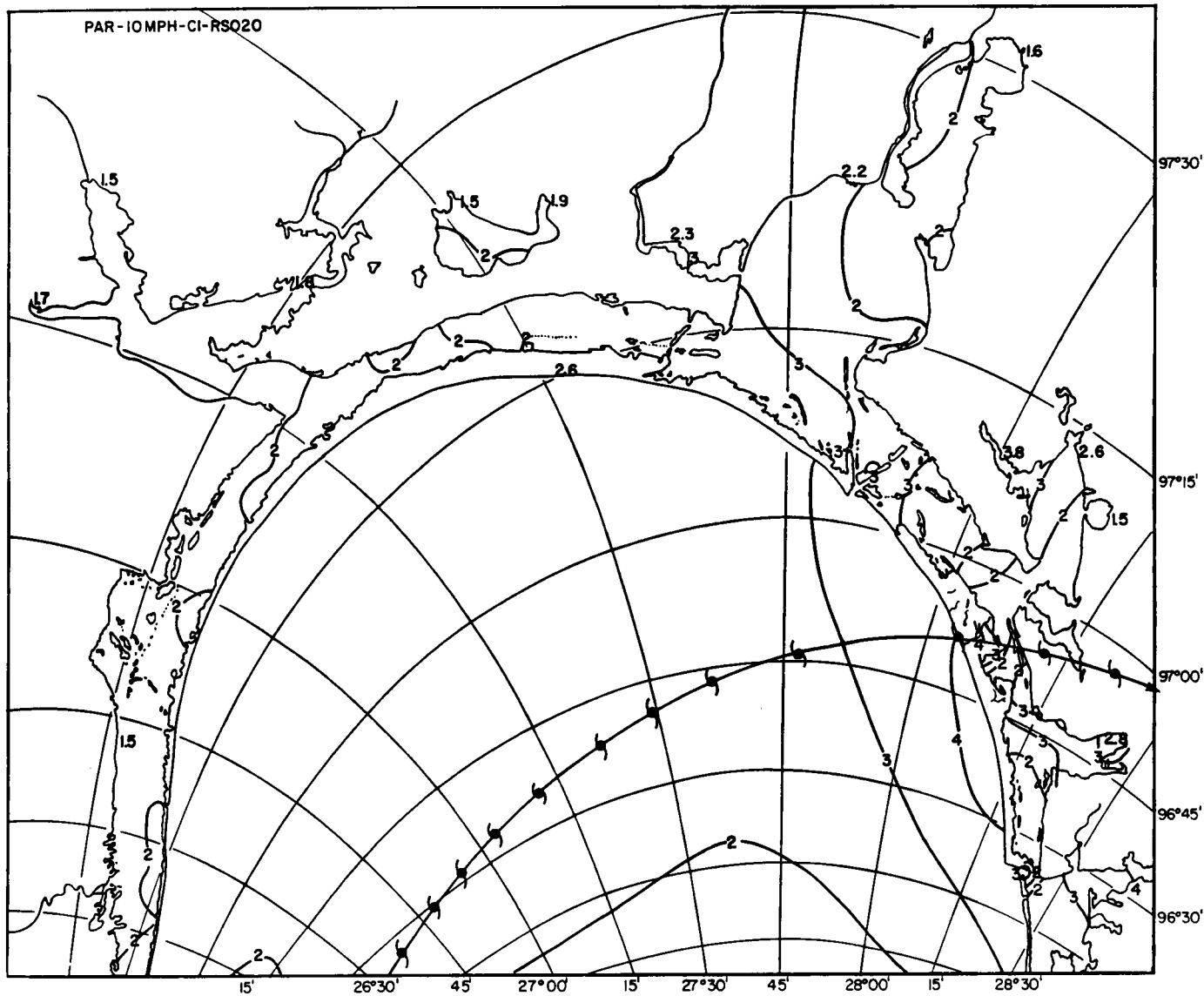
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

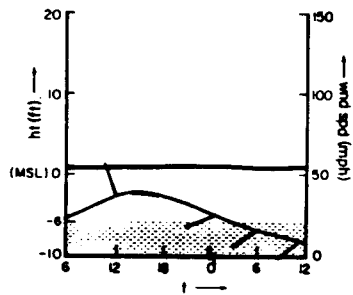


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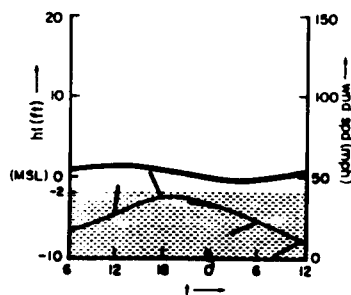


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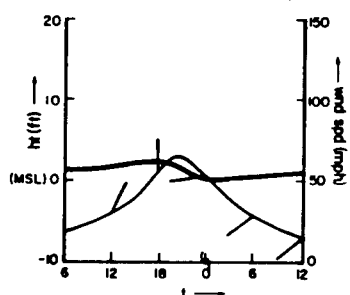
1. PORT MANSFIELD (48, 8)



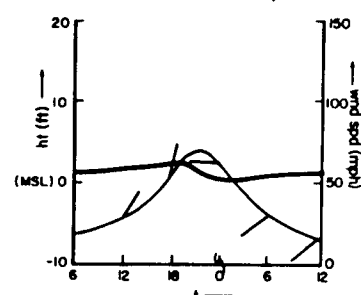
2. BAFFIN BAY (19, 3)



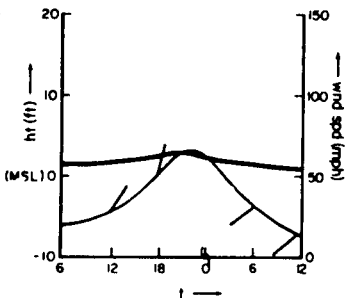
3. PADRI IS. RANGER STA. (24, 35)



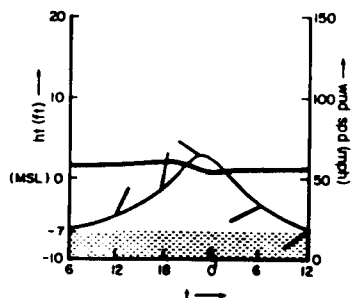
4. MUSTANG PASS (25, 45)



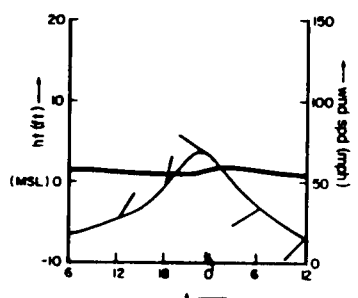
5. NAVAL AIR STA. (20, 46)



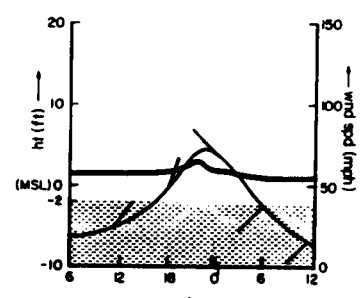
6. CORPUS CHRISTI (12, 53)



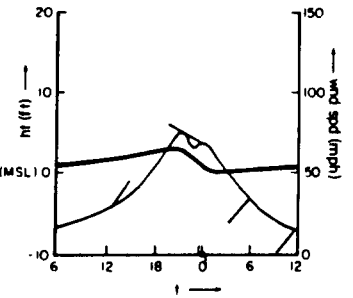
7. INGLESIDE (21, 55)



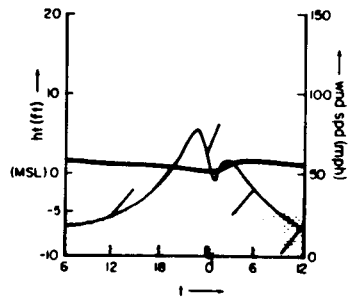
8. ARANSAS PASS (28, 57)



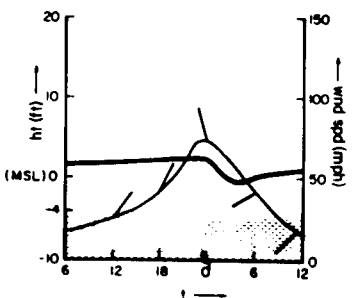
9. PORT ARANSAS (31, 53)



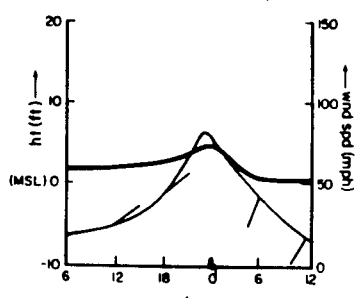
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)

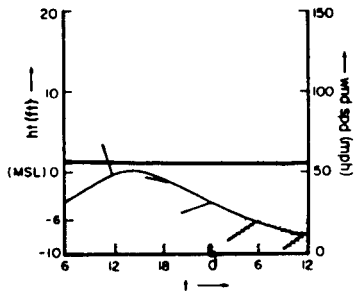


12. MATAGORDA IS. (45, 61)

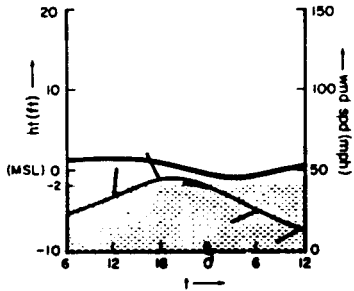




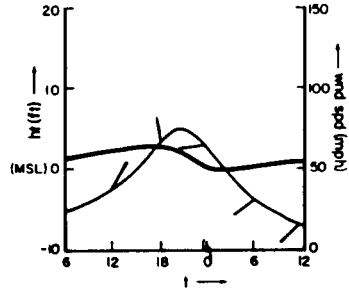
1. PORT MANSFIELD (48, 8)



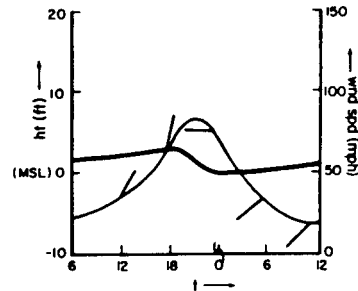
2. BAFFIN BAY (19, 3)



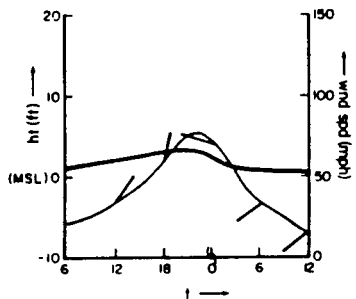
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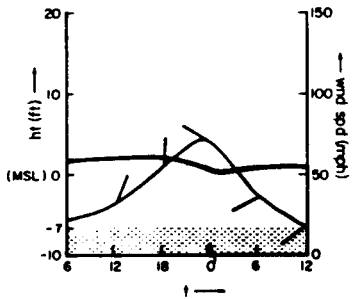
4. MUSTANG PASS (25, 45)



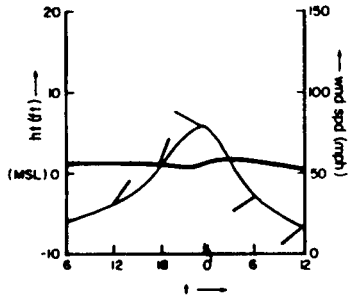
5. NAVAL AIR STA. (20, 46)



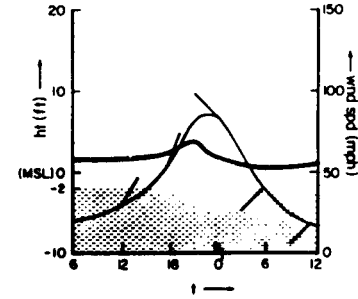
6. CORPUS CHRISTI (12, 53)



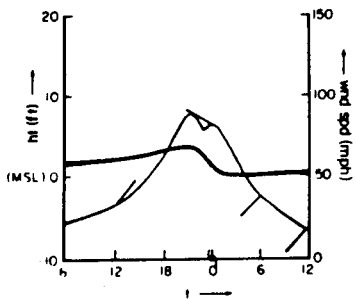
7. INGLESIDE (21, 55)



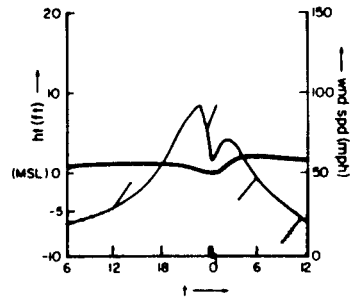
8. ARANSAS PASS (28, 57)



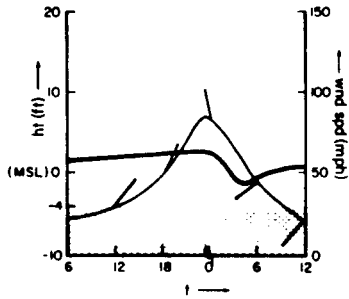
9. PORT ARANSAS (31, 53)



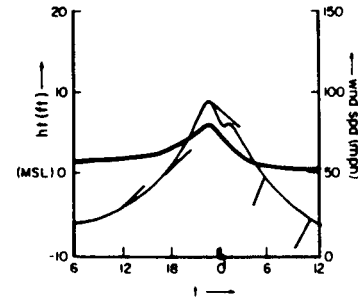
10. COPANO BRIDGE (35, 63)



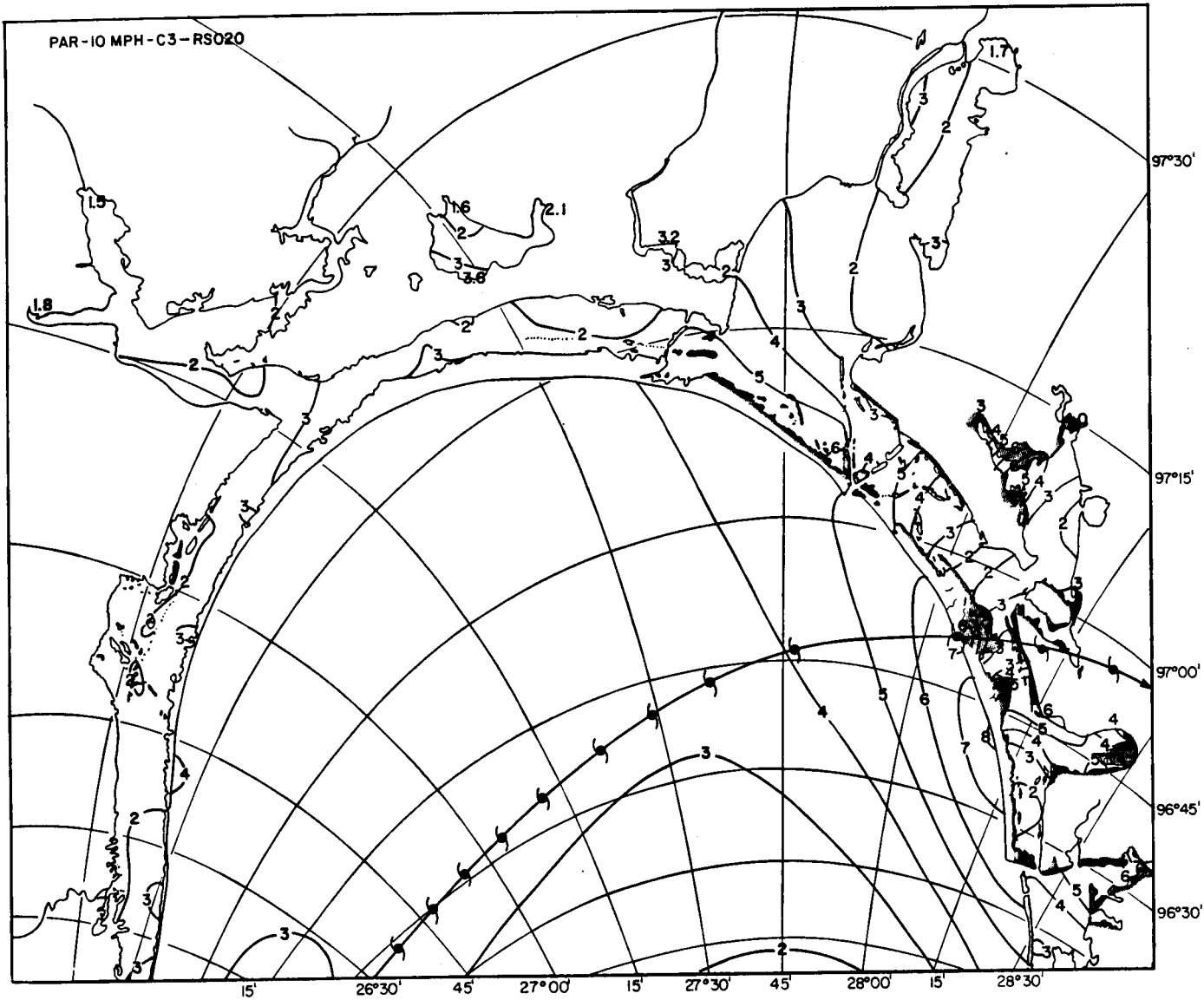
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

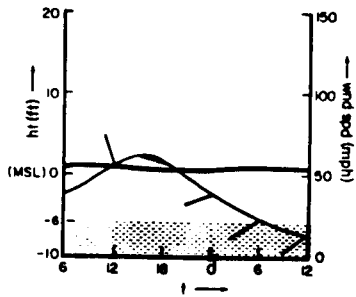


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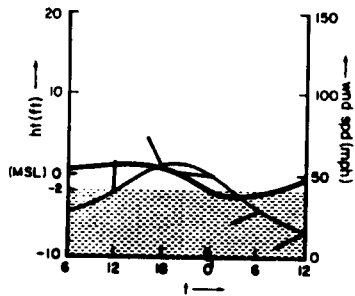


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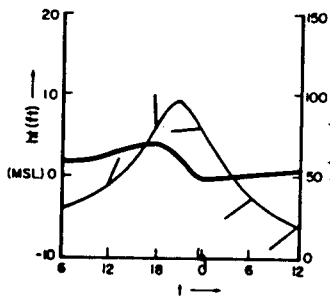
1. PORT MANSFIELD (48, 8)



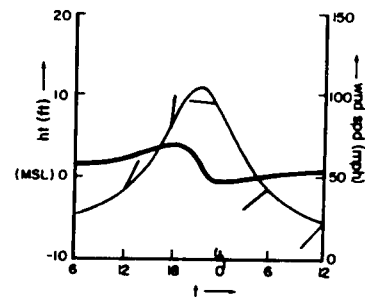
2. BAFFIN BAY (19, 3)



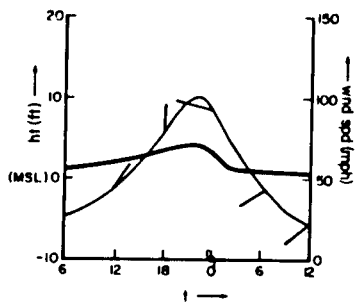
3. PADRI IS. RANGER STA. (24, 35)



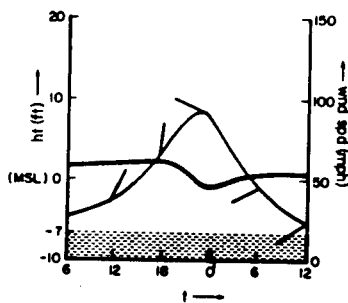
4. MUSTANG PASS (25, 45)



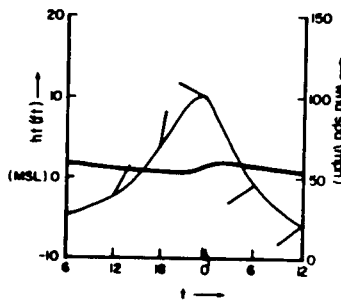
5. NAVAL AIR STA. (20, 46)



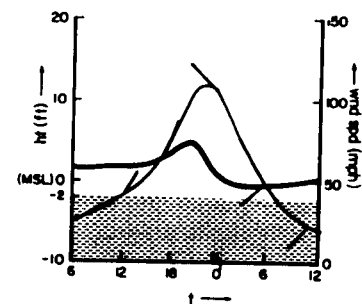
6. CORPUS CHRISTI (12, 53)



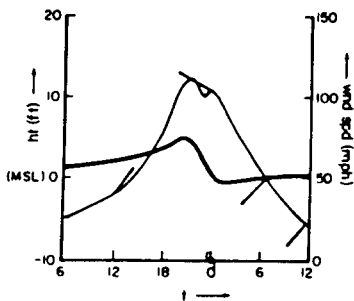
7. INGLESIDE (21, 55)



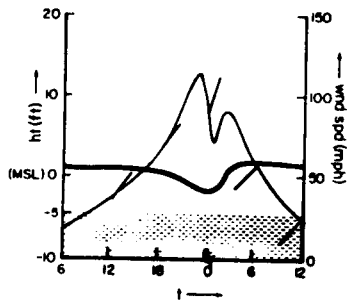
8. ARANSAS PASS (28, 57)



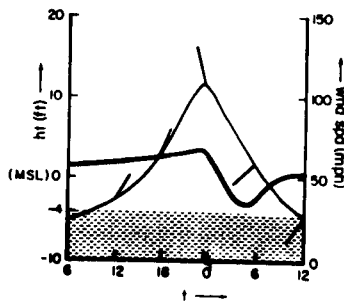
9. PORT ARANSAS (31, 53)



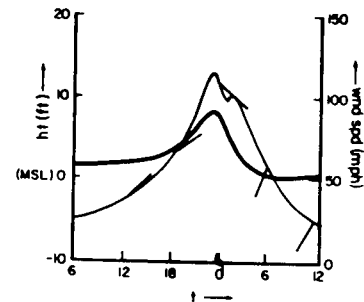
10. COPANO BRIDGE (35, 63)

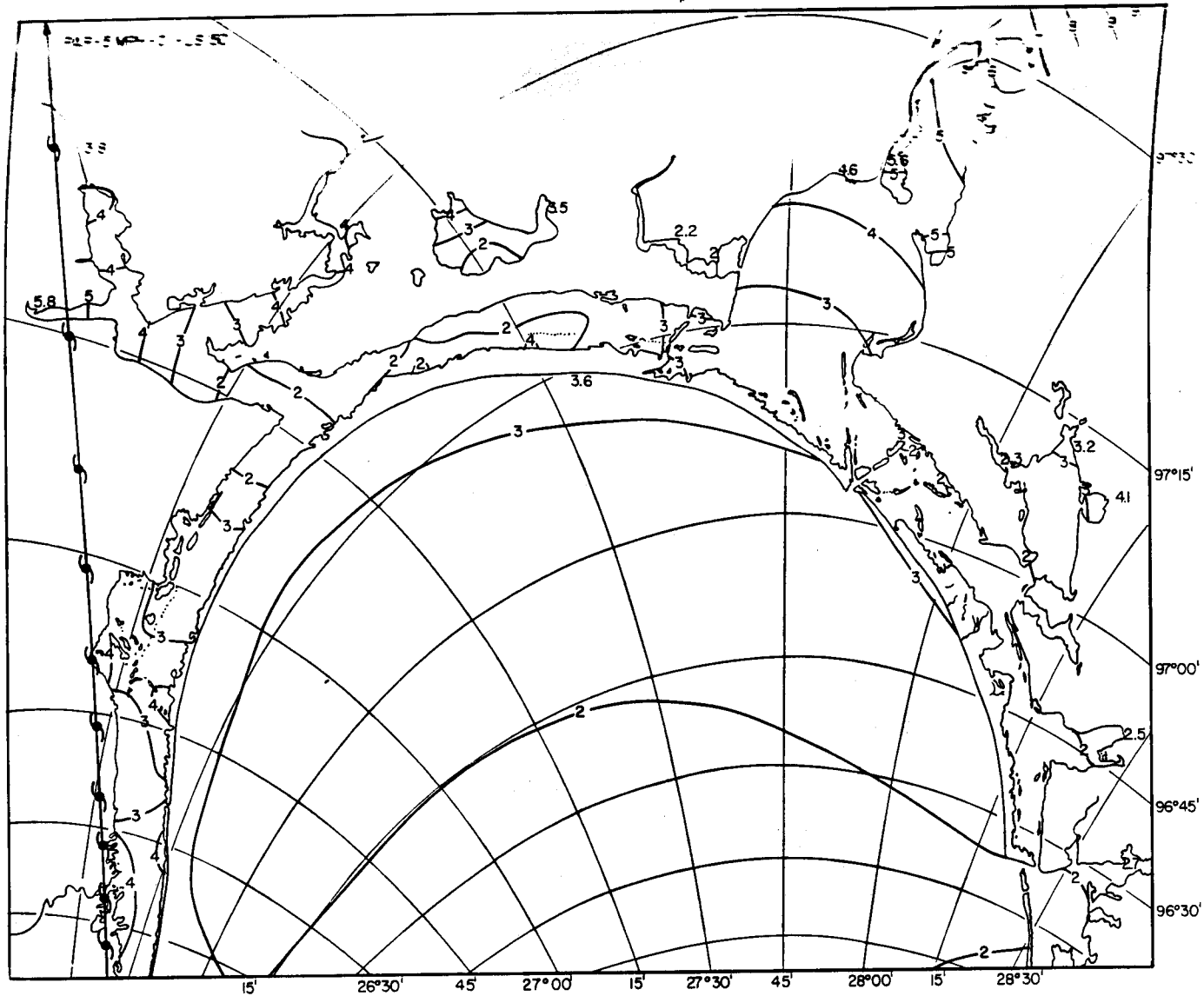


11. BAYSIDE (28, 66)



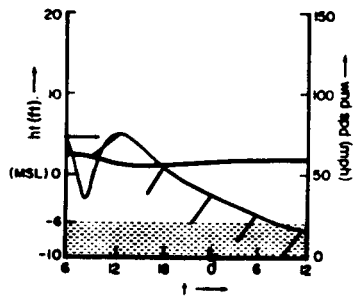
12. MATAGORDA IS. (45, 61)



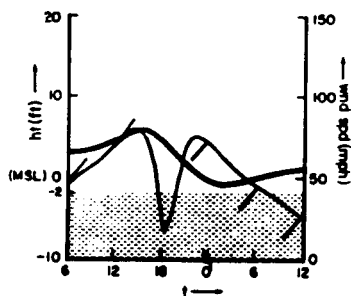




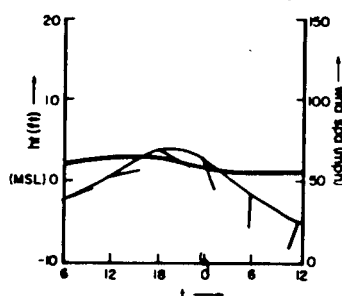
1. PORT MANSFIELD (48, 8)



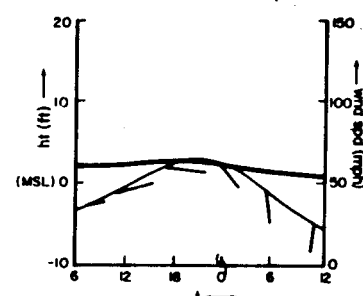
2. BAFFIN BAY (19, 3)



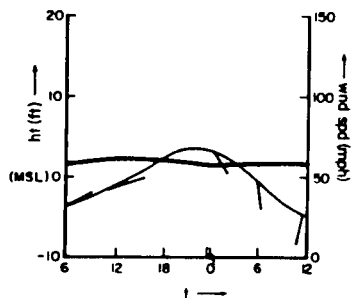
3. PADRI IS. RANGER STA. (24, 35)



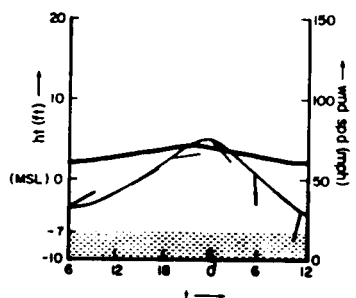
4. MUSTANG PASS (25, 45)



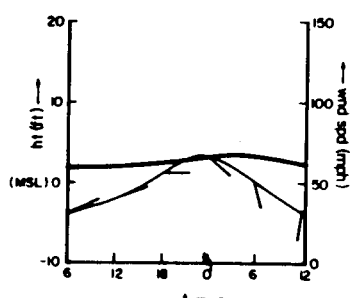
5. NAVAL AIR STA. (20, 46)



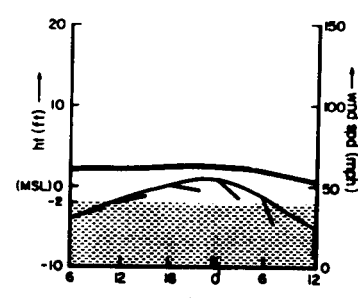
6. CORPUS CHRISTI (12, 53)



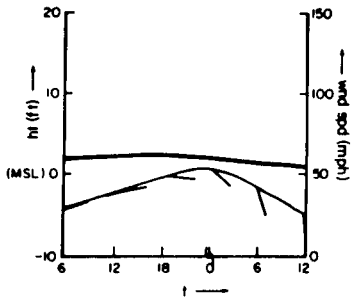
7. INGLESIDE (21, 55)



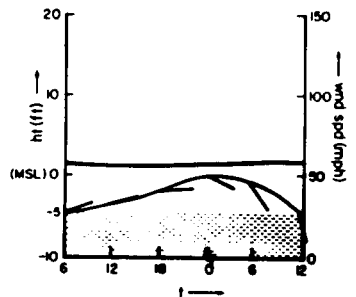
8. ARANSAS PASS (28, 57)



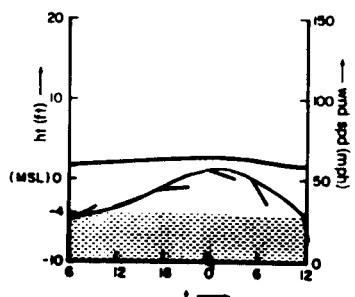
9. PORT ARANSAS (31, 53)



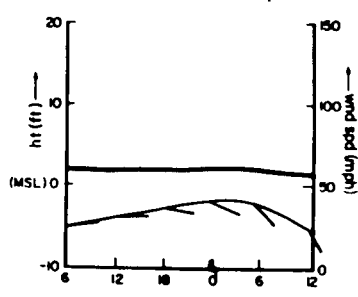
10. COPANO BRIDGE (35, 63)

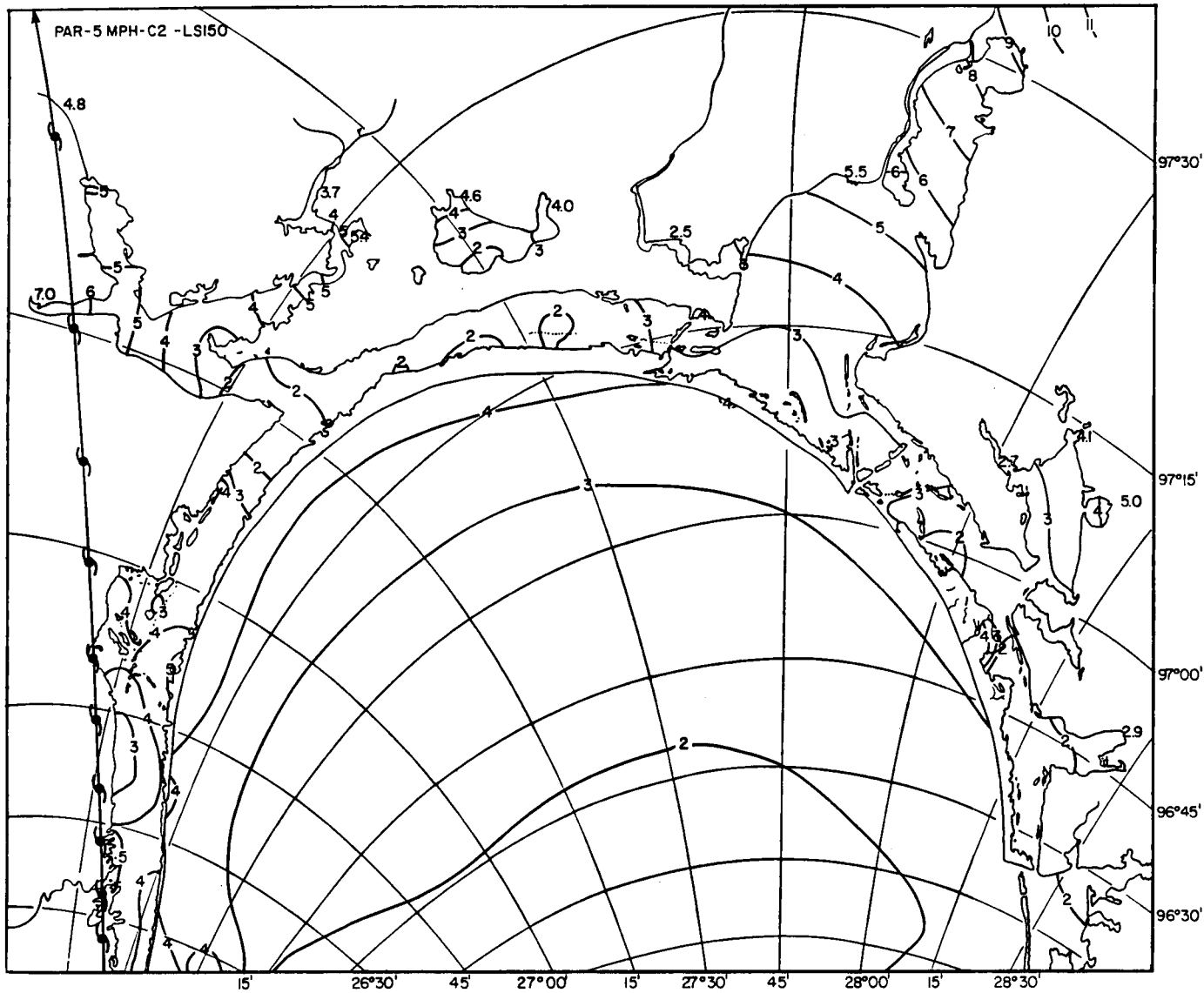


11. BAYSIDE (28, 66)

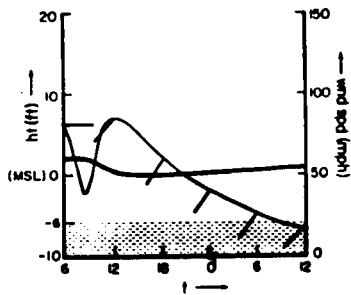


12. MATAGORDA IS. (45, 61)

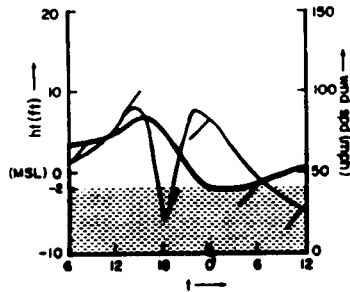




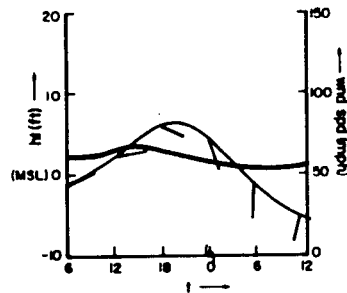
1. PORT MANSFIELD (48, 8)



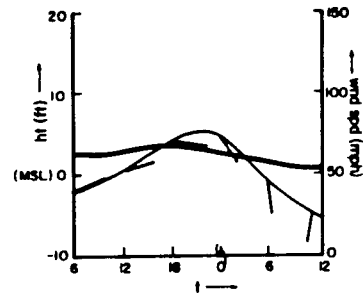
2. BAFFIN BAY (19, 3)



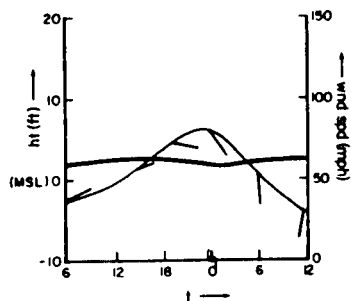
3. PADRI IS. RANGER STA. (24, 35)



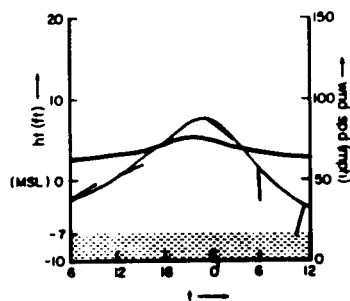
4. MUSTANG PASS (25, 45)



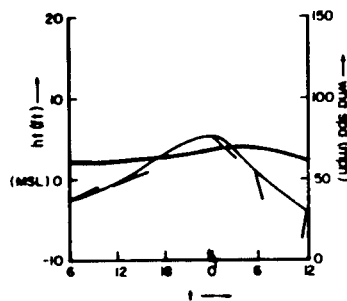
5. NAVAL AIR STA. (20, 46)



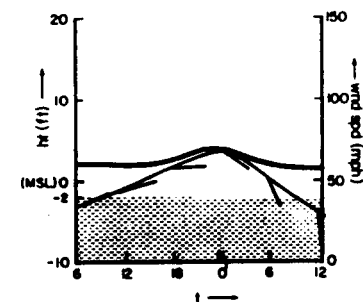
6. CORPUS CHRISTI (12, 53)



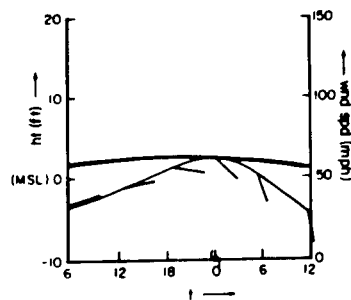
7. INGLESIDE (21, 55)



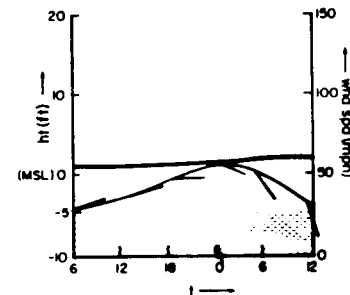
8. ARANSAS PASS (28, 57)



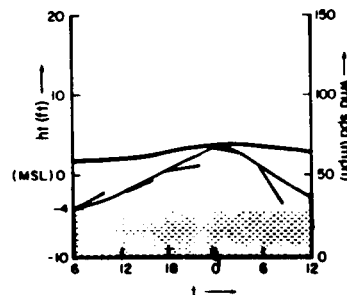
9. PORT ARANSAS (31, 53)



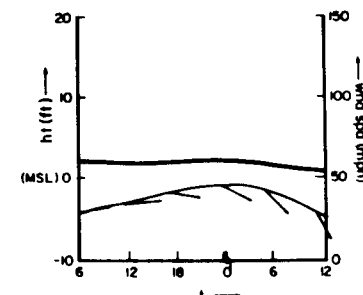
10. COPANO BRIDGE (35, 63)



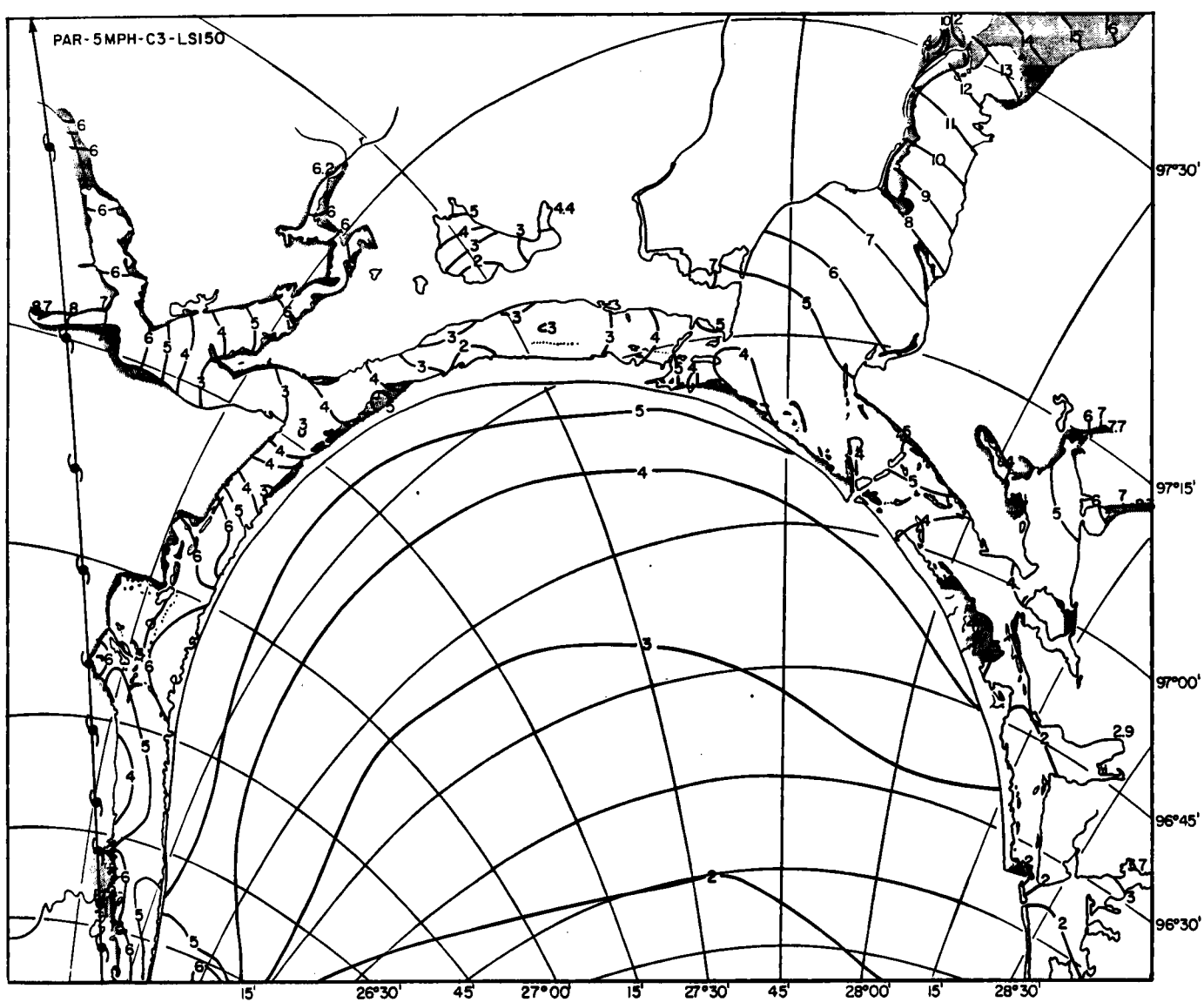
11. BAYSIDE (28, 66)



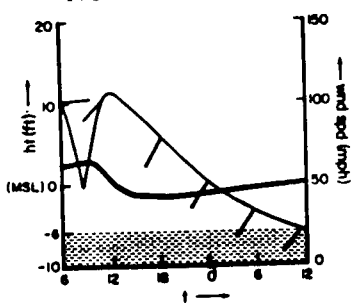
12. MATAGORDA IS. (45, 61)



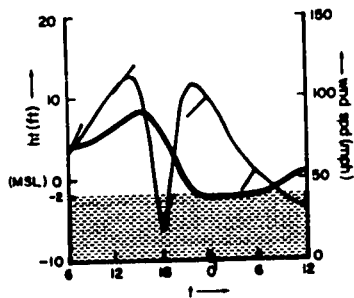
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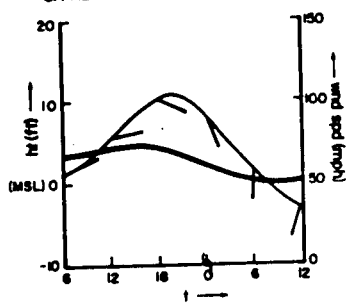
1. PORT MANSFIELD (48,8)



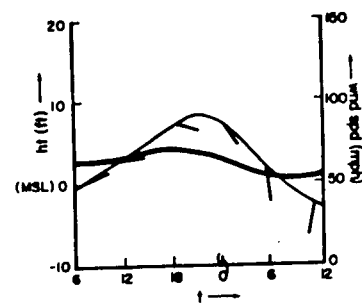
2. BAFFIN BAY (19,3)



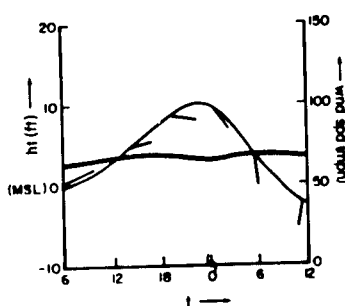
3. PADRI IS. RANGER STA. (24,35)



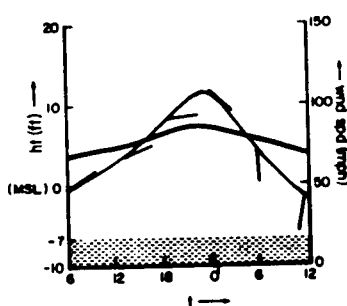
4. MUSTANG PASS (25,45)



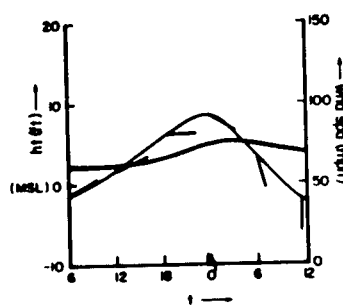
5. NAVAL AIR STA. (20,46)



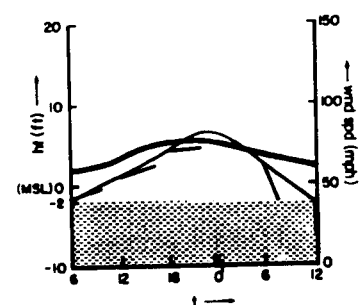
6. CORPUS CHRISTI (12,53)



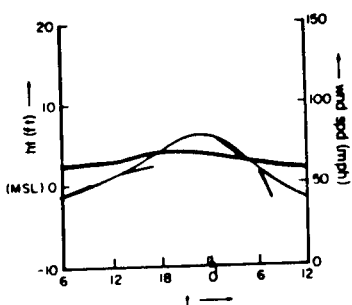
7. INGLESIDE (21,55)



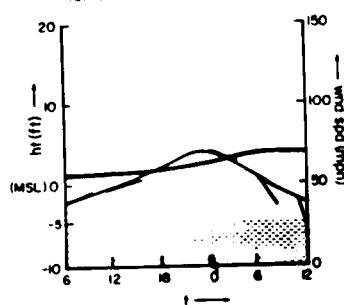
8. ARANSAS PASS (28,57)



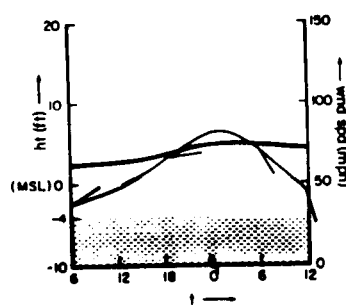
9. PORT ARANSAS (31,53)



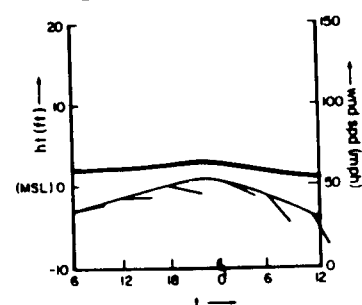
10. COPANO BRIDGE (35,63)



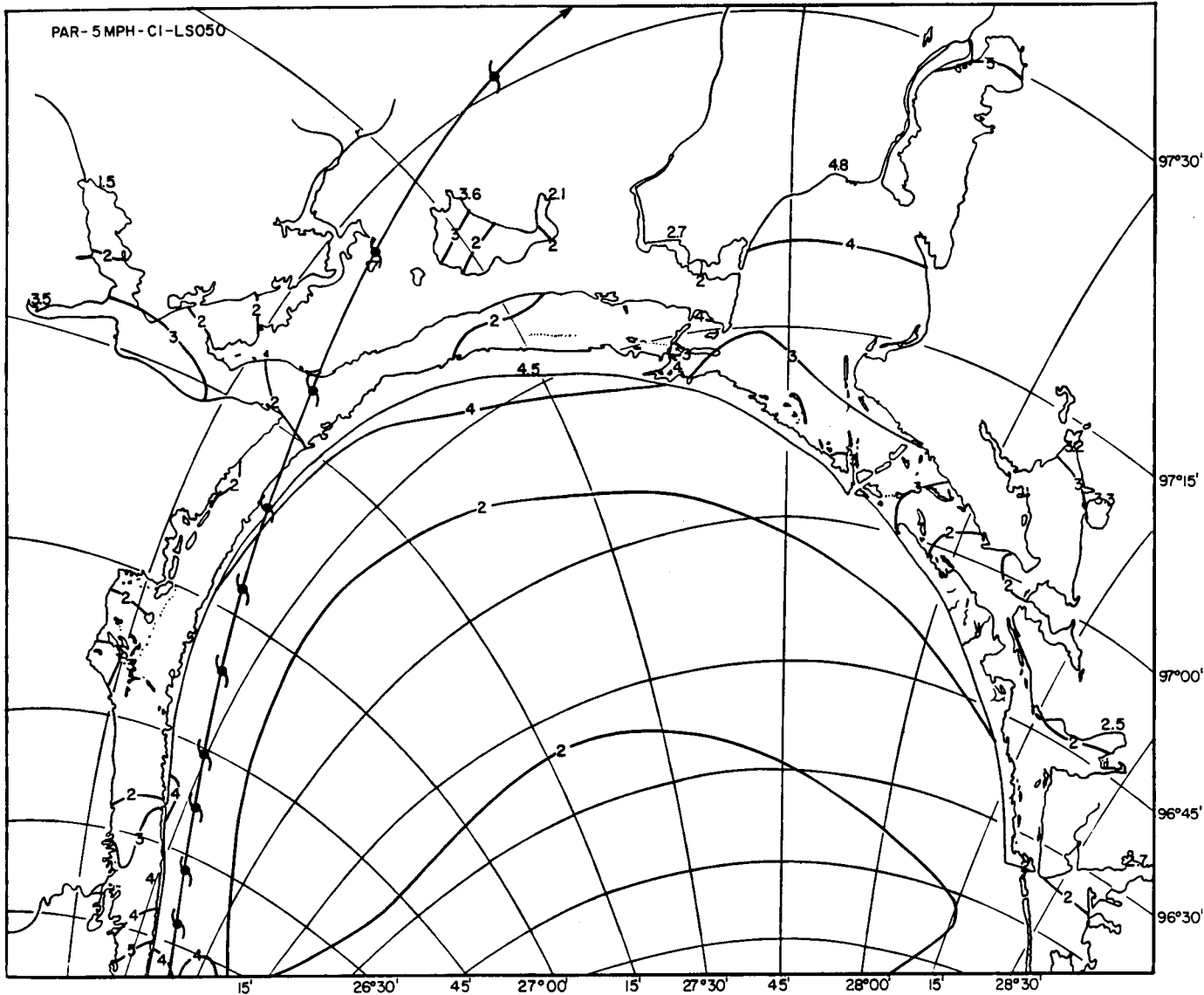
11. BAYSIDE (28,66)



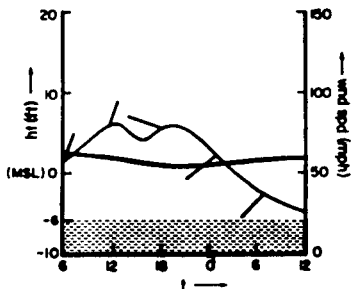
12. MATAGORDA IS. (45,61)



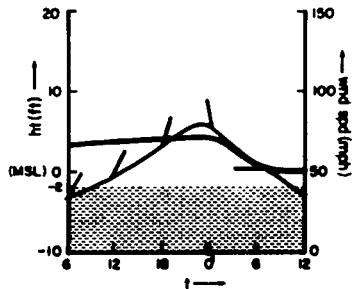
PAR-5 MPH-CI-LS050



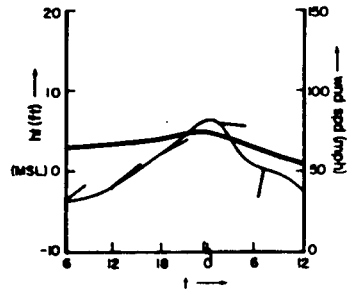
1. PORT MANSFIELD (48, 8)



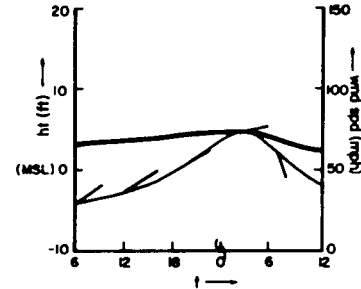
2. BAFFIN BAY (19, 3)



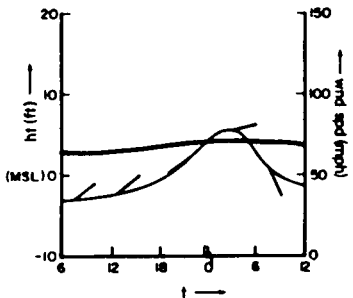
3. PADRI IS. RANGER STA. (24, 35)



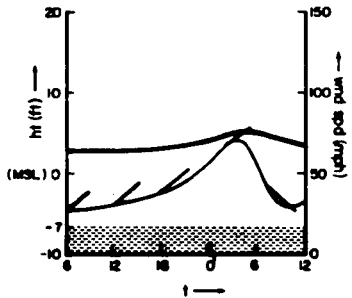
4. MUSTANG PASS (25, 45)



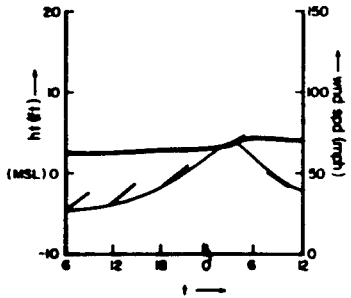
5. NAVAL AIR STA. (20, 46)



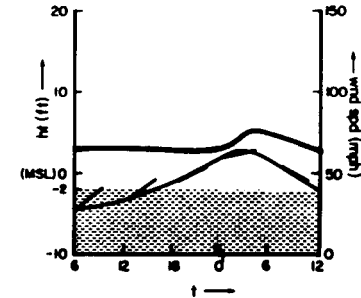
6. CORPUS CHRISTI (12, 53)



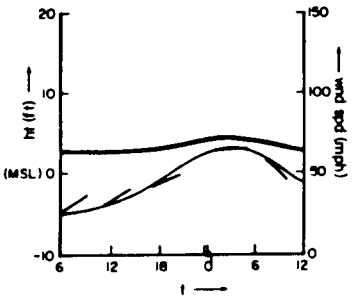
7. INGLESIDE (21, 55)



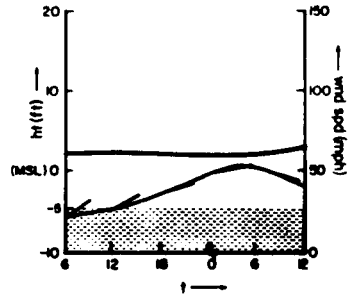
8. ARANSAS PASS (28, 57)



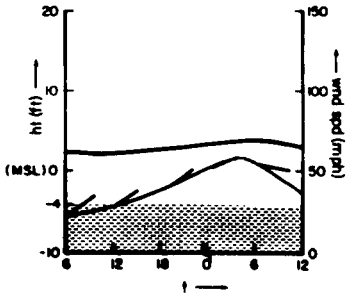
9. PORT ARANSAS (31, 53)



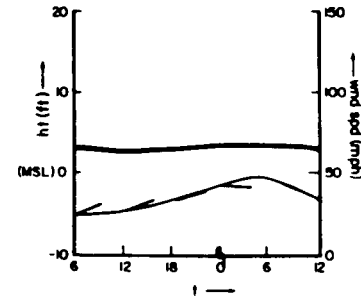
10. COPANO BRIDGE (35, 63)



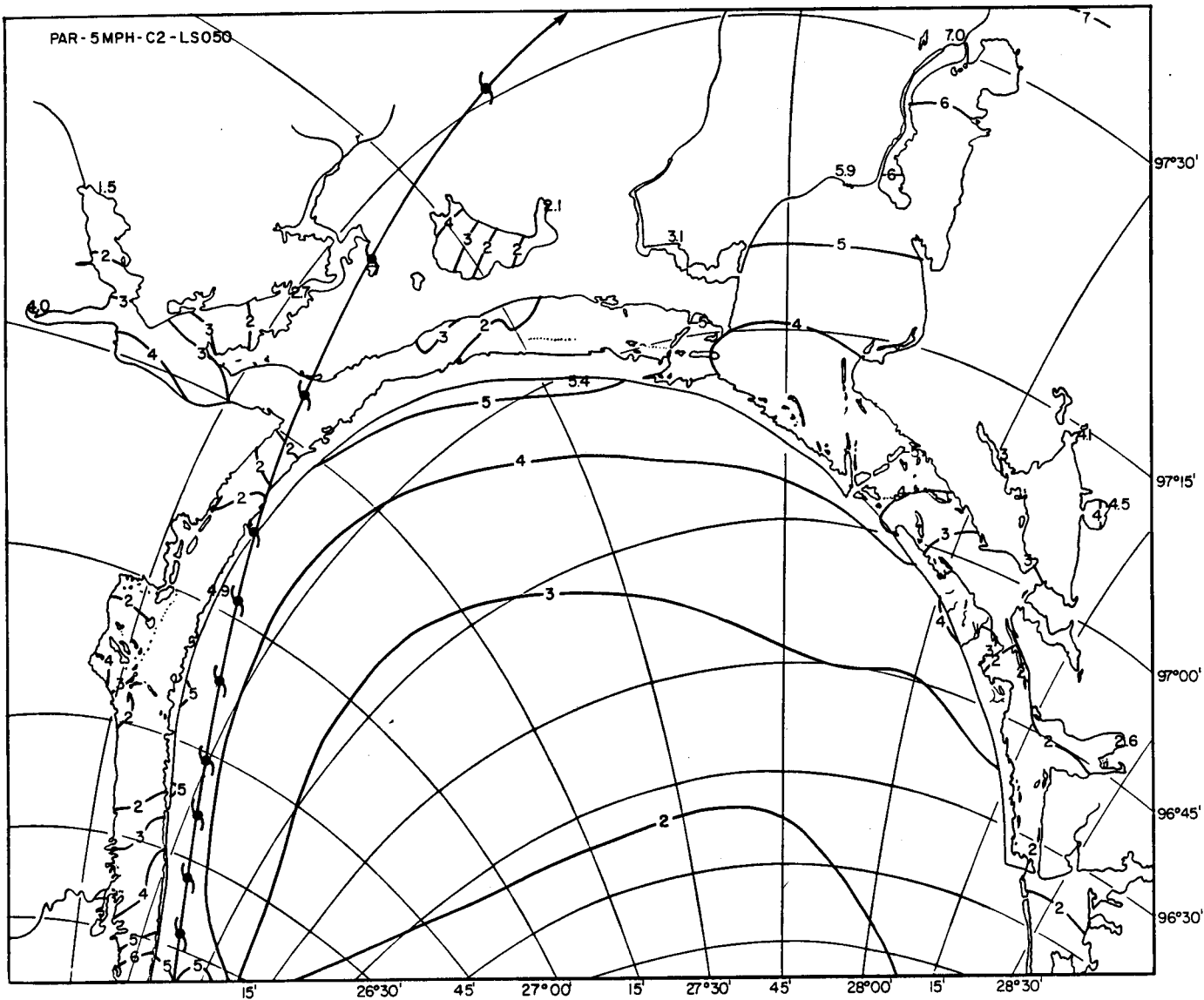
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

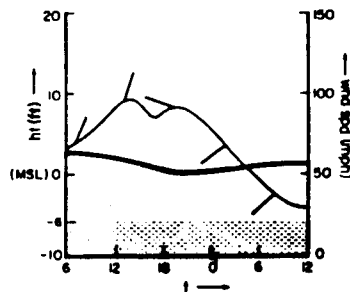


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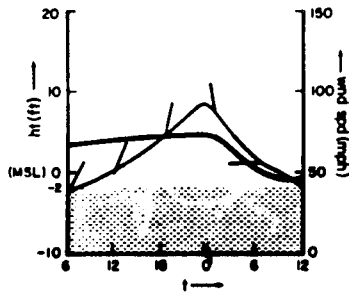




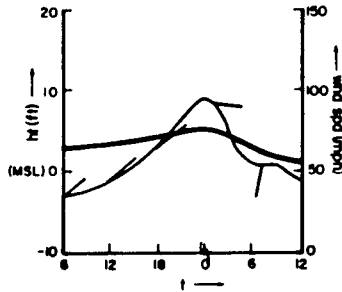
1. PORT MANSFIELD (48, 8)



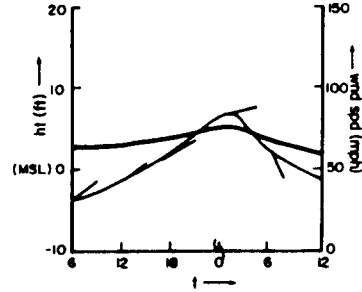
2. BAFFIN BAY (19, 3)



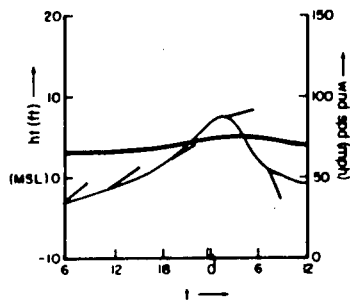
3. PADRI IS. RANGER STA. (24, 35)



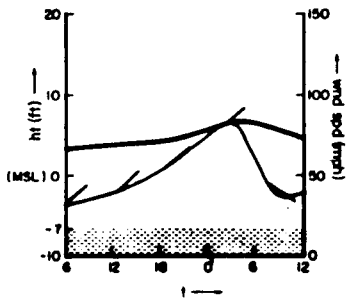
4. MUSTANG PASS (25, 45)



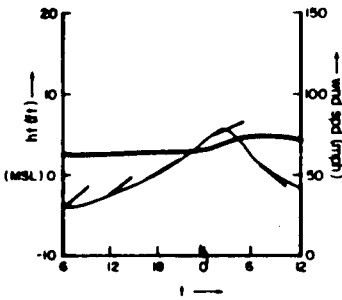
5. NAVAL AIR STA. (20, 46)



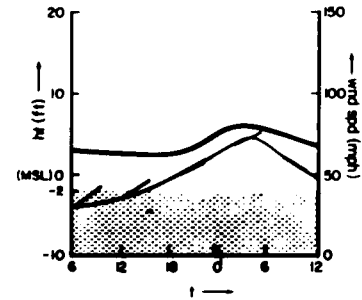
6. CORPUS CHRISTI (12, 53)



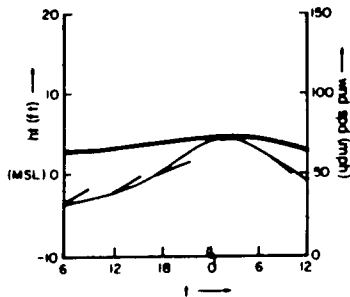
7. INGLESIDE (21, 55)



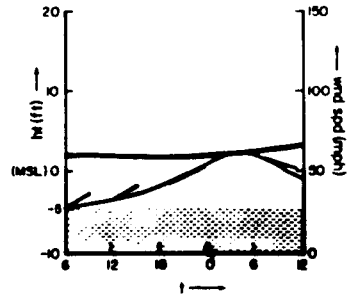
8. ARANSAS PASS (28, 57)



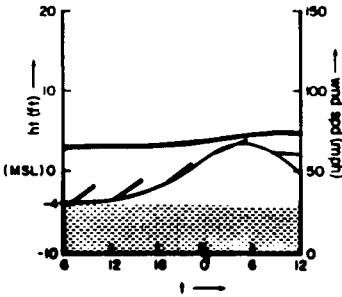
9. PORT ARANSAS (31, 53)



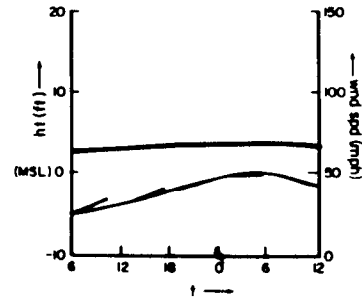
10. COPANO BRIDGE (35, 63)



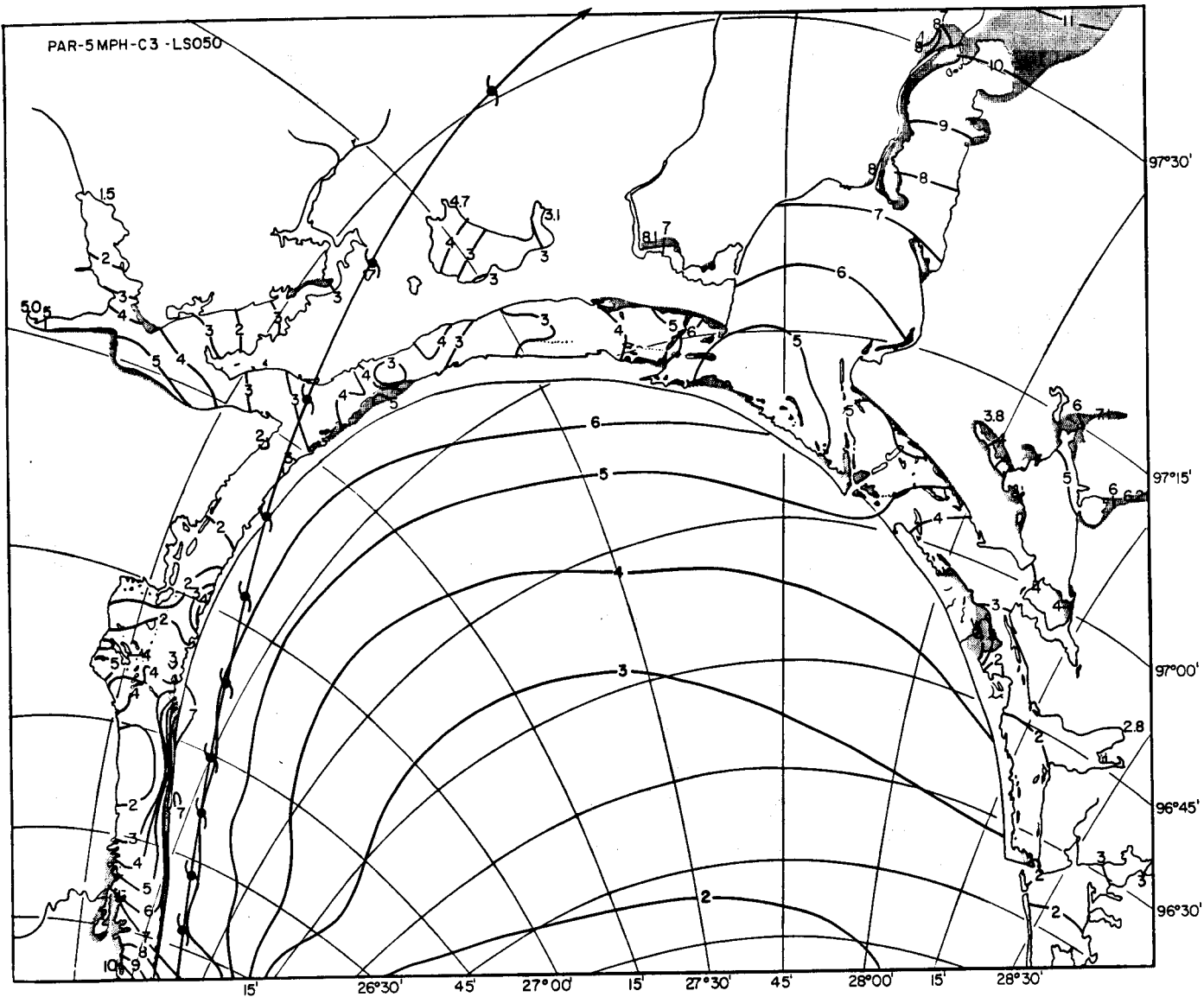
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

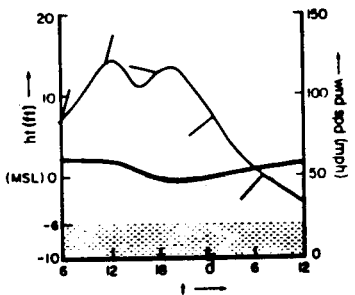


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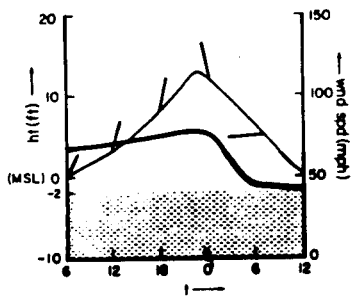


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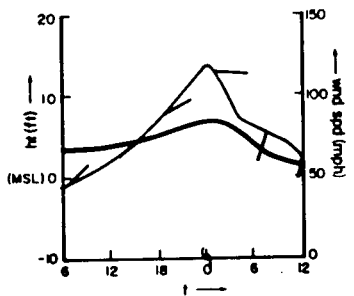
1. PORT MANSFIELD (48, 8)



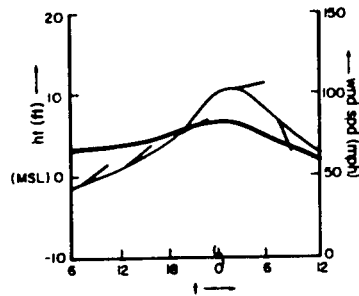
2. BAFFIN BAY (19, 3)



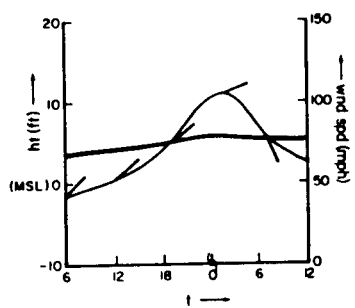
3. PADRI IS. RANGER STA. (24, 35)



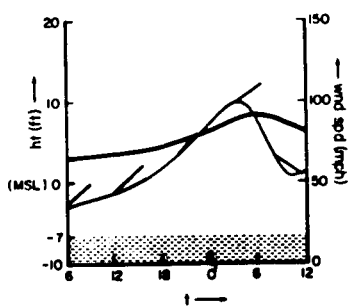
4. MUSTANG PASS (25, 45)



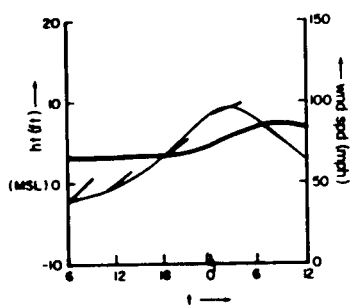
5. NAVAL AIR STA. (20, 46)



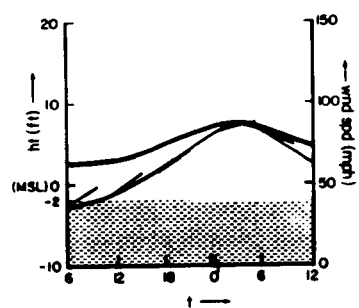
6. CORPUS CHRISTI (12, 53)



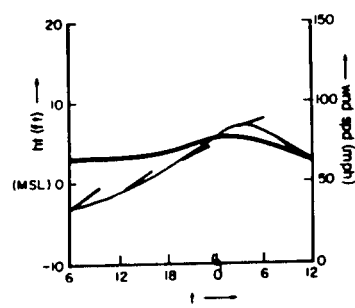
7. INGLESIDE (21, 55)



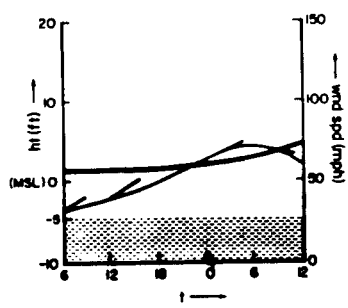
8. ARANSAS PASS (28, 57)



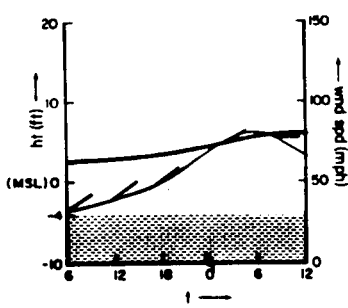
9. PORT ARANSAS (31, 53)



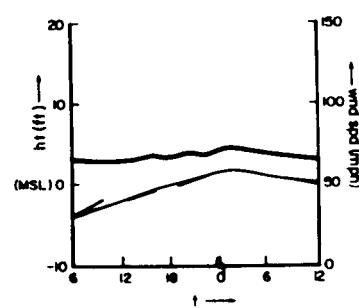
10. COPANO BRIDGE (35, 63)



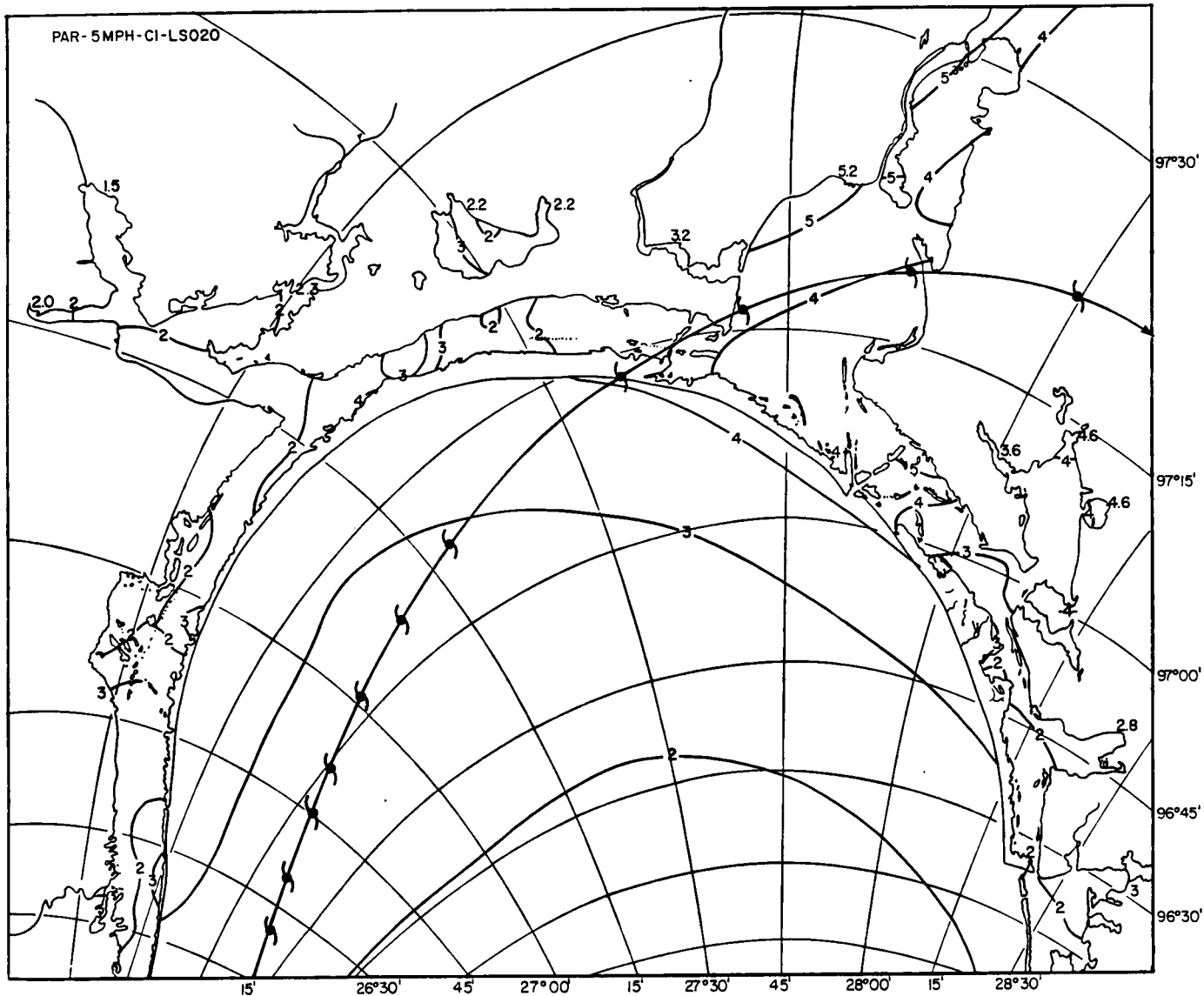
11. BAYSIDE (28, 66)



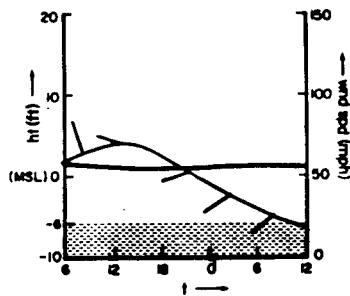
12. MATAGORDA IS. (45, 61)



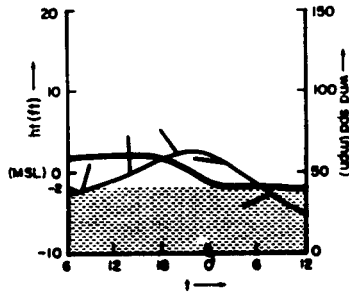
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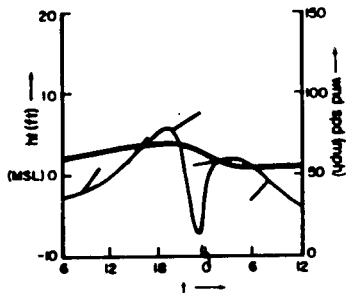
1. PORT MANSFIELD (48, 8)



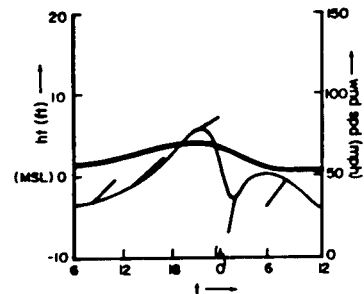
2. BAFFIN BAY (19, 3)



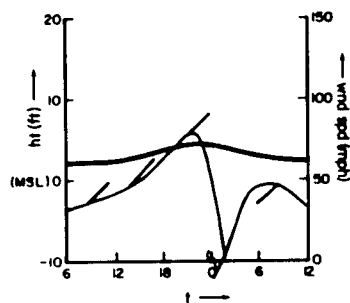
3. PADRI IS. RANGER STA. (24, 35)



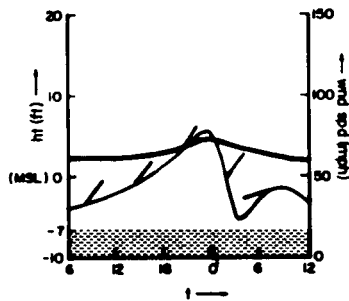
4. MUSTANG PASS (25, 45)



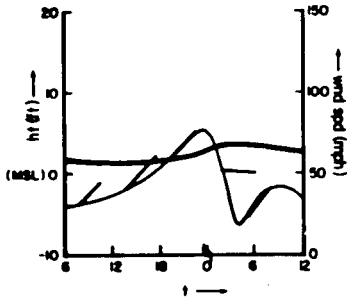
5. NAVAL AIR STA. (20, 46)



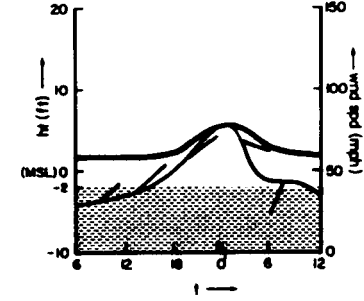
6. CORPUS CHRISTI (12, 53)



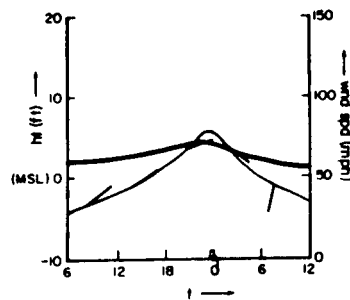
7. INGLESIDE (21, 55)



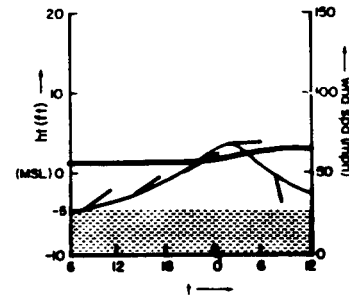
8. ARANSAS PASS (28, 57)



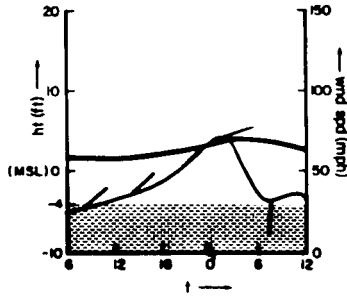
9. PORT ARANSAS (31, 53)



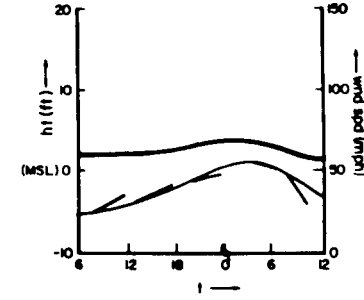
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)

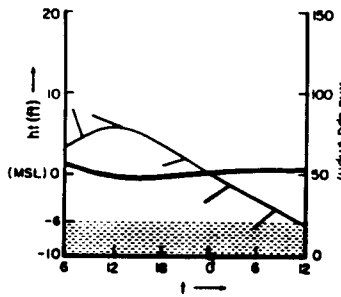


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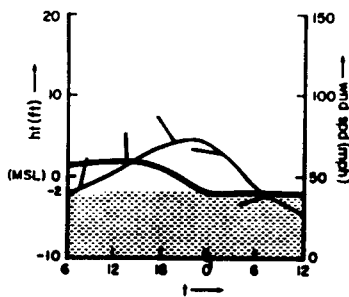




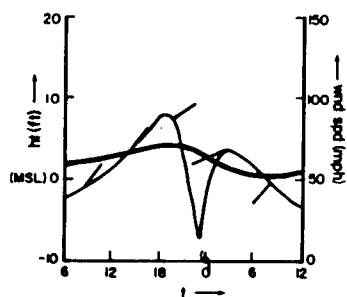
1. PORT MANSFIELD (48, 8)



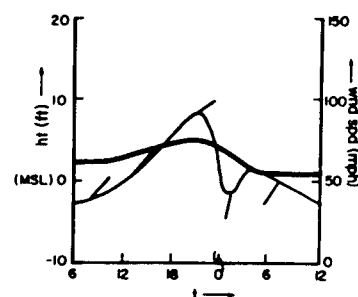
2. BAFFIN BAY (19, 3)



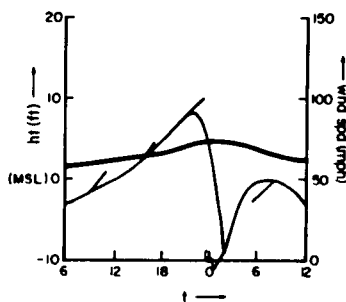
3. PADRI IS. RANGER STA. (24, 35)



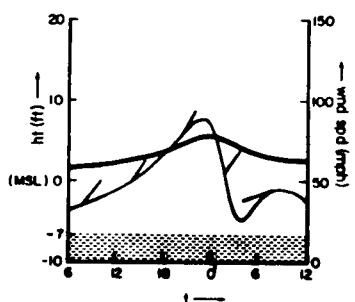
4. MUSTANG PASS (25, 45)



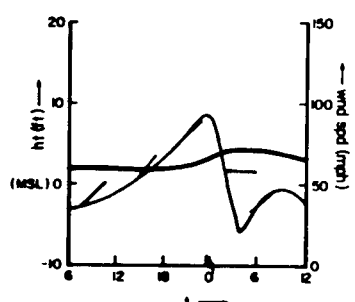
5. NAVAL AIR STA. (20, 46)



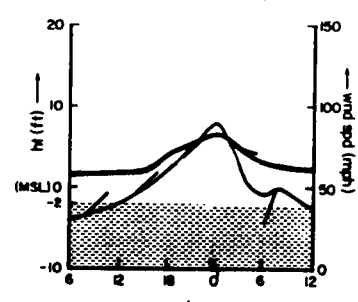
6. CORPUS CHRISTI (12, 53)



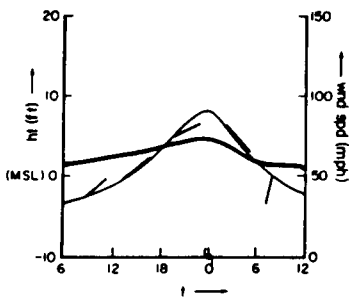
7. INGLESIDE (21, 55)



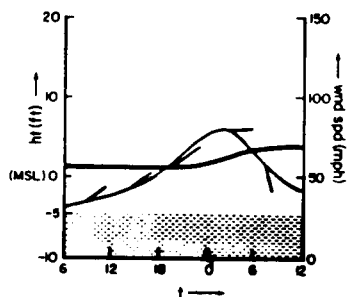
8. ARANSAS PASS (28, 57)



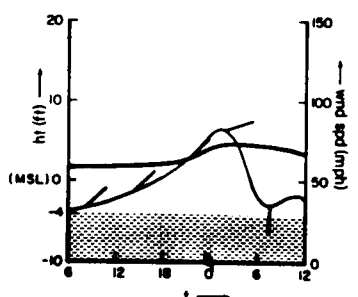
9. PORT ARANSAS (31, 53)



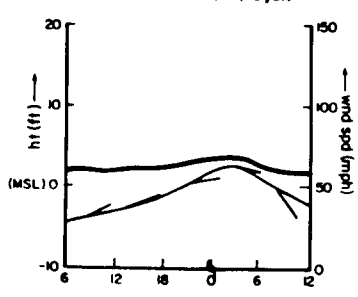
10. COPANO BRIDGE (35, 63)

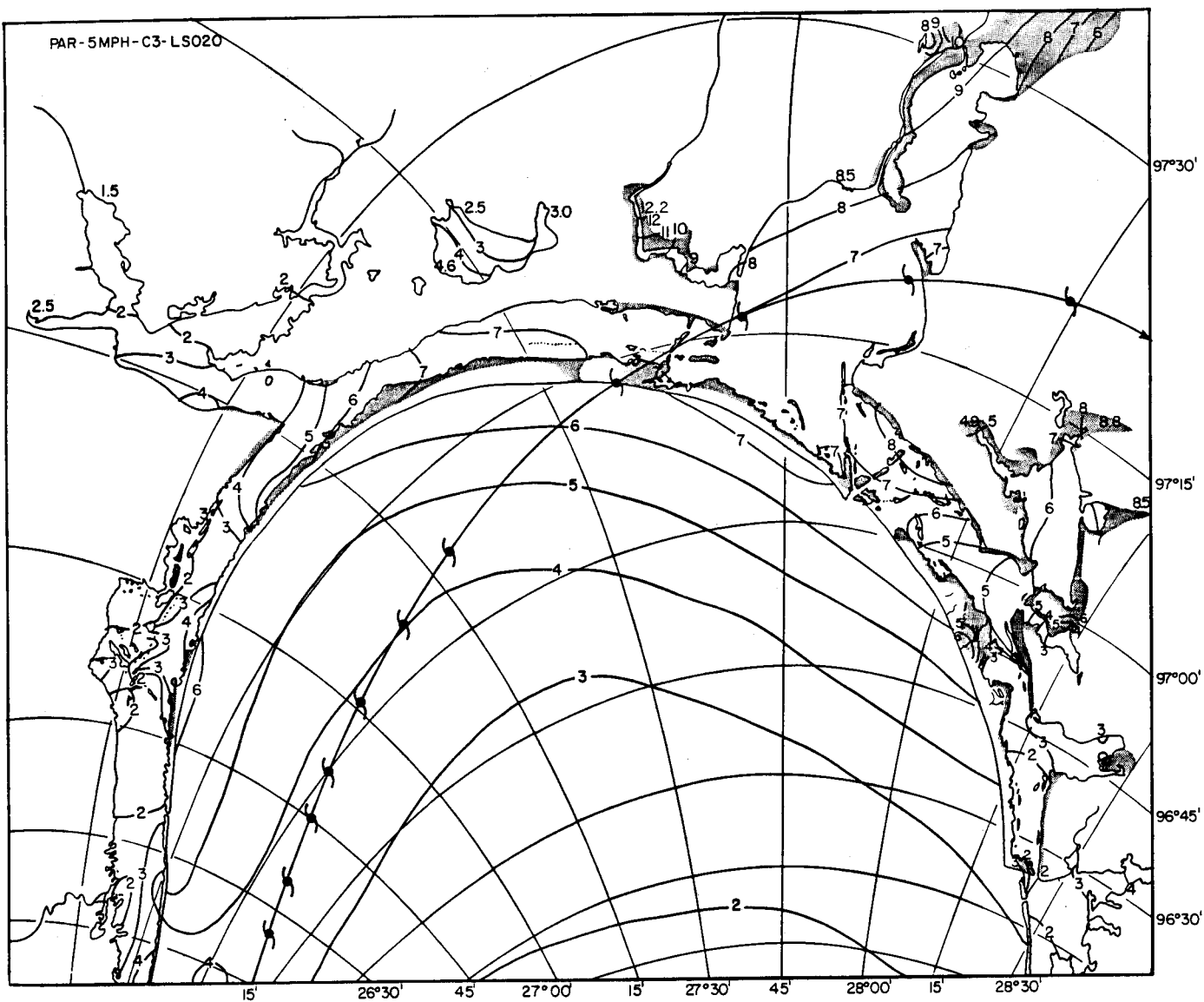


11. BAYSIDE (28, 66)



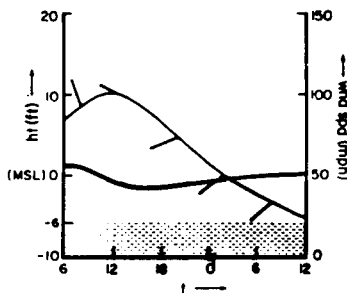
12. MATAGORDA IS. (45, 61)



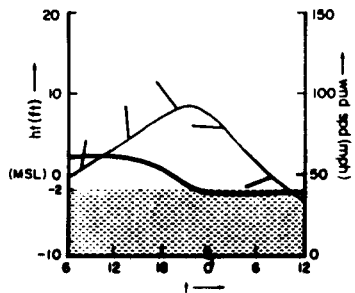




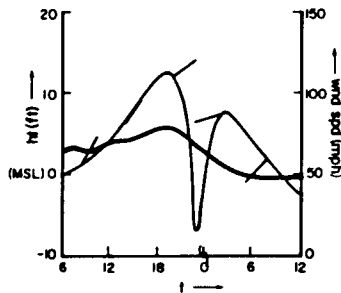
1. PORT MANSFIELD (48, 8)



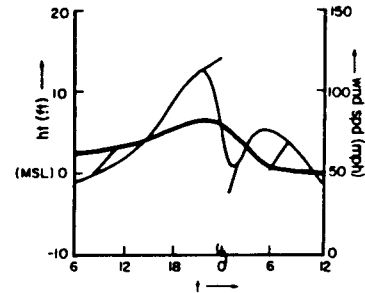
2. BAFFIN BAY (19, 3)



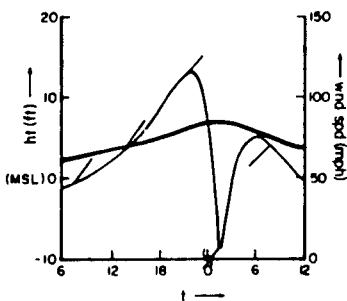
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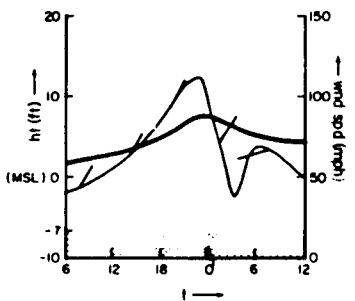
4. MUSTANG PASS (25, 45)



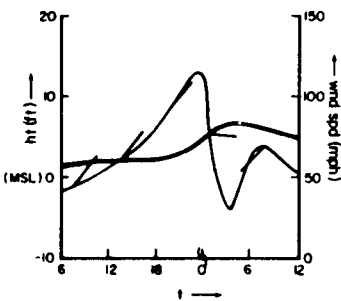
5. NAVAL AIR STA. (20, 46)



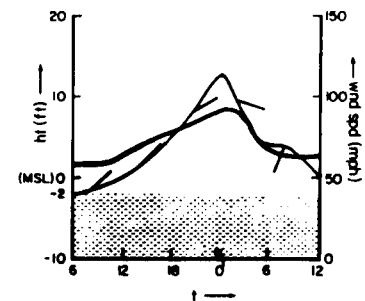
6. CORPUS CHRISTI (12, 53)



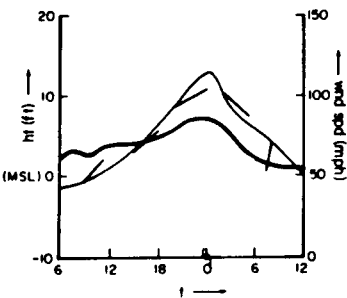
7. INGLESIDE (21, 55)



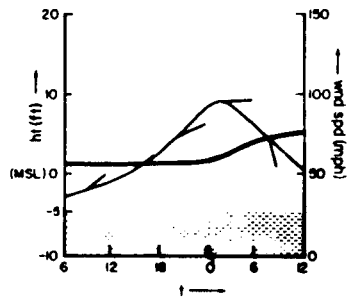
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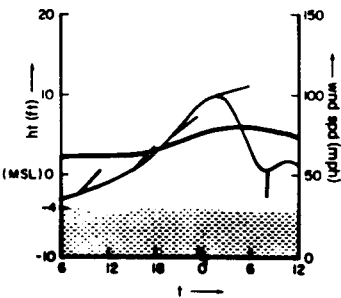
9. PORT ARANSAS (31, 53)



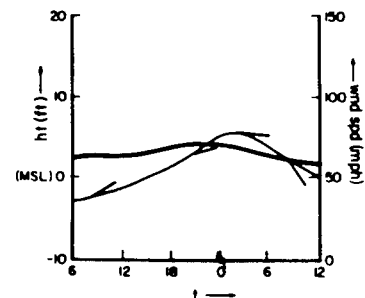
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)

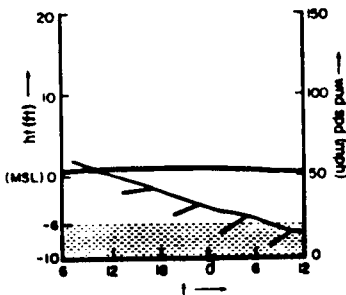


12. MATAGORDA IS. (45, 61)

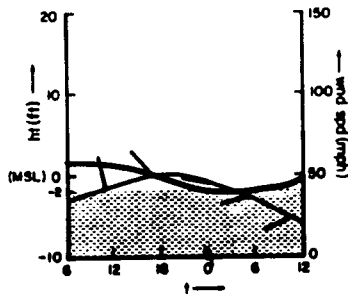




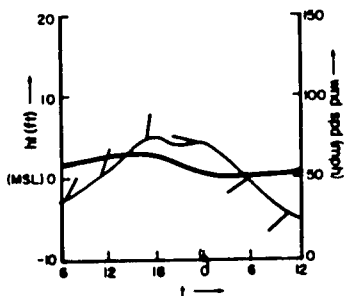
1. PORT MANSFIELD (48, 8)



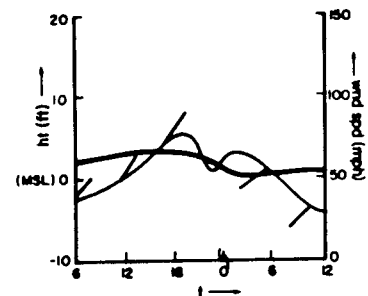
2. BAFFIN BAY (19, 3)



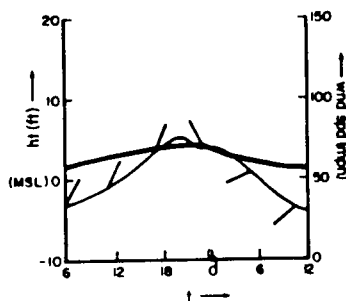
3. PADRI IS. RANGER STA. (24, 35)



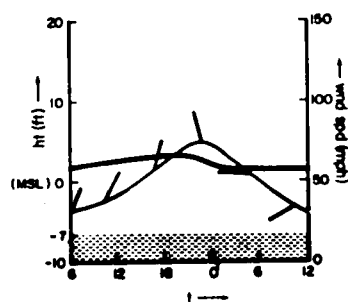
4. MUSTANG PASS (25, 45)



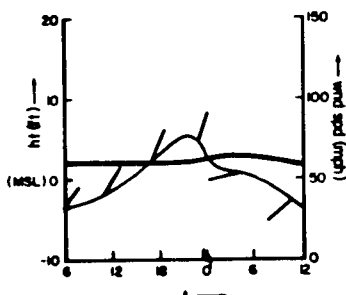
5. NAVAL AIR STA. (20, 46)



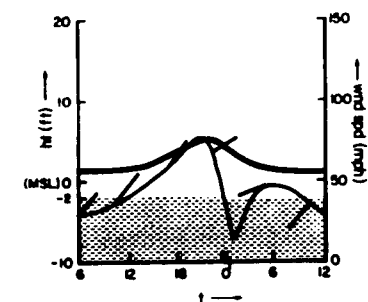
6. CORPUS CHRISTI (12, 53)



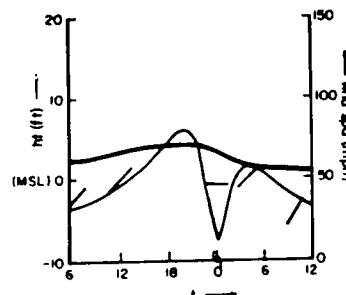
7. INGLESIDE (21, 55)



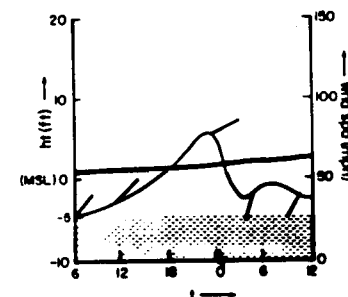
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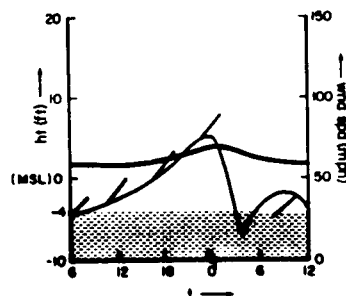
9. PORT ARANSAS (31, 53)



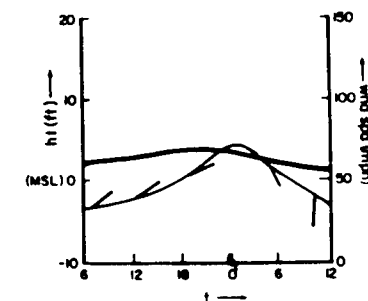
10. COPANO BRIDGE (35, 63)



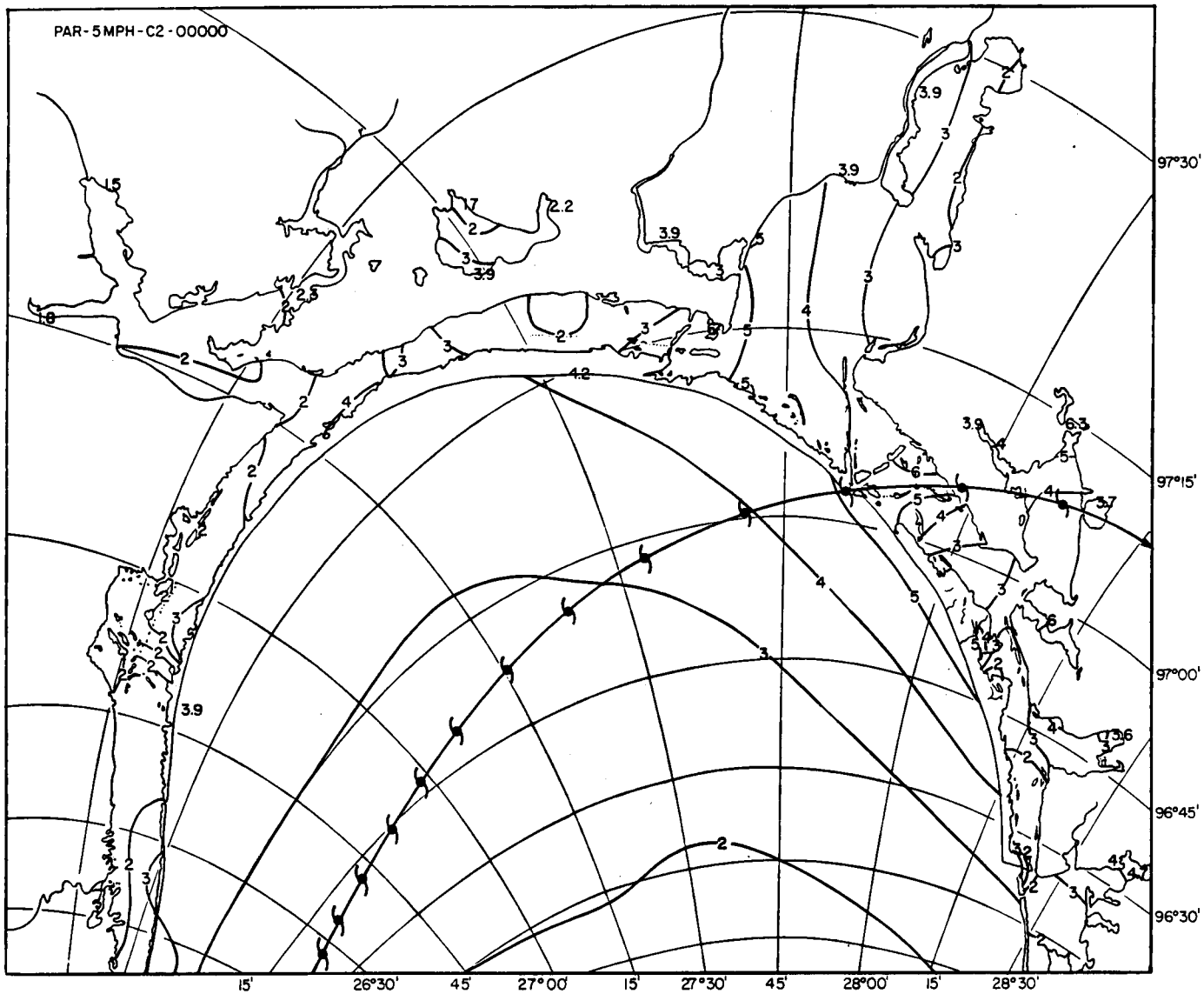
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

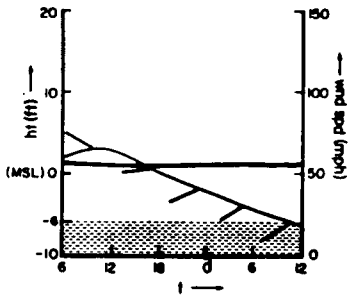


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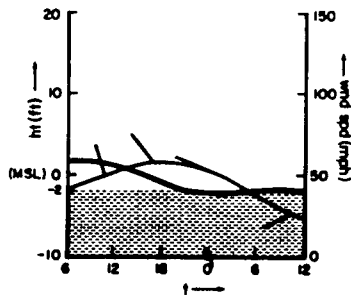


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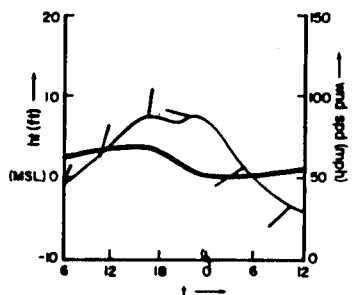
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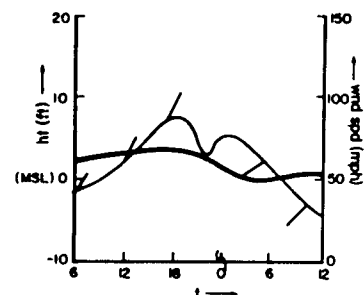
2. BAFFIN BAY (19, 3)



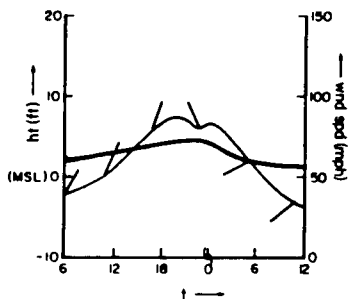
3. PADRI IS. RANGER STA. (24, 35)



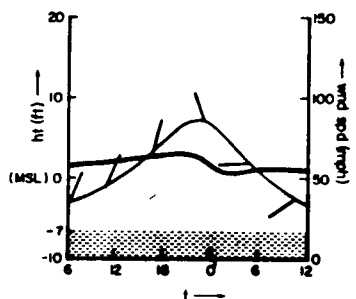
4. MUSTANG PASS (25, 45)



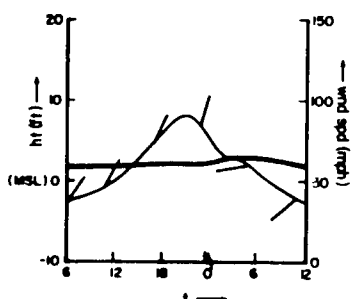
5. NAVAL AIR STA. (20, 46)



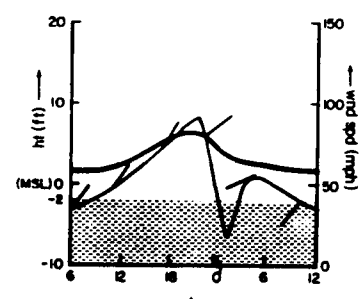
6. CORPUS CHRISTI (12, 53)



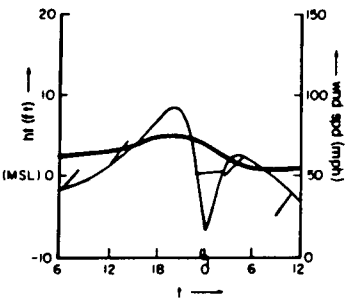
7. INGLESIDE (21, 55)



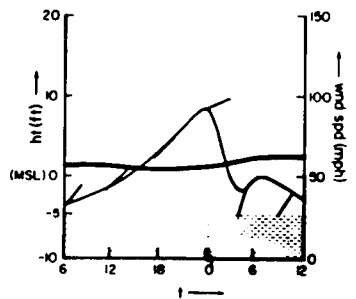
8. ARANSAS PASS (28, 57)



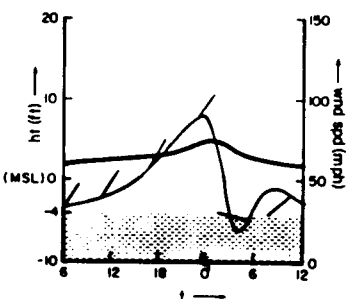
9. PORT ARANSAS (31, 53)



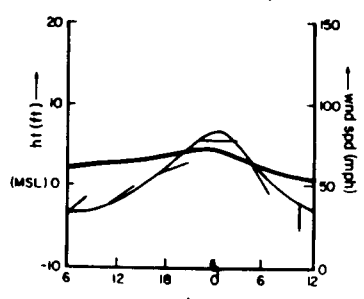
10. COPANO BRIDGE (35, 63)



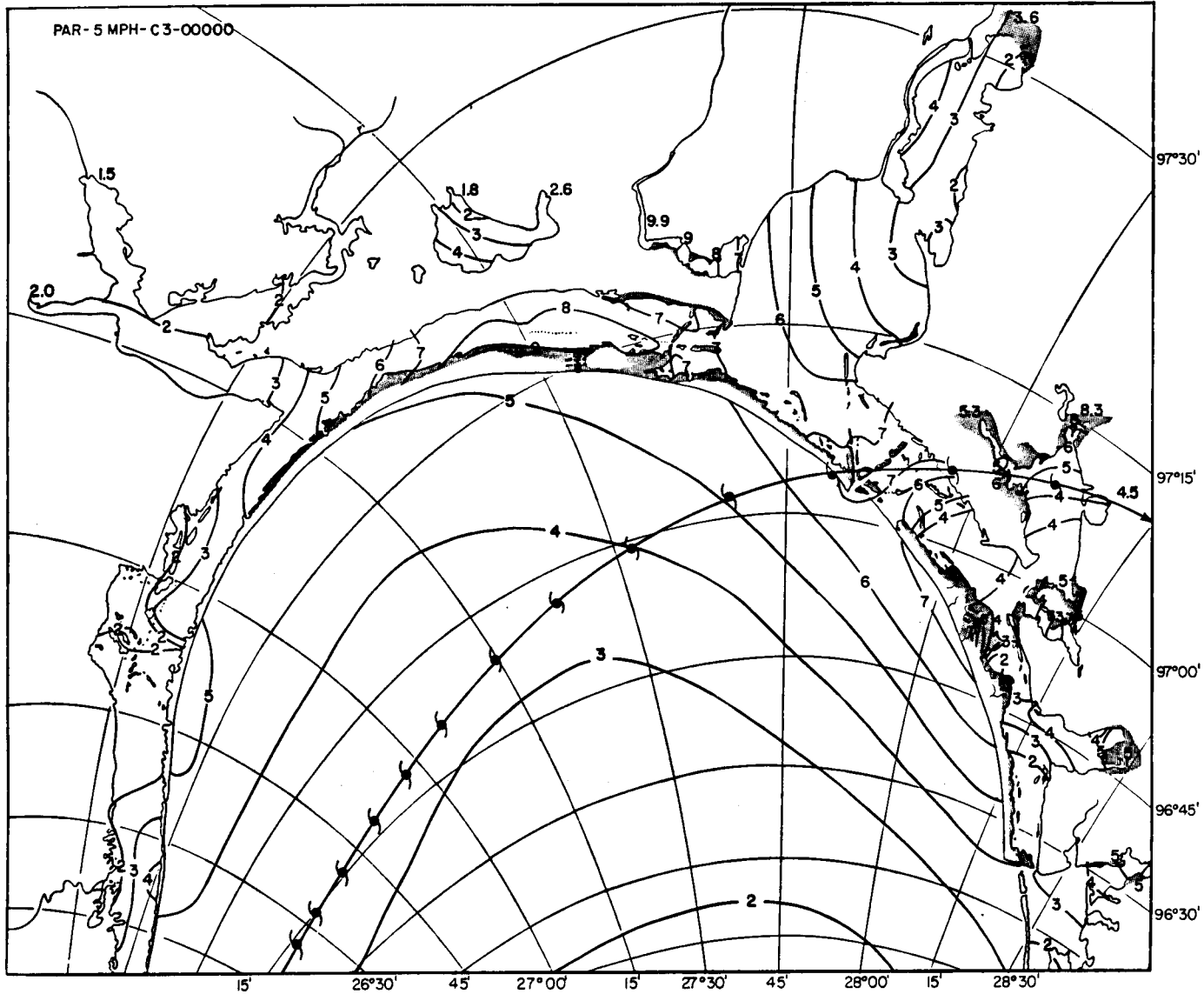
11. BAYSIDE (28, 66)



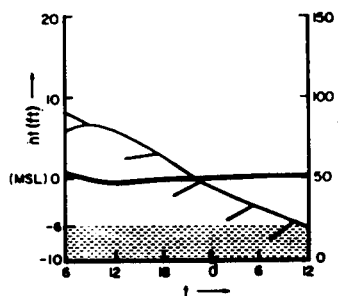
12. MATAGORDA IS. (45, 61)



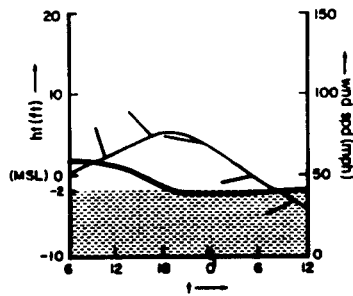
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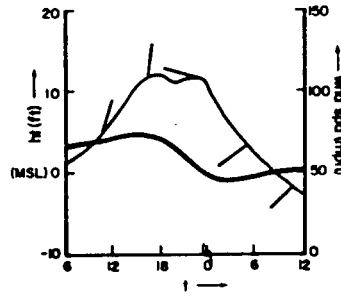
1. PORT MANSFIELD (48, 8)



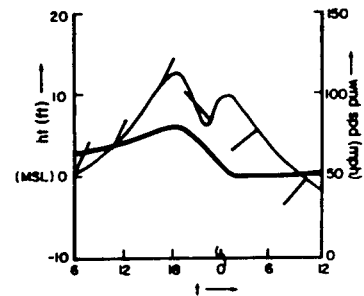
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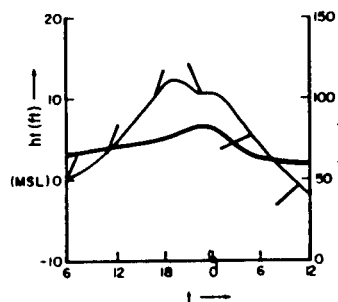
3. PADRI IS. RANGER STA. (24, 35)



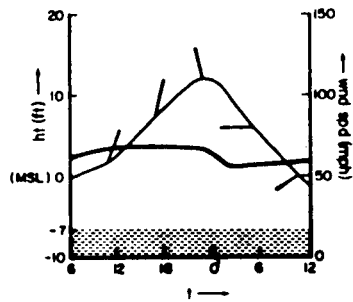
4. MUSTANG PASS (25, 45)



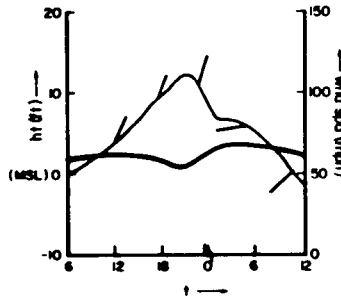
5. NAVAL AIR STA. (20, 46)



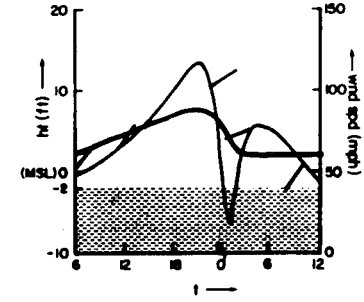
6. CORPUS CHRISTI (12, 53)



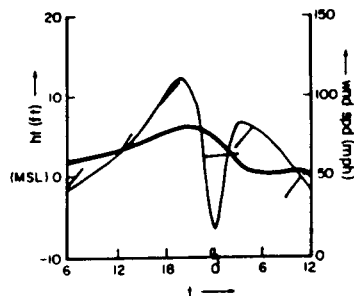
7. INGLESIDE (21, 55)



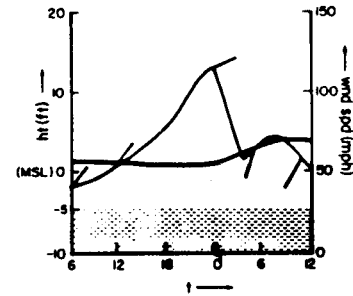
8. ARANSAS PASS (28, 57)



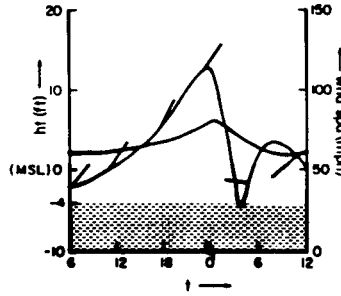
9. PORT ARANSAS (31, 53)



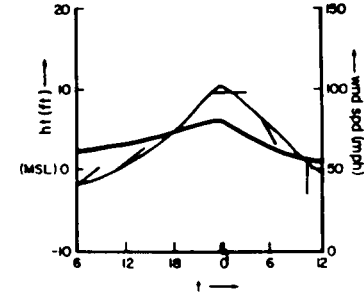
10. COPANO BRIDGE (35, 63)



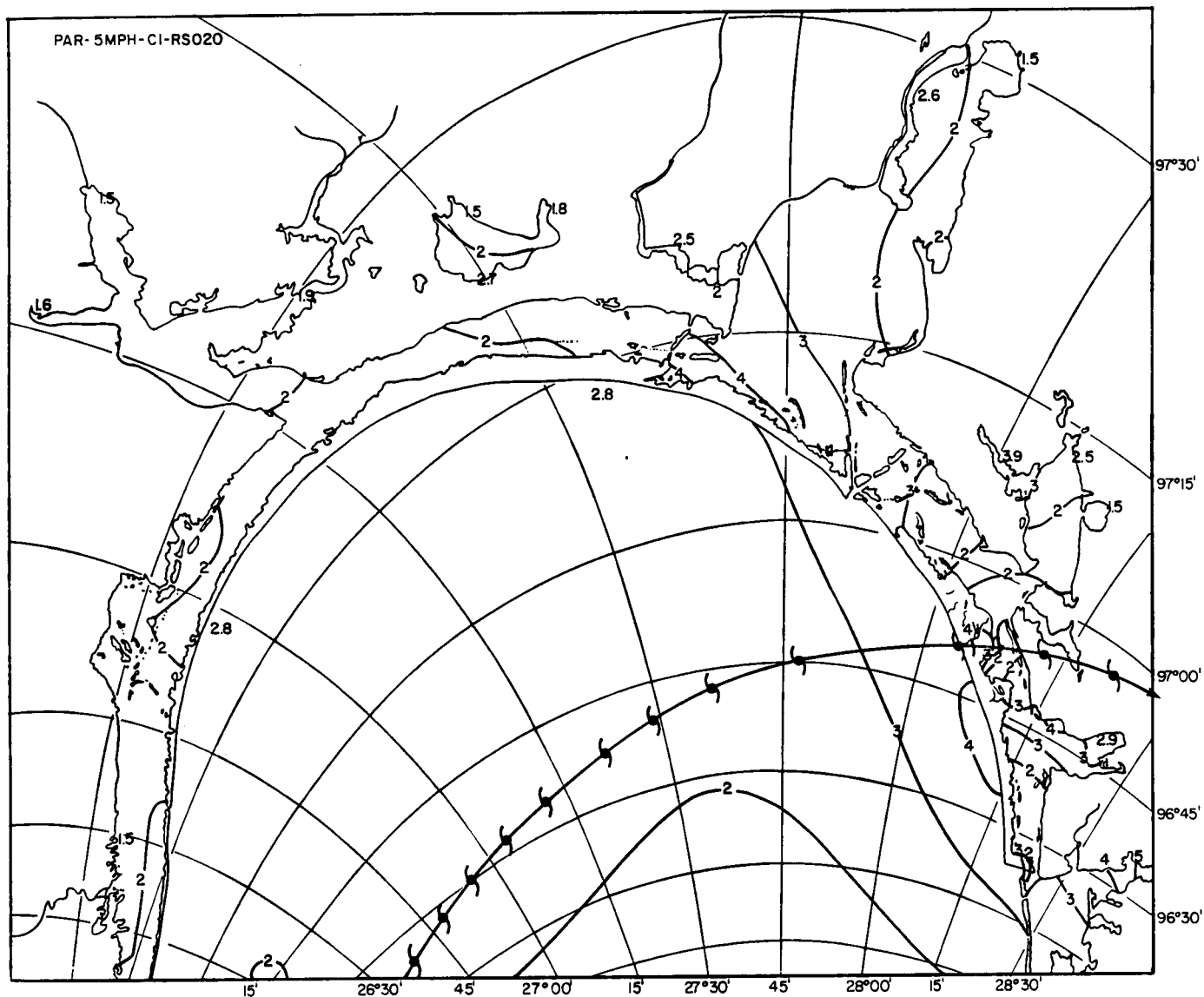
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

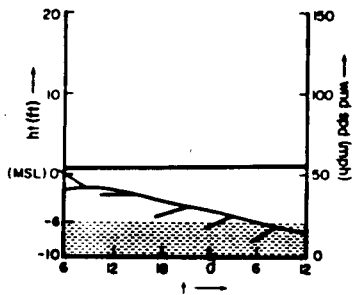


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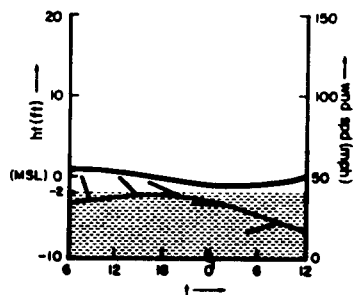




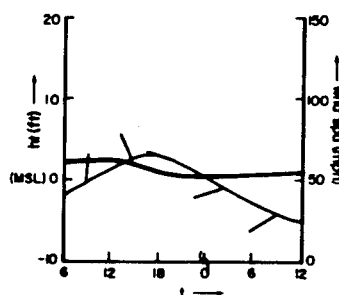
1. PORT MANSFIELD (48,8)



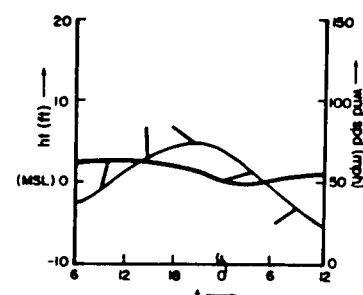
2. BAFFIN BAY (19,3)



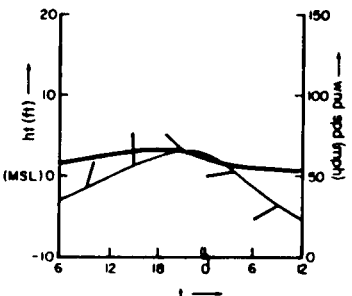
3. PADRI IS. RANGER STA. (24,35)



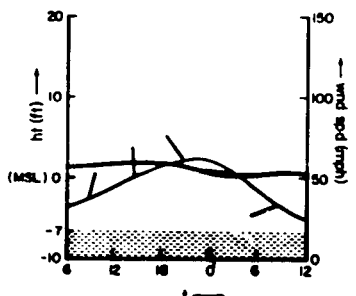
4. MUSTANG PASS (25,45)



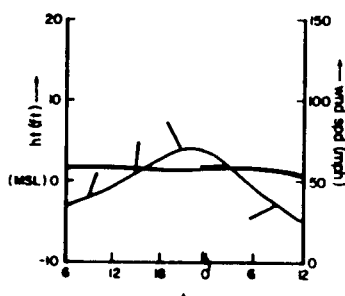
5. NAVAL AIR STA. (20,46)



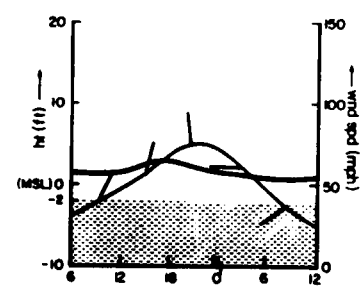
6. CORPUS CHRISTI (12,53)



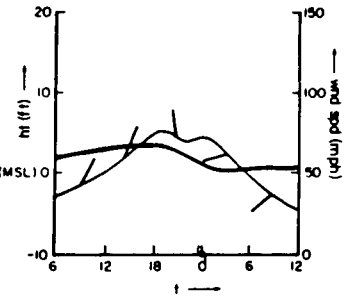
7. INGLESIDE (21,55)



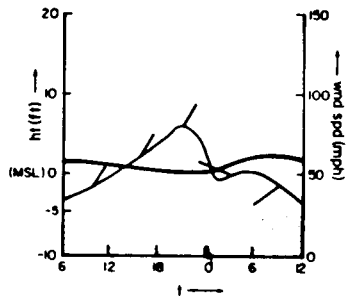
8. ARANSAS PASS (28,57)



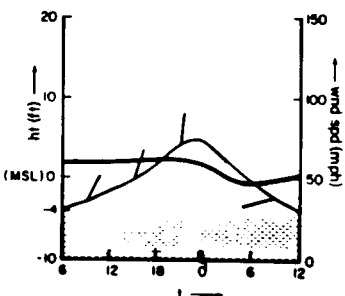
9. PORT ARANSAS (31,53)



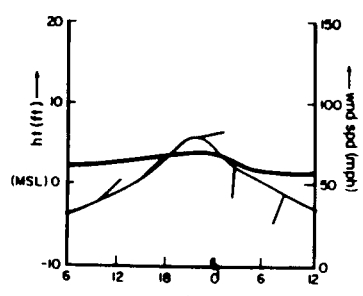
10. COPANO BRIDGE (35,63)



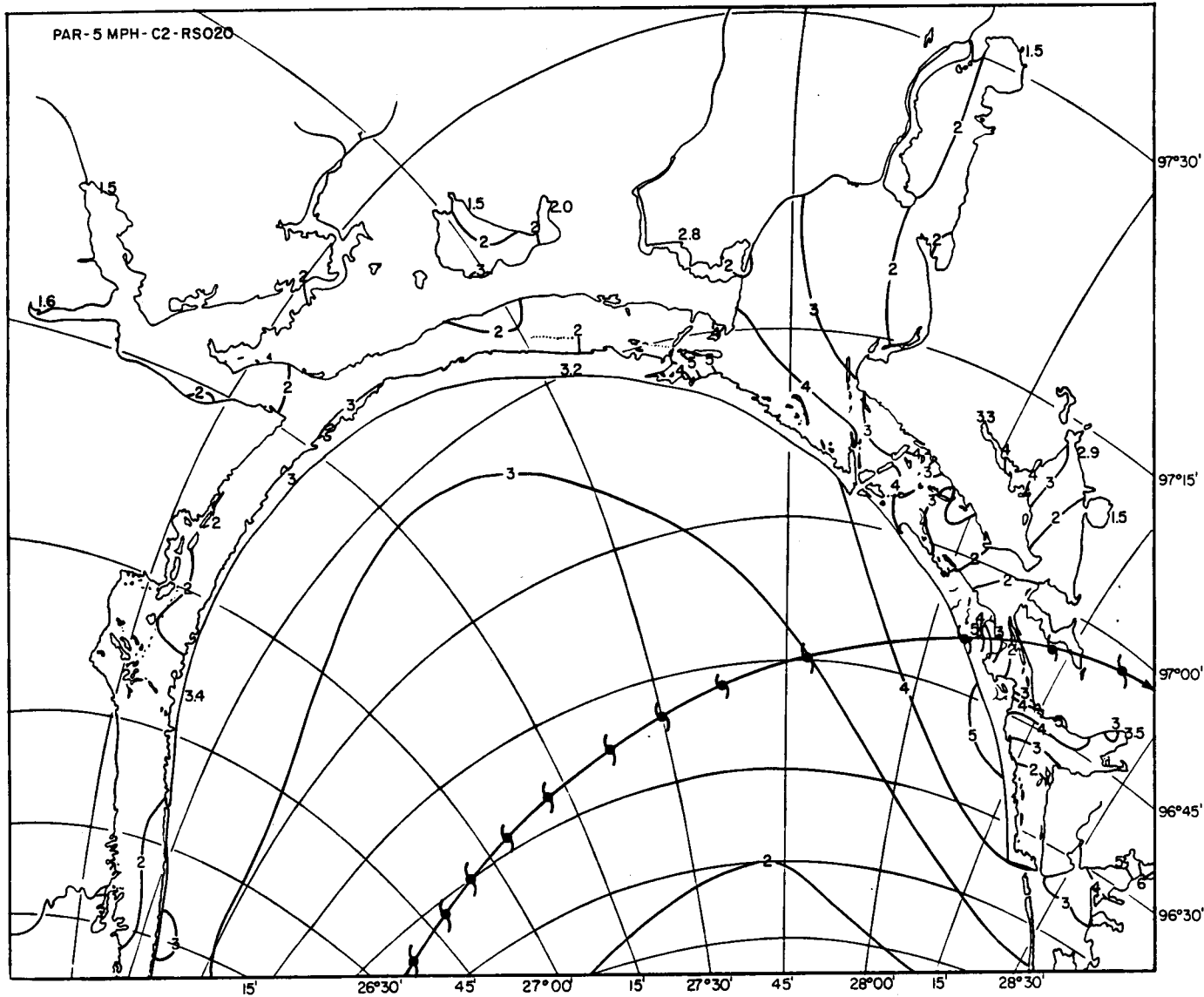
11. BAYSIDE (28,66)



12. MATAGORDA IS. (45,61)

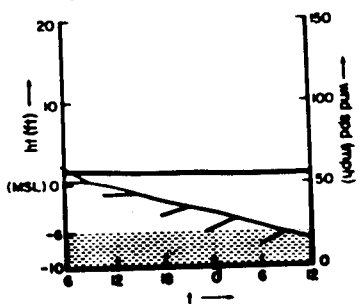


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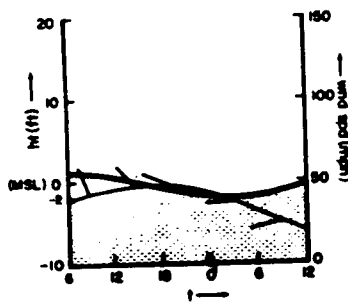


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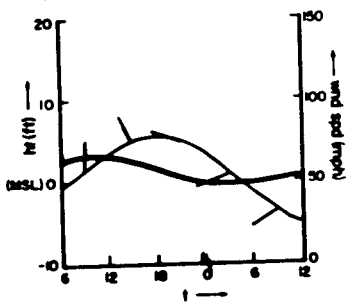
1. PORT MANSFIELD (48, 8)



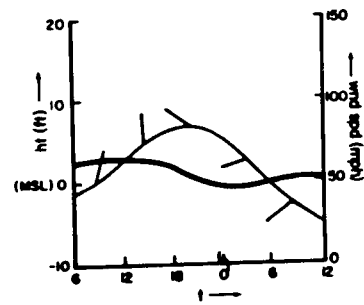
2. BAFFIN BAY (19, 3)



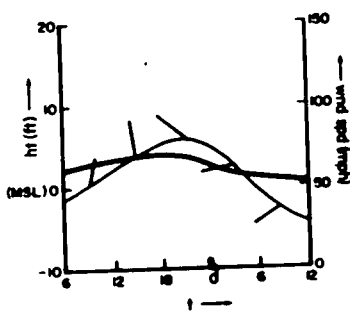
3. PADRI IS. RANGER STA. (24, 35)



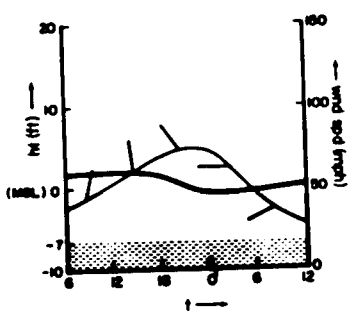
4. MUSTANG PASS (25, 45)



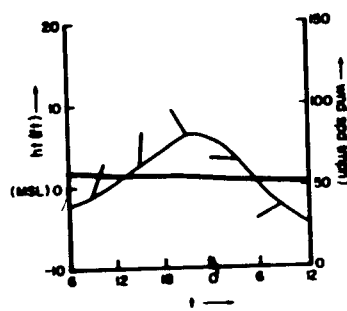
5. NAVAL AIR STA. (20, 46)



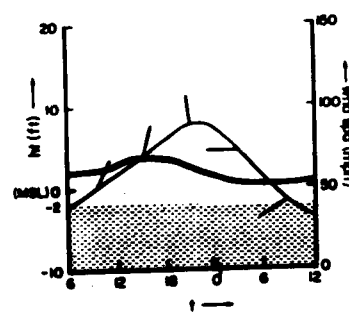
6. CORPUS CHRISTI (22, 53)



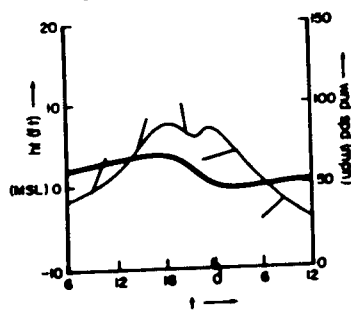
7. INGLESIDE (21, 55)



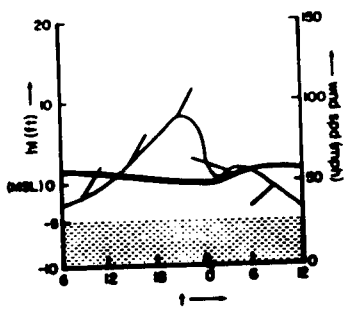
8. ARANSAS PASS (28, 57)



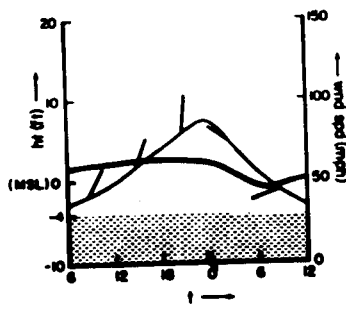
9. PORT ARANSAS (34, 53)



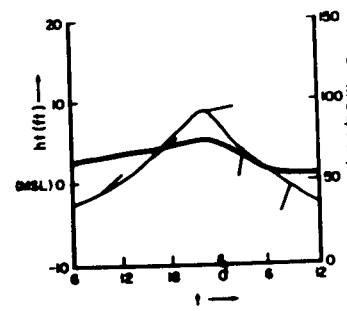
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)

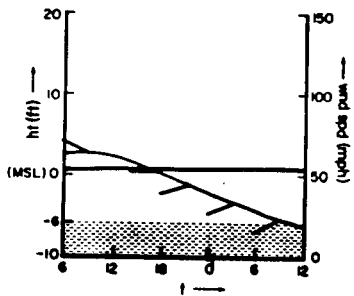


12. MATAGORDA IS. (45, 61)

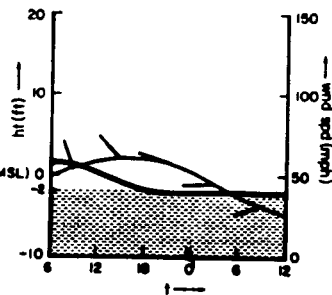




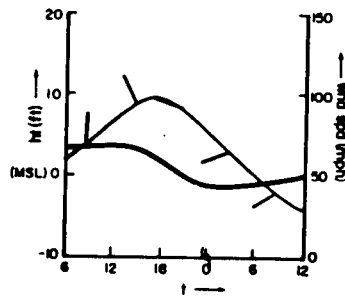
1. PORT MANSFIELD (48,8)



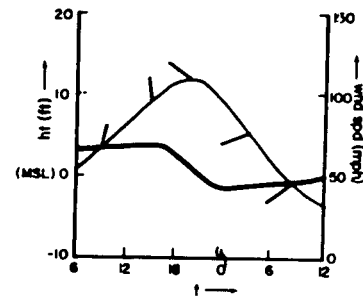
2. BAFFIN BAY (19,3)



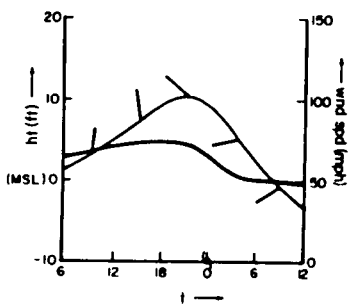
3. PADRI IS. RANGER STA. (24,35)



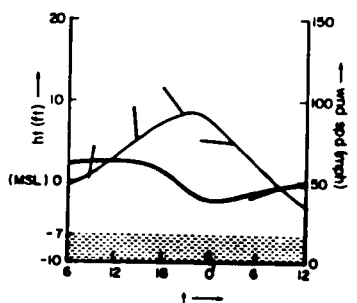
4. MUSTANG PASS (25,45)



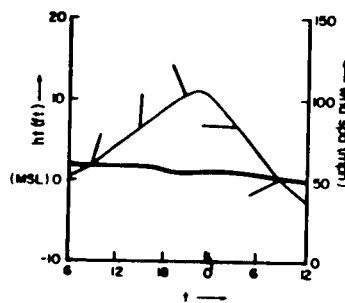
5. NAVAL AIR STA. (20,46)



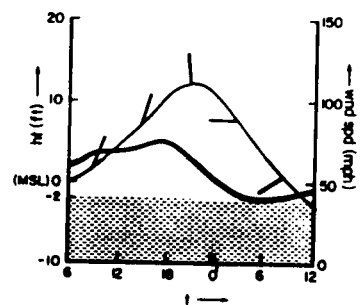
6. CORPUS CHRISTI (12,53)



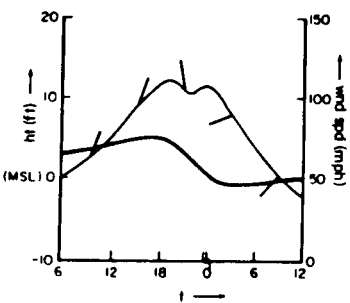
7. INGLESIDE (21,55)



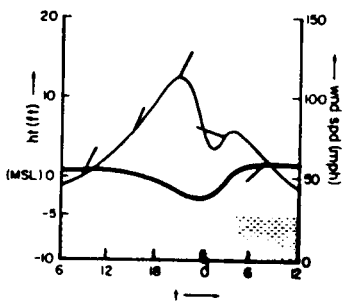
8. ARANSAS PASS (28,57)



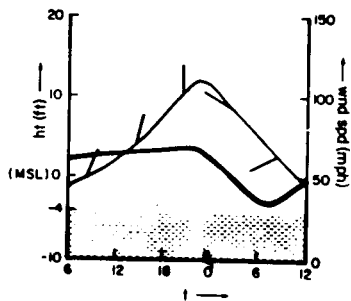
9. PORT ARANSAS (31,53)



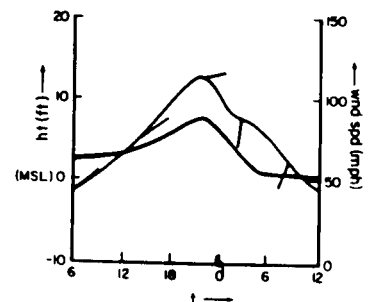
10. COPANO BRIDGE (35,63)



11. BAYSIDE (28,66)

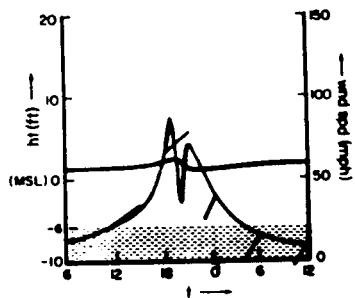


12. MATAGORDA IS. (45,61)

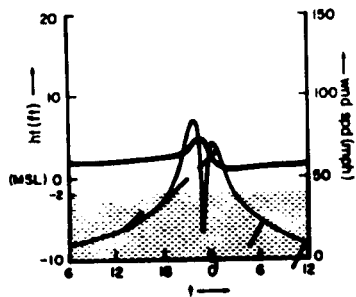




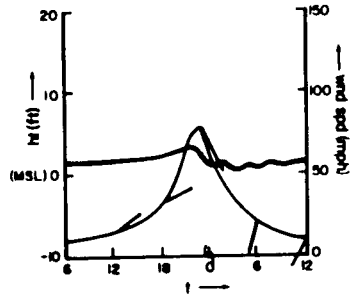
1. PORT MANSFIELD (48,8)



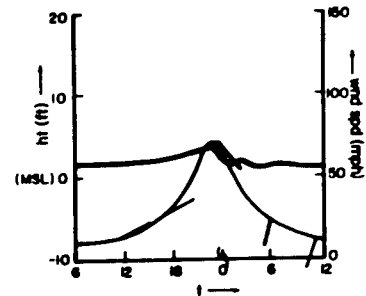
2. BAFFIN BAY (19,3)



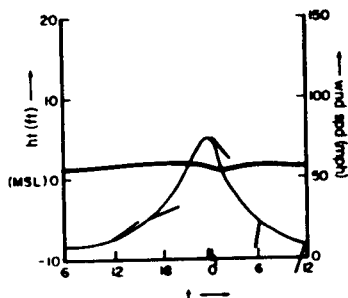
3. PADRI IS. RANGER STA. (24,35)



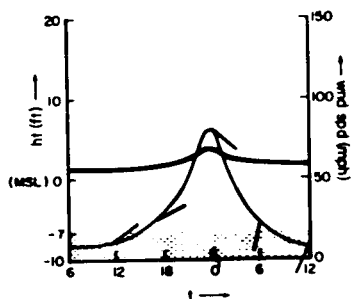
4. MUSTANG PASS (25,46)



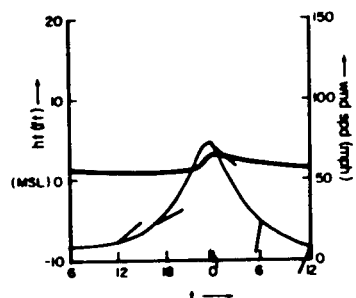
5. NAVAL AIR STA. (20,46)



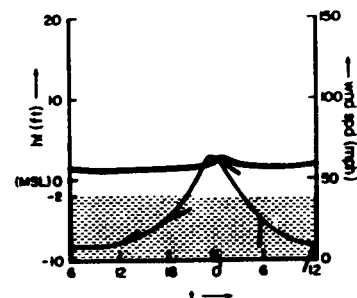
6. CORPUS CHRISTI (12,53)



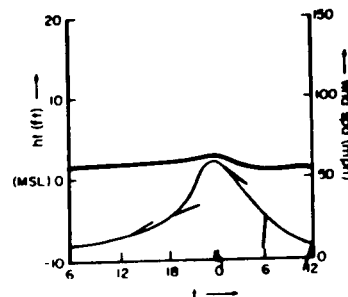
7. INGLESIDE (21,55)



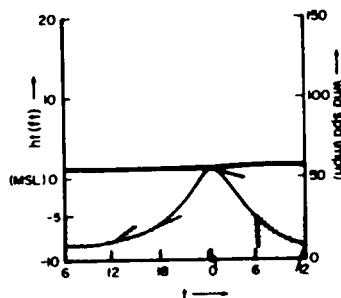
8. ARANSAS PASS (28,57)



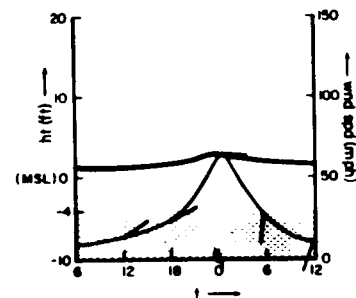
9. PORT ARANSAS (31,53)



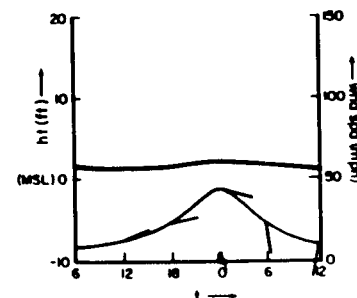
10. COPANO BRIDGE (35,63)



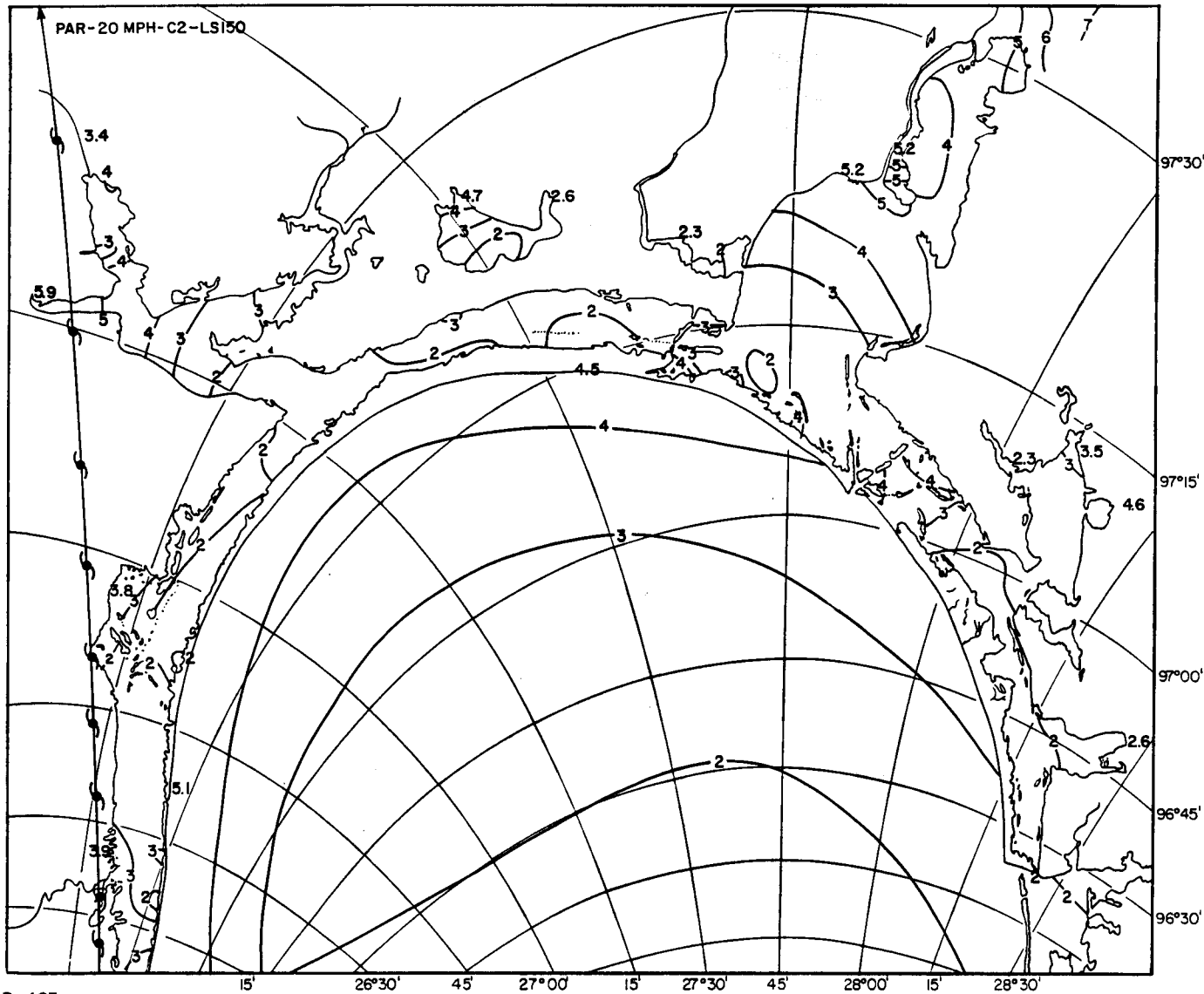
11. BAYSIDE (28,66)



12. MATAGORDA IS. (45,61)

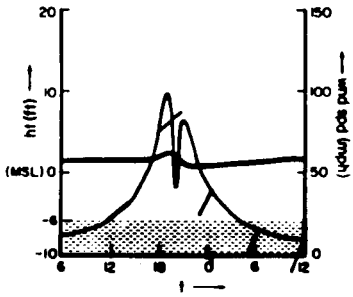


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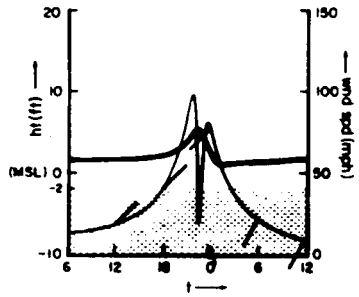




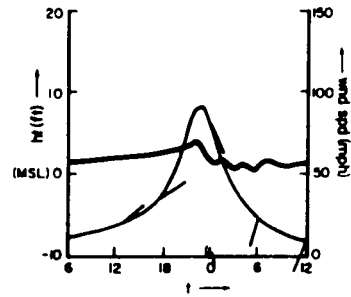
1. PORT MANSFIELD (48, 8)



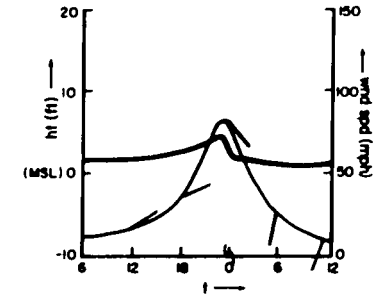
2. BAFFIN BAY (19, 3)



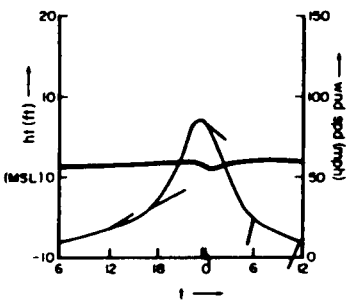
3. PADRI IS. RANGER STA. (24, 35)



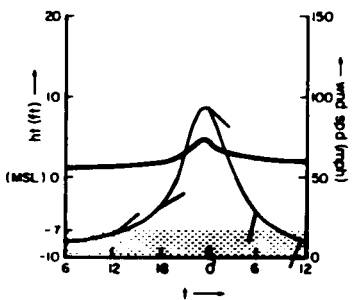
4. MUSTANG PASS (25, 45)



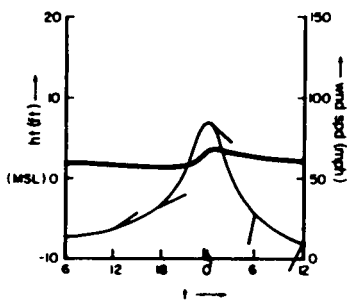
5. NAVAL AIR STA. (20, 46)



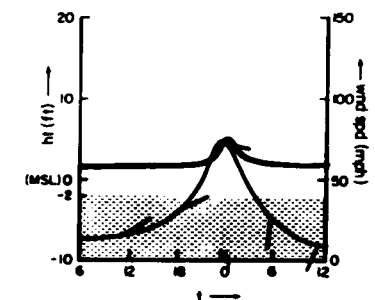
6. CORPUS CHRISTI (12, 53)



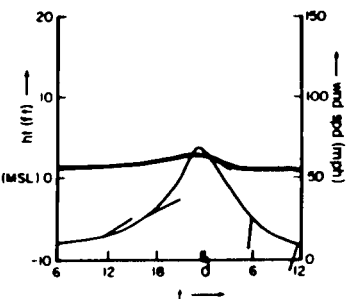
7. INGLESIDE (21, 55)



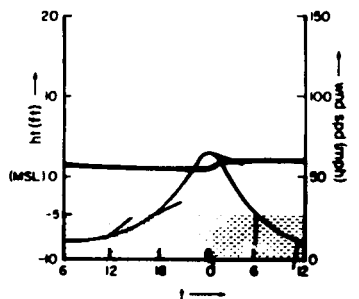
8. ARANSAS PASS (28, 57)



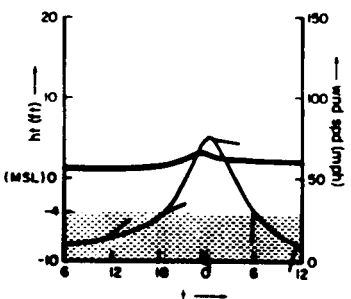
9. PORT ARANSAS (31, 53)



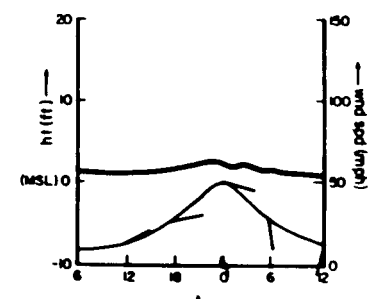
10. COPANO BRIDGE (35, 63)

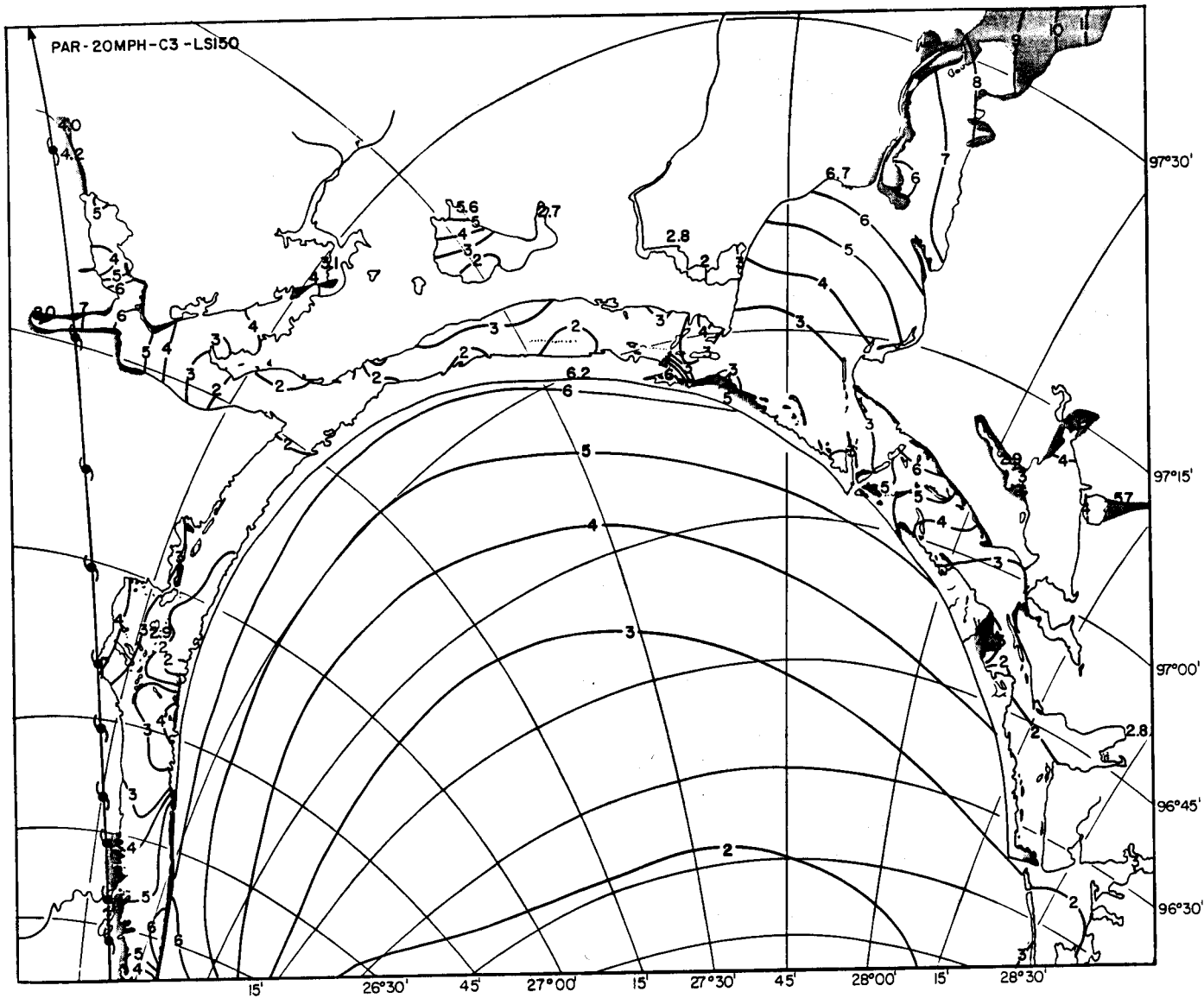


11. BAYSIDE (28, 66)

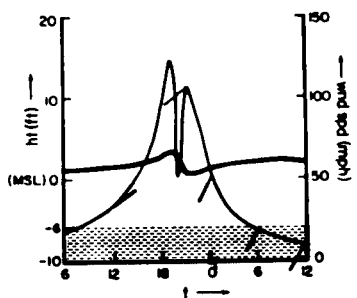


12. MATAGORDA IS. (45, 61)

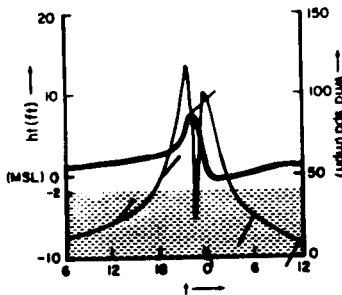




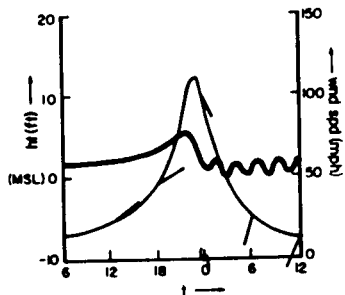
1. PORT MANSFIELD (48,8)



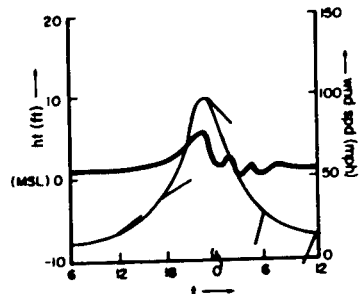
2. BAFFIN BAY (19,3)



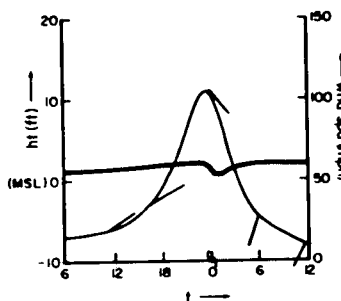
3. PADRI IS. RANGER STA. (24,35)



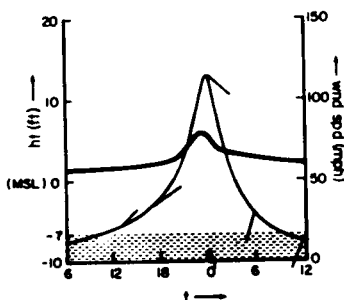
4. MUSTANG PASS (25,45)



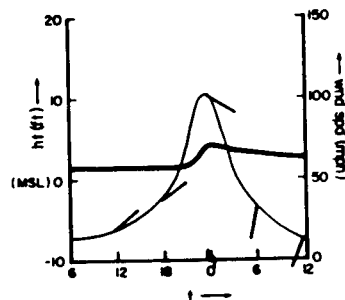
5. NAVAL AIR STA. (20,46)



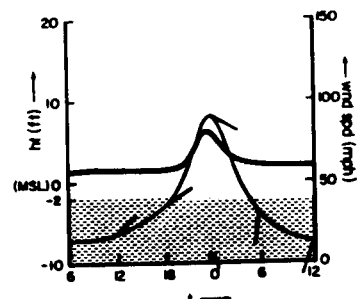
6. CORPUS CHRISTI (12,53)



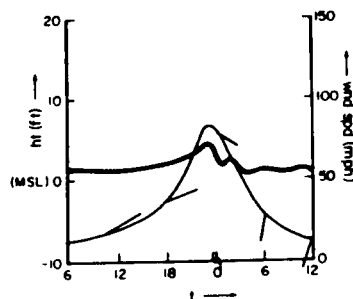
7. INGLESIDE (21,55)



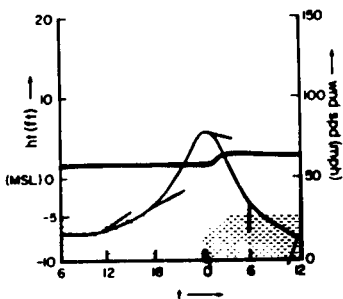
8. ARANSAS PASS (28,57)



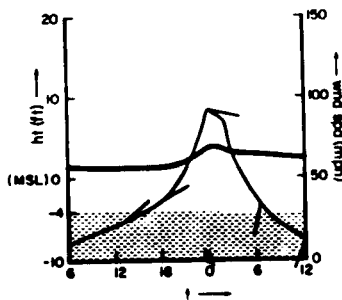
9. PORT ARANSAS (31,53)



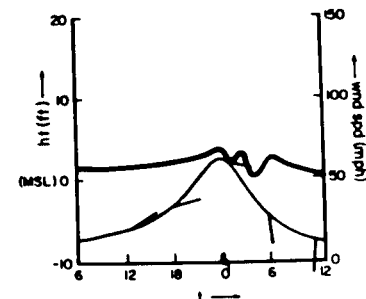
10. COPANO BRIDGE (35,63)



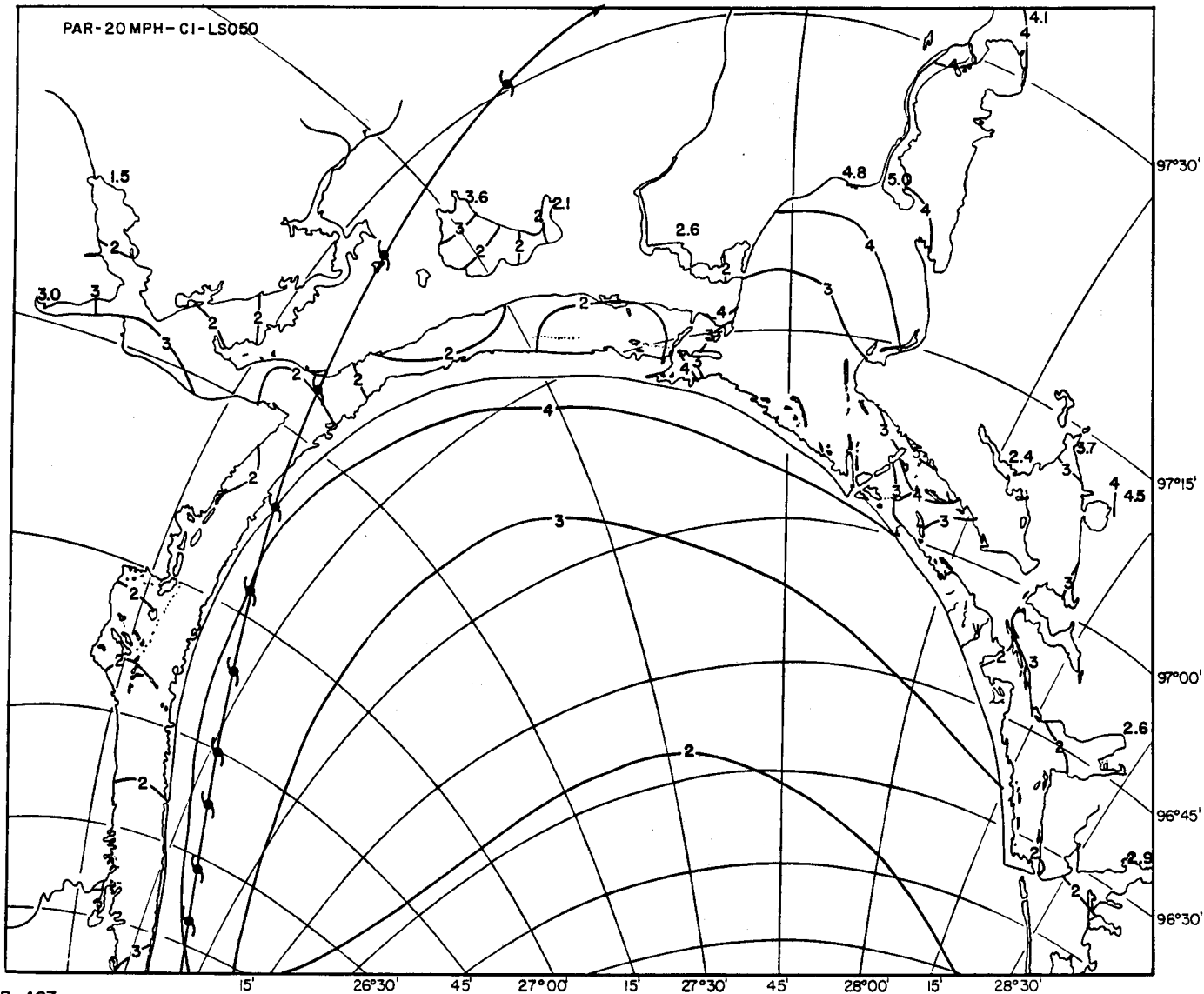
11. BAYSIDE (28,66)



12. MATAGORDA IS. (45,61)

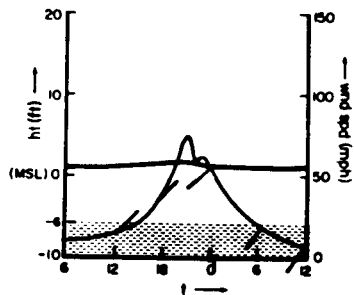


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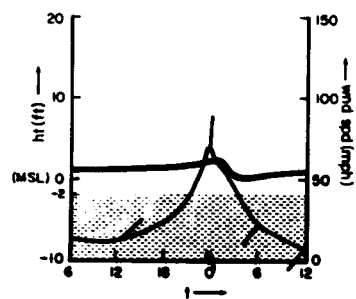


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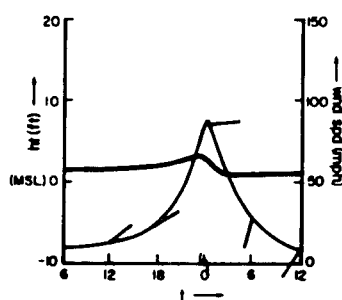
1. PORT MANSFIELD (48, 8)



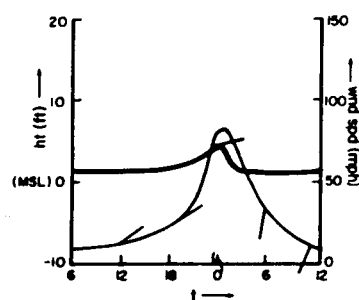
2. BAFFIN BAY (19, 3)



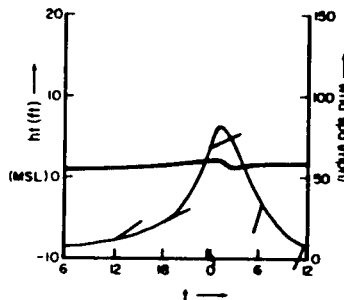
3. PADRI IS. RANGER STA. (24, 35)



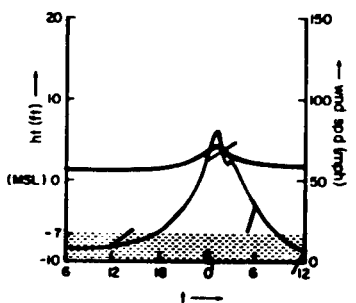
4. MUSTANG PASS (25, 45)



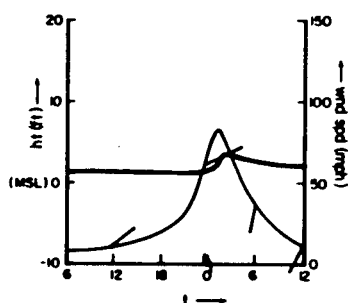
5. NAVAL AIR STA. (20, 46)



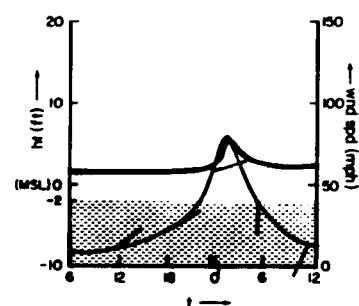
6. CORPUS CHRISTI (12, 53)



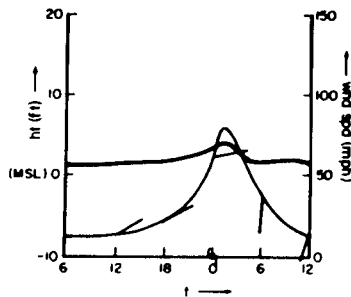
7. INGLESIDE (21, 55)



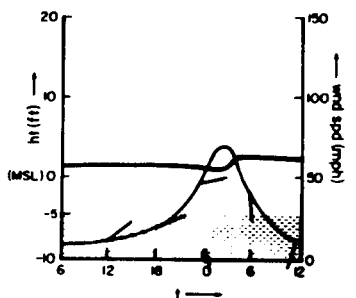
8. ARANSAS PASS (28, 57)



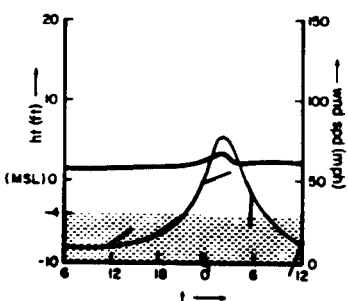
9. PORT ARANSAS (34, 53)



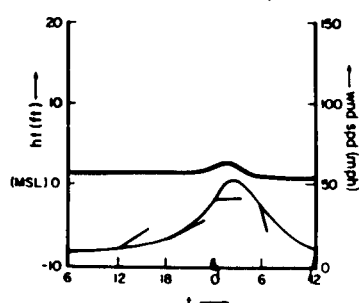
10. COPANO BRIDGE (35, 63)



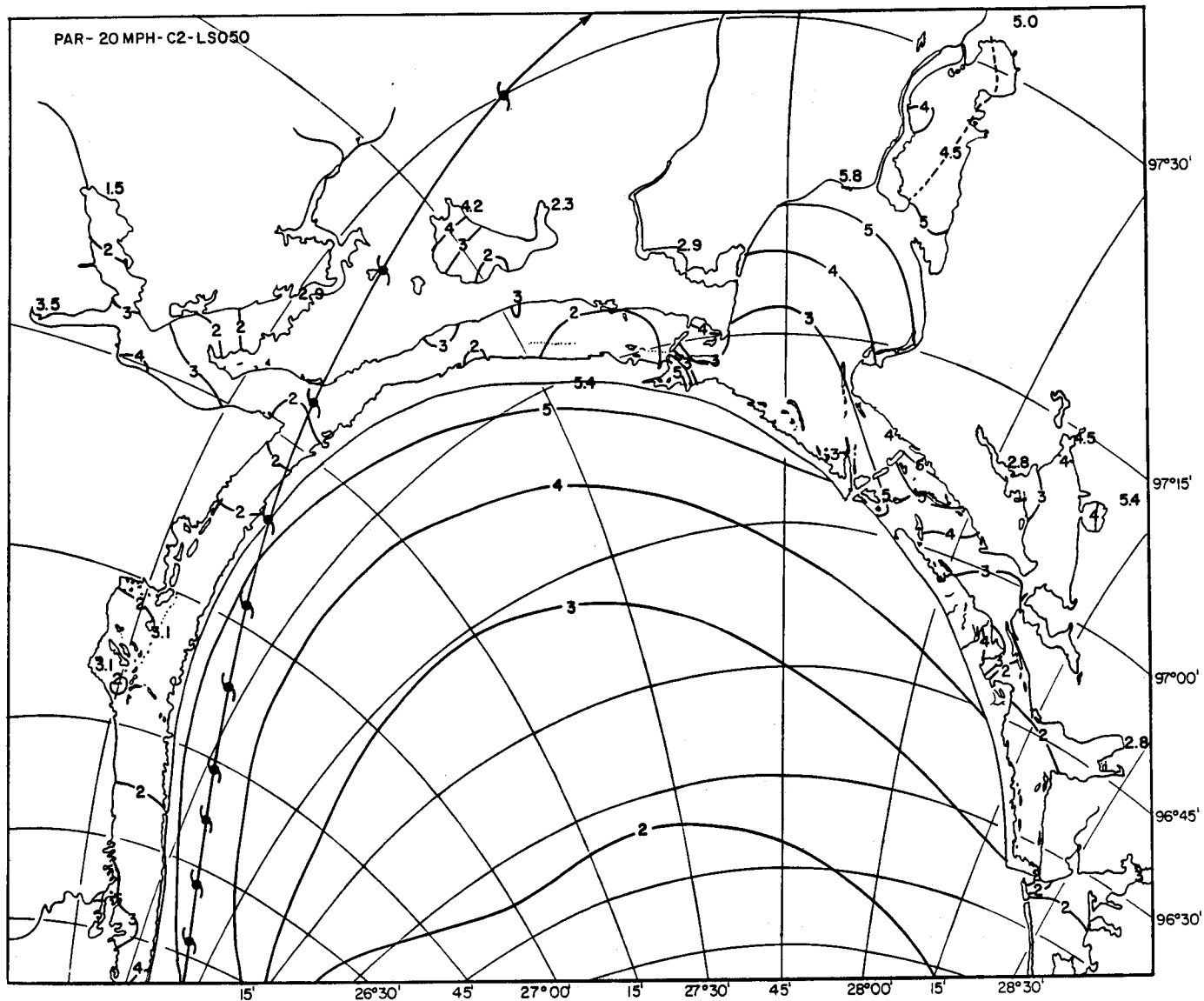
11. BAYSIDE (28, 66)



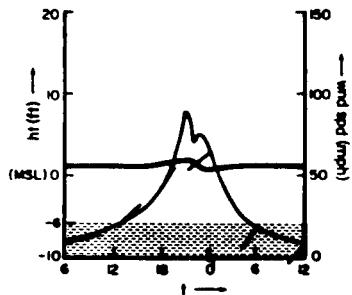
12. MATAGORDA IS. (45, 61)



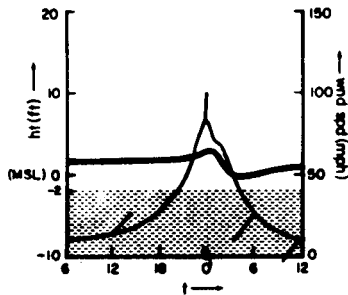
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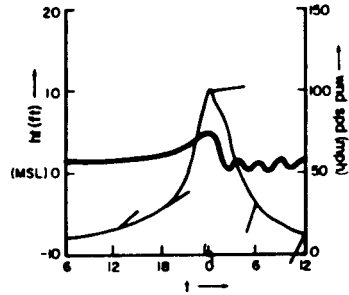
1. PORT MANSFIELD (48, 8)



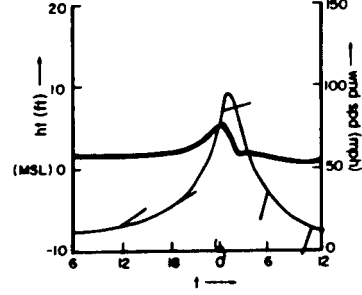
2. BAFFIN BAY (19, 3)



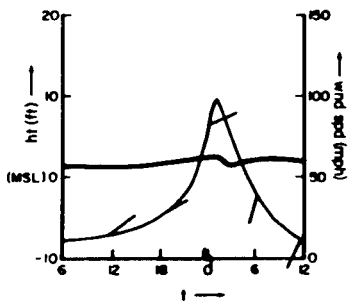
3. PADRI IS. RANGER STA. (24, 35)



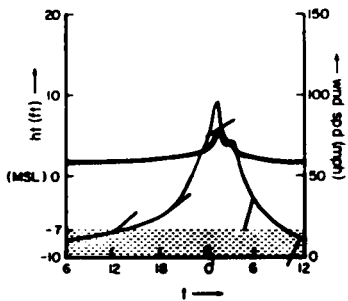
4. MUSTANG PASS (25, 45)



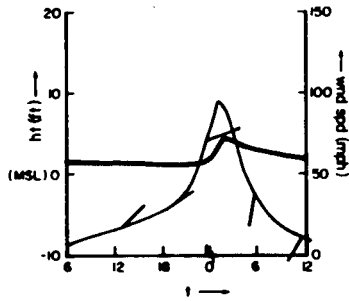
5. NAVAL AIR STA. (20, 46)



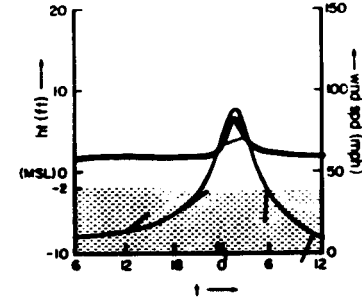
6. CORPUS CHRISTI (12, 53)



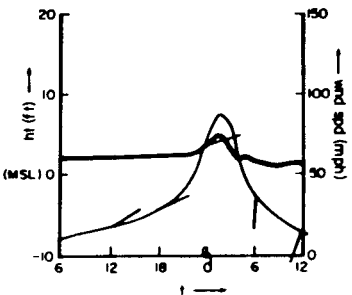
7. INGLESIDE (21, 55)



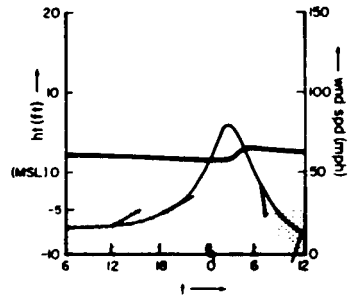
8. ARANSAS PASS (28, 57)



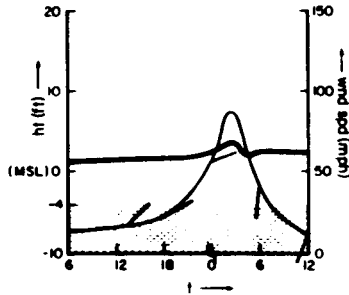
9. PORT ARANSAS (31, 53)



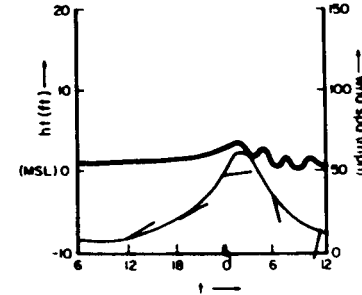
10. COPANO BRIDGE (35, 63)



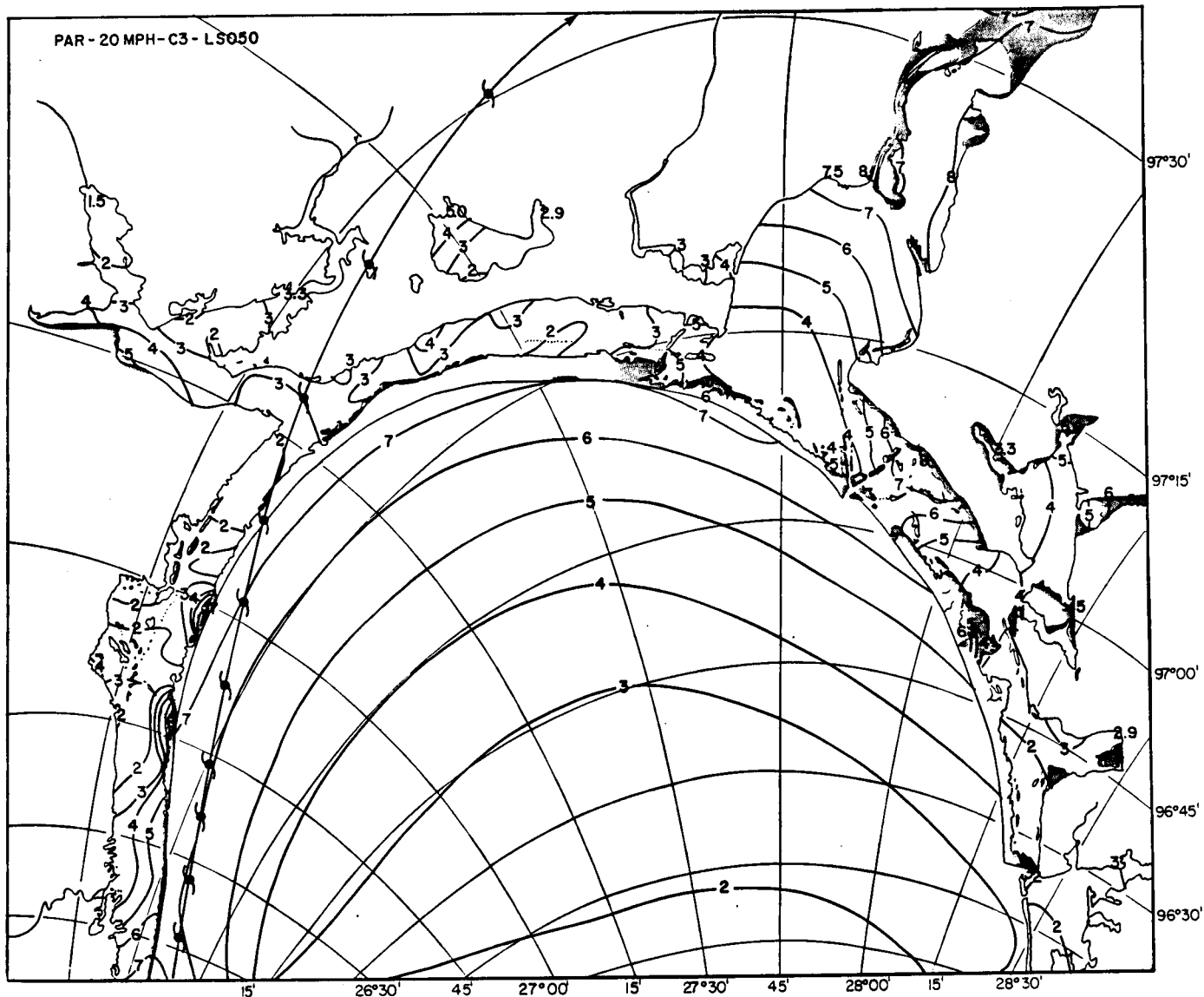
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

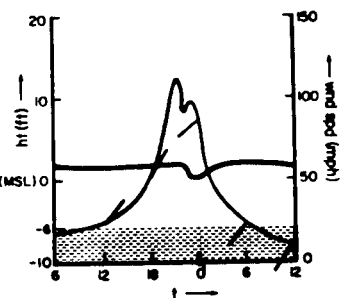


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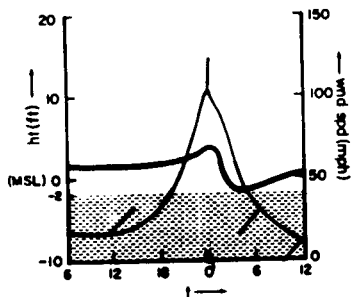




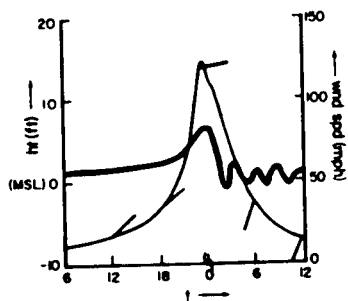
1. PORT MANSFIELD (48, 8)



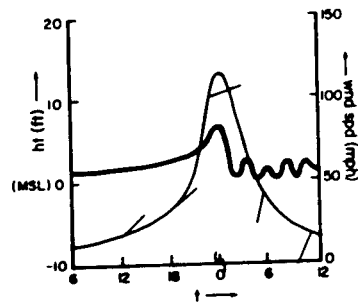
2. BAFFIN BAY (19, 3)



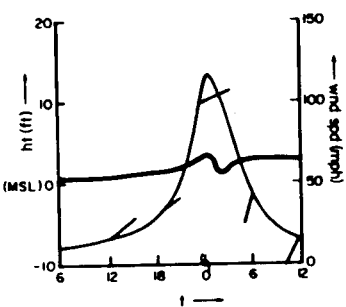
3. PADRI IS. RANGER STA. (24, 35)



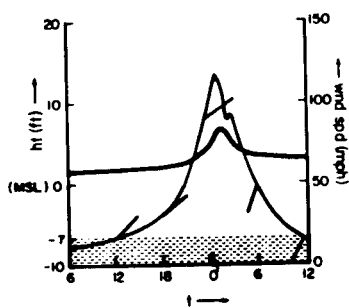
4. MUSTANG PASS (25, 45)



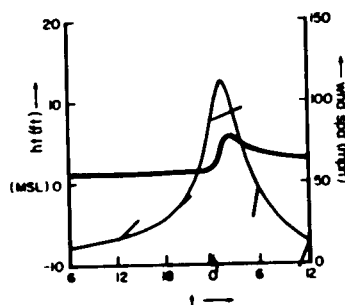
5. NAVAL AIR STA. (20, 46)



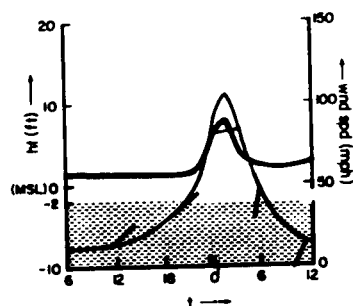
6. CORPUS CHRISTI (12, 53)



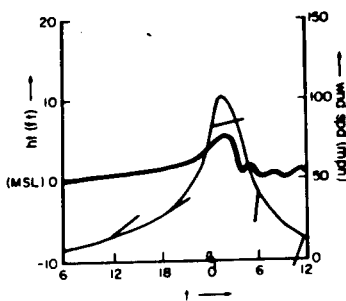
7. INGLESIDE (21, 55)



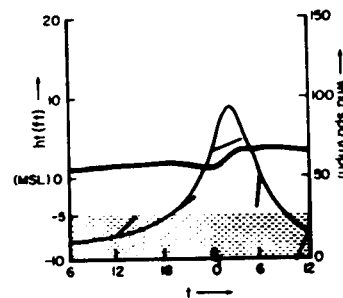
8. ARANSAS PASS (28, 57)



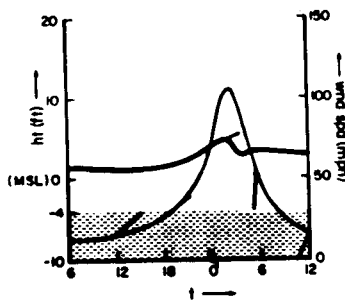
9. PORT ARANSAS (31, 53)



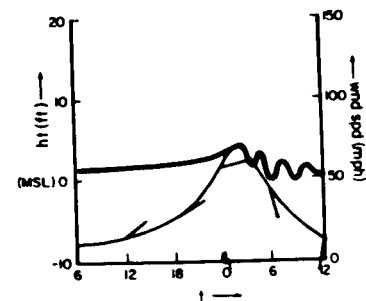
10. COPANO BRIDGE (35, 63)



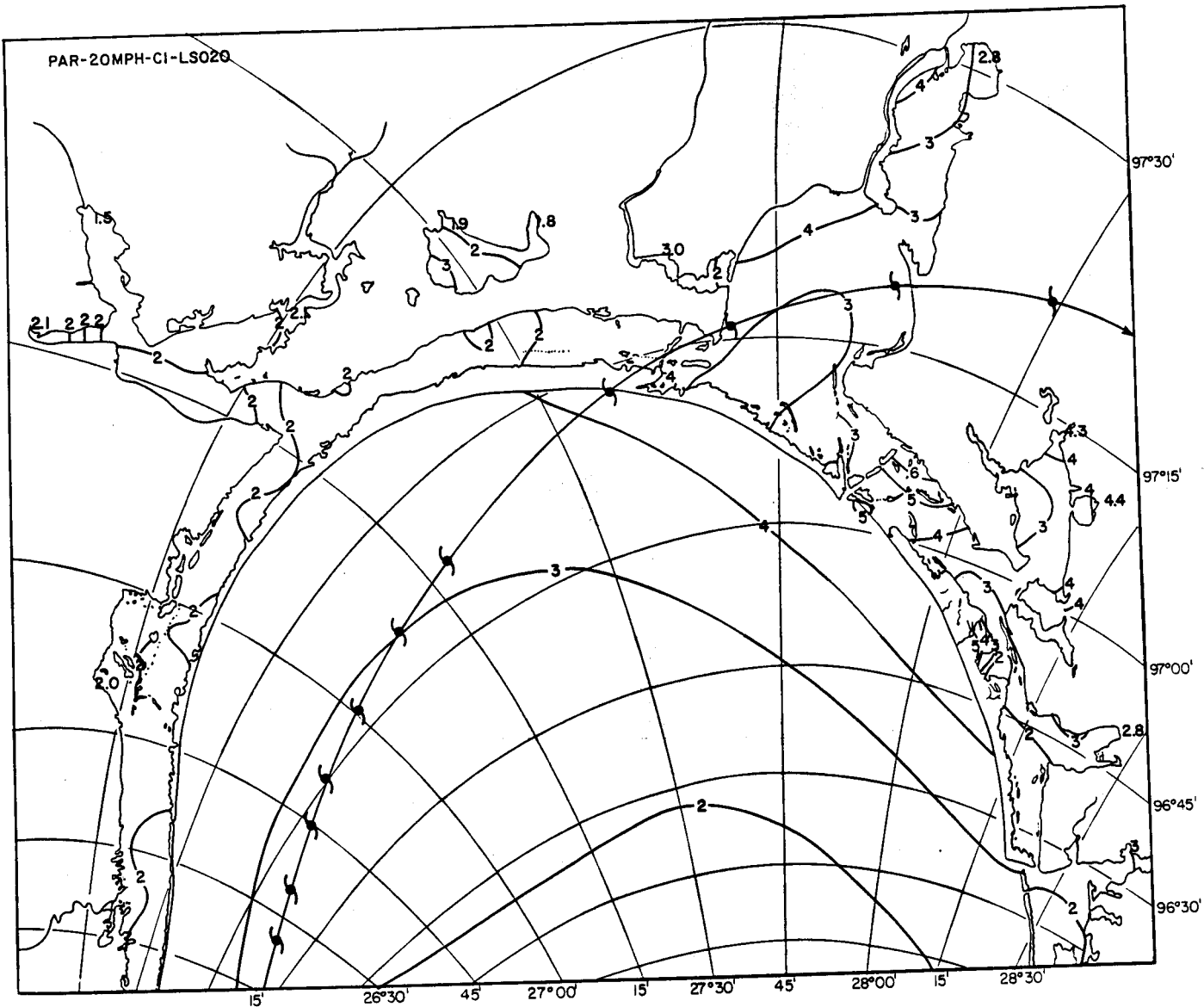
11. BAYSIDE (28, 66)



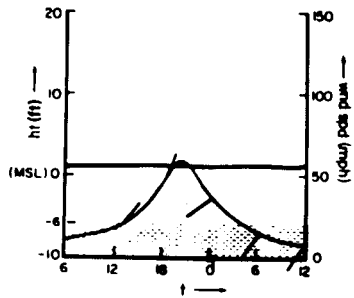
12. MATAGORDA IS. (45, 61)



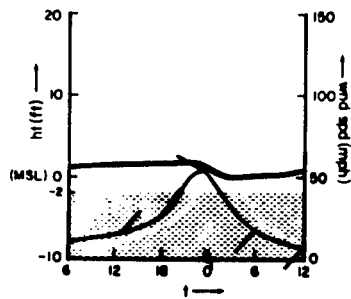
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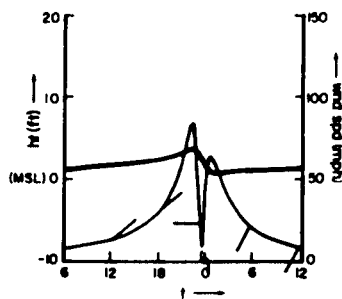
1 PORT MANSFIELD (48, 8)



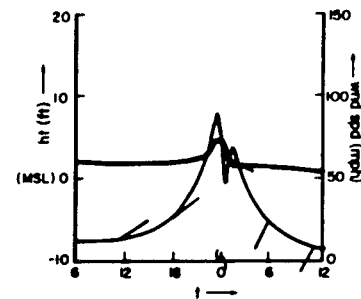
2 BAFFIN BAY (19, 3)



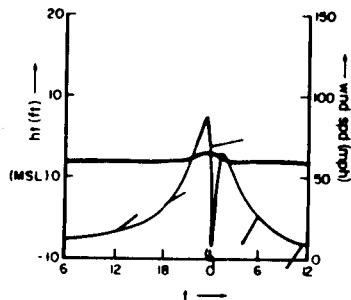
3 PADRI IS. RANGER STA. (24, 35)



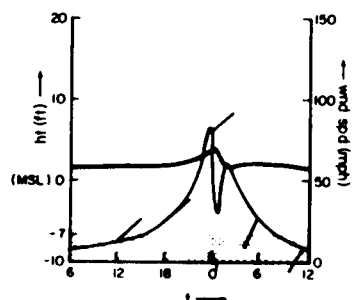
4 MUSTANG PASS (25, 45)



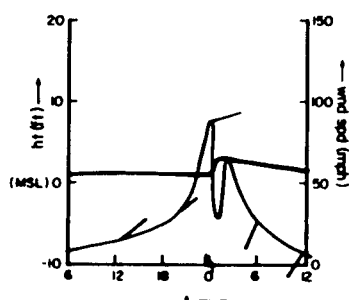
5 NAVAL AIR STA. (20, 46)



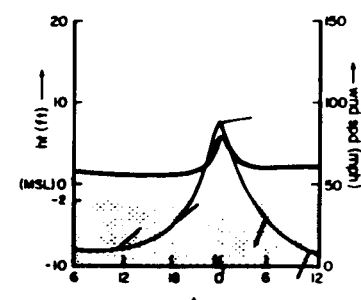
6 CORPUS CHRISTI (12, 53)



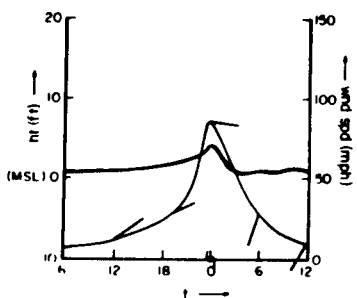
7 INGLESIDE (21, 55)



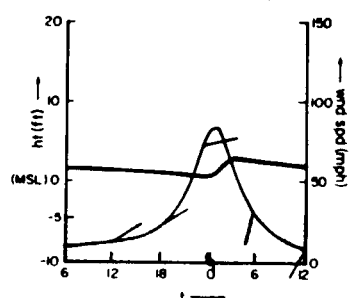
8 ARANSAS PASS (28, 57)



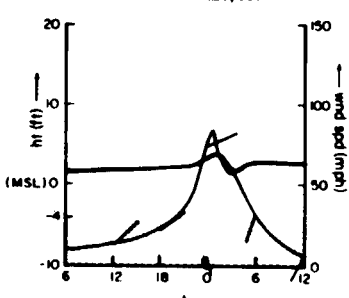
9 PORT ARANSAS (31, 53)



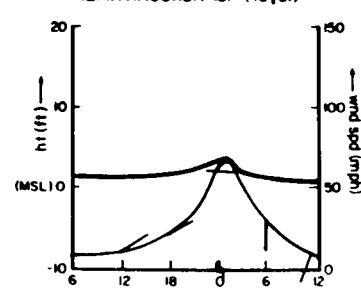
10 COPANO BRIDGE (35, 63)



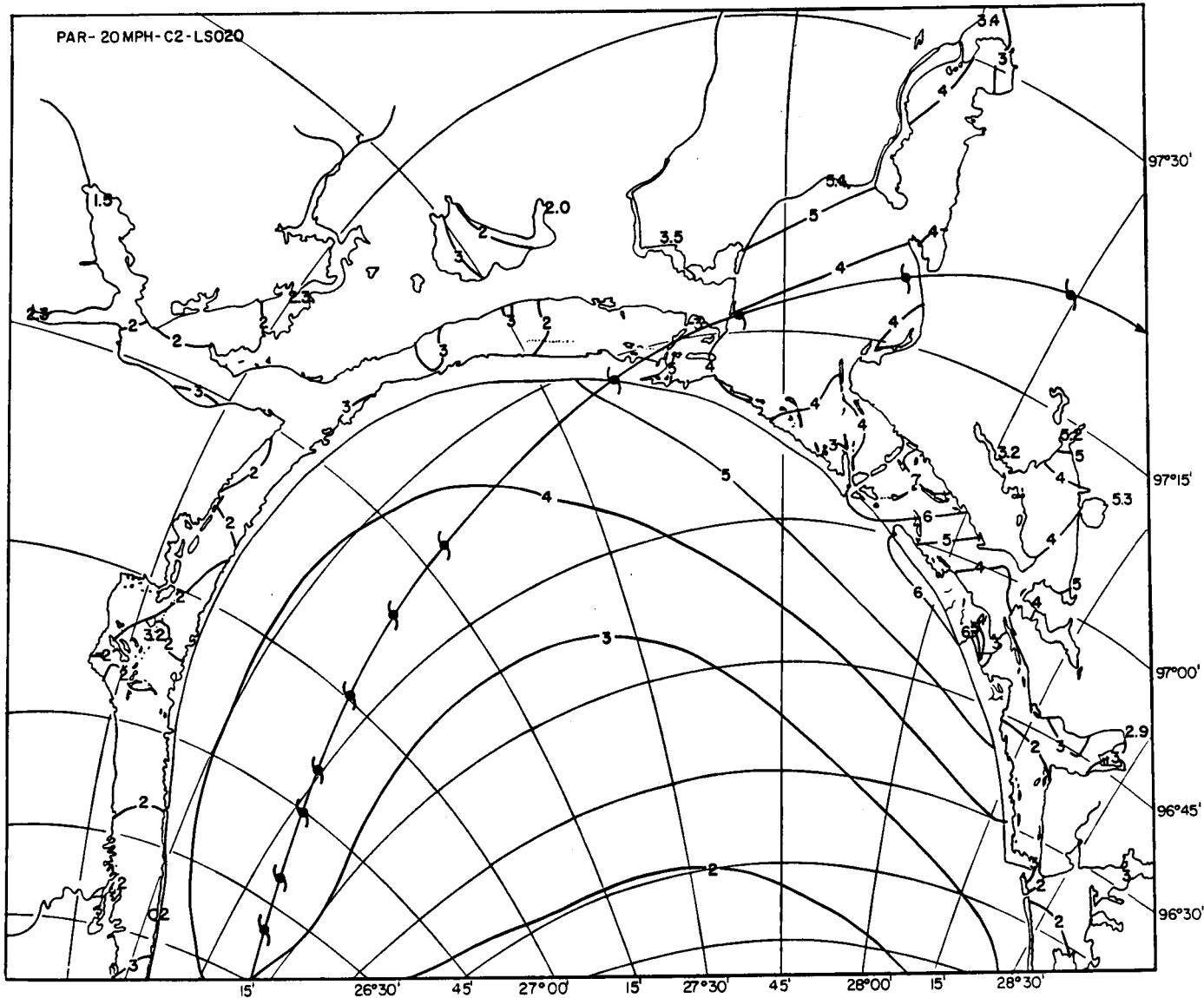
11 BAYSIDE (28, 66)



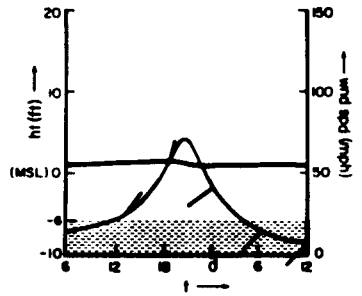
12 MATAGORDA IS. (45, 61)



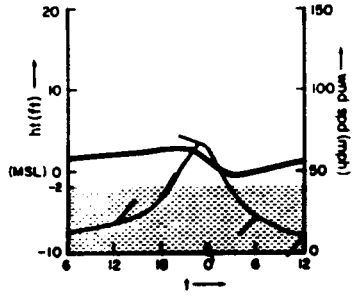
PAR- 20MPH-C2-LS020



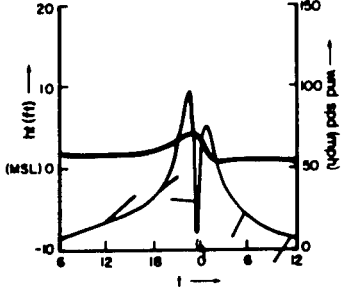
1. PORT MANSFIELD (46,8)



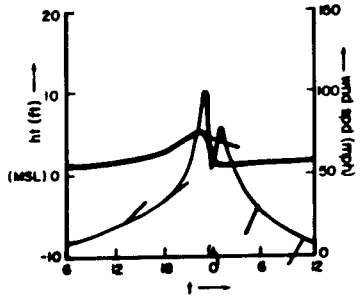
2. BAFFIN BAY (19,3)



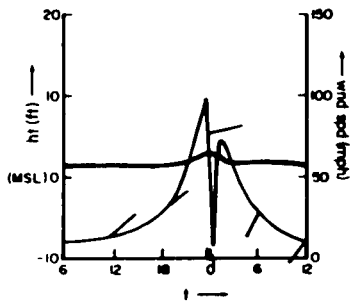
3. PADRI IS. RANGER STA. (24,35)



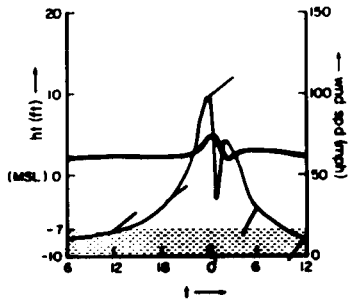
4. MUSTANG PASS (25,45)



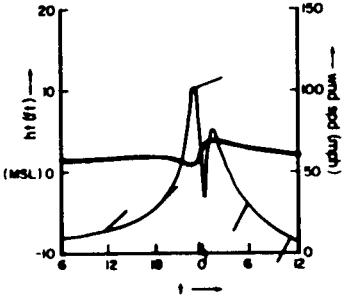
5. NAVAL AIR STA. (20,46)



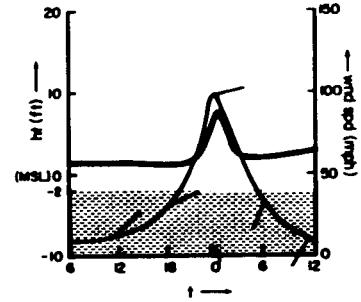
6. CORPUS CHRISTI (12,53)



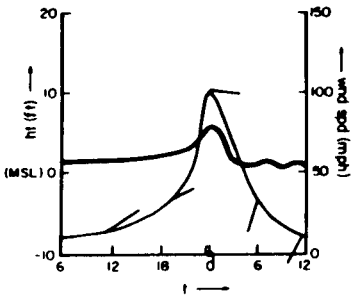
7. INGLESIDE (21,55)



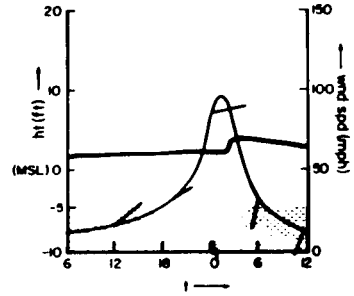
8. ARANSAS PASS (28,57)



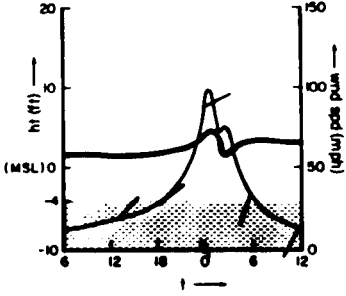
9. PORT ARANSAS (34,53)



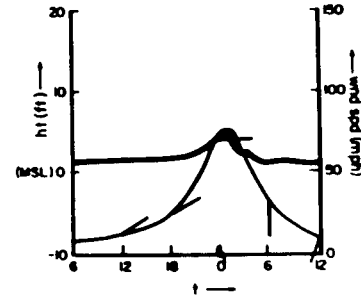
10. COPANO BRIDGE (35,63)



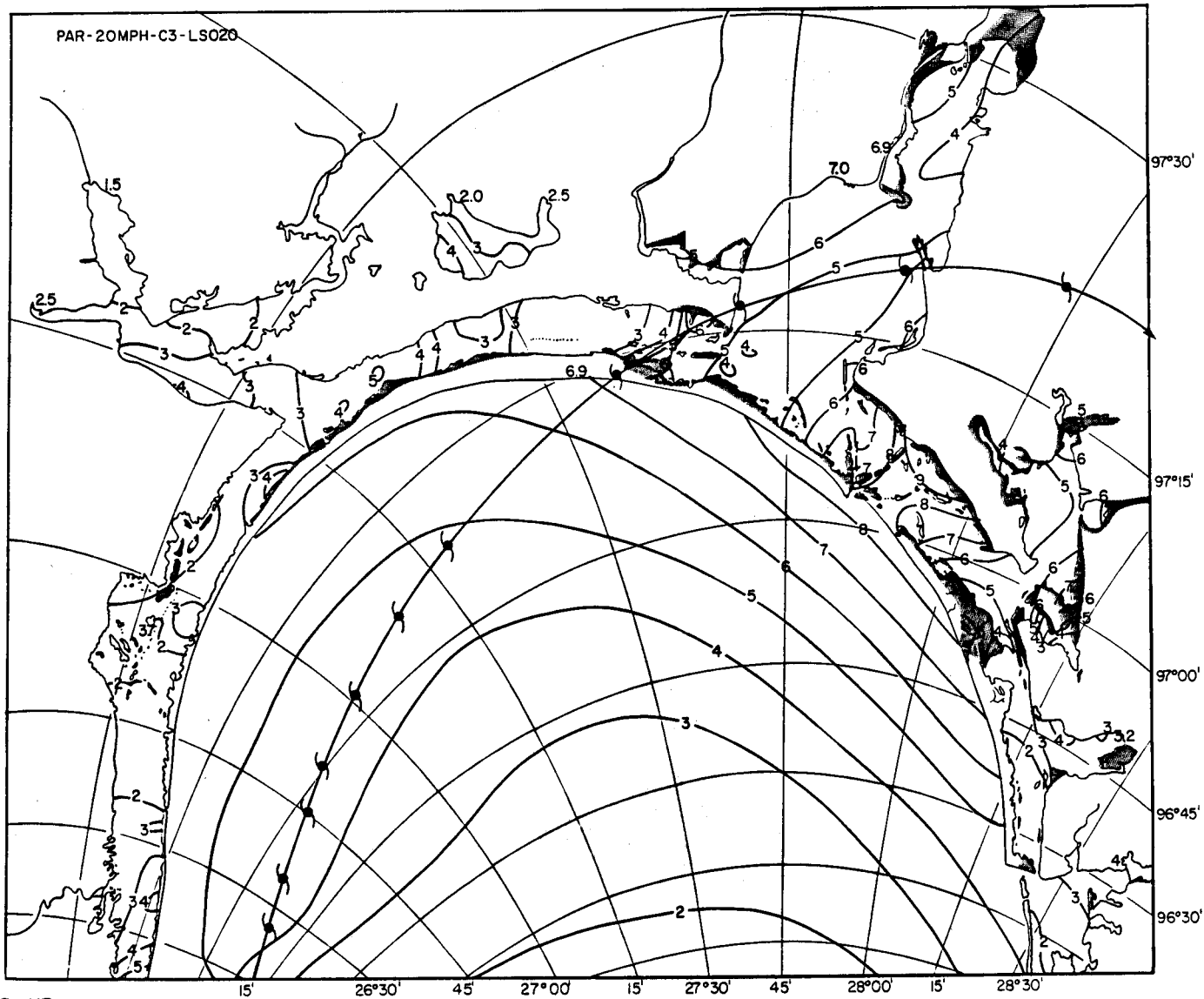
11. BAYSIDE (28,65)



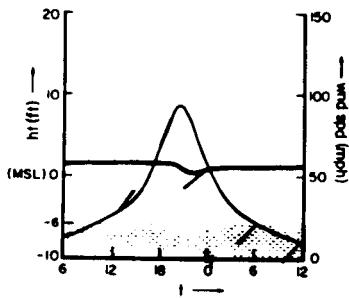
12. MATAGORDA IS. (45,61)



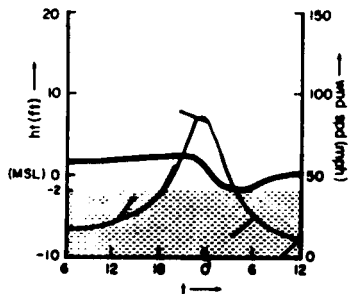
PAR-20MPH-C3-LS020



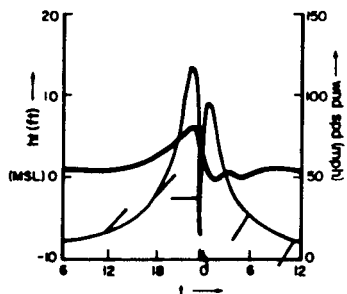
1. PORT MANSFIELD (48, 8)



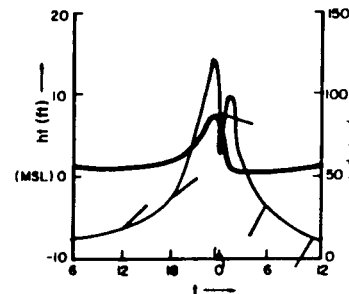
2. BAFFIN BAY (19, 3)



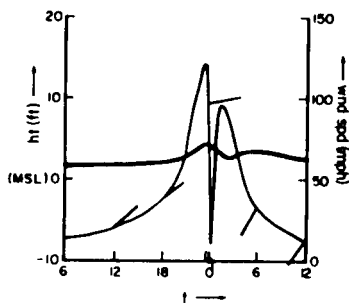
3. PADRI IS. RANGER STA. (24, 35)



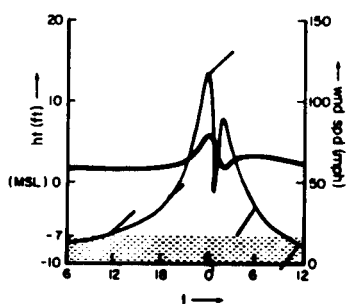
4. MUSTANG PASS (25, 45)



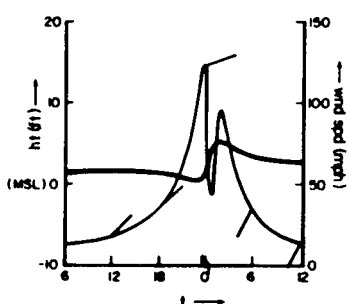
5. NAVAL AIR STA. (20, 46)



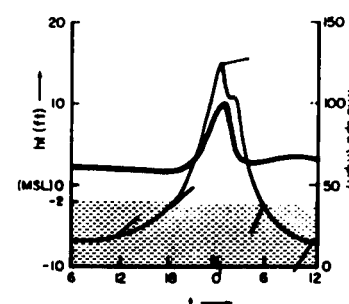
6. CORPUS CHRISTI (12, 53)



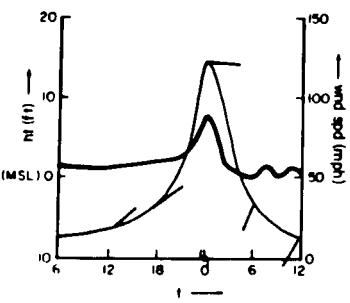
7. INGLESIDE (21, 55)



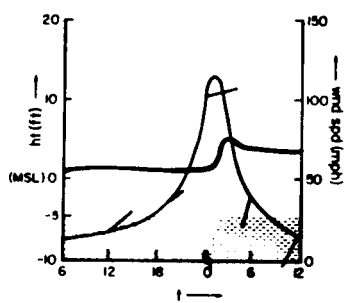
8. ARANSAS PASS (28, 57)



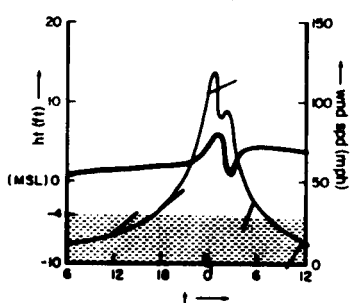
9. PORT ARANSAS (31, 53)



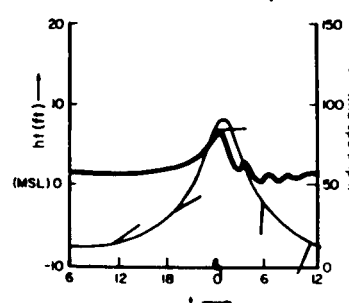
10. COPANO BRIDGE (35, 63)



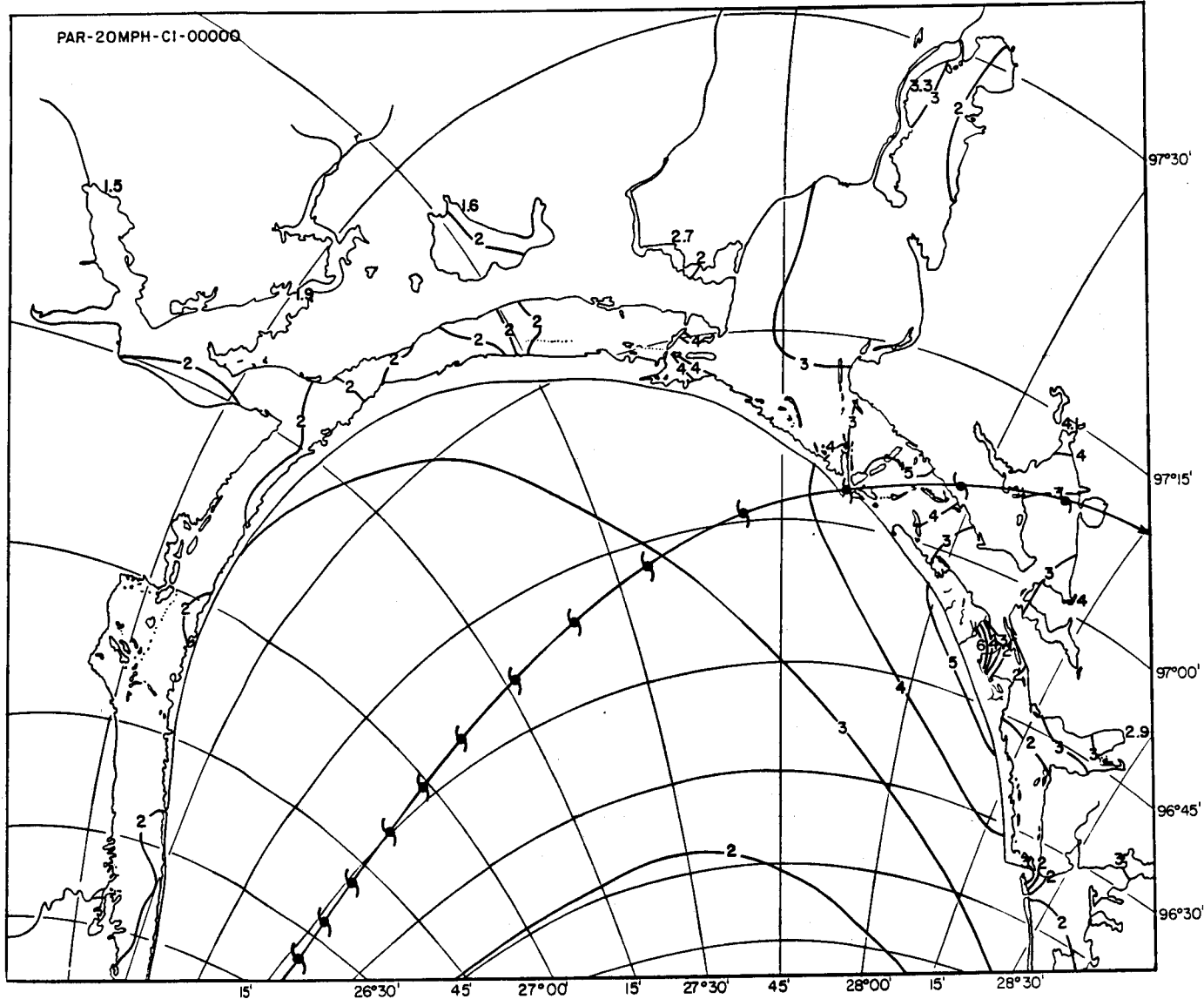
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

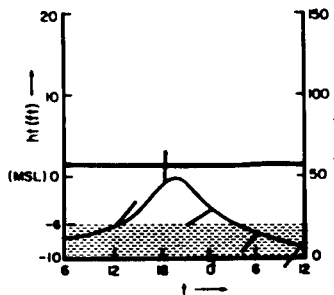


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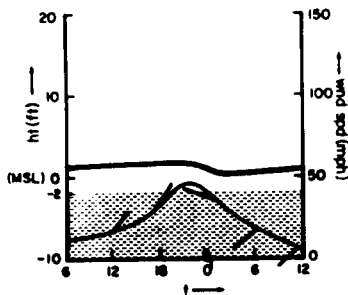




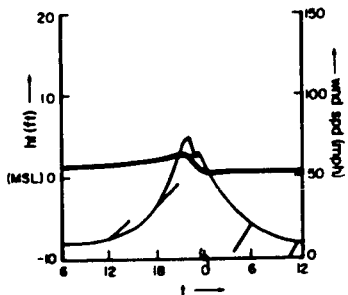
1. PORT MANSFIELD (48, 8)



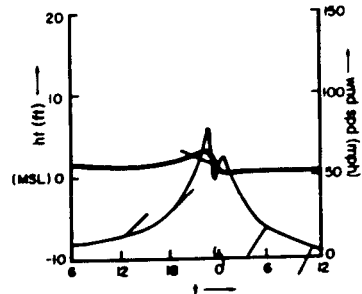
2. BAFFIN BAY (19, 3)



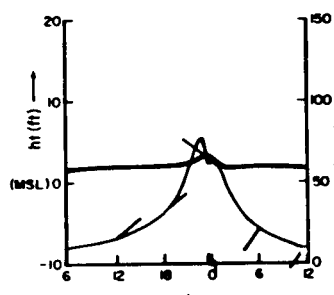
3. PADRI IS. RANGER STA. (24, 35)



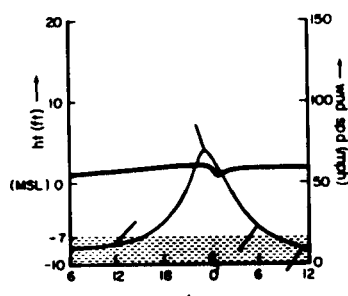
4. MUSTANG PASS (25, 45)



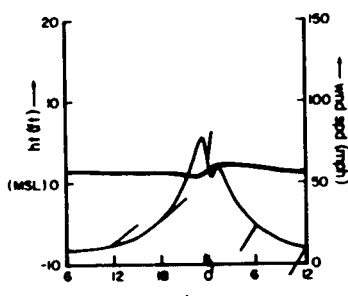
5. NAVAL AIR STA. (20, 46)



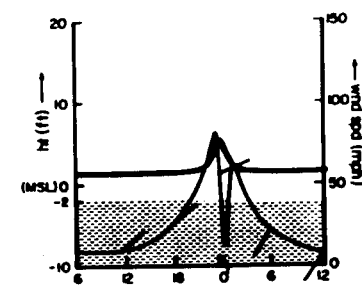
6. CORPUS CHRISTI (12, 53)



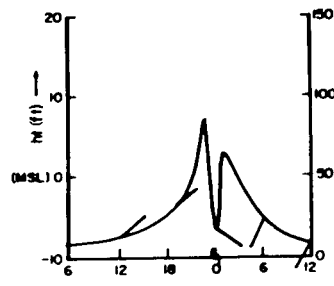
7. INGLESIDE (21, 55)



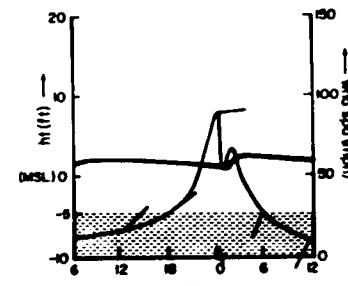
8. ARANSAS PASS (28, 57)



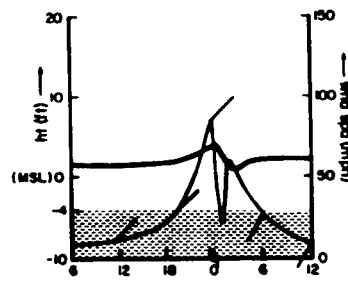
9. PORT ARANSAS (31, 53)



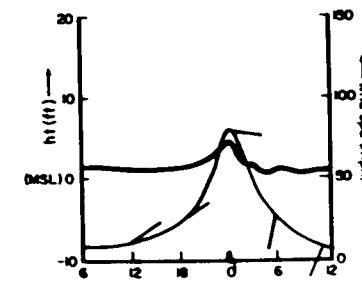
10. COPRANO BRIDGE (35, 63)



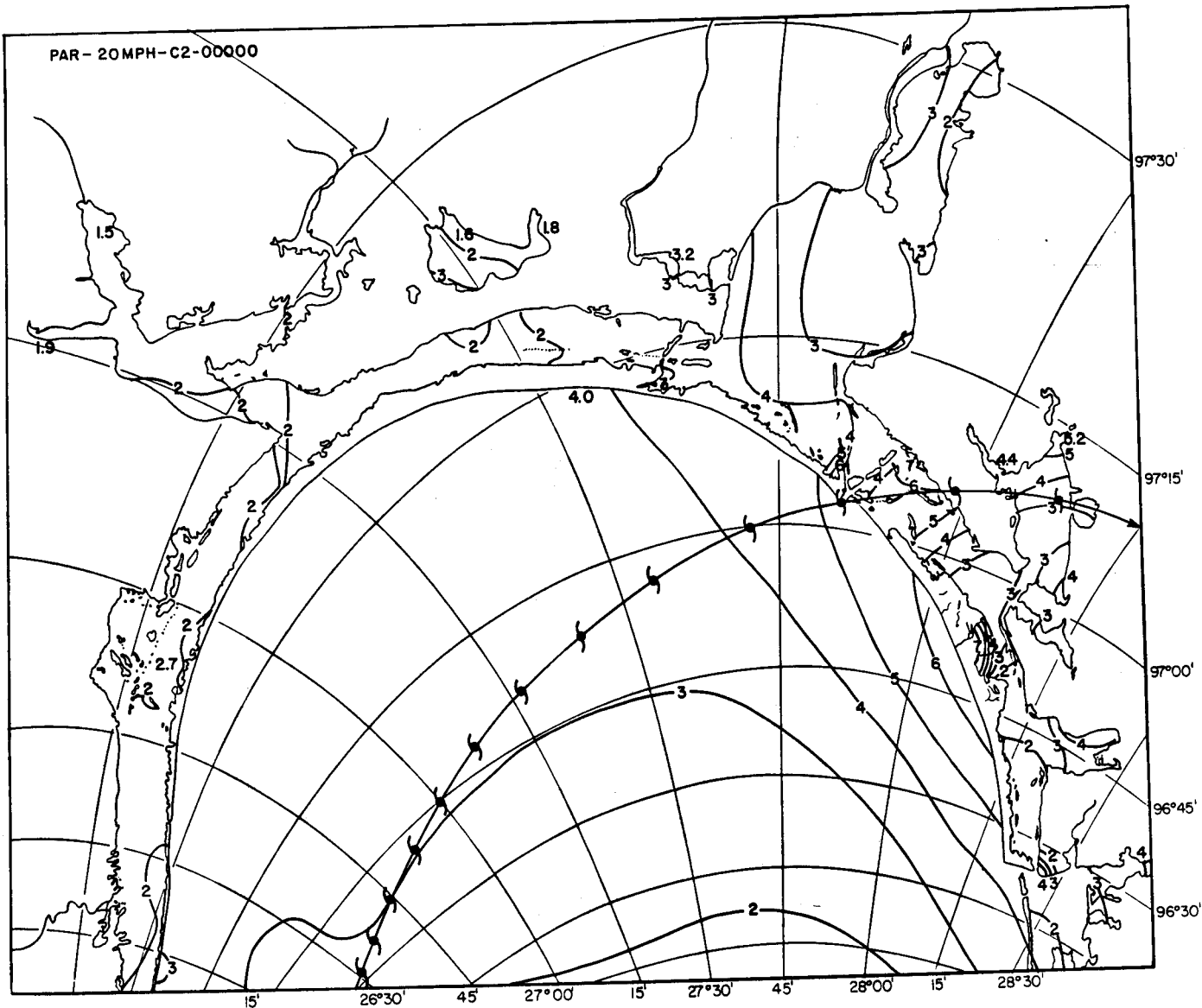
11. BAYSIDE (28, 66)



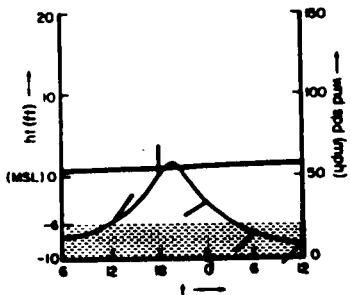
12. MATAGORDA IS. (45, 61)



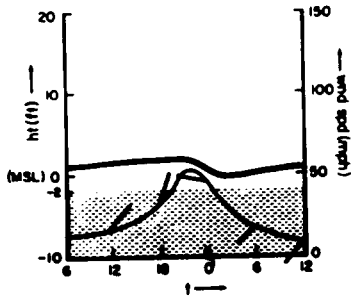
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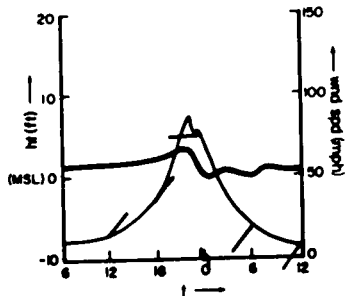
1. PORT MANSFIELD (48,8)



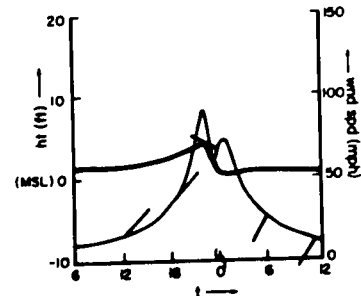
2. BAFFIN BAY (19,3)



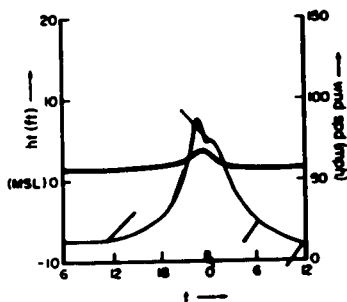
3. PADRI IS. RANGER STA. (24,35)



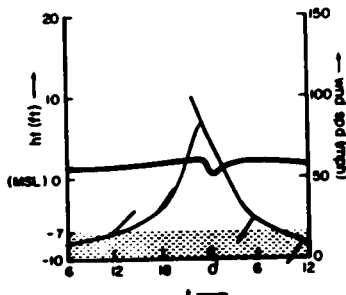
4. MUSTANG PASS (25,45)



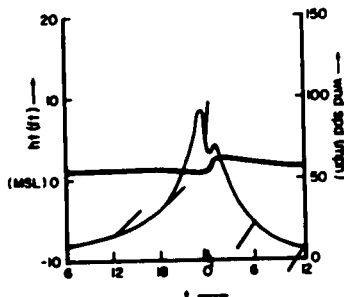
5. NAVAL AIR STA. (20,46)



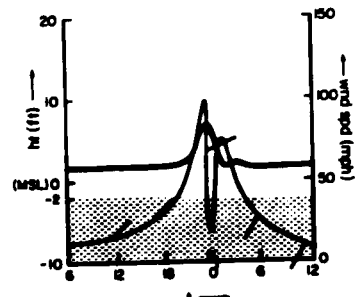
6. CORPUS CHRISTI (12,53)



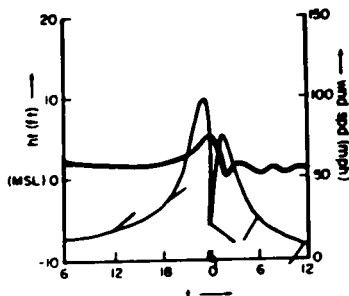
7. INGLESIDE (21,55)



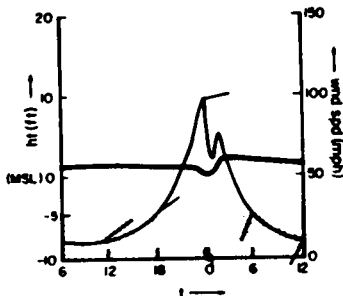
8. ARANSAS PASS (28,57)



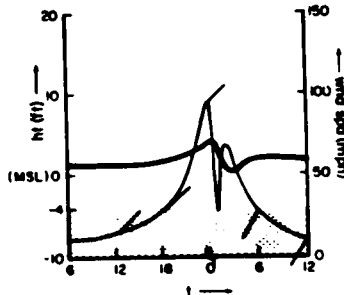
9. PORT ARANSAS (31,53)



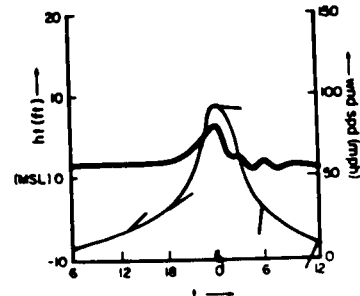
10. COPANO BRIDGE (35,63)



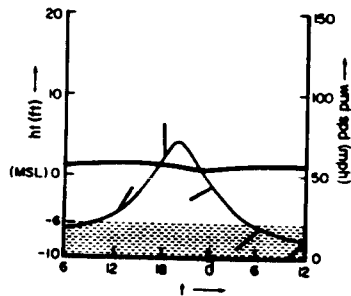
11. BAYSIDE (28,66)



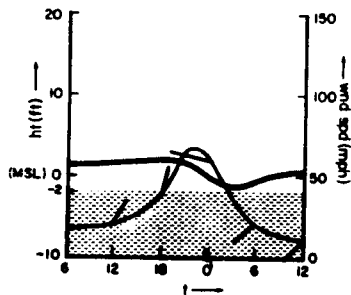
12. MATAGORDA IS. (45,61)



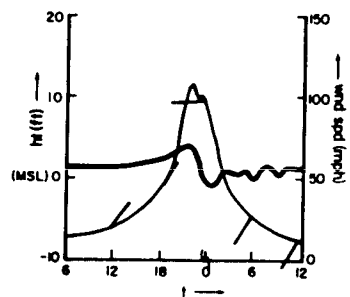
1. PORT MANSFIELD (48, 8)



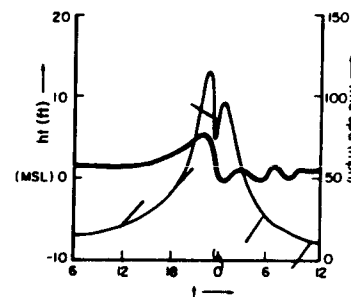
2. BAFFIN BAY (19, 3)



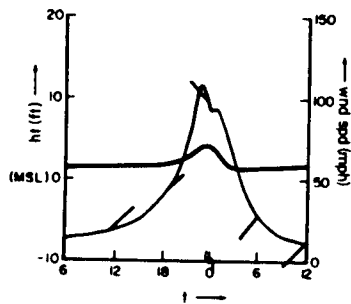
3. PADRI IS. RANGER STA. (24, 35)



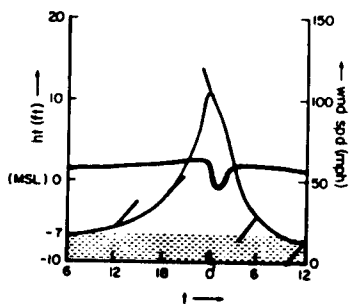
4. MUSTANG PASS (25, 45)



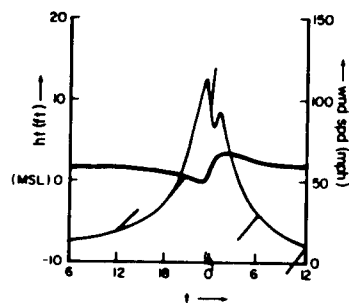
5. NAVAL AIR STA. (20, 46)



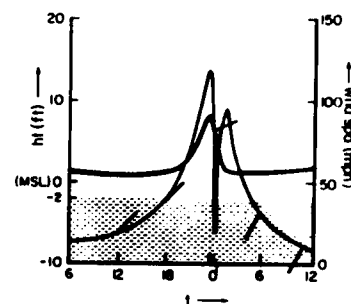
6. CORPUS CHRISTI (12, 53)



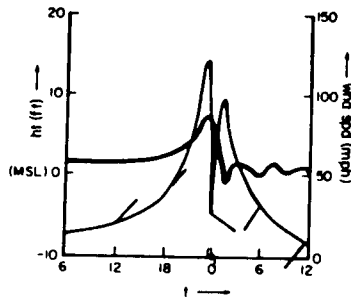
7. INGLESIDE (21, 55)



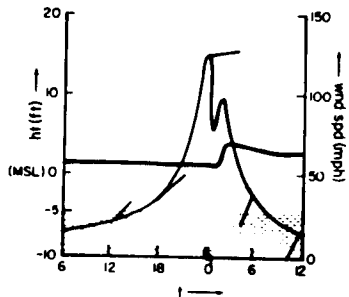
8. ARANSAS PASS (28, 57)



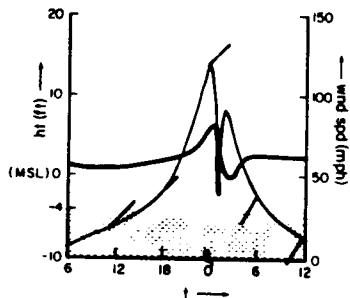
9. PORT ARANSAS (34, 53)



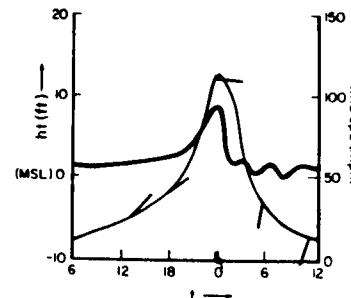
10. COPANO BRIDGE (35, 63)



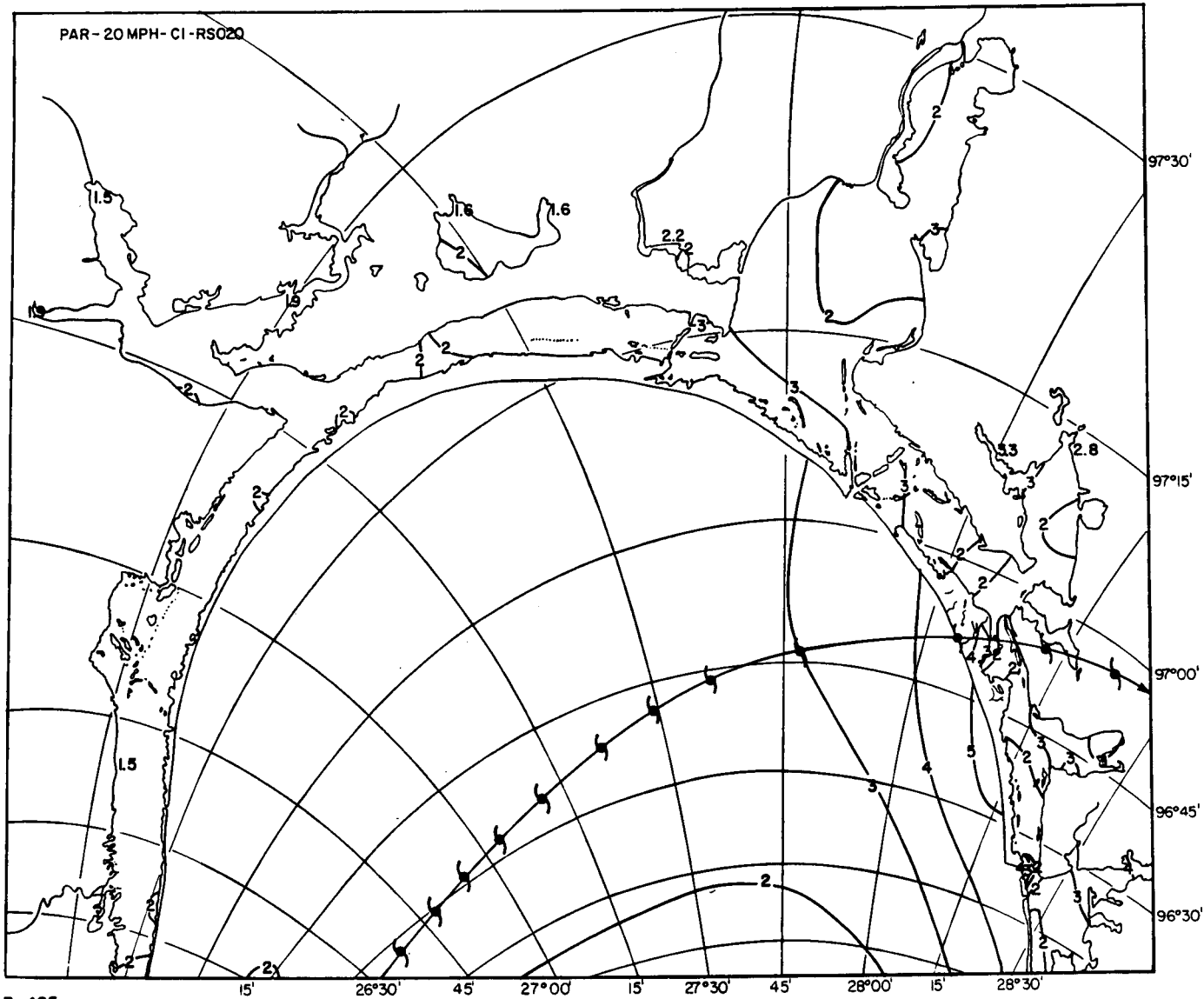
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

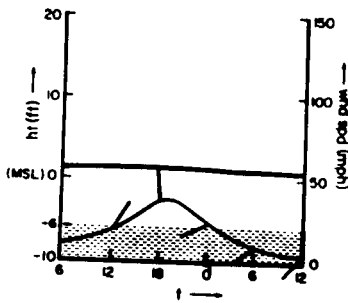


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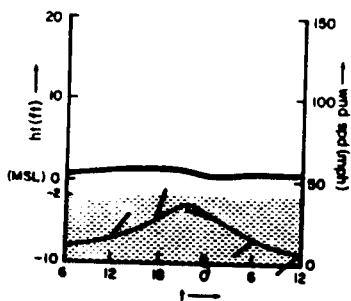


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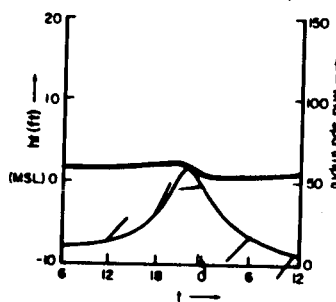
1. PORT MANSFIELD (48, 8)



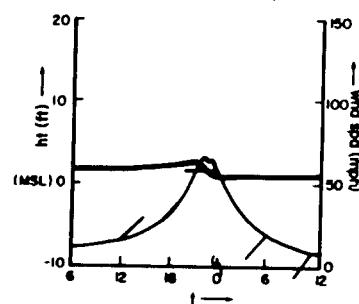
2. BAFFIN BAY (19, 3)



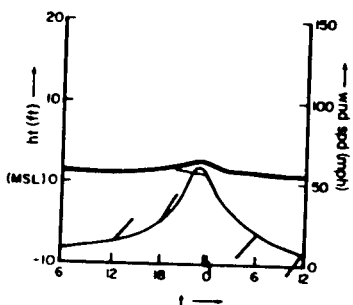
3. PADRI IS. RANGER STA. (24, 35)



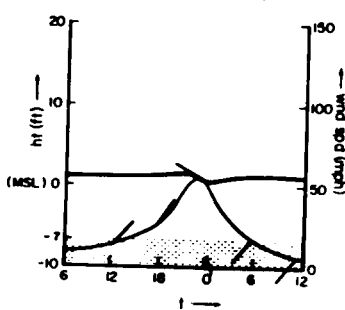
4. MUSTANG PASS (25, 45)



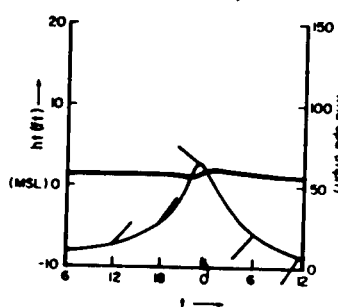
5. NAVAL AIR STA. (20, 46)



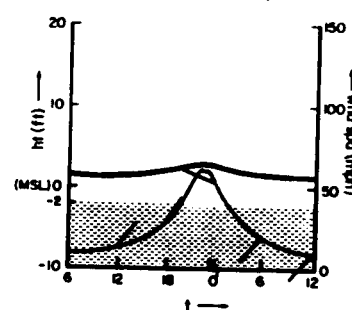
6. CORPUS CHRISTI (12, 53)



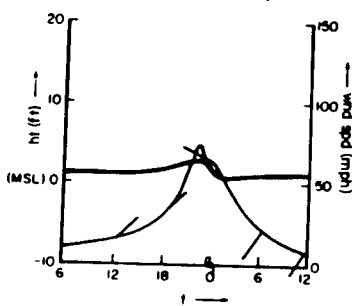
7. INGLESIDE (21, 55)



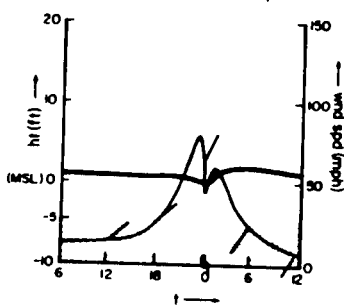
8. ARANSAS PASS (28, 57)



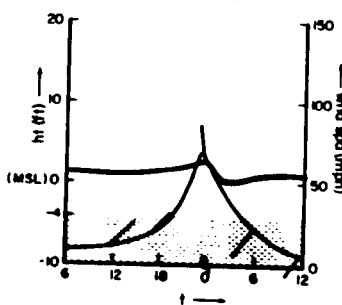
9. PORT ARANSAS (31, 53)



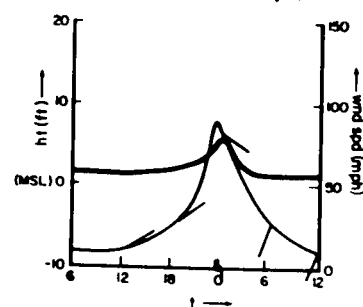
10. COPANO BRIDGE (35, 63)



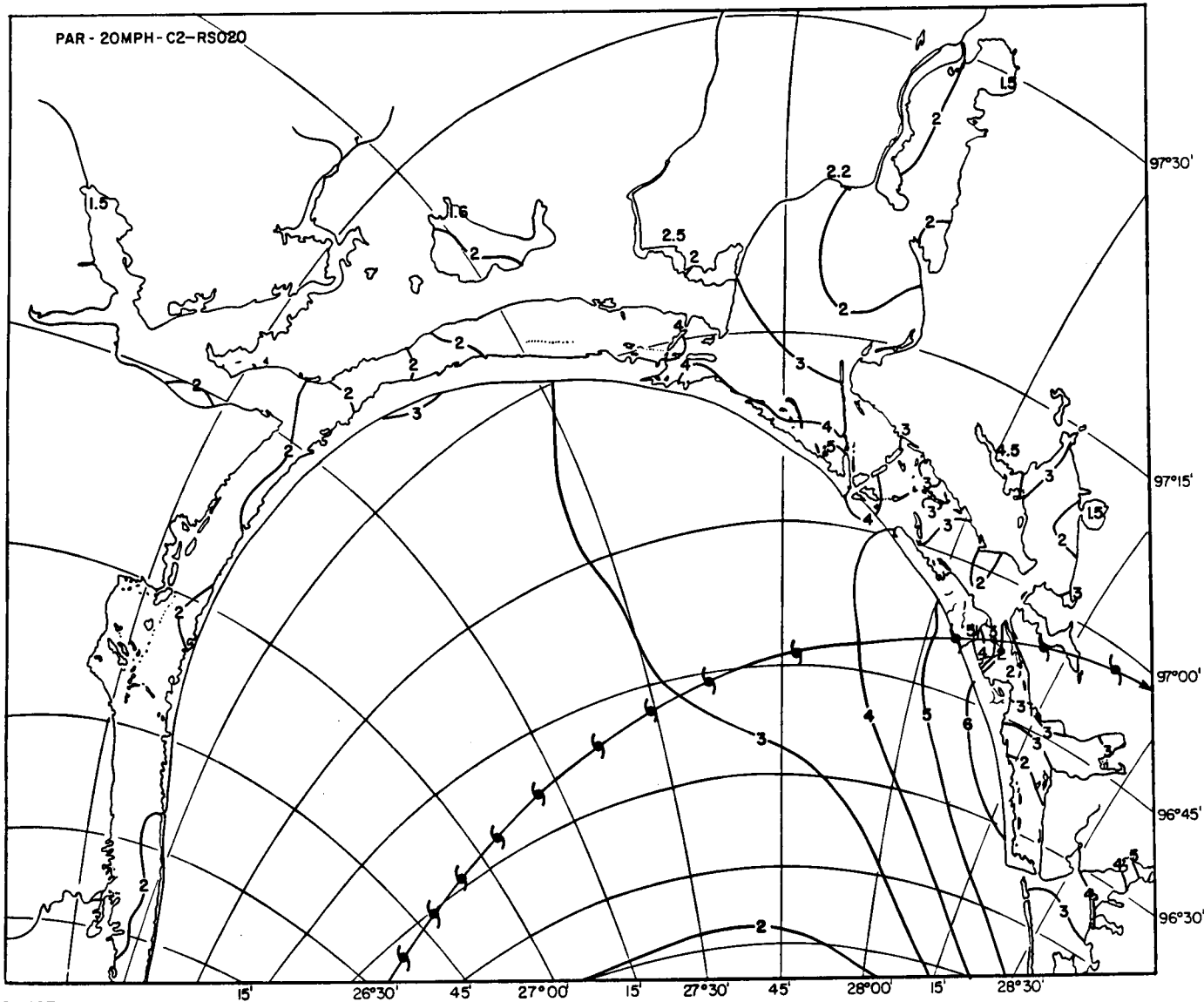
11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

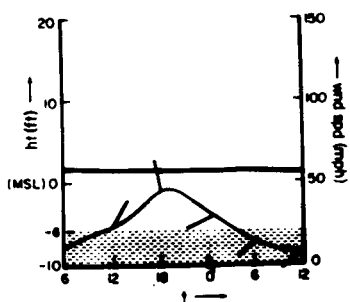


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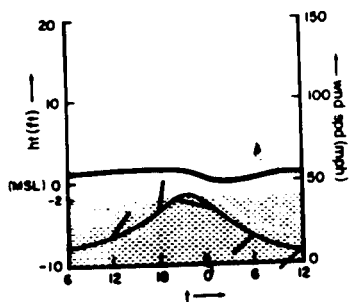


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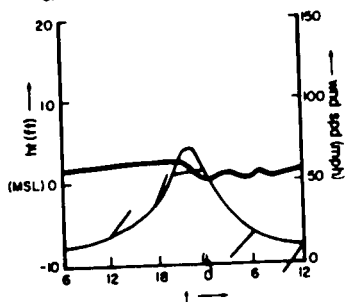
1. PORT MANSFIELD (48, 8)



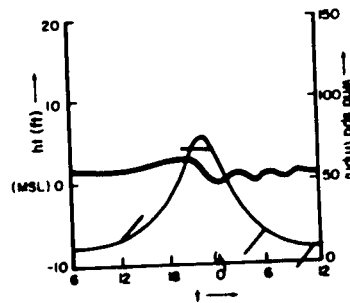
2. BAFFIN BAY (19, 3)



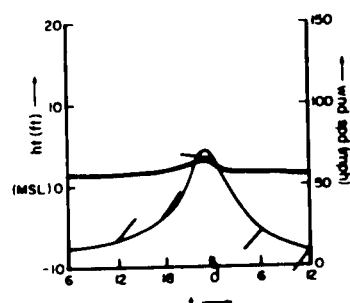
3. PADRI IS. RANGER STA. (24, 35)



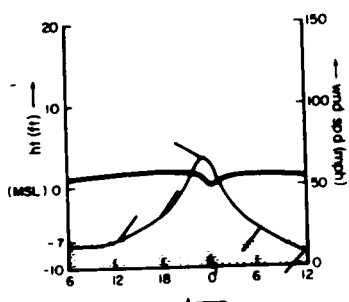
4. MUSTANG PASS (25, 45)



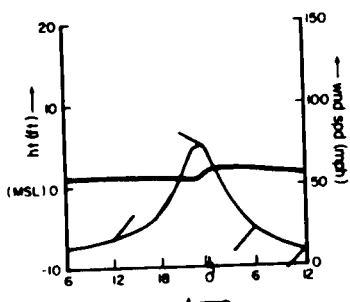
5. NAVAL AIR STA. (20, 46)



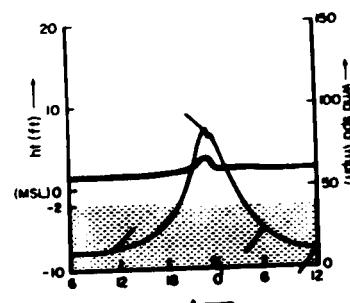
6. CORPUS CHRISTI (12, 53)



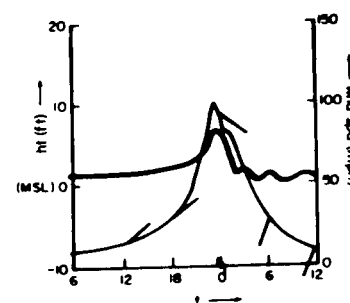
7. INGLESIDE (21, 55)



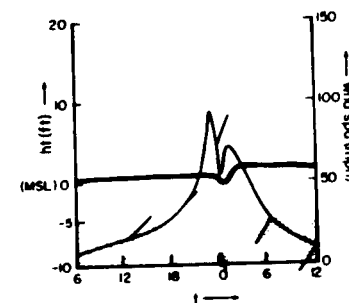
8. ARANSAS PASS (28, 57)



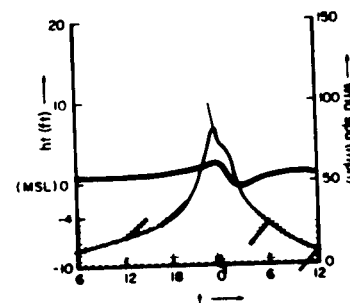
9. PORT ARANSAS (31, 53)



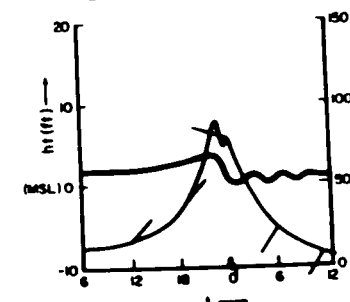
10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)



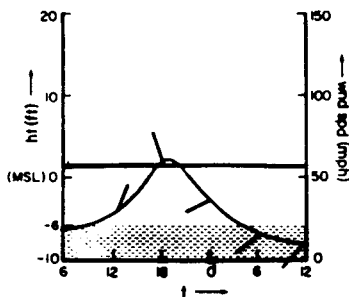
12. MATAGORDA IS. (45, 61)



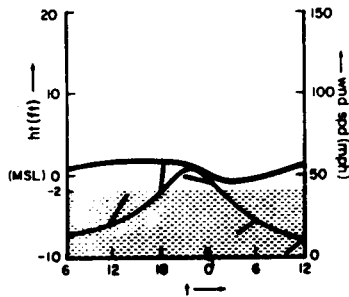




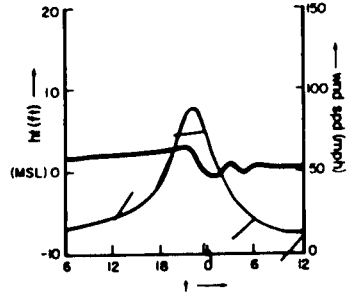
1. PORT MANSFIELD (48,8)



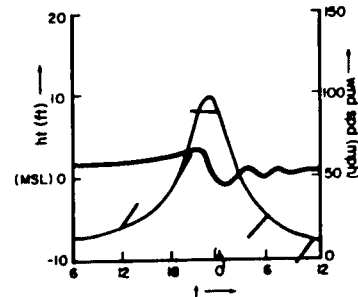
2. BAFFIN BAY (19,3)



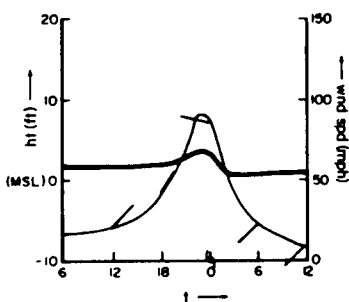
3. PADRI IS. RANGER STA. (24,35)



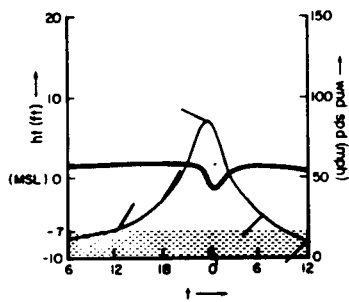
4. MUSTANG PASS (25,45)



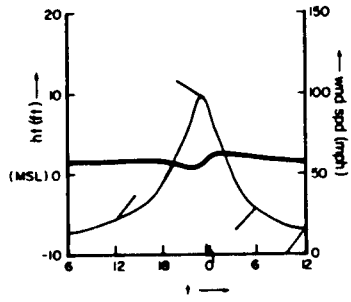
5. NAVAL AIR STA. (20,46)



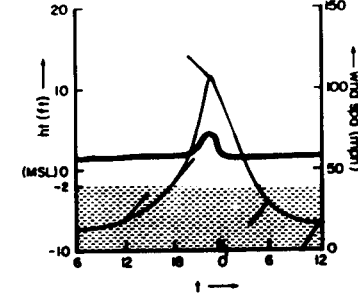
6. CORPUS CHRISTI (12,53)



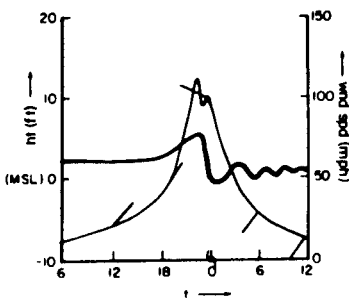
7. INGLESIDE (21,55)



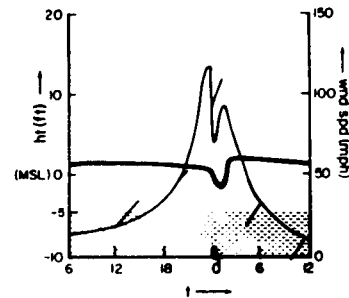
8. ARANSAS PASS (28,57)



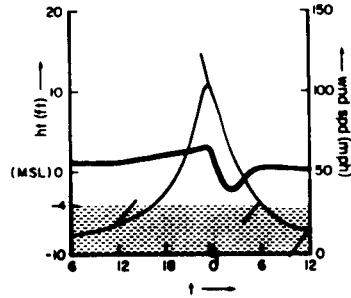
9. PORT ARANSAS (31,53)



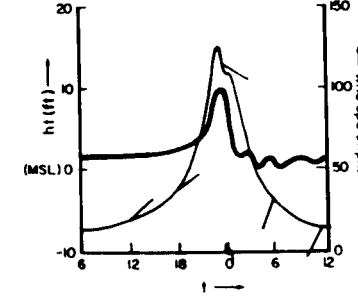
10. COPANO BRIDGE (35,63)



11. BAYSIDE (28,66)

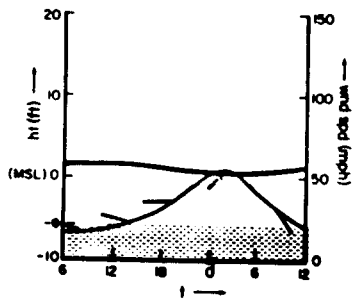


12. MATAGORDA IS. (45,61)

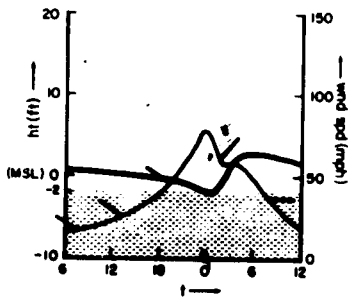




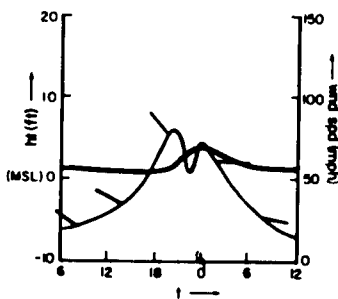
1. PORT MANSFIELD (48,8)



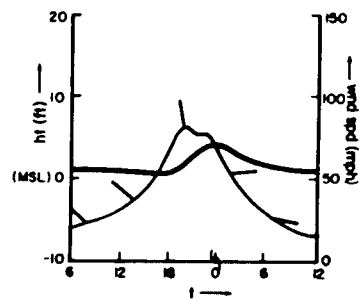
2. BAFFIN BAY (19,3)



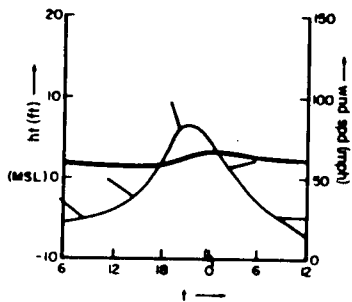
3. PADRI IS. RANGER STA. (24,35)



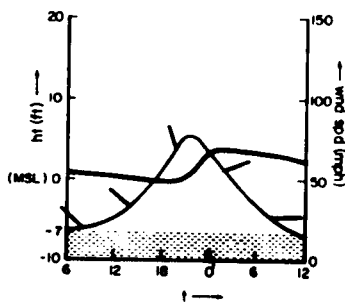
4. MUSTANG PASS (25,45)



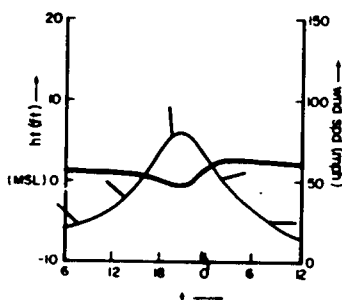
5. NAVAL AIR STA. (20,46)



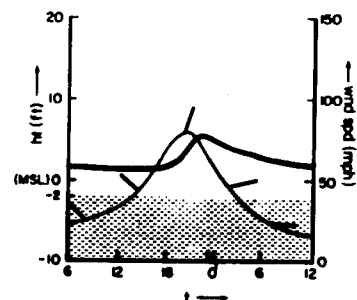
6. CORPUS CHRISTI (12,53)



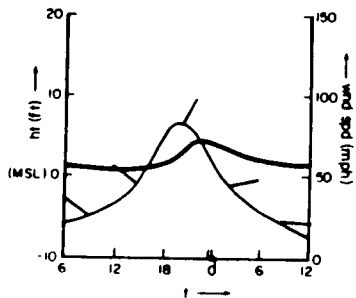
7. INGLESIDE (21,55)



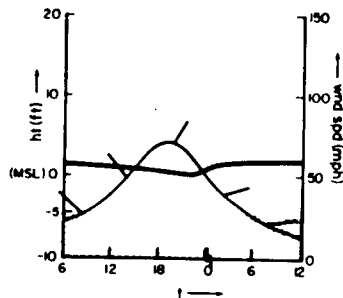
8. ARANSAS PASS (28,57)



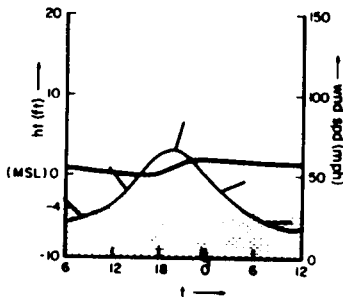
9. PORT ARANSAS (31,53)



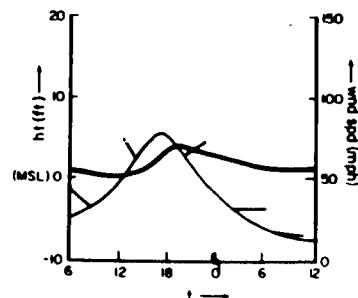
10. COPANO BRIDGE (35,63)



11. BAYSIDE (28,66)

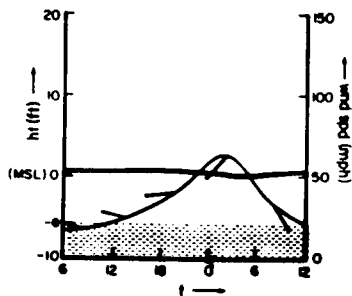


12. MATAGORDA IS. (45,61)

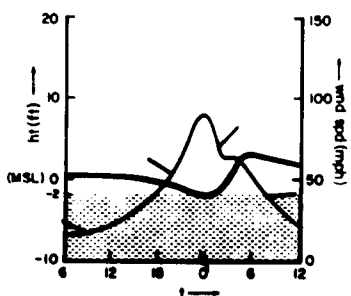




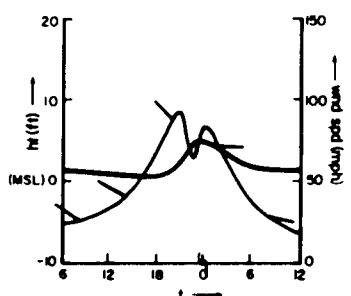
1. PORT MANSFIELD (48, 8)



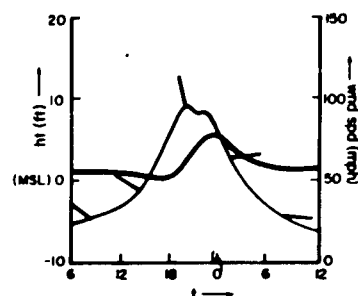
2. BAFFIN BAY (19, 3)



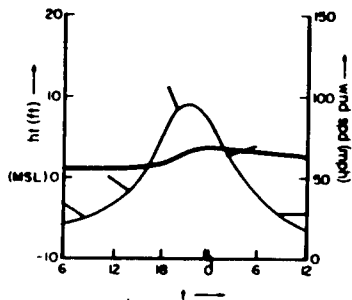
3. PADRI IS. RANGER STA. (24, 35)



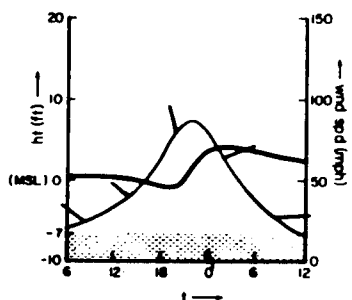
4. MUSTANG PASS (25, 45)



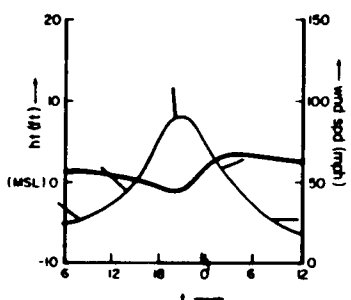
5. NAVAL AIR STA. (20, 46)



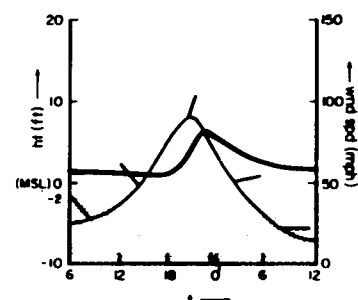
6. CORPUS CHRISTI (12, 53)



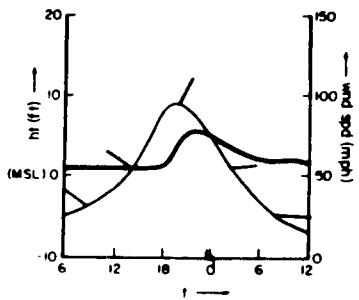
7. INGLESIDE (21, 55)



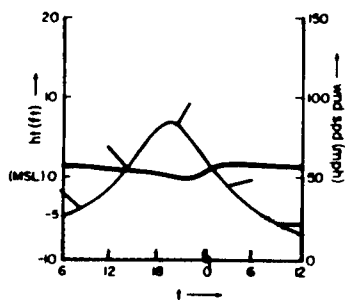
8. ARANSAS PASS (28, 57)



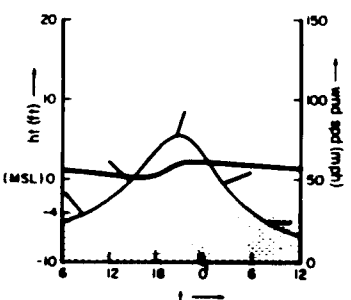
9. PORT ARANSAS (31, 53)



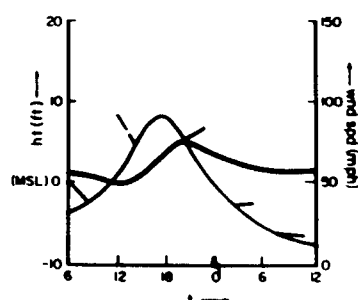
10. COPANO BRIDGE (35, 63)



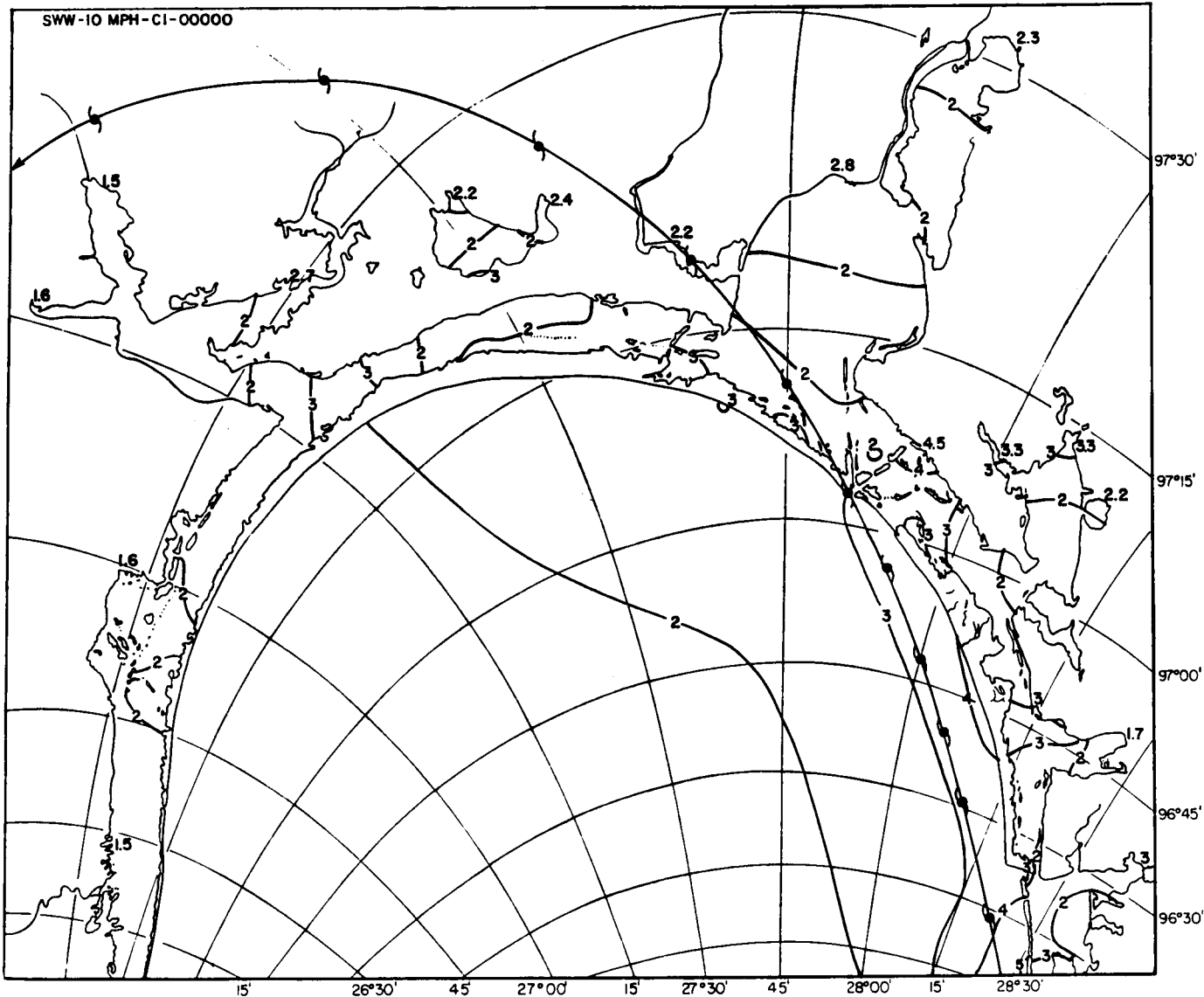
11. BAYSIDE (28, 66)



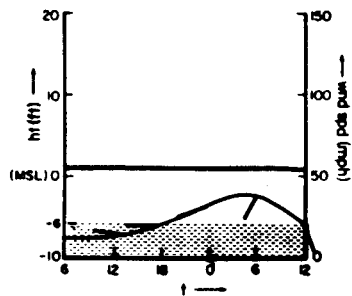
12. MATAGORDA IS. (45, 64)



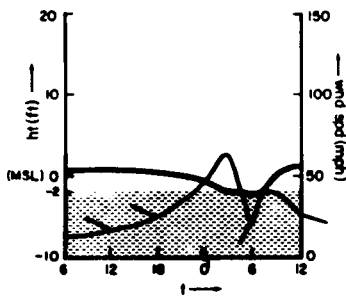
SWW-10 MPH - CI-00000



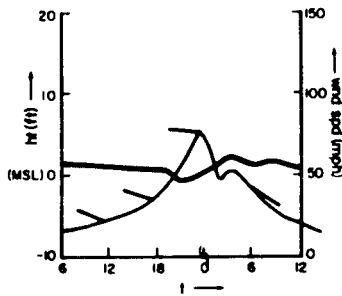
1. PORT MANSFIELD (48,8)



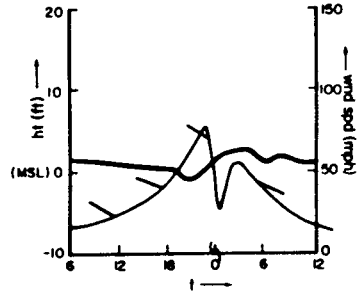
2. BAFFIN BAY (19,3)



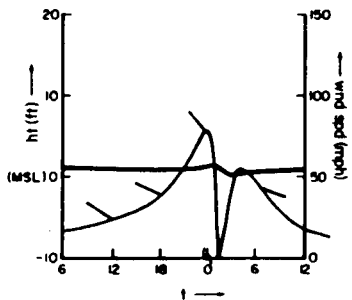
3. PADRI IS. RANGER STA. (24,35)



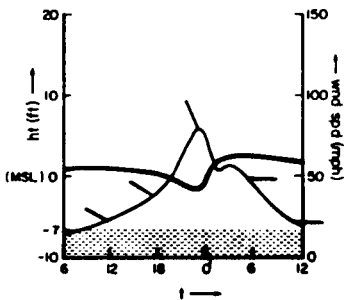
4. MUSTANG PASS (25,45)



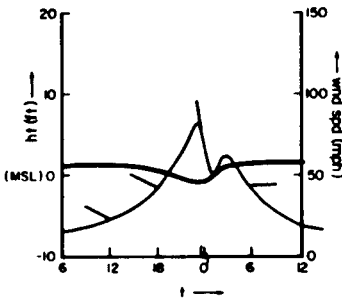
5. NAVAL AIR STA. (20,46)



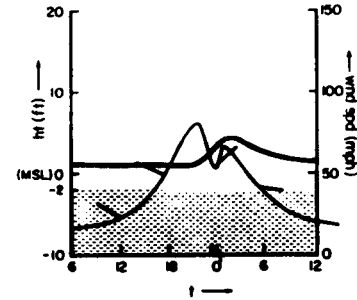
6. CORPUS CHRISTI (12,53)



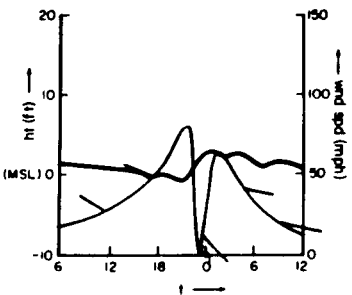
7. INGLESIDE (21,55)



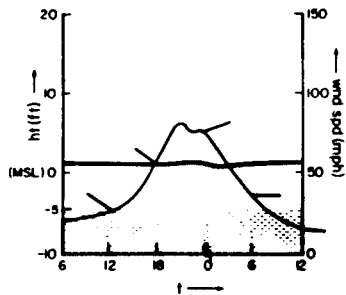
8. ARANSAS PASS (28,57)



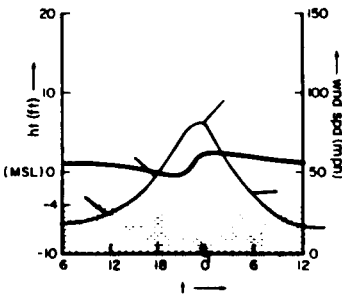
9. PORT ARANSAS (31,53)



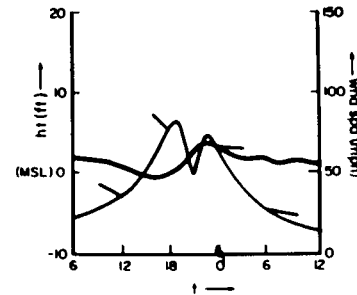
10. COPANO BRIDGE (35,63)



11. BAYSIDE (28,66)

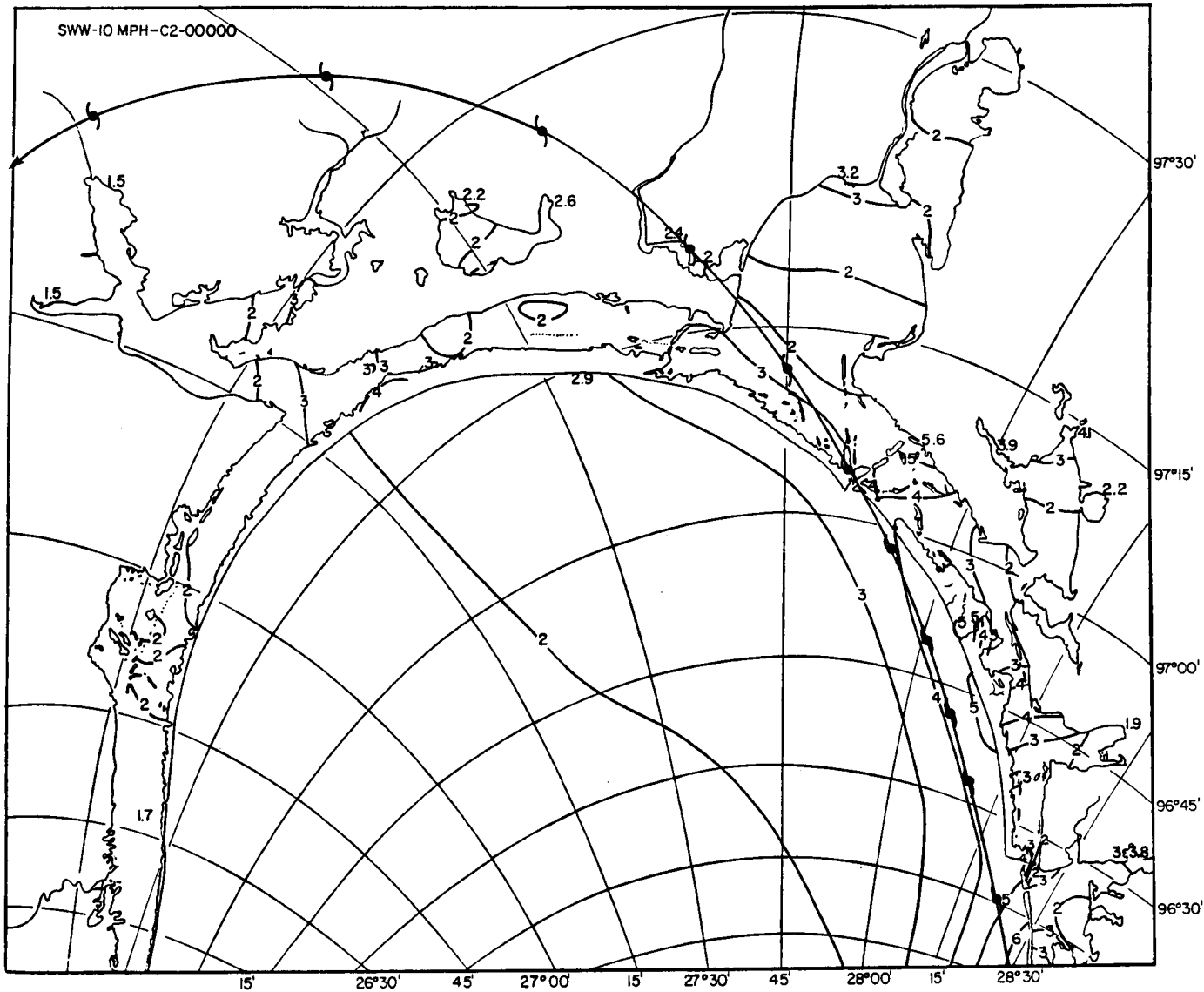


12. MATAGORDA IS. (45,61)

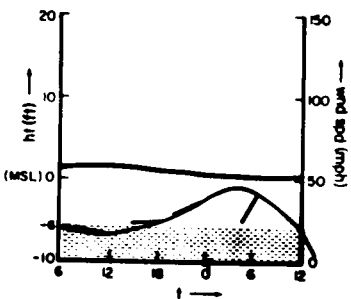




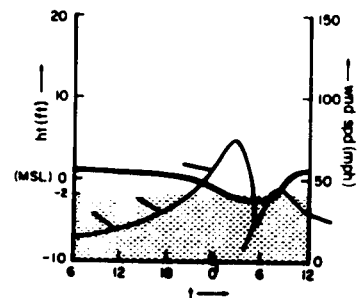
SWW-10 MPH-C2-00000



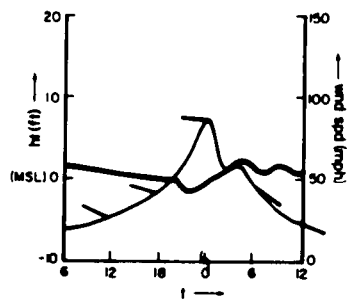
1. PORT MANSFIELD (48, 8)



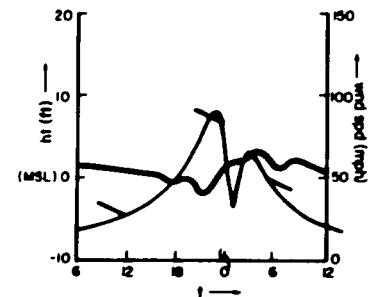
2. BAFFIN BAY (19, 3)



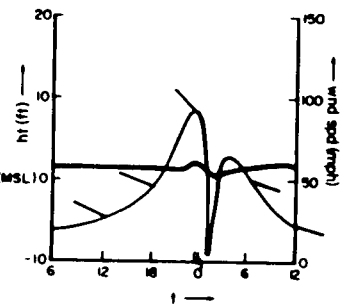
3. PADRI IS. RANGER STA. (24, 35)



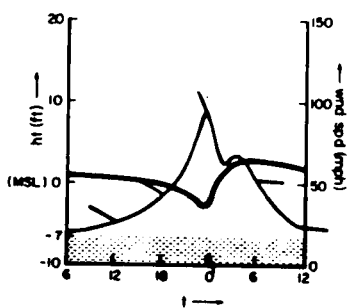
4. MUSTANG PASS (25, 45)



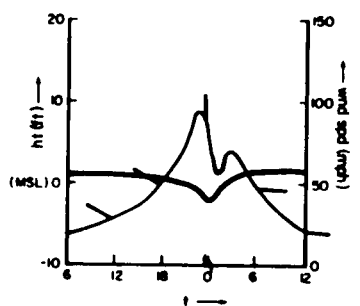
5. NAVAL AIR STA. (20, 46)



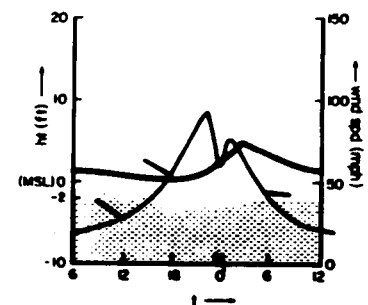
6. CORPUS CHRISTI (12, 53)



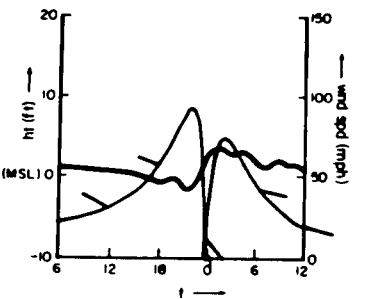
7. INGLESIDE (21, 55)



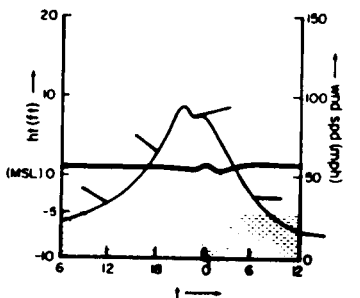
8. ARANSAS PASS (28, 57)



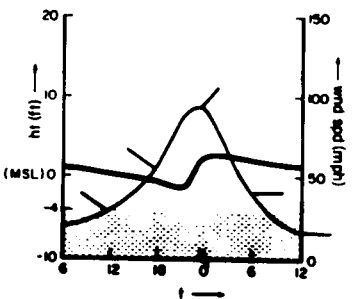
9. PORT ARANSAS (31, 53)



10. COPANO BRIDGE (35, 63)



11. BAYSIDE (28, 66)



12. MATAGORDA IS. (45, 61)

