Houston/Galveston National Weather Service Office

Storm Signals

Volume 66 Winter 2003

2003 Southeast Texas Climate Review

By Charles Roeseler

The weather regime over Southeast Texas during the first five months of the year was drier than normal. Rainfall was a little heavier over the northern half of the region and temperatures were cooler than normal during the winter months and a little warmer than normal during the spring months. Severe weather episodes were less frequent than normal. The summer months were generally on the wet side as conditions favored sea breeze activity and an occasional tropical wave. Temperatures during the summer months were near to slightly below normal. The big story of the summer was the development of Hurricane Claudette. This hurricane moved somewhat erratically as she churned north across the Gulf of Mexico and then headed west toward the middle Texas coast. Claudette crossed Matagorda Island and Matagorda Bay and eventually moved into south-central Texas. The summer ended with a bit of a bang as Tropical Storm Grace developed over Labor Day weekend and moved inland. Autumn was been wetter and slightly cooler than normal.

A brief summary of each month will now be provided. A table with the actual temperatures and rainfall for each automated site will appear at the end of this article.

January

A trend of wetter than normal conditions came to a rather abrupt end in January. Rainfall was one to three inches below normal across the region. In addition to being dry, January was also very cool. Average temperatures were one to three degrees cooler than normal over inland areas and three to four degrees cooler than normal near the coast. In a marked contrast to December 2002, severe weather was rather limited. No severe weather watches or warnings were issued during the month. A series of cold fronts delivered periodic episodes of unusual weather. Strong north winds in the wake of these fronts prompted wind advisories to be issued on New Years Day and again mid-month. In the wake of these fronts, arctic air plunged southward and delivered unusually cold air into Southeast Texas. A hard freeze warning was issued on the 23rd and morning lows dipped into the lower 20s over areas north of I-10. Episodes of dense fog also prompted advisories on the 6th and 28th.

February

Temperatures in February were topsy-turvy. The month started out on a mild note with temperatures generally in the 60s and 70s. There was a brief cool spell during the second week. Temperatures were warmer than normal during the third week. Colder temperatures plunged into Texas during the last week of the month. There were frequent intervals of precipitation during February. Precipitation was generally heavier during the second half of the month. Inland areas received the most rainfall with amounts diminishing toward the coast. In fact, coastal communities received below normal rainfall. In addition to rain, there were also reports of sleet, freezing rain and even some light snow across mainly the northern half of the region. No significant accumulations of snow or ice were reported. There were several interesting weather episodes during the month. The first of two winter weather events occurred over the northern half of the region on the 7th and 8th. A period of light rain briefly changed over to a mixture of sleet and light snow before changing back to rain. There was no snow accumulation reported. On Valentine's Day, a severe thunderstorm developed over southern Harris county. This storm moved northeast and affected parts of Chambers and Liberty counties. This storm produced dime size hail near Beltway 8 and Post Oak. By the time the storm reached the east side of Harris county, the hail had increased in size to near golf ball size. Hail was also reported in neighboring counties. A heavy rain event affected the area beginning overnight on the 19th and ending during the evening of the 21st. The northern half of the region received the heaviest rainfall with some spots receiving 6 to 8 inches of rain. In addition to the heavy rain, severe thunderstorms erupted on the 21st. These storms produced dime to golf ball sized hail across the region. The month ended on a very cold note. Temperatures were well below normal. Warm air overriding the cold air at the surface produced light precipitation across the region. On the 24th and 25th, light freezing rain and sleet developed over mainly the northwestern half of the region, generally north and west of a Columbus to Livingston line. While the winter precipitation was ongoing over the north, a cluster of thunderstorms producing large hail developed on the morning of the 25th over the south.

In this Issue:

2003 Southeast Texas Climate Review.....1
City of Friendswood Recognized as STORMREADY...5
IFPS Becomes "Official" at the Houston/Galveston NWS Office.....6
2004 National Severe Weather Workshop.....7
Hurricane Season 2003.....8
SKYWARN.....13
Turn Around, Don't Drown.....14
Staff Spotlight.....15

March

A brief end of the month cold snap helped produce slightly below normal temperatures. Just like February, temperatures were cooler at the beginning and end of the month with warmer temperatures sandwiched during the mid-month period. No new temperature records were tied or established during March. Despite several bouts of severe weather, rainfall at area climate sites were below normal for the month. Most areas were 1 to 2 inches below normal for the month. There were several severe weather episodes for the month. Dense fog plagued the area on the morning of the 13th. The fog lifted quickly and severe weather erupted by late morning. Small hail and very heavy rain affected Chambers county. Parts of Chambers county received 8 and 10 inches of rain by early afternoon. Another round of severe weather developed during the afternoon. Dime sized hail affected the Katy, Simonton and Sealy areas during the evening rush hour. Later that evening, the storms intensified and golf ball sized hail affected Wharton, Matagorda and Jackson counties. On the 18th, another round of severe weather developed. These storms produced only pea sized hail, but several of the storms produced funnel clouds. Polk county suffered the most damage from these storms as straight line winds overturned boats on Lake Livingston and knocked down trees and power lines over the southwestern half of the county.

April

April was considerably drier than normal, averaging 1 to 3 inches below normal. In fact, College Station only received 0.17 inches of rain for the month making this the second driest April in recorded history. Most of the region suffered from a rainfall deficit, none more glaring then Galveston. The island had received meager rain during the first four months of 2003. The four month total of 4.61 inches was the fifth driest Jan-Apr total in history. The driest Jan-Apr occurred back in 1916 when 2.67 inches of rain fell. There were several interesting weather episodes during the month. A thunderstorm complex developed rapidly on the morning of the 7th. The primary severe weather hazard from this system was large hail. Hail averaging 1 to 2 inches in diameter was common across portions of Fort Bend, Harris, Galveston and Chambers counties. Hobby airport in Houston received hail in the morning and then another storm dropped more hail in the afternoon. On the 22nd, another thunderstorm tracked across Washington, Austin and Waller counties around lunch time. This storm dropped tennis ball sized hail near Hempstead. A supercell tracked along I-10 on the morning of the 24th. This storm produced baseball sized hail near Columbus, one inch hail in Sealy and golf ball sized hail near Tomball and near the Galleria. On the 29th, severe storms moved along the coast and produced 3/4 inch hail in Jamaica Beach. The peak season for severe weather is generally late March through early May, so getting large hail this time of the year is not unusual. What is a bit unusual is that none of the severe weather reported in April included wind damage or tornadoes. Despite the frequency of these thunderstorms, widespread heavy rain was not common. These severe storms were generally fast moving and isolated in nature.

May

The only hazardous weather worth noting in May occurred on the 16th as a thunderstorm complex approached the northern half of the region. Baseball sized hail fell near Madisonville and strong winds toppled power lines and trees in Houston county. Temperatures averaged 3 to 5 degrees above normal. Rainfall for the month was paltry. Most areas received an inch of rain or less for the month. This was the 4th, 5th and 6th driest May for Houston, College Station and Galveston respectively. Smoke, from fires raging in parts of Mexico and Central America, drifted north and helped to degrade air quality over Southeast Texas during the month.

June

Rain occurred between 10 and 15 days this month with the greater frequencies occurring near the coast. Despite the additional rainfall this month, the area still suffered from a rainfall deficit for the year. Temperatures for the month averaged near normal values. There were several episodes of severe weather during the month. On the 2nd, a cold front sagged into the northeastern half of the region. This feature triggered thunderstorms which produced wind damage and golf ball size hail in Liberty county. Several nocturnal thunderstorm complexes developed over north Texas and raced southeast in the early morning hours of the 3rd, 4th, 5th and 6th. Activity was scattered in nature and much of the area remained dry. Another severe weather event occurred on the 13th. A squall line approached the region from the west. This system produced widespread wind damage, small hail and isolated tornadoes. A tornado touched down on the south side of College Station but did not produce any damage. Downburst winds blew down power lines, trees and street signs across portions of Burleson, Austin and Washington counties. A building ridge of high pressure produced very warm temperatures from the 21st to the 25th. Conditions were rather oppressive as humidity levels were high, even by Southeast Texas standards. Overnight low temperatures remained above 80 degrees for most of the night, falling into the upper 70s for an hour or so around sunrise. A heat advisory was in effect for most of the area. Weather patterns began to change toward the end of the month. A weakness in the upper levels of the atmosphere allowed for more sea breeze generated thunderstorms to develop in the late morning and persist into the early evening. The rain was not unusually heavy, but the showers were more than sufficient to keep temperatures a little cooler during the last week of the month.

July

Temperatures were generally near normal for the month and rainfall was above normal. The major story of the month was the formation and movement of Claudette. The first hurricane to affect the upper Texas coast since 1989 made landfall on the morning of the 15th. Claudette developed over the central Carribean and intensifed to a hurricane before making landfall over the Yucatan. The storm then moved into the Gulf of Mexico, drifting aimlessly in the central Gulf of Mexico for several days. The

circulation center would reform under the deepest convection thus appearing to show a northward drift. The storm intensified into a category 1 hurricane as it made landfall near Port O'Connor. This storm produced significant beach erosion and coastal flooding was a serious problem from the Bolivar Peninsula to Matagorda Island. Since Claudette moved westward at a steady rate, flooding rains were confined to Wharton, Matagorda and Jackson counties. Prior to Claudette making landfall, numerous waterspouts were observed from Galveston to Freeport. Aside from Claudette, the weather remained on the active side. On the Fourth of July, mother nature provided her own show of fireworks. Numerous thunderstorms developed in the Galveston Bay area. One of the storms produced a large waterspout near the Kemah boardwalk on the west side of Galveston Bay. Another round of thunderstorms producing wind damage developed on the 23rd and 24th.

August

August started out considerably warmer than either June or July. Daytime highs were in the mid 90s on the 1st, upper 90s by the 4th and in the lower 100s by the 7th. The warmest temperatures of the year occurred on the 7th and 8th with temperatures peaking near 104 degrees. Humidity levels were also very high creating oppressive conditions. Heat indices reached dangerous levels peaking above 110 degrees for several days. A heat advisory was in effect through the 8th. As the sea breeze worked inland on the 8th, isolated thunderstorms developed over Harris county. Large hail was the primary weather hazard. An episode of strong to severe thunderstorms affected the area on the 11th and again on the 14th. Tropical Depression Eleven formed in the Gulf on the 30th. This system became Tropical Storm Grace and moved toward the Texas coast over Labor Day weekend. Grace was a minimal tropical storm but locally heavy rain pounded the area the last two days of the month.

September

The remnants of Grace produced a wet start to the month. Periods of thunderstorms occurred throughout the month producing locally heavy rain, but hazardous weather such as high winds and hail were limited. Lightning is another hazard that is extremely dangerous. Several persons were killed this month after being struck by lightning. The ground was saturated from the heavy rains which fell during summer and minor flooding occurred from time to time during some of the heavier rain showers. Overall, the month was cooler than normal and considerably wetter than normal.

October

October was relatively quiet. Only two episodes of hazarous weather occurred during the month. On the 9th, abundant tropical moisture coupled with a slow moving surface boundary triggered numerous thunderstorms across the region. Weak short lived tornadoes developed and produced scattered damage across Fort Bend, Harris, Brazoria and Galveston counties. Heavy rain pummeled the area with both College Station and Houston recording new 24 hour rainfall records. The 25th was another stormy day as a cold front approached the region from the north. Widespread thunderstorms developed over the entire region. Rainfall averaged between 1 and 2 inches across the region, but there were pockets of heavier rain, approaching 8 inches in some locations. Warmer than normal temperatures returned toward Halloween with temperatures at the end of the month averaging 10 degrees above normal.

November

November will long be remembered for a tornado outbreak on the 17th. Two dozen tornadoes were reported across the upper Texas coast. Damage was spotty, but in areas were tornadoes touched down, the damage was significant. Areas near Sugarland, Mission Bend and Baytown were hardest hit by the storms. Over 75 people were injured during this severe weather outbreak. This was the most active severe weather day since December 23, 2002 and the most confirmed tornadoes since November 21, 1992. Rainfall across the area varied greatly, but the heaviest rain fell along the U.S. 59 corridor from Richmond to Intercontinental Airport. Monthly temperatures were warmer than normal averaging 2 to 4 above warmer than normal.

December

December was the inverse of November. The weather was mild and uneventful. Temperatures were generally near normal. Rainfall was below normal over inland portions of the region. Coastal sections received above normal rainfall. Other than a couple episodes of dense fog, hazardous weather was at a minimum.

Angleton - 2003 Data						
Month	Average High	Average Low	Average Daily	Departure	Rain	Departure
January	60.5	40.7	50.6	NA	2.46	NA
February	62.8	46.5	54.7	NA	1.94	NA
March	71.2	51.0	61.1	NA	0.85	NA
April	78.1	60.3	69.2	NA	0.84	NA
May	88.0	70.5	79.2	NA	0.02	NA
June	91.5	73.0	82.3	NA	1.57	NA
July	89.4	74.1	81.7	NA	7.61	NA
Aug	91.2	73.6	82.4	NA	3.20	NA
Sept	86.1	68.6	77.3	NA	10.90	NA
Oct	83.8	63.1	73.5	NA	3.80	NA
Nov	77.8	57.2	67.5		4.6	
Dec	67.3	43.2	55.3	NA	4.39	NA
Tomball - 2003 Data						
Month	Average High	Average Low	Average Daily	Departure	Rain	Departure
January	58.5	38.8	48.7		1.88	
February	61.3	44.2	52.8		3.72	
March	70.3	49.6	60.0		1.22	
April	79.1	59.7	69.4		2.57	
May	88.4	69.3	78.8		0.03	
June	90.6	71.3	80.9		5.20	
July	91.1	73.6	82.4		4.02	
Aug	93.5	73.7	83.6		4.57	
Sept	85.4	66.5	76.0		7.00	
Oct	81.9	59.1	70.5		6.64	
Sept	85.4	66.5	76.0		7.00	
Oct	81.9	59.1	70.5		6.64	
Nov	74.3	52.5	63.4		4.89	
Dec	65.4	39.5	52.5	NA	2.85	NA

Houston Intercontinental Airport - 2003 Data

Month	Average High	Average Low	Average Daily	Departure	Rain	Departure
January	59.2	40.9	50.1	-1.7	2.09	-1.59
February	61.6	46.0	53.8	-1.6	4.08	+1.10
March	71.0	51.8	61.4	-0.9	2.04	-1.32
April	79.5	61.5	70.5	+2.0	1.46	-2.14
May	90.2	71.3	80.8	+5.0	0.06	-5.09
June	92.1	73.3	82.7	+1.4	3.62	-1.73
July	91.4	75.3	83.4	-0.2	5.35	+2.17
Aug	93.8	75.6	84.7	+1.4	4.47	+0.64
Sept	86.3	69.0	77.7	-1.2	6.79	+2.46
Oct	82.1	61.3	71.7	+1.3	4.99	+0.49
Nov	75.1	54.8	65.0	+4.1	7.81	+3.62
Dec	65.3	42.3	53.8	+0.1	2.99	-0.70

College Station Easterwood Field - 2003 Data

Month	Average High	Average Low	Average Daily	Departure	Rain	Departure
January	57.8	38.6	48.2	-2.0	1.08	-2.24
February	59.1	42.5	50.8	-3.7	7.31	+4.93
March	69.4	49.2	59.3	-2.3	1.68	-1.16
April	80.2	59.4	69.8	+1.9	0.17	-3.03
May	89.0	68.5	78.7	+3.4	0.58	-4.47
June	90.7	71.4	81.1	-0.5	6.64	+2.85
July	92.2	73.9	83.0	-1.6	4.05	+2.13
Aug	95.1	74.5	84.8	+0.1	4.46	+1.83
Sept	85.4	67.5	76.5	-3.2	6.25	+2.34
Oct	81.1	60.2	70.6	+0.1	6.82	+2.60
Nov	72.8	53.4	63.1	+3.1	3.92	+.74
Dec	64.9	40.3	52.6	+0.4	1.22	+2.01

Galveston Scholes Field - 2003 Data

Month	Average High	Average Low	Average Daily	Departure	Rain	Departure
January	59.2	45.1	52.1	-3.7	1.26	-2.82
February	61.0	49.8	55.4	-2.6	1.63	-0.98
March	69.0	56.0	62.5	-1.6	0.65	-2.11
April	75.6	64.9	70.3	+0.3	1.07	-1.49
May	84.4	74.8	79.6	+2.7	0.07	-3.63
June	88.0	76.9	82.4	+0.2	6.65	+2.61
July	88.0	78.9	83.5	-0.8	4.45	+1.00
Aug	90.0	79.3	84.6	+0.2	4.59	+0.37
Sept	85.4	74.7	80.1	-1.0	6.89	+1.13
Oct	80.6	68.5	74.6	+0.5	4.38	+0.89
Nov	74.7	61.6	68.2	+2.8	1.58	-2.06
Dec	64.3	50.2	57.2	-0.9	5.71	+2.18

Houston Hobby Airport - 2003 Data

Month	Average High	Average Low	Average Daily	Departure	Rain	Departure
January	60.0	42.1	51.0	-3.3	1.80	-2.45
February	62.6	46.3	54.5	-3.2	2.80	-0.21
March	71.2	52.7	62.0	-2.2	1.25	-1.94
April	79.2	61.8	70.5	+0.5	1.65	-1.81
May	89.5	72.1	80.8	+3.8	T	-5.11
June	90.6	73.8	82.2	-0.1	7.10	+0.26
July	90.3	75.2	82.7	-1.8	5.70	+1.34
Aug	92.5	75.6	84.0	-0.4	5.61	+1.07
Sept	86.0	69.9	77.9	-2.6	8.79	+3.17
Oct	81.5	62.5	72.0	-0.2	4.46	-0.80
Nov	75.6	55.7	65.6	+2.6	2.94	-1.60
Dec	65.4	44.0	54.7	-1.4	3.06	-0.72

Huntsville - 2003 Data

Month	Average High	Average Low	Average Daily	Departure	Rain	Departure
January	57.7	38.3	48.0	NA	1.09	NA
February	58.9	42.4	50.7	NA	3.95	NA
March	69.1	48.4	58.7	NA	1.98	NA
April	80.2	59.7	69.9	NA	0.49	NA
May	88.4	68.5	78.4	NA	1.33	NA
June	90.7	71.6	81.1	NA	6.17	NA
July	92.5	74.4	83.5	NA	2.36	NA
Aug	94.9	74.4	84.6	NA	3.11	NA
Sept	85.7	66.3	76.0	NA	10.09	NA
Oct	81.1	59.2	70.1	NA	3.56	NA
Nov	73.1	53.5	63.3	NA	4.69	NA
Dec	64.3	40.3	52.3	NA	2.12	NA

Conroe - 2003 Data

Month	Average High	Average Low	Average Daily	Departure	Rain	Departure
January	57.9	37.0	47.5	NA	0.33	NA
February	60.1	41.9	51.0	NA	4.25	NA
March	69.6	47.3	58.5	NA	1.85	NA
April	78.9	56.7	67.8	NA	0.91	NA
May	88.1	66.6	77.3	NA	0.57	NA
June	90.7	69.4	80.1	NA	3.84	NA
July	90.6	72.3	81.5	NA	3.28	NA
Aug	93.6	72.6	83.1	NA	3.64	NA
Sept	85.6	65.4	75.5	NA	4.71	NA
Oct	81.5	56.3	68.9	NA	3.77	NA
Nov	74.5	51.8	63.1	NA	6.70	NA
Dec	65.1	36.6	50.9	NA	2.95	NA

Sugarland - 2003 Data

Month	Average High	Average Low	Average Daily	Departure	Rain	Departure
January	59.4	39.9	49.6	NA	1.94	NA
February	62.3	45.0	53.6	NA	3.20	NA
March	70.7	50.1	60.4	NA	1.93	NA
April	79.5	59.9	69.7	NA	1.93	NA
May	90.1	70.0	80.0	NA	0.01	NA
June	92.0	71.4	81.7	NA	3.75	NA
July	89.8	73.3	81.5	NA	8.53	NA
Aug	92.2	73.9	83.1	NA	2.90	NA
Sept	85.7	67.6	76.7	NA	5.51	NA
Oct	81.8	60.1	70.9	NA	5.99	NA
Nov	75.8	54.5	65.2	NA	8.33	NA
Dec	66.6	41.2	53.9	NA	2.68	NA

Palacios - 2003 Data

Month	Average High	Average Low	Average Daily	Departure	Rain	Departure
January	60.0	42.3	51.1	-1.8	3.11	-0.07
February	62.5	47.7	55.1	-0.7	2.33	-0.12
March	70.1	53.4	61.7	-0.4	2.68	-0.02
April	77.4	63.1	70.3	+1.8	0.16	-2.64
May	87.2	73.8	80.5	+4.8	0.28	-4.27
June	89.8	75.8	82.8	+1.7	4.60	+0.29
July	89.0*	76.4*	82.7*	-0.7*	6.48*	+2.49*
Aug	90.9	76.8	83.8	+0.8	2.31	-1.05
Sept	86.4	69.9	78.1	-0.9	8.46	+1.88
Oct	81.6	62.9	72.2	+0.9	3.80	-1.21
Nov	76.7	57.1	66.9	+4.7	1.51	-1.81
Dec	68.0	44.3	56.1	+1.0	1.44	-1.64

City of Friendswood Recognized as *StormReady*

On Monday September 22, 2003 at 7:00 pm the Houston/Galveston National Weather Service recognized the City of Friendswood with the Storm Ready Certification. The presentation took place during the City Council meeting in the Friendswood City Hall located at 910 South Friendswood Drive.

The City of Friendswood is the first community in the Houston/Galveston area to obtain this recognition. StormReady is a program, sponsored by the National Weather Service (NWS), that is designed to equip communities with the communication and safety skills necessary to save lives and property. StormReady encourages communities to take a proactive approach to improve local hazardous weather operations and public awareness.

Bill Read, right, Meteorologist In Charge at the Houston/Galveston National Weather Service, is shown presenting the Storm Ready sign to Terry Byrd, Emergency Management Coordinator for the City of Friendswood.

To be certified as StormReady, a NWS advisory board reviews a community's application and inspects the applicant's emergency management operations. A StormReady Community must:

- establish a 24-hour warning point and emergency operations center;
- have more than one way to receive severe weather forecasts and warnings and to alert the public;
- have a system in place that monitors local weather conditions;
- promote the importance of public readiness through community seminars;
- develop a formal hazardous weather plan, which includes training severe weather spotters and holding emergency exercises.

If your community or county is interested in becoming StormReady, feel free to contact Gene Hafele at the Houston/Galveston National Weather Service at 281-337-5074 x223 or email Gene at gene.hafele@noaa.gov. For more information on StormReady program visit http://www.stormready.noaa.gov

StormReady
NATIONAL WEATHER SERVICE

IFPS Becomes "Official" at the Houston/Galveston NWS Office

by Matt Moreland

A project more than two years in the making, the Interactive Forecast Preparation System (IFPS) became the official mechanism to produce forecasts across the National Weather Service on September 30th. IFPS represents the beginning of a new era in NWS forecasting where emphasis will be placed on smaller scale and more detailed forecasts and away from the more broad-brush larger scale forecasts of the past.

Forecasters use a graphical forecast editor to edit grids for specific weather elements, then a set of text formatters compile the information from the grids and automatically produce our text forecasts. All of our edited grids become part of a nationwide database of NWS forecast information.

IFPS Text Forecasts

The following Houston/Galveston text products are being produced through IFPS:

Forecast PIL	WMO Header	Forecast Name
SATZFPHGX	FPUS54 KHGX	Southeast Texas Zone Forecasts
SATAFMHGX	FOUS54 KHGX	Area Forecast Matrices
SATPFMHGX	FOUS54 KHGX	Point Forecast Matrices
SATSFTHGX	FPUS64 KHGX	Tabular State Forecast
SATCWFHGX	FZUS54 KHGX	Coastal Waters Forecast
SATFWFHGX	FNUS54 KHGX	Fire Weather Forecast
SATCCFHGX	FPUS44 KHGX	Coded Cities Forecast
SATMVF002	FXUS54 KHGX	Marine Verification Matrix
SATFWMHGX	FNUS84 KHGX	Fire Danger Rating System Forecast

Among the text products, three of these are new products with the advent of IFPS:

Area Forecast Matrices (SATAFMHGX): a series of tabular forecasts for southeast Texas based on zone grouping. The output is set up to look similar to MOS model guidance.
Point Forecast Matrices (SATPFMHGX): tabular forecasts for specific sites that resemble MOS output - in our case CLL, IAH, and GLS.
Tabular State Forecast (SATSFTHGX): 7-day extended forecast with Max/Min temperature, weather, rain chance, and QPF for several southeast Texas cities. Useful as a "quick look" forecast for travelers and other interests.

The three new tabular forecasts can be found on the HGX website at: http://www.srh.noaa.gov/hgx/forecasts.htm about halfway down the page under the heading "Experimental Forecasts".

Other changes to the text forecasts include:

Southeast Texas Zone Forecasts (SATZFPHGX):
- now both day and night periods through day 7.
- wind included in the first 5 periods.
- POP (chance of precipitation) listed in each period through day 7.

Coded Cities Forecast (SATCCFHGX): expanded from 5 periods to 14 periods (7 days)
Fire Danger Rating System Forecast (SATFWMHGX): a 24-hour point forecast issued around 3 PM each afternoon for Conroe (CXO) with temperature, relative humidity, wind speed and direction, and precipitation.

IFPS Images

The forecaster-edited grids are posted on the HGX website: http://www.srh.noaa.gov/hgx by clicking on "Graphical" under "Forecasts" from the main menu on the left hand side.

Images can also be found at: http://www.srh.noaa.gov/data/ifps/hgx/GFE/

The images provide another way for users to see our IFPS forecasts. New images are posted twice a day on the HGX website around 5:30 AM and 5:00 PM daily. Selected images may be updated throughout the day as conditions warrant. Weather element images can be looped and scrolled through day 7 on the template.

The image template includes three links for Public Forecasts, Marine Forecasts, and Fire Weather information. The template includes links to images from surrounding weather offices.

Weather Element	Time Interval	Forecast Period
Public:		
Max/Min Temperature	12 hours	7 days
Prob. Of Precipitation	6 hours	7 days
Precip Amount (QPF)	6 hours	72 hours
Weather Type	6 hours	7 days
Temperature & Wind	3-6 hours	7 days
Rel. Humidity & Wind	3-6 hours	7 days
Heat Index/Wind Chill	3-6 hours	7 days
Weather Alerts	6 hours	48 hours
Marine:		
Winds & Waves	3-6 hours	7 days
Wave Height	3-6 hours	7 days
Marine Weather Type	6 hours	7 days
Fire Weather:		
Max/Min Temperature	12 hours	7 days
Prob. Of Precipitation	6 hours	7 days
Weather Type	6 hours	7 days
Temperature & Wind	3-6 hours	7 days
Rel. Humidity & Wind	3-6 hours	7 days
Mixing Height	3 hours	48 hours
Transport Winds	3 hours	48 hours

National Digital Forecast Database (NDFD)
Images issued from the Houston/Galveston NWS office become part of a national gridded database known as the NDFD. Users can already view some of this national grid information on a website: http://www.weather.gov/forecasts/graphical/

The national images are essentially a melding together of all the local NWS forecasts into one large "seamless" forecast.

Graphics for Public/Commercial Download
Eventually, the National Weather Service will make these gridded forecasts available for download off the internet for commercial or public use. Currently, early 2004 is the time line for the start of this new development. For more information, see the National Digital Forecast Database (NDFD) website: http://www.nws.noaa.gov/ndfd/

2004 National Severe Weather Workshop
March 4 - 6, 2004
Norman, OK

Designed for emergency managers, storm spotters and other weather enthusiasts, the workshop offers a unique opportunity to learn about the National Weather Service's outlook, watch and warning process, severe weather preparedness and safety, StormReady, EMWIN, severe storm risks, lightning effects, wind damage effects and new ways to get radar data. Spotter training will be offered in conjunction with the workshop.

The National Severe Weather Workshop will feature the nation's premiere severe weather experts discussing their latest research and forecasting techniques. Speakers will include forecasters and researchers from the NOAA Weather Partners in Norman: Storm Prediction Center, National Severe Storms Laboratory, Warning Decision Training Branch, Radar Operations Center and National Weather Service Norman Forecast Office.

For additional information go to their web site at: www.norman.noaa.gov/nsww2004/

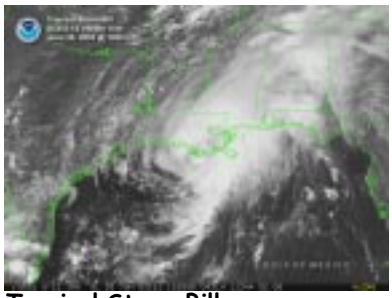
Hurricane Season 2003

The 2003 Atlantic basin hurricane season got off to an early start when Tropical Storm Ana became the first Atlantic storm on record to develop in the month of April. The season ended late when Tropical Storms Odette and Peter formed in the month of December. With these two rare December storms, the 2003 Atlantic Basin Hurricane Season became the longest tropical cyclone season since 1952, a year in which the first tropical storm formed on February 2nd and the last one dissipated on October 28th.

Tropical Storm Ana formed as a subtropical cyclone about 120 miles west-southwest of Bermuda early on April 21st, but soon acquired tropical characteristics. Ana moved on a generally eastward track over the central Atlantic and then became extratropical. Two deaths were attributed to Ana when a boat capsized at Jupiter Inlet, Florida late on April 20th due to a combination of incoming swells from Ana and the outgoing tide. Ana is the only tropical storm on record ever to have formed in the month of April in the Atlantic Basin. The season's earliest Atlantic hurricane ever recorded was on March 7, 1908.


Tropical Storm Ana

Two tropical cyclones, **Tropical Depression Two** and **Tropical Storm Bill**, formed in June. Short-lived Tropical Depression Two developed in the tropical Atlantic on June 10th, only the third tropical cyclone to form to the east of the Lesser Antilles in June since 1967. It moved rapidly westward and degenerated into a tropical wave one day after it formed. Tropical Storm Bill formed over the southern Gulf of Mexico on June 29th. It moved northward and made landfall in southeastern Louisiana with winds to 60 mph late on June 30th. Bill produced at least five confirmed tornadoes, coastal flooding and heavy rain. One of the tornadoes struck Reserve, Louisiana damaging 20 mobile homes and injuring 4 people. At least 8 inches of rain fell in Pascagoula, Mississippi (on the border with Alabama). Bill's remnants spread heavy rain across portions of the southeastern states. Thousands of homes in Louisiana lost power during the storm. Before becoming absorbed in a frontal system over west-central Virginia on July 3rd, Bill caused 4 deaths and an estimated $30 million damage.


Tropical Storm Bill

Four tropical cyclones formed in July. **Hurricane Claudette** made landfall along the middle Texas coast near Port O'Connor on Tuesday, July 15th. Claudette was the first hurricane to strike the Port O'Connor and Matagorda Bay area since Hurricane Fern on September 10, 1971. Historical records dating back to 1851 indicate Claudette was the first July hurricane to make landfall in this area. Claudette can be traced to a tropical wave that moved off the west coast of Africa in the first week of July. The tropical wave showed some signs of organization as it moved westward toward the Lesser Antilles but never developed a closed circulation due to its rapid movement and some upper level wind shear. Shear weakened enough on the afternoon of July 8th to upgrade the strong wave to Tropical Storm Claudette while located in the central Caribbean Sea about 415 miles east-southeast of Kingston, Jamaica. Claudette continued to move to the west and passed well south of Jamaica. When Claudette entered the western Caribbean Sea, she began to turn to the northwest and took aim at the northeast tip of the Yucatan Peninsula. She moved across the Cancun area before noon on Friday, July 11th with sustained winds around 55 mph.

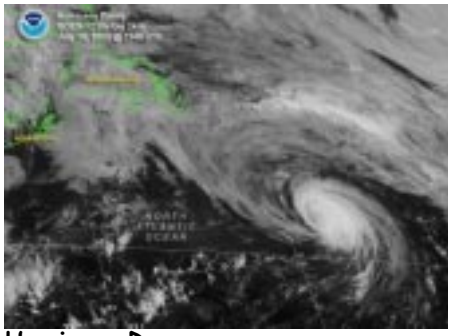

Hurricane Claudette

After emerging in the Gulf of Mexico, Tropical Storm Claudette continued to encounter strong upper level shear. Claudette gradually moved to the northwest into the northwest Gulf of Mexico and slowed down, becoming nearly stationary on the afternoon of Sunday, July 13th under the influence of very weak steering currents. Models indicated Claudette would gradually turn toward the west-northwest and then to the west and eventually make landfall on the Texas coast. This turn began to take place on Monday, July 14th as shear began to weaken, and Claudette strengthened into a strong tropical storm with 65 mph winds. The storm reached hurricane status just before midnight on the 14th as it neared the central Texas coast. At landfall during the late morning hours on the 15th near Port O'Connor, Claudette likely had sustained winds of 85 mph (Category 1 hurricane). This portion of the central Texas coast had gone thirty-one years without a landfalling hurricane. Claudette continued to move inland across Calhoun, southern Victoria and Goliad Counties through the afternoon and early evening hours, and weakened back to a tropical storm. The last public advisory on Claudette was issued by the National Hurricane Center that evening as the center moved south of San Antonio.

Damage was observed across most of the the upper Texas coast. Major beach erosion was observed from High Island to Freeport. Large geo-tubes on Galveston Island and the Bolivar Peninsula did reduce erosion in areas where they were in place. Further south in Matagorda County, major beach erosion was observed in the Sargent area. Coastal roads along the west end of Galveston Bay were under water due to tidal flooding between 5 and 8 feet above mean lower low water. Tides in the west Matagorda Bay

area were minimal. Much of the water there was pushed out of the Bay as the storm approached and did not have adequate time to generate a large surge once the winds became east and then southeast. One tornado (rated F1) damaged several buildings in Palacios. Three deaths have been attributed to Hurricane Claudette.

Hurricane Danny was a long-lived tropical cyclone that developed from a large tropical wave over the north central Atlantic on July 16th about 600 miles east of Bermuda. The cyclone moved northwestward and became a tropical storm early on July 17th about 540 miles east of Bermuda. Danny turned northward and reached hurricane strength on July 18th about 550 miles south of St. Johns, Newfoundland. Danny maintained that intensity for the next 24 hours as it moved northeastward, weakened back to a tropical storm on July 19th, and into a depression late on July 20th. The cyclone moved southeastward and degenerated into a non-convective low pressure system early on July 21st. The remnant low-level circulation made several small clockwise loops about midway between Bermuda and the Azores Islands for the next week before finally dissipating early on July 27th about 1250 miles east of Bermuda.

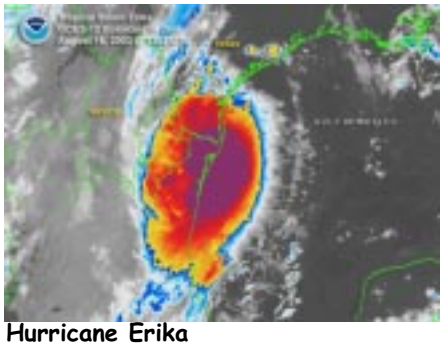


Hurricane Danny

Short-lived **Tropical Depression Six** formed on July 19th about 1050 miles east of the Lesser Antilles. The depression moved rapidly westward and degenerated into a tropical wave on the afternoon of July 21st while located just east of the central Lesser Antilles. A few thunderstorms accompanied the wave as it moved through the Lesser Antilles before it dissipated completely on July 23rd over the central Caribbean Sea.

Tropical Depression Seven was also a short-lived tropical cyclone that formed on July 25th about 60 miles east of Jacksonville, Florida. The depression developed from the same tropical wave that spawned Tropical Depression Six. It moved north-northwestward and made landfall on the central Georgia coast with maximum sustained winds of 30 mph early on July 26th. The depression continued to move slowly inland and eventually dissipated over central Georgia early on July 27th. Locally heavy rains totaling 2 to 3 inches occurred over portions of eastern Georgia and South Carolina.

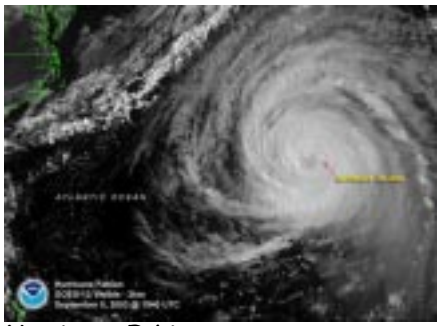
Hurricane Erika formed in the eastern Gulf of Mexico on August 14th after a long track across the Atlantic as an area of disturbed weather. It moved rapidly across the central Gulf of Mexico and made landfall in extreme northeastern Mexico about 45 miles south of Brownsville, Texas on the morning of August 16th with peak winds of 75 mph. The cyclone dissipated early on August 17th over the mountains of northern Mexico. Two persons died in Montemorelos, Mexico when they tried to cross a bridge that was partially under water and their truck was swept away by flood waters. Erika produced sustained tropical storm force winds in extreme south Texas, but damage was extremely minor. In Mexico, damage to roofs and cars was reported in Matamoros, and numerous highways in northeastern Mexico were blocked by mudslides.



Hurricane Erika

Tropical Depression Nine was a short-lived tropical cyclone that developed from a fast-moving tropical wave in the eastern Caribbean Sea during the afternoon of August 21st. The depression moved west-northwestward and degenerated into a tropical wave the following afternoon south of Hispaniola.

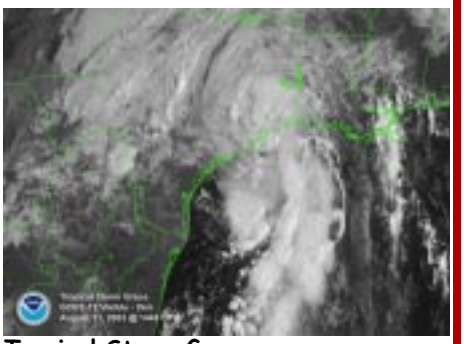
Hurricane Fabian developed from a large tropical wave about 370 miles west of the southern Cape Verde Islands on August 27th. Moving westward, the cyclone strengthened to a tropical storm on August 28th. Fabian became a hurricane on August 29th, intensified into a category 3 hurricane on the Saffir-Simpson hurricane scale on August 30th and reached category 4 status on the August 31st about 500 miles east of the northern Lesser Antilles. On September 1st, Fabian strengthened to a peak intensity of 145 mph. Thereafter, Fabian's intensity fluctuated some, but it remained a major hurricane for several days. Fabian passed well north of the northern Leeward Islands on September 3rd as its track curved from west-northwestward to northward. On September 5th, Fabian hit Bermuda with maximum winds near 115 mph and caused 4 deaths as well as extensive damage (estimated near $300 million) on the island. Then, Fabian accelerated northeastward while gradually weakening. Fabian became extratropical about 585 miles east of Cape Race, Newfoundland on September 8th. The final death toll of 8 included three fishermen who drowned off of Newfoundland and a rip current drowning near Cape Hatteras, North Carolina.



Hurricane Fabian

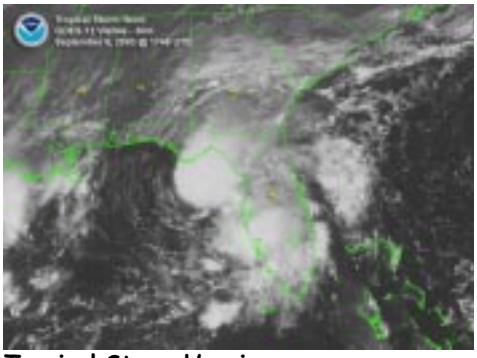
Tropical Storm Grace developed from a tropical wave that moved across the Yucatan Peninsula and into the southeastern Gulf of Mexico late on August 29th. Development was inhibited by strong vertical wind shear but on August 30th the shear lessened and a tropical depression formed about 335 miles east southeast of Corpus Christi, Texas. Reports from a ship and a reconnaissance aircraft indicated that the cyclone had strengthened into Tropical Storm Grace later that day. Grace moved in a general

northwestward direction and remained poorly organized until it made landfall along the central Texas coast near Port O'Connor on August 31st. The system continued to move inland and quickly weakened to a depression. Locally heavy rainfall of 4 to 6 inches fell over portions of the upper Texas and southwestern Louisiana coasts. Grace dissipated near Waco, Texas.



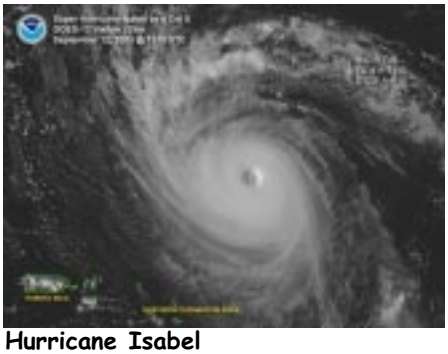
Tropical Storm Grace

Tropical Storm Henri formed from a tropical wave on September 3rd over the east-central Gulf of Mexico. Henri moved slowly eastward and its winds reached 50 mph on September 5th. Weakening, Henri accelerated northeastward across north-central Florida as a tropical depression with winds of 30 mph. Henri dissipated on September 8th about 150 miles south of Cape Hatteras, North Carolina while becoming extratropical. Henri dumped up to 10 inches of rain over portions of west-central Florida.



Tropical Storm Henri

Long-lived Hurricane Isabel began as a westward moving tropical depression over the eastern tropical Atlantic on September 6th. Isabel became a tropical storm later that day and a hurricane on the 7th. Isabel turned to the west-northwest and to the northwest on the 8th and 9th and became a major hurricane. The cyclone continued to strengthen as it turned westward on the 10th, and on the 11th it became a category 5 hurricane (Isabel remained at or near category 5 intensity until the 15th). The hurricane continued westward through the 12th, then turned west-northwestward on the 13th and northwestward on the 15th. Weakening began on the 16th as Isabel turned north-northwestward. This motion brought Isabel to the North Carolina coast near Drum Point on September 18th with 105 mph winds (category 2 hurricane). The cyclone continued north-northwestward after landfall eventually losing its tropical characteristics on the 19th over western Pennsylvania.



Hurricane Isabel

Portions of eastern North Carolina and southeastern Virginia experienced hurricane-force winds. Tropical-storm-force winds spread inland over a large area from eastern North Carolina northward to the eastern Great Lakes and western New England, as well as spreading northward along the Atlantic coast to New York. Storm surge flooding along the Atlantic coast was 6 to 8 feet above normal near the point of landfall and above normal tides extended to Long Island. Over 10 feet of surge was reported on North Carolina's Neuse River. Surge values of 6 to 8 feet were observed in the upper reaches of Chesapeake Bay and in many of the rivers draining into the bay, including the Potomac and James rivers. Water levels in Washington D.C., Baltimore and Annapolis exceeded the previous record levels established by the 1933 Chesapeake-Potomac hurricane. The Delaware Bay and Delaware River also had significant storm surge flooding. Rainfall was in the 4 to 7 inch range over portions of North Carolina, Virginia and Maryland. Higher amounts up to 20 inches occurred in the Shenandoah Valley.
Isabel was responsible for 16 direct deaths...10 in Virginia and one each in Maryland, New Jersey, North Carolina, Pennsylvania, Rhode Island and Florida. The Florida and Rhode Island deaths were drownings in high surf generated by Isabel. The total damage caused by Isabel is estimated at $2.34 billion.

Tropical Depression Fourteen developed from a tropical wave on September 8th about 300 miles southeast of the southernmost Cape Verde Islands. The depression quickly encountered unfavorable upper-level winds and dissipated on September 10th as it was passing through the western Cape Verde Islands.

Hurricane Juan had a complex formation, developing from the interaction of a tropical wave with a large upper-level low about 300 miles southeast of Bermuda on September 25th. Initially, Juan appeared to have subtropical characteristics but became fully tropical as it moved toward the north-northwest and north, passing about 200 miles east of Bermuda. Its winds reached 105 mph on the 27th as it continued northward. After some weakening, the tropical cyclone made landfall in Nova Scotia between Shad Bay and Prospect late on September 28th as a category 2 hurricane with 100 mph winds. The hurricane weakened some over Nova Scotia and arrived on Prince Edward Island as a weak category 1 hurricane with 75 mph winds. Two deaths have been attributed to Juan, and the Canadian Hurricane Centre reported that Juan was the most damaging storm in modern history for Halifax.

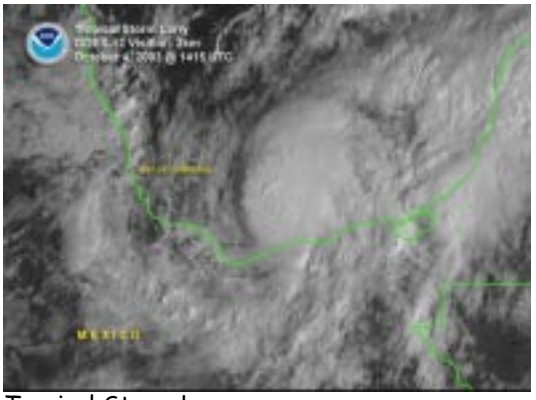
Hurricane Juan

Hurricane Kate developed from a tropical wave about 900 miles west-southwest of the

Cape Verde Islands on September 25th. After moving west-northwestward for about a day, the system turned toward the north-northwest and strengthened into a tropical storm on September 27th. Kate then turned toward the north and northeast and briefly reached hurricane intensity on September 29th. At the end of the month, Kate had turned back to the northwest and then west while located about 600 miles southwest of the Azores. Kate strengthened into a hurricane while moving westward over the east-central Atlantic at the beginning of October. Kate continue to strengthen and reached its maximum intensity of 125 mph over the central Atlantic about 640 miles east of Bermuda on October 4th. Kate then began to gradually weaken and turn from a westward to a northward heading. On October 6-8th, Kate accelerated north-northeastward and weakened just below hurricane strength. It lost its tropical characteristics about 370 miles east-northeast of Cape Race, Newfoundland on October 8th. The powerful extratropical storm continued across the far north Atlantic and merged with another low pressure system near Norway on October 10th.

Hurricane Kate

Tropical Storm Larry developed from a tropical wave that moved off the coast of Africa on September 17th. The wave moved westward across the tropical Atlantic with little associated thunderstorm activity until it reached the northwestern Caribbean Sea on September 27th when a broad surface low pressure area developed along the wave axis. The system continued to move slowly westward and emerged over the southern Gulf of Mexico in the Bay of Campeche on September 30th where it also began to interact with a frontal boundary. Thunderstorms continued to develop and gradually consolidated around the broad center and Tropical Storm Larry formed on October 1st about 300 miles east-southeast of Tampico, Mexico. Larry meandered over the Bay of Campeche for two days and slowly strengthened to 60 mph. Larry began a slow southward drift toward Mexico on October 4th and made landfall early on the next day. Dissipation occurred early on October 6th over the Mexican state of Veracruz. There were five deaths associated with Larry.



Tropical Storm Larry

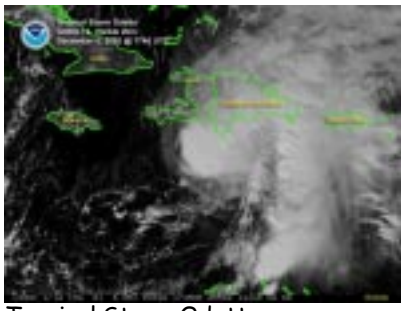
Tropical Storm Mindy originated from a tropical wave. It became a tropical storm on October 10th near the northeastern tip of the Dominican Republic. The storm moved northwest to northward for two days with maximum wind speeds of 40 to 45 mph. On October 12th, it turned eastward ahead of an approaching short-wave trough in the westerlies, while weakening to a depression under southwesterly vertical wind shear. The depression degenerated to a swirl of low clouds early on the 14th while located about 460 miles south of Bermuda. Mindy passed near the Turks and Caicos islands on October 11th but heavy rain and tropical storm force winds remained to the east of these Islands. Mindy did produce periods of heavy rain over portions of Puerto Rico and the eastern Dominican Republic for a few days.

Tropical Storm Mindy

Tropical Storm Nicholas formed from a tropical wave that moved westward from the coast of Africa on October 9th. The wave spawned a tropical depression on the 13th about 1030 miles west-southwest of the Cape Verde Islands. Moving slowly west-northwestward, the depression became Tropical Storm Nicholas early on the 15th. Nicholas reached a peak intensity of 70 mph on the 17th as it turned northwestward. A slow northeastward motion on the 18th was follwed by a slow generally westward motion from the 19th to the 22nd. Vertical shear caused Nicholas to weaken during that time, and it further weakened to a depression as it turned north-northwestward on the 23rd. The depression became a remnant low later that day about 570 miles northeast of the northern Leeward Islands. The low meandering erratically over the western North Atlantic ocean for several more days.

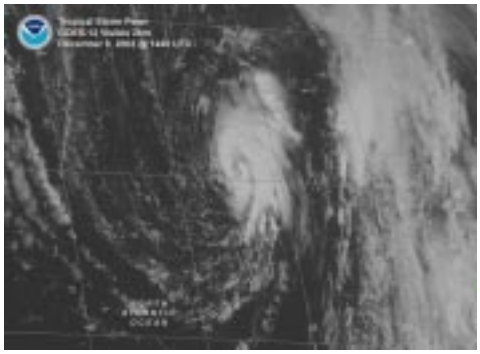
Tropical Storm Nicholas

Tropical Storm Odette originated from a tropical disturbance over the southwestern Caribbean Sea between Jamaica and Columbia. The system began to organize on December 3rd as it drifted to the north. A depression formed on the morning of the 4th, and tropical storm status was reached that afternoon about 230 miles south-southeast of Jamaica. Odette drifted to the northeast and made landfall on the south coast of the Dominican Republic on the afternoon of the 6th with 65 mph winds. Odette


Tropical Storm Odette

accelerated across the Dominican Republic on the morning of the 7th and eventually lost all tropical characteristics when it merged with a cold front. At least 8 flood-related deaths have been attributed to Odette in the Dominican Republic where up to 7 inches of rain was recorded. Odette was the first named storm to form in the Caribbean Sea in the month of December.

Tropical Storm Peter formed from a gale center in the far eastern Atlantic Ocean. The system acquired tropical characteristics and was named Peter on the morning of December 9th. Winds quickly strengthened to 70 mph later that morning, and the storm could actually have become a hurricane in the afternoon. But by late that afternoon, Peter began to weaken and was downgraded to a depression early on the morning of the 10th. By the end of the day, Peter was dissipating and losing all tropical characteristics. The last time there were two tropical cyclones of at least tropical storm strength in December was 1887.


Tropical Storm Peter

2003 Atlantic Basin Hurricane Season Summary Table

Name	Dates	Max Wind MPH	Deaths	U.S. Damage $ Million
TS Ana	20-24 Apr	60	2	
TS Bill	29 Jun-2 Jul	60	4	50
H Claudette	8-17 Jul	90	1	180
H Danny	16-21 Jul	75		
H Erika	14 - 17 Aug	75	2	
H Fabian	27 Aug -8 Sep	145	8	8
TS Grace	30 Aug -2 Sept	40		
TS Henri	3-8 Sep	60		
H Isabel	6-19 Sep	165	16	3370
H Juan	24-29 Sep	105	2	
H Kate	25 Sep-7 Oct	125		
TS Larry	1-6 Oct	65	5	
TS Mindy	10-14 Oct	45		
TS Nicholas	13-23 Oct	70		
TS Odette	4 - 7 Dec	65	8	
TS Peter	7 - 11 Dec	70		

SKYWARN

It is that time of year again to begin planning for the upcoming severe weather season. Skywarn classes are now being scheduled for 2004. Plans are to hold Skywarn classes throughout southeast Texas during the months of January, February and March. To schedule a Skywarn class for your community, just pick up the phone and contact Gene Hafele at 281-337-5074 x223 to schedule your class today. Programs can be scheduled during the day or evening to maximize your attendance.

What is Skywarn? Skywarn is a program sponsored by your National Weather Service Office in conjunction with your local Emergency Management Organization. It is a group of trained volunteers that watch the skies during severe weather and relay reports back to the local Emergency Management Office, the local law enforcement agency, and/or the National Weather Service. These volunteers provide valuable information to their local community and to the National Weather Service which helps improve the warning program, thus possibly saving lives and reducing property damage in the community.

Damage done in Bryan by an F1 tornado on 10/05/03.

These two pictures are from an October 5, 2003 tornado event that hit the Brazos County area. Fortunately, no one was killed by these storms. These were weak tornadoes but they could have been much more severe. Is your community prepared for such a disaster?

Skywarn is a community wide activity. Local law enforcement, volunteer fire department, local police, amateur radio operators, emergency management and even local citizens can and should be involved in your local Skywarn program. There are no prerequisites other than an interest in learning more about weather in your area and helping your community be better prepared for the onset of severe weather.

This year's Skywarn program will emphasize communication. How are spotters activated and how are spotter reports relayed back to the National Weather Service. It is important that we communicate with our spotters in real time. Knowing what kind of severe weather a storm is producing in real time will enhance our warnings and hopefully save lives and reduce damage.

Damage done to home near Millican in southern Brazos County by an F0 tornado on 10/05/03.

TURN AROUND, DON'T DROWN

The Problem:
In Tropical Storm Allison, 22 people died during the storm. Ten of the 22 were in their automobile while another 8 were walking in the flood waters. These tragic events happen too often. Ironically, many drivers rescued from flood waters reported they were in a hurry to reach the safety of their home as a reason for attempting to ford a flooded road. The Centers for Disease Control and Prevention (CDC) reports more than half of all flood-related drownings occur when a vehicle is *driven into* hazardous flood waters. The next highest percentage of flood-related deaths are due to *walking into* or near flood waters.

The Reason:
Many people believe their 3000 to 5000 pound vehicle will remain in contact with the road surface, that it is too heavy to float. Think about that for a minute. Aircraft carriers float, don't they?

Vehicles float because of buoyancy. In fact, most cars can be swept away in 18-24 inches of moving water. Trucks and SUV's are not much better with only an additional six to twelve inches of clearance. In moving water, all that is needed is for a vehicle to become buoyant enought allowing the water's force to push it sideways, even while the wheels remain in contact with the ground. Once swept downstream, a vehicle will often roll to one side or perhaps flip over entirely.

The Solution:
The solution is simple. TURN AROUND, DON'T DROWN. Stay out of the flooded roadway. The water may be much deeper than it appears as the road beds may be washed out. Also, respect "road closed" barriers posted to warn you of the danger. This includes attempts to walk or wade through flowing water. As little as six inches of rapidly moving water can sweep you off your feet and carry you downstream.

If there is a low water crossing between you and your home or your home and your destination, think about your family before attempting to cross it. Let caution, good sense, your personal safety and your family's well being be your guides. TURN AROUND, DON'T DROWN.

For more information, visit the TURN AROUND, DON'T DROWN website at:
www.srh.weather.gov/srh/tadd

—Staff Spotlight—

Kent Prochazka

Name: **Kent Prochazka**
Position: **Senior Forecaster**
Favorite Soup: **My wife's mixed greens soup**

PERSONAL INFO
Status: **1 wife, 2 kids, 1 dog, 3 cats**
Hometown: **McCook , NE**

NWS BACKGROUND
1990-1992 ..... Meteorologist, National Ocean Services Operational Predictions Branch, Silver Spring MD
1993-1995 ..... Meteorological Intern, NWSO Houston/Galveston, TX
1995-1998 ..... Journeyman Forecaster, NWSFO Houston/Galveston, TX
1998- present ..... Senior Forecaster, WFO Houston/Galveston, TX

HIGHLIGHTS/DUTIES/OTHER TIDBITS
- **Primary duty: shift supervisor for forecasts and warnings for southeast Texas. Other duties include forecasting and issuing severe weather warnings, public, aviation and marine forecasts.**
- **Focal Point Duties: radar and fire weather.**
- **Worked as a weather observer during college years at the McCook and Greely Airports.**
- **Favorite movies: "The Enemy Below", "Conan the Barbarian", and "October Sky"**
  Son's Favorite movie: Anything Star Wars

Most memorable weather event(s)?
1. **November 16, 1993 - Tornadoes, tornadoes, tornadoes. What more can you say?**
2. **Allison - Water, water, water. What more can you say?**
3. **The Perfect Storm, October 30, 1991 - What more can you say?**

If you could have any super power, what would it be?

The spellcasting ability of an 11th level magic user.

Houston/Galveston
National Weather Service
1620 Gill Road
Dickinson, TX 77539

Storm Signals is a Quarterly Publication of the
Houston/Galveston
National Weather Service Office

Bill Read - Meteorologist In Charge
Gene Hafele - Warning Coordination Meteorologist
Josh Lichter / Kim Mikesell - Editors

Phone: 281-337-5074
Fax: 281-337-3798
www.srh.noaa.gov/hgx