

## CHAPTER 4

### NATIONAL WEATHER SERVICE PRODUCTS FOR THE DEPARTMENT OF DEFENSE

**4.1. General.** The Department of Defense (DOD) and the Department of Commerce (DOC) weather forecasting, reconnaissance, and distribution agencies share technical information and some responsibilities. Mutually supportive relationships have developed over the years and have resulted in a mutual dependency. Due to the nature and distribution of DOD resources and operations, the DOD requires certain meteorological information beyond that available to the general public. Accordingly, the DOC provides DOD with special observations and advisories on tropical and subtropical storms threatening DOD resources or operations.

**4.2. Observations.** The National Hurricane Center (NHC) and Central Pacific Hurricane Center (CPHC) will make available to DOD all significant tropical and subtropical cyclone observations that they receive.

#### **4.3. Tropical Cyclone Forecast/Advisories.**

**4.3.1. General.** The NHC and CPHC will provide to DOD forecasts and related information for tropical and subtropical weather disturbances of depression intensity or greater. Forecasts will include location, movement, intensity, and dimension of the disturbances. Tropical cyclone forecast/advisories will be disseminated through the National Weather Service (NWS) communications facility at Suitland, MD, to the Weather Product Management and Distribution System (WPMDS) at the Air Force Weather Agency (AFWA), Offutt AFB, NE, for further relay to DOD agencies. The DOD forecasters, who must give advice concerning an imminent operational decision, may contact the appropriate hurricane center forecaster (see Chapter 2) when published tropical cyclone forecast/advisories require elaboration. Telephone numbers for the hurricane centers are in Appendix I.

**4.3.2. Tropical Cyclone Forecast/Advisory Issue Frequency.** The first tropical cyclone forecast/advisory will normally be issued when meteorological data indicate that a tropical or subtropical cyclone has formed. Subsequent advisories will be issued at 0300, 0900, 1500, and 2100 UTC from NHC and CPHC. The public advisories issued by the NWS Forecast Office (WFO) Guam, are issued 1 hour after the JTWC guidance. Advisories will continue to be issued until the system is classified below the depression intensity level. In addition, special forecasts will be issued whenever the following criteria are met:

- A significant change has occurred, requiring the issuance of a revised forecast package.
- Conditions require a hurricane or tropical storm watch or warning to be issued. Remarks stating the reason for the special forecast or the relocation will be mandatory in all special forecasts or advisories that include a relocated position.

**4.3.3. Tropical Cyclone Forecast/Advisory Content.** Tropical cyclone forecast/advisories issued by the NHC and CPHC will contain appropriate information as shown in

Figure 4-1. The forecast will contain 12, 24, 36, 48, 72, 96, and 120-hour tropical cyclone forecast positions. A code string is appended at the end of the line "NWS NATIONAL HURRICANE CENTER MIAMI FL." This is the Automated Tropical Cyclone Forecasting (ATCF) System Storm Identification Character String recognized by the WMO for tracking and verification of tropical cyclones. The ATCF <Storm ID> is three spaces after "FL" and uses the following format:

**NWS NATIONAL HURRICANE CENTER MIAMI FL BBCCYYYY**

where:

**BB = Ocean Basin**

**AL** - North Atlantic basin...north of the Equator

**SL** - South Atlantic basin...south of the Equator

**EP** - North East Pacific basin...eastward of 140°W

**CP** - North Central Pacific basin...between the Dateline and 140°W

**WP** - North West Pacific basin...westward of the Dateline

**IO** - North Indian Ocean basin...north of the Equator between 40°E and 100°E

**SH** - South Pacific Ocean Basin and South Indian Ocean basin

**CC = Cyclone Number**

Numbers 01 through 49 are reserved for tropical and subtropical cyclones. A cyclone number is assigned to each tropical or subtropical cyclone in each basin as it develops. The numbers are assigned in chronological order.

Numbers 50 through 79 are reserved for internal use by operational forecast centers.

Numbers 80 through 89 are reserved for training, exercises and testing.

Numbers 90 through 99 are reserved for tropical disturbances which have the potential to become tropical or subtropical cyclones. Although not required, the 90's should be assigned sequentially and reused throughout the calendar year.

**YYYY = Four-digit year**

This is the calendar year for the Northern Hemisphere. For the Southern Hemisphere, the year begins July 1, with calendar year plus one.

**[Note: Tropical cyclone public advisories issued by the NHC, CPHC, and WFO Guam will contain appropriate information as shown in the example in Figure 4-2.]**

**4.3.3.1. Definition of Wind Radii by Quadrant.** The working definition of the wind radius for a quadrant is: use the largest radius of that wind speed found in the quadrant. Example: NHC's quadrants are defined as NE (0°-90°), SE (90°-180°), SW (180°-270°), and NW (270°-360°). Given a maximum 34-knot radius of 150 nautical miles (nm) at 0°, 90 nm at 120°, and 40 nm at 260°, the following line would be carried in the forecast/advisory: 150NE 90SE 40SW 150NW.

**4.3.3.2. Numbering of Tropical and Subtropical Cyclone Forecast/Advisories.** All tropical cyclone forecast/advisories for each unique system in the Atlantic and Pacific will be numbered sequentially beginning with the number 1. Some examples are listed below:

Subtropical Depression ONE Forecast/Advisory Number 1  
Tropical Depression ONE Forecast/Advisory Number 1  
Tropical Depression ONE Forecast/Advisory Number 2  
Tropical Storm Anita Forecast/Advisory Number 3  
Hurricane (Typhoon) Anita Forecast/Advisory Number 4  
Tropical Depression Anita Forecast/Advisory Number 5

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ZCZC MIATCMAT4 ALL
TTAA00 KNHC DDHMM

HURRICANE IKE FORECAST/ADVISORY NUMBER 42
NWS NATIONAL HURRICANE CENTER MIAMI FL AL092008
1500 UTC THU SEP 11 2008

CHANGES IN WATCHES AND WARNINGS WITH THIS ADVISORY...

A HURRICANE WARNING HAS BEEN ISSUED FROM MORGAN CITY LOUISIANA TO BAFFIN BAY TEXAS.

A TROPICAL STORM WARNING HAS BEEN ISSUED FROM SOUTH OF BAFFIN BAY TO PORT MANSFIELD TEXAS.

SUMMARY OF WATCHES AND WARNINGS IN EFFECT...

A HURRICANE WARNING IS IN EFFECT FOR...
* MORGAN CITY LOUISIANA TO BAFFIN BAY TEXAS

A TROPICAL STORM WARNING IS IN EFFECT FOR...
* EAST OF MORGAN CITY TO THE MISSISSIPPI-ALABAMA BORDER...INCLUDING
THE CITY OF NEW ORLEANS AND LAKE PONTCHARTRAIN
* SOUTH OF BAFFIN BAY TO PORT MANSFIELD

HURRICANE CENTER LOCATED NEAR 25.5N 88.4W AT 11/1500Z
POSITION ACCURATE WITHIN 10 NM

PRESENT MOVEMENT TOWARD THE WEST-NORTHWEST OR 290 DEGREES AT 9 KT

ESTIMATED MINIMUM CENTRAL PRESSURE 945 MB
MAX SUSTAINED WINDS 85 KT WITH GUSTS TO 105 KT.
64 KT.....100NE 100SE 30SW 60NW.
50 KT.....150NE 150SE 90SW 140NW.
34 KT.....230NE 240SE 150SW 180NW.
12 FT SEAS..330NE 240SE 240SW 400NW.
WINDS AND SEAS VARY GREATLY IN EACH QUADRANT. RADII IN NAUTICAL
MILES ARE THE LARGEST RADII EXPECTED ANYWHERE IN THAT QUADRANT.

REPEAT...CENTER LOCATED NEAR 25.5N 88.4W AT 11/1500Z
AT 11/1200Z CENTER WAS LOCATED NEAR 25.3N 88.0W

FORECAST VALID 12/0000Z 25.9N 90.0W
MAX WIND 90 KT...GUSTS 110 KT.
64 KT...100NE 100SE 30SW 60NW.
50 KT...150NE 150SE 90SW 140NW.
34 KT...230NE 240SE 150SW 180NW.

FORECAST VALID 12/1200Z 26.6N 92.0W
MAX WIND 95 KT...GUSTS 115 KT.
64 KT...100NE 100SE 50SW 60NW.
50 KT...150NE 150SE 90SW 140NW.
34 KT...230NE 240SE 150SW 180NW.

FORECAST VALID 13/0000Z 27.8N 94.2W
MAX WIND 105 KT...GUSTS 130 KT.
64 KT...100NE 100SE 50SW 60NW.
50 KT...150NE 150SE 90SW 120NW.
34 KT...230NE 240SE 150SW 160NW.

FORECAST VALID 13/1200Z 29.5N 95.9W...INLAND
MAX WIND 100 KT...GUSTS 120 KT.
50 KT...120NE 125SE 75SW 90NW.
34 KT...180NE 240SE 120SW 120NW.

FORECAST VALID 14/1200Z 34.5N 94.0W...INLAND
MAX WIND 35 KT...GUSTS 45 KT.
34 KT... 75NE 75SE 50SW 50NW.

EXTENDED OUTLOOK. NOTE...ERRORS FOR TRACK HAVE AVERAGED NEAR 225 NM
ON DAY 4 AND 300 NM ON DAY 5...AND FOR INTENSITY NEAR 20 KT EACH DAY

OUTLOOK VALID 15/1200Z 38.0N 85.0W...POST-TROP/EXTRATROP
MAX WIND 25 KT...GUSTS 35 KT.

OUTLOOK VALID 16/1200Z...ABSORBED

REQUEST FOR 3 HOURLY SHIP REPORTS WITHIN 300 MILES OF 25.5N 88.4W

NEXT ADVISORY AT 11/2100Z

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FORECASTER FRANKLIN

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**Figure 4-1. Tropical Cyclone Forecast/Advisory Format**

[Note: NWS text products are limited to 69 characters per line. For the example above (Figure 4-1), there are more than 69 characters on some lines so the example could fit on one page.]

ZCZC MIATCPAT4 ALL  
TTAA00 KNHC DDHMM

BULLETIN  
HURRICANE IKE ADVISORY NUMBER 42  
NWS NATIONAL HURRICANE CENTER MIAMI FL AL092008  
1000 PM CDT THU SEP 11 2008

...IKE CONTINUES TO GROW IN SIZE BUT HAS NOT STRENGTHENED YET...HURRICANE WARNING ISSUED FOR NORTHWESTERN GULF COAST...

**SUMMARY OF 1000 PM CDT...0300 UTC...INFORMATION**

LOCATION...25.5N 88.4W  
ABOUT 580 MI...930 KM ESE OF CORPUS CHRISTI TEXAS  
ABOUT 470 MI...760 KM ESE OF GALVESTON TEXAS  
MAXIMUM SUSTAINED WINDS...100 MPH...160 KM/HR  
PRESENT MOVEMENT...WNW OR 290 DEGREES AT 10 MPH...17 KM/HR  
MINIMUM CENTRAL PRESSURE...945 MB...27.91 INCHES

**WATCHES AND WARNINGS**

CHANGES WITH THIS ADVISORY...

A HURRICANE WARNING HAS BEEN ISSUED FROM MORGAN CITY LOUISIANA TO BAFFIN BAY TEXAS.  
A TROPICAL STORM WARNING HAS BEEN ISSUED FROM SOUTH OF BAFFIN BAY TO PORT MANSFIELD TEXAS.

SUMMARY OF WATCHES AND WARNINGS IN EFFECT...

A HURRICANE WARNING IS IN EFFECT FOR...MORGAN CITY LOUISIANA TO BAFFIN BAY TEXAS  
A TROPICAL STORM WARNING IS IN EFFECT FOR...EAST OF MORGAN CITY TO THE MISSISSIPPI-ALABAMA BORDER...INCLUDING THE CITY OF NEW ORLEANS AND LAKE PONTCHARTRAIN SOUTH OF BAFFIN BAY TO PORT MANSFIELD

A HURRICANE WARNING MEANS THAT HURRICANE CONDITIONS ARE EXPECTED SOMEWHERE WITHIN THE WARNING AREA. A WARNING IS TYPICALLY ISSUED 36 HOURS BEFORE THE ANTICIPATED FIRST OCCURRENCE OF TROPICAL-STORM-FORCE WINDS...CONDITIONS THAT MAKE OUTSIDE PREPARATIONS DIFFICULT OR DANGEROUS. PREPARATIONS TO PROTECT LIFE AND PROPERTY SHOULD BE RUSHED TO COMPLETION.

A TROPICAL STORM WARNING MEANS THAT TROPICAL STORM CONDITIONS ARE EXPECTED SOMEWHERE WITHIN THE WARNING AREA WITHIN THE NEXT 36 HOURS.

FOR STORM INFORMATION SPECIFIC TO YOUR AREA...INCLUDING POSSIBLE INLAND WATCHES AND WARNINGS...PLEASE MONITOR PRODUCTS ISSUED BY YOUR LOCAL WEATHER OFFICE.

**DISCUSSION AND 48-HOUR OUTLOOK**

AT 1000 PM CDT...0300Z...THE CENTER OF HURRICANE IKE WAS LOCATED NEAR LATITUDE 25.5 NORTH...LONGITUDE 88.4 WEST. IKE IS MOVING TOWARD THE WEST-NORTHWEST NEAR 10 MPH...17 KM/HR. A GENERAL WEST- NORTHWESTWARD MOTION IS EXPECTED OVER THE NEXT DAY OR SO...AND THE CENTER OF IKE SHOULD BE VERY NEAR THE COAST BY LATE FRIDAY.

MAXIMUM SUSTAINED WINDS ARE NEAR 100 MPH...160 KM/HR...WITH HIGHER GUSTS. IKE IS A CATEGORY TWO HURRICANE ON THE SAFFIR-SIMPSON SCALE. IKE IS FORECAST TO BECOME A MAJOR HURRICANE PRIOR TO REACHING THE COASTLINE.

IKE REMAINS A VERY LARGE TROPICAL CYCLONE. HURRICANE FORCE WINDS EXTEND OUTWARD UP TO 115 MILES...185 KM...FROM THE CENTER...AND TROPICAL STORM FORCE WINDS EXTEND OUTWARD UP TO 275 MILES...445 KM.

THE LATEST MINIMUM CENTRAL PRESSURE REPORTED BY A NOAA HURRICANE HUNTER AIRCRAFT WAS 945 MB...27.91 INCHES.

**HAZARDS AFFECTING LAND**

STORM SURGE...STORM SURGE WILL RAISE WATER LEVELS AS MUCH AS 10 TO 15 FT ABOVE GROUND LEVEL ALONG THE COAST WITHIN THE HURRICANE WARNING AREA...WITH LARGE AND DANGEROUS BATTERING WAVES...NEAR AND TO THE EAST OF WHERE THE CENTER OF IKE MAKES LANDFALL. STORM SURGE WILL RAISE WATER LEVELS AS MUCH AS 5 TO 7 FEET ABOVE GROUND LEVEL ALONG THE COAST WITHIN THE TROPICAL STORM WARNING AREA ALONG THE NORTHERN GULF COAST. THE SURGE COULD PENETRATE AS FAR INLAND AS ABOUT 10 MILES FROM THE SHORE WITH DEPTH GRADUALLY DECREASING AS THE WATER MOVES INLAND.

WIND...BECAUSE IKE IS A VERY LARGE TROPICAL CYCLONE...WEATHER WILL DETERIORATE ALONG THE COASTLINE LONG BEFORE THE CENTER REACHES THE COAST. HURRICANE CONDITIONS ARE EXPECTED TO REACH NORTHWESTERN GULF COAST WITHIN THE WARNING AREA FRIDAY AFTERNOON. WINDS ARE EXPECTED TO FIRST REACH TROPICAL STORM STRENGTH FRIDAY MORNING...MAKING OUTSIDE PREPARATIONS DIFFICULT OR DANGEROUS. PREPARATIONS TO PROTECT LIFE AND PROPERTY SHOULD BE RUSHED TO COMPLETION.

RAINFALL...IKE IS EXPECTED TO PRODUCE RAINFALL AMOUNTS OF 5 TO 10 INCHES ALONG THE CENTRAL AND UPPER TEXAS COAST AND OVER PORTIONS OF SOUTHWESTERN LOUISIANA...WITH ISOLATED MAXIMUM AMOUNTS OF 15 INCHES POSSIBLE. RAINFALL AMOUNTS OF 1 TO 2 INCHES ARE POSSIBLE OVER PORTIONS OF THE YUCATAN PENINSULA.

**NEXT ADVISORY**

NEXT INTERMEDIATE ADVISORY...100 AM CDT.  
NEXT COMPLETE ADVISORY...400 AM CDT.

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FORECASTER FRANKLIN

NNNN

**Figure 4-2. Tropical Cyclone Public Advisory Format**

[Note: NWS text products are limited to 69 characters per line. For the example above (Figure 4-2), there are more than 69 characters on some lines so the example could fit on one page.]

