

**NATIONAL WEATHER SERVICE INSTRUCTION 10-601**  
**JULY 27, 2009**

**Operations and Services**  
**Tropical Cyclone Weather Services Program, NWSPD 10-6**

**TROPICAL CYCLONE PRODUCTS**

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**NOTICE:** This publication is available at: <http://www.nws.noaa.gov/directives/>.

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**SUMMARY OF REVISIONS:** This directive supersedes NWS Instruction 10-601, dated June 24, 2008. The following revisions were made to this directive:

- Sec 1.1.3.3 Clarifies coordination between NHC and HPC
- Sec 1.1.3.3.b Revises CPHC watch and warning issuance times
- Sec 1.1.3.3.f Modifies storm surge information/forecasts to now reference Above Ground Level, with examples
- Sec 6.3.3.2 Begins use of Special Tropical Weather Outlook for NHC and CPHC, and provides NHC TWO product changes
- Sec 6.4.3.3 Changes to the Tropical Weather Summary product format
- Sec 6.12 Begins NHC Tropical Cyclone Surface Wind Field graphic
- Sec 6.14.3 Expands probabilistic storm surge probability product thresholds through 25 feet
- Sec 7.1.3.4 Adds use of Hurricane Local Statement (HLS) VTEC significance code /S/, new Overview Block, and use of Call-To-Action statements
- Sec 7.1.3.4 Modifies storm surge information/forecasts to now reference Above Ground Level
- Sec 7.2 Adds inland Western Region WFOs issuing NPW products for tropical cyclones situations
- Sec 7.5.3.3 Adds information on storm surge reports and datum for the PSH product
- Sec 9.1 Revises procedures for populating WFO wind grids within the 34-kt radii

Changes to product examples in Appendix:

- Updates Tropical Weather Outlook (TWO) for NHC, to include new graphical TWO

Adds TWO example for CPHC

Adds example of Special Tropical Weather Outlook

Updates to all TCP products (Tropical Cyclone Public Advisory, Tropical Cyclone Intermediate Public Advisory, Tropical Cyclone Special Public Advisory, Subtropical Cyclone Public Advisory)

Updates Tropical Cyclone Summary – Fixes (TCS) product from CPHC

Adds link to new Tropical Cyclone Wind Field Graphic example

Adds new HLS example

<u>Signed by David B. Caldwell</u>	<u>Jul 21, 2009</u>
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1. Tropical Cyclone Forecast and Advisory Products.

NOTE: Weather Service Office (WSO) Pago Pago, American Samoa, is exempt from the policies of this directive. This is due to international agreements with the country of Samoa. These agreements allow for the exchange of forecasts, watches and warnings in format and language suitable to both countries. Also, WSO Pago Pago does not have an Automated Tropical Cyclone Forecast (ATCF) system or the Advanced Weather Interactive Processing System (AWIPS). WSO Pago Pago will follow policies stated in the appropriate Pacific Region supplement.

Refer to Appendix A for tropical cyclone product examples.

1.1 Tropical Cyclone Public Advisories (TCP). The TCP is the primary tropical cyclone information product issued to the public. The National Hurricane Center (NHC), as a part of the Tropical Prediction Center (TPC); the Central Pacific Hurricane Center (CPHC); and Weather Forecast Office (WFO) Tiyan, Guam, will issue TCPs.

1.1.1 Mission Connection. The TCP is the primary tropical cyclone product issued to the public. The TCP provides critical tropical cyclone watch, warning, and forecast information for the protection of life and property.

1.1.2 Issuance Guidelines.

1.1.2.1 Creation Software. ATCF system and the AWIPS.

1.1.2.2 Issuance Criteria. In the Atlantic and east Pacific, NHC will issue TCPs for all tropical cyclones. In the central Pacific CPHC will issue TCPs for all tropical cyclones. In the western Pacific, WFO Guam will issue public advisories using Joint Typhoon Warning Center (JTWC) forecast products as guidance for all tropical cyclones expected to affect land within 48 hours.

Issue the initial advisory when data confirm a tropical cyclone has developed. The title of the advisory will depend upon the intensity of the tropical cyclone as listed below.

- a. A tropical depression advisory refers to a tropical cyclone with 1-minute sustained surface winds up to 33 knots (38 mph).
- b. A tropical storm advisory will refer to tropical cyclones with 1-minute sustained surface winds 34 to 63 knots (39 to 73 mph).
- c. A hurricane/typhoon advisory will refer to tropical cyclones with winds 1-minute sustained surface of 64 knots (74 mph) or greater.

Public advisories will be discontinued when the tropical cyclone:

- a. Ceases to be a tropical cyclone; that is, it becomes extratropical, a remnant low, or dissipates, or

- b. Is centered over land, is below tropical storm strength, is not forecast to move back over water as a tropical cyclone, and no coastal tropical cyclone watches or warnings are in effect.
- c. For Guam when the tropical cyclone moves out of the WFO area of responsibility.

1.1.2.3 Issuance Time.

a. NHC and CPHC will issue Public Advisories at 0300, 0900, 1500, and 2100 Coordinated Universal Time (UTC) with valid position times corresponding to the advisory time. WFO Guam issuance times are 0400, 1000, 1600, and 2200 UTC.

b. Intermediate Public Advisories will be issued on a 2- to 3-hourly interval between scheduled advisories (see times of issuance below). Issue 3-hourly intermediate advisories whenever 1) a coastal tropical storm or coastal hurricane watch/warning is in effect, or 2) a tropical cyclone is over land at tropical storm strength or greater.

Issue 2-hourly intermediates whenever tropical storm or hurricane warnings are in effect and coastal radars are able to provide responsible tropical cyclone centers with a reliable hourly center position. For clarity, when issuing intermediate public advisories, include a statement at the end of the scheduled public advisory informing users when an intermediate advisory will be issued, i.e., “AN INTERMEDIATE ADVISORY WILL BE ISSUED BY THE CENTRAL PACIFIC HURRICANE CENTER AT 2 PM HST FOLLOWED BY THE NEXT COMPLETE ADVISORY ISSUANCE AT 5 PM HST.”

Three hourly issuances...TPC/CPHC at 0000, 0600, 1200, and 1800 UTC. WFO Guam at 0100, 0700, 1300, and 1900 UTC.

Two hourly issuances...TPC/CPHC at 2300, 0100, 0500, 0700, 1100, 1300, 1700, and 1900 UTC. WFO Guam at 0000, 0200, 0600, 0800, 1200, 1400, 1800, and 2000 UTC.

Do not use intermediate advisories to issue U.S. tropical cyclone watches or warnings. They can be used to clear all, or parts of, a watch or warning area. Content should be similar to the complete advisory.

1.1.2.4 Valid Time. TCPs are valid from the time of issuance until the next scheduled issuance or update.

1.1.2.5 Product Expiration Time. Generally 6 hours after the issuance time and should coincide with the next expected update or when the event is forecast to end.

1.1.3 Technical Description. TCPs will follow the format and content described in this section.

1.1.3.1 Universal Geographic Code (UGC) Type. Not applicable.

1.1.3.2 Mass News Disseminator (MND) Header. The TCP MND header block product type line is “(TROPICAL CYCLONE TYPE) (NAME) ADVISORY NUMBER XX.”

1.1.3.3 Content. The following will be included in the TCP as appropriate.

Advisories can begin with a lead statement or headline to emphasize significant aspects of the tropical cyclone. Advisories will list watches and warnings for hurricane/typhoon and tropical storm conditions immediately after the headline. The headline and watch/warning section will be separated from the rest of the advisory. Include information in the rest of the advisory in descending order of importance or urgency. At the end of the advisory, repeat the tropical cyclone position, maximum winds, minimum pressure, present movement, and provide forecast movement (if change is indicated). Provide the time and office responsible for the next advisory along with new message headers if the tropical cyclone is passed to another (tropical cyclone forecast) Center.

For example, after coordination between NHC and the Hydrometeorological Prediction Center (HPC), when the HPC is going to issue a TCP on a system for which NHC has been providing TCPs, the final TCP from the NHC will carry a statement similar to..."THIS IS THE LAST PUBLIC ADVISORY ISSUED BY THE NATIONAL HURRICANE CENTER ON THIS SYSTEM. FUTURE INFORMATION ON THIS SYSTEM CAN BE FOUND IN PUBLIC ADVISORIES ISSUED BY THE HYDROMETEOROLOGICAL PREDICTION CENTER...UNDER AWIPS HEADER TCPATn AND WMO HEADER WTNT3n KWNH...BEGINNING AT XX AM/PM EDT."

For example, when the Ocean Prediction Center or Tropical Analysis Forecast Branch (TAFB) is going to issue products on a tropical system which has been declared extratropical by NHC, NHC's last TCP should carry a statement similar to..."THIS IS THE LAST PUBLIC ADVISORY ISSUED BY THE NATIONAL HURRICANE CENTER ON XXX. FUTURE INFORMATION ON THIS SYSTEM CAN BE FOUND IN THE HIGH SEAS BULLETINS ISSUED BY THE OCEAN PREDICTION CENTER...UNDER AWIPS HEADER HSFAT1 AND WMO HEADER FZNT01 KWBC AND THE MARINE WEATHER DISCUSSION UNDER AWIPS HEADER MIMATN AND WMO HEADER AGNT40 KWNM BEGINNING AT XX AM/PM EDT.

For a tropical cyclone moving east to west across the international dateline, CPHC will insert at the end of their last advisory/forecast, "THIS IS THE LAST BULLETIN ISSUED BY THE CENTRAL PACIFIC HURRICANE CENTER. THE NEXT BULLETIN WILL BE ISSUED BY THE RSMC TOKYO. FOR U.S. INTERESTS, SEE THE PUBLIC ADVISORIES ISSUED BY THE U.S. NWS WEATHER FORECAST OFFICE GUAM AND DOD WARNINGS ISSUED BY THE JOINT TYPHOON WARNING CENTER. Finally, include the forecaster's name at the end of the message.

When a tropical cyclone watch is in effect, or a tropical cyclone is approaching or departing, and conditions warrant, forecasters may include the headline "SMALL CRAFT ADVISORY." In addition, the phrase "SMALL CRAFT SHOULD STAY IN PORT" may be appended. When discontinuing tropical cyclone warnings for a given coastal section where small craft advisories are to remain in effect, use the following statement: "SMALL CRAFT ADVISORIES REMAIN IN EFFECT FOR PORTIONS OF THE COAST. SEE LOCAL NWS COASTAL FORECASTS FOR CONDITIONS IN YOUR AREA." The NHC/CPHC advisory discontinuing tropical

cyclone warnings and the following NHC/CPHC advisory, if one is issued, should contain this statement.

a. Units. Times in advisories should be local time of the affected area; however, local time and UTC should be used when noting the storm's location. All advisories will use statute miles and statute miles per hour. TPC, CPHC and WFO Guam, at their discretion, may use nautical miles/knots in parentheses immediately following statute miles/mph. TPC advisories should include the metric units of kilometers and kilometers per hour following the equivalent English units.

b. Tropical Storm/Hurricane/Typhoon Watches and Warnings.

NHC issues tropical storm/hurricane watches/warnings for the Atlantic, Pacific, and Gulf of Mexico coasts of the continental United States, the US Virgin Islands, and Puerto Rico. NHC issues watches when tropical cyclone conditions along the coast are expected within 36 hours. NHC issues warnings when tropical cyclone conditions along the coast are expected within 24 hours.

CPHC and WFO Guam will issue tropical storm/hurricane/typhoon watches if tropical storm/hurricane/typhoon conditions are possible along the coast including the islands of Hawaii, northwest Hawaiian Islands, Johnston Atoll, Guam, Northern Mariana Islands and selected points in the Micronesian countries within 48 hours. CPHC and WFO Guam will issue warnings when tropical cyclone conditions are expected along the coast within 36 hours. Do not issue tropical storm watches if the tropical cyclone is forecast to reach hurricane/typhoon intensity within the watch period.

Issue tropical storm warnings at the discretion of the hurricane specialist when gale warnings, not related to the pending tropical storm, are already in place. Tropical storm warnings may be issued on either side of a hurricane/typhoon warning area.

Advisories will list all tropical cyclone watches and warnings in effect. The first advisory in which watches or warnings are mentioned should give the effective time of the watch or warning, except when it is being issued by other countries and the time is not known. Except for tropical storms and hurricanes/typhoons forming close to land, a watch should precede a warning. Once a watch is in effect, it should either be replaced by a warning or remain in effect until the threat of the tropical cyclone conditions has passed. A hurricane/typhoon watch and a tropical storm warning can be in effect for the same section of coast at the same time. It is not normally advantageous to step down warnings for tropical cyclones. This approach would cause confusion for the media and public, and this is especially true for tropical cyclones whose tracks parallel the coast.

c. Location and Movement. All advisories will include the location of the center of the tropical cyclone by its latitude and longitude, and distance and direction from a well known point, preferably downstream from the tropical cyclone. If the forecaster is unsure of the exact location of a depression, the position may be given as within 50, 75, etc., statute miles of a map coordinate. When the center of the tropical cyclone is over land, give its position referencing the

island, state or country in which it is located and in respect to some well known city, if appropriate.

Movement forecasts apply to the tropical cyclone's center. Give the present movement to 16 points of the compass. The TCP should include a generalized 48-hour forecast of movement, using wording that appropriately conveys the uncertainties in the track forecast (e.g., “could move near or over...”). Broad statements for areas that could be affected beyond 48 hours may also be included (e.g., “It is too soon to determine if Jeanne will eventually affect any land areas”). In addition, the warning section of the TCP can make frequent use of cautionary statements, including for areas that could be affected beyond 48 hours (e.g., “Interests in Bermuda... the Bahamas... and along the east coast of the United States should monitor the progress of this system”).

Make landfall forecasts of the center with caution to avoid giving the public any false sense of security. Use other forecast parameters to describe the center's landfall. When a threat to land exists, stress the tropical cyclone's effects extend well beyond the small area near the tropical cyclone's center.

d. Wind and Intensity. Give maximum observed 1-minute sustained surface wind speed rounded to the nearest 5 mph. During landfall threats, specific gust values and phrases like “briefly higher in squalls” may be used. Also include the area (or radius) of both tropical storm and hurricane/typhoon force winds. When warnings are in effect, give the expected times of onset of tropical storm and hurricane/typhoon force winds along the coast in general terms, such as “this afternoon” or “tonight.”

The TCP should give the current intensity to the nearest 5 mph, and provide a generalized intensity forecast out to 48 hours, using wording that appropriately conveys the uncertainties in the intensity forecast. The forecast can be conveyed in terms of the expected change compared to the initial intensity (e.g., weakening, strengthening, little change), and/or a general categorical description (e.g., depression, storm, hurricane, major hurricane) of the forecast intensity, with appropriate qualifiers (e.g., “could become”). Broad statements for areas that could be affected beyond 48 hours may also be included (e.g., “Katrina could become a dangerous hurricane in the Gulf of Mexico in 2 to 3 days”).

e. Pressure. Provide central pressure values in millibars and inches as determined by available data.

f. Storm Surge/Shoreline. Storm surge forecasts should highlight areas along the coast and within bays that are likely to experience dangerous flooding from storm surge. When possible, timing should be estimated or should be referenced to storm position, e.g. “as the hurricane is making landfall,” or “as strong winds turn to the southwest.” Wave information should be included for the outer coastline (all coastlines for Pacific Region locations) when possible.

NHC will generally reference storm surge information/forecasts as height above ground level, using the following two wording options. Option 2 is particularly useful for the more northern WFOs having a greater departure between high and low tides.

Option 1

STORM SURGE WILL RAISE WATER LEVELS AS MUCH AS XX FEET ABOVE GROUND LEVEL ALONG THE COAST...WITH LARGE AND DANGEROUS BATTERING WAVES...NEAR AND TO THE ZZZ DIRECTION OF WHERE THE CENTER MAKES LANDFALL. THE SURGE COULD PENETRATE AS FAR INLAND AS ABOUT XX MILES FROM THE SHORE WITH DEPTH GENERALLY DECREASING AS THE WATER MOVES INLAND.

Option 2

STORM TIDE WILL RAISE WATER LEVELS BY AS MUCH AS XX FEET ABOVE GROUND LEVEL ALONG THE COAST...WITH LARGE AND DANGEROUS BATTERING WAVES...NEAR AND TO THE ZZZ DIRECTION OF WHERE THE CENTER MAKES LANDFALL. STORM TIDE COULD PENETRATE AS FAR INLAND AS ABOUT XX MILES FROM THE SHORE WITH DEPTH GENERALLY DECREASING AS THE WATER MOVES INLAND.

On a case by case basis, NHC will discuss with the affected continental United States (CONUS) WFOs on the hurricane hotline coordination call whether rip currents and/or dangerous surf will be referenced. If agreement is reached to reference rip currents and/or dangerous surf, NHC will generally use wording such as:

SWELLS GENERATED BY [STORM] ARE AFFECTING PORTIONS OF THE COAST OF [LOCATIONS]. THESE SWELLS ARE LIKELY TO CAUSE LIFE-THREATENING SURF AND RIP CURRENT CONDITIONS. PLEASE CONSULT PRODUCTS FROM YOUR LOCAL WEATHER FORECAST OFFICES FOR MORE INFORMATION.

g. Rainfall. NHC and CPHC will provide 1-2 sentences regarding Quantitative Precipitation Forecasts (QPF). Identify the geographical area(s) at greatest risk. Include an estimate of the range of area-average amounts expected within the specified area(s), as well as an upper bound on the maximum spot values expected. In general, storm-total values will be used.

h. Inland Impacts. Highlight the inland impacts of tropical cyclones in advisories. This includes the threat of strong winds, heavy rainfall, flooding, and tornadoes. Include the extent and magnitude of inland winds as well as anticipated rainfall amounts and potential for flooding and tornadoes. Mention tornado and flood watches as appropriate. Mention actual occurrences of tornadoes, floods, and high winds adding a note of urgency and supporting warnings and statements from WFOs.

Action statements in advisories should be general with references to local office products for specific recommended actions. To further publicize local products, when a tropical cyclone threatens a land area, NHC will include the following statement in the TCP: "For storm information specific to your area...please monitor products issued by your local weather office." If HPC is going to issue public advisories (reference section 6.9), the last NHC TCP should carry a statement similar to..."THIS IS THE LAST PUBLIC ADVISORY ISSUED BY THE NATIONAL HURRICANE CENTER ON ALLISON. FUTURE INFORMATION ON THIS

SYSTEM CAN BE FOUND IN PUBLIC ADVISORIES ISSUED BY THE HYDROMETEOROLOGICAL PREDICTION CENTER...UNDER AWIPS HEADER TCPAT(1-5) AND WMO HEADER WTNT(31-35) KWNH...BEGINNING AT 10 AM CDT.”

1.1.3.4 Format. This product is available in industry standard encoding and languages, and may include, but not limited to, American Standard Code for Information Interchange (ASCII), Extensible Markup Language (XML), Wireless Markup Language (WML) and HyperText Markup Language (HTML).

```

WTaaii cccc ddhmm
TCPxxx

BULLETIN
(TROPICAL CYCLONE TYPE) (NAME) ADVISORY NUMBER XX.
(ISSUING OFFICE CITY STATE) BBCCYYYY
time am/pm time_zone day of week mon dd yyyy

...HEADLINE...

TEXT
$$

FORECASTER NAME
    
```

**Figure 1.** Tropical Cyclone Public Advisories Format  
See complete example in Appendix A.

NOTE: As part of the header, a coded string will be appended at the end of the “ISSUING OFFICE CITY STATE” line (Example: NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL BBCCYYYY)

Format:

- where: (BB) is the basin AL - North Atlantic, EP - East Pacific, CP - Central Pacific  
WP – western Pacific
- where: (CC) is the cyclone number (01, 02, 03,...49)
- where: (YYYY) is the 4 digit year.

1.2 Tropical Cyclone Forecasts/Advisories (TCM). NHC and CPHC will prepare TCMs for all tropical cyclones within their area of responsibility.

1.2.1 Mission Connection. The TCM provides critical tropical cyclone watch, warning, and forecast information for the protection of life and property.

1.2.2 Issuance Guidelines.

1.2.2.1 Creation Software. ATCF system.

1.2.2.2 Issuance Criteria. TCM is issued any time a routine or special TCP product is issued.

1.2.2.3 Issuance Times. Issue advisories at 0300, 0900, 1500, and 2100 UTC.

1.2.2.4 Valid Time. TCMs are valid from the time of issuance until the next scheduled issuance or update.

1.2.2.5 Product Expiration Time. Generally 6 hours after the issuance time and should coincide with the next expected update or when the event is forecast to end.

1.2.3 Technical Description. TCMs will follow the format and content described in this section.

1.2.3.1 UGC Type. Not applicable.

1.2.3.2. Mass News Disseminator Header. The TCM MND header block product type line is “(TROPICAL CYCLONE TYPE) (NAME) FORECAST/ADVISORY NUMBER XX

1.2.3.3 Content. TCMs will contain appropriate information as shown in appendix A in a standard format. All forecast advisories will contain 12-, 24-, 36-, 48-, 72-, 96- and 120 hour forecast positions and 1-minute surface wind speeds (intensity) rounded to the nearest 5 knots. Also they will include 34- and 50-knot (four-quadrant) wind speed radii in nautical miles through 72 hours and 64-knot wind speed radii at 12-, 24-, and 36-hours. No position or wind speed will accompany the forecast of “dissipated.” A standard statement indicating the uncertainty associated with the 96- and 120-hour forecast positions and forecast wind speeds will precede those two forecasts.

1.2.3.4 Format. This product is available in industry standard encoding and languages, and may include, but not limited to, ASCII, XML, WML and HTML.

```

WTaa2i cccc ddhhmm
TCMxxx

(TROPICAL CYCLONE TYPE) (NAME) FORECAST/ADVISORY NUMBER XX.
(ISSUING OFFICE CITY STATE) BBCCYYYY
time UTC day of week mon dd yyyy

TEXT
$$

FORECASTER NAME
    
```

**Figure 2.** Tropical Cyclone Forecast/Advisories Format  
See complete example in Appendix A.

NOTE: As part of the header, a coded string will be appended at the end of the “ISSUING OFFICE CITY STATE” line. (Example: NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL BBCCYYYY)

Format:

where: (BB) is the basin AL - North Atlantic, EP - East Pacific, or CP - Central Pacific

where: (CC) is the cyclone number (01, 02, 03,...49)

where: (YYYY) is the 4 digit year.

1.3 Tropical Cyclone Discussions (TCD). NHC and CPHC issue TCDs to explain forecaster’s reasoning behind analysis and forecast of the tropical cyclone.

1.3.1 Mission Connection. The TCD is a primary tropical cyclone product explaining forecaster’s reasoning behind analysis and the forecast for a tropical cyclone. It also provides coordinated 12-, 24-, 36-, 48-, 72-, 96-, and 120-hour tropical cyclone forecast positions and maximum sustained wind speed forecasts; other meteorological decisions; and plans for watches and warnings.

1.3.2 Issuance Guidelines

1.3.2.1 Creation Software. ATCF system.

1.3.2.2 Issuance Criteria. TCD is issued any time a routine or special TCP product is issued.

1.3.2.3 Issuance Times. Issue advisories at 0300, 0900, 1500, and 2100 UTC and with all special advisories

1.3.2.4 Valid Time. TCDs are valid from the time of issuance until the next scheduled issuance or update.

1.3.2.5 Product Expiration Time. Generally 6 hours after the issuance time and should coincide with the next expected update or when the event is forecast to end.

1.3.3 Technical Description. TCDs will follow the format and content described in this section.

1.3.3.1 UGC Type. Not applicable.

1.3.3.2 Mass News Disseminator Header. The TCD MND header block product type line is “(TROPICAL CYCLONE TYPE) (NAME) DISCUSSION NUMBER XX

1.3.3.3 Content. Discussions include prognostic reasoning; objective techniques employed; NHC, CPHC, and Hydrometeorological Prediction Center (HPC) guidance used; coordinated 12-, 24-, 36-, 48-, 72-, 96- and 120-hour tropical cyclone forecast points. No position or wind speed will accompany the forecast of “dissipated.” Also provide maximum sustained wind speed forecasts for each forecast point; other meteorological decisions; and plans for watches and warnings.

1.3.3.4 Format. This product is available in industry standard encoding and languages, and may include, but is not limited to, ASCII, XML, WML and HTML.

```

WTaa4i cccc ddhhmm
TCDxxx

(TROPICAL CYCLONE TYPE) (NAME) DISCUSSION NUMBER XX.
(ISSUING OFFICE CITY STATE) BBCCYYYY
time am/pm time_zone day of week mon dd yyyy

TEXT
$$

FORECASTER NAME
    
```

**Figure 3.** Tropical Cyclone Discussion Format  
See complete example in Appendix A.

NOTE: As part of the header, a coded string will be appended at the end of the “ISSUING OFFICE CITY STATE” line. (Example: NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL BBCCYYYY)

Format:

where: (BB) is the basin AL - North Atlantic, EP - East Pacific, or CP - Central Pacific  
 where: (CC) is the cyclone number (01, 02, 03,...49)  
 where: (YYYY) is the 4 digit year.

#### 1.4 Tropical Cyclone Updates (TCU).

1.4.1 Mission Connection. The TCU is an event-driven product which provides users with timely, succinct information on significant changes to tropical cyclone conditions.

#### 1.4.2 Issuance Guidelines.

1.4.2.1 Creation Software. ATCF system.

1.4.2.2 Issuance Criteria. TCUs are issued to inform users of unexpected changes in a tropical cyclone, such as to convey a significant change in the intensity, and/or to alert users a special advisory is about to be issued. The TCU may also be used to announce changes to international watches or warnings made by other countries, and to cancel U.S. watches or warnings. A TCU should only be used to issue a U.S. watch or warning if that TCU precedes a special advisory that will contain the same watch/warning information, and indicates the special advisory will be issued shortly.

1.4.2.3 Issuance Times. The TCUs are issued on an event-driven basis.

1.4.2.4 Valid Time. TCUs are valid at time of issuance until a subsequent TCU is issued or until the next scheduled or special TCP.

1.4.2.5 Product Expiration Time. Not applicable.

1.4.3 Technical Description. TCUs will follow the format and content described in this section.

1.4.3.1 UGC Type. Not applicable.

1.4.3.2. Mass News Disseminator Header. The TCU MND header block product type line is “(TROPICAL CYCLONE TYPE) (NAME) UPDATE”

1.4.3.3 Content. The TCU is a brief alphanumeric text product using a block paragraph format. CPHC and NHC base the information contained within the TCU on latest available data from all sources with special reliance on aircraft reconnaissance and satellite data.

1.4.3.4 Format. This product is available in industry standard encoding and languages, and may include, but not limited to, ASCII, XML, WML and HTML.

```
WTaa6i cccc ddhhmm
TCUxxx

(TROPICAL CYCLONE TYPE) (NAME) UPDATE
(ISSUING OFFICE CITY STATE) BBCCYYYY
time am/pm time_zone day of week mon dd yyyy

TEXT
```

**Figure 4.** Tropical Cyclone Update Format  
See complete example in Appendix A.

NOTE: As part of the header, a coded string will be appended at the end of the “ISSUING OFFICE CITY STATE” line. (Example: NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL BBCCYYYY)

Format:

where: (BB) is the basin AL - North Atlantic, EP - East Pacific, or CP - Central Pacific

where: (CC) is the cyclone number (01, 02, 03,...49)

where: (YYYY) is the 4 digit year.

## 1.5 Tropical Cyclone Position Estimates (TCE).

1.5.1 Mission Connection. This product ensures a continuous flow of information regarding the center location of a tropical cyclone when it nears the coast and thus provides up to date location information to emergency managers and other public officials.

1.5.2 Issuance Guidelines

1.5.2.1 Creation Software. ATCF system and N-AWIPS.

1.5.2.2 Issuance Criteria. TCEs will be issued between the 2-hourly intermediate public advisories. (Also see Section 1.1.2.3.b)

1.5.2.3 Issuance Times. NHC, CPHC and WFO Guam will issue TCEs between 2-hourly intermediate public advisories. Transmit TCEs position estimates near the beginning of the hour.

1.5.2.4 Valid Time. TCEs are valid at time of issuance until a subsequent TCE is issued or until the next scheduled or special TCP.

1.5.2.5 Product Expiration Time. Not applicable.

1.5.3 Technical Description. TCEs will follow the format and content described in this section.

1.5.3.1 UGC Type. Not applicable.

1.5.3.2. Mass News Disseminator Header. The TCE MND header block product type line is “(TROPICAL CYCLONE TYPE) (NAME) POSITION ESTIMATE.”

1.5.3.3 Content. The TCE is a brief alphanumeric product containing information derived from WSR-88D radar or appropriate satellite data about tropical cyclone positions near coasts in latitude/longitude coordinates, distance, and direction from a well known point. Local weather offices will use this information in all official statements.

1.5.3.4 Format. This product is available in industry standard encoding and languages, and may include, but not limited to, ASCII, XML, WML and HTML.

```
WTaa5i cccc ddhhmm
TCExxx

(TROPICAL CYCLONE TYPE) (NAME) POSITION ESTIMATE
(ISSUING OFFICE CITY STATE) BBCCYYYY
time am/pm time_ zone day of week mon dd yyyy

TEXT
$$
```

**Figure 5.** Tropical Cyclone Position Estimate

See complete example in Appendix A.

NOTE: As part of the header, a coded string will be appended at the end of the “ISSUING OFFICE CITY STATE” line. (Example: NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL BBCCYYYY)

Format:

where: (BB) is the basin AL - North Atlantic, EP - East Pacific, CP - Central Pacific  
WP – western Pacific

where: (CC) is the cyclone number (01, 02, 03,...49)

where: (YYYY) is the 4 digit year.

## 1.6. Graphical Tropical Cyclone Surface Wind Speed Probabilities

1.6.1 Mission Connection. This graphical product portrays probabilistic surface wind speed information which will help users prepare for the potential of tropical storm or hurricane conditions.

### 1.6.2 Issuance Guidelines.

1.6.2.1 Creation Software. ATCF system.

1.6.2.2 Issuance Criteria. Product will be issued for all named tropical and subtropical cyclones in the Atlantic or north Pacific basins.

1.6.2.3 Issuance Times. The static graphic will be issued at approximately 03, 09, 15, and 21 UTC and for special advisories. The animated display will be available no earlier than 15 minutes following the issuance deadlines for routine advisories (03, 09, 15, and 21 UTC) and after special advisories.

1.6.2.4 Valid Time. Product is valid at time of issuance or until the next scheduled issuance or update.

1.6.2.5 Product Expiration Time. Generally 6 hours after the issuance time and should coincide with the next expected update or when the event is forecast to end.

### 1.6.3 Technical Description. Graphical product.

1.6.3.1 UGC Type. Not applicable.

1.6.3.2. Mass News Disseminator Header. Not applicable.

1.6.3.3 Content. This product shows probabilities for three wind speed thresholds: 34, 50 and 64 knots. It provides cumulative probabilities through each 12 hour interval (e.g. 0 -12 hours, 0- 24 hours, etc.) from 0 through 120 hours. They are available in graphical forms in a static and an animated display. These wind speed probabilities are based on the track, intensity, and wind structure uncertainties in the official forecasts from the tropical cyclone centers.

1.6.3.4 Format. An example of a graphic can be found on the internet at:  
<http://www.nhc.noaa.gov/aboutnhcgraphics.shtml>

1.7 Tropical Cyclone Surface Wind Speed Probabilities Text (PWS).

1.7.1 Mission Connection. This product portrays probabilistic wind speed information helping users prepare for the potential of tropical storm or hurricane conditions.

1.7.2 Issuance Guidelines.

1.7.2.1 Creation Software. ATCF system.

1.7.2.2 Issuance Criteria. Product will be issued for all named tropical and subtropical cyclones in the Atlantic, east Pacific, and central Pacific and western Pacific basins.

1.7.2.3 Issuance Times. These products will be issued at 03, 09, 15, and 21 UTC and with all special advisories.

1.7.2.4 Valid Time. Product is valid at time of issuance or until the next scheduled issuance or update.

1.7.2.5 Product Expiration Time. Generally 6 hours after the issuance time and should coincide with the next expected update or when the event is forecast to end.

1.7.3 Technical Description. The text probabilities will follow the format and content described in this section.

1.7.3.1 UGC Type.

1.7.3.2 Mass News Disseminator Header. The PWS MND header product type line is:  
“(TROPICAL CYCLONE TYPE) (NAME) WIND SPEED PROBABILITIES NUMBER XX.”

1.7.3.3 Content. The probabilities in this product are statistically based on the errors in the official track and intensity forecasts issued during the past five years by NHC and CPHC. Variability in tropical cyclone wind structure is also incorporated. New probability values are computed for each new official forecast issued by NHC or CPHC.

The first section of the product provides categorical maximum wind speed (intensity) probabilities at standard forecast hours (12, 24, 36, 48, 72, 96, and 120) for various intensity stages (dissipated, tropical depression, tropical storm and hurricane) and for the five categories on the Saffir-Simpson Hurricane Scale. These probabilities apply to the maximum sustained surface wind associated with the cyclone, and not to winds that could occur at specific locations.

Probabilities for specific locations are provided in the second section for sustained wind speeds equal to or exceeding three wind speed thresholds: 34, 50 and 64 knots. Two types of probability values are provided in this table: individual period and cumulative. Individual period probabilities are provided for each of the following time intervals: 0-12 hours, 12-24 hours, 24-36 hours, 36-48 hours, 48-72 hours, 72-96 hours, and 96-120 hours. These individual period probabilities indicate the chance that the particular wind speed will *start* during each individual

period at each location. Cumulative probabilities are produced for the following time periods: 0-12 hours, 0-24 hours, 0-36 hours, 0-48 hours, 0-72 hours, 0-96 hours, and 0-120 hours. These cumulative probabilities indicate the overall chance the particular wind speed will occur at each location during the period between hour 0 and the forecast hour.

1.7.3.4 Format.

```
FOaa5i cccc ddhhmm
PWSxxx

(TROPICAL CYCLONE TYPE) (NAME) WIND SPEED PROBABILITIES NUMBER X
(ISSUING OFFICE CITY STATE) BBCCYYYY
time am/pm time_zone day of week mon dd yyyy

TEXT
$$
```

**Figure 6.** Text Surface Wind Speed Probabilities  
See complete example in Appendix A.

NOTE: As part of the header, a coded string will be appended at the end of the “ISSUING OFFICE CITY STATE” line. (Example: NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL BBCCYYYY)

Format:

where: (BB) is the basin AL - North Atlantic, EP - East Pacific, or CP - Central Pacific  
 where: (CC) is the cyclone number (01, 02, 03,...49)  
 where: (YYYY) is the 4 digit year.

1.8 Tropical Cyclone Watch Warning Product (TCV). The TCV is based upon the Valid Time Event Code (VTEC). It summarizes all new, continued, and cancelled tropical cyclone watches and warnings issued by the NHC for the U.S. Atlantic and Gulf coast, southern California coast, Puerto Rico, and U.S. Virgin Islands. The CPHC will issue a TCV for the main islands of the State of Hawaii.

1.8.1 Mission Connection. This product provides users with a complete listing of all tropical cyclone watches and warnings.

1.8.2 Issuance Guidelines.

1.8.2.1 Creation Software. Gempak N-AWIPS.

1.8.2.2 Issuance Criteria. The product is issued each time a U. S. tropical cyclone watch and/or warning is issued, continued, or discontinued for all Atlantic, portions of the North East Pacific, and the North Central Pacific Ocean basin tropical cyclones.

1.8.2.3 Issuance Times. These products will be issued with all routine and intermediate public advisories at approximately 03, 09, 15, and 21 UTC and for special advisories if watches or warnings are continued, posted, changed or canceled.

1.8.2.4 Valid Time. Product is valid at time of issuance or until the next scheduled issuance or update.

1.8.2.5 Product Expiration Time. Generally 6 hours after the issuance time and should coincide with the next expected update.

1.8.3 Technical Description. This text product will follow the format and content described in this section.

1.8.3.1 UGC Type. TCVs will use the segmented zone (Z) form of the UGC.

1.8.3.2 Mass News Disseminator Header. The TCV MND header product type line is:“(NAME) WATCH/WARNING BREAKPOINTS/ ADVISORY NUMBER XX.”

1.8.3.3 Content. The VTEC product will use three action codes:

-**NEW** is used when a watch or warning is first issued for a given geographic area. The geographic areas include the Atlantic and Gulf Coasts of the continental U.S., Puerto Rico, the U.S. Virgin Islands, southern California coast, and the main islands of the State of Hawaii. NEW is also used for upgrades and downgrades (e.g. Tropical Storm Watch to Tropical Storm Warning, Hurricane Warning to Tropical Storm Warning, Tropical Storm Warning to Hurricane Watch, etc.)

-**CON** is used if there are no changes in the watch/warning for a given geographic area  
-**CAN** is used to cancel an area if there is no longer a watch/warning in effect for the geographic area or if the watch/warning is upgraded/downgraded. (e.g. an area once under a Tropical Storm Warning is now under a Hurricane Warning: the VTEC will show the area as CAN for the Tropical Storm Warning and NEW for the Hurricane Warning)

The product will use official hurricane “break points” and their latitude and longitude as defined in National Weather Service Instruction (NWSI) 10-605, Tropical Cyclone Official Defining Points and Geographic Defining Points. In rare instances, other supplemental “break points”, with their latitude and longitude, could be used.

The VTEC event tracking number (ETN) will take the form of XNNN where X is the basin:

1 - Atlantic/Gulf of Mexico

2 - East Pacific

3 – Central Pacific

4 – West Pacific (future)

NNN corresponds to the tropical cyclone identifier number. In tropical cyclone products, the tropical cyclone identifier number is found at the end of the product type line in the MND header. Not all identifier numbers will appear in a TCV since a TCV is issued only those for storms for which watches and/or warnings are issued. Thus the TCV ETNs may not be sequential.

1.8.3.4 Format.

```

WTNT8i KNHC ddhhmm
TCVxxx

(NAME) WATCH/WARNING BREAKPOINTS/ADVISORY NUMBER X
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL BBCCYYYY
time am/pm time_zone day of week mon dd yyyy

.HURRICANE (NAME)

STZxxx-xxx-xxx-...-DDHHMM-
/O.AAA.KNHC.PP.S.####.YYMDDTHHNNZb-000000T0000Z/
TIME AM/PM TIME_ZONE DAY MMM DD YYYY

BREAKPOINT START                XX.DDN {lat} YY.DD(W/E) {lon}
BREAKPOINT END                   XX.DDN {lat} YY.DD(W/E) {lon}

$$

STZxxx-xxx-...-DDHHMM
/O.AAA.KNHC.PP.S.####.YYMDDTHHNNZb-000000T0000Z/
TIME AM/PM TIME_ZONE DAY MMM DD YYY

BREAKPOINT START {etc}

$$

```

**Figure 7.** Tropical Cyclone Watch Warning Product

See complete example in Appendix A. For VTEC details, see <http://www.weather.gov/os/vtec>.

NOTE: As part of the header, a coded string will be appended at the end of the “ISSUING OFFICE CITY STATE” line. (Example: NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL BBCCYYYY)

Format:

- where: (BB) is the basin AL - North Atlantic, EP - East Pacific, or CP - Central Pacific
- where: (CC) is the cyclone number (01, 02, 03,...49)
- where: (YYYY) is the 4 digit year.

## 2. Subtropical Cyclone Forecast and Advisory Products.

2.1 Subtropical Cyclone Public Advisories (TCP). NHC will issue subtropical cyclone advisories. However, due to the lack of well-defined criteria for distinguishing subtropical from non-tropical lows, marginally-subtropical systems may be handled as non-tropical gale or storm centers in High Seas forecast products. Format and content of these products are similar to the public tropical cyclone advisory. (See appendix A for an example). Title the advisories “SUBTROPICAL DEPRESSION (NUMBER)” and in the message body refer to the depression as “SUBTROPICAL DEPRESSION (NUMBER).” If winds reach subtropical storm strength, the storm receives the next available name. Title the advisories “SUBTROPICAL STORM (NAME)” and in the body message refer to the storm as “SUBTROPICAL STORM (NAME).” List information in order of importance with a lead statement, when appropriate, followed by a summary of all coastal warnings. Use latitude and longitude coordinates to identify the center of the storm. Issue these advisories at the same scheduled times as public tropical cyclone advisories.

2.2 Subtropical Cyclone Forecast/Advisory (TCM). Issue these advisories for all subtropical cyclones for which a TCP has been issued. Write the advisory in the same format and content as the tropical cyclone forecast/advisories. Title the advisories “SUBTROPICAL DEPRESSION NUMBER” and in the message body refer to the depression as “SUBTROPICAL DEPRESSION NUMBER.” If winds reach subtropical storm strength, the storm receives the next available name. Title the advisories “SUBTROPICAL STORM (NAME)” and in the body message body refer to the storm as “SUBTROPICAL STORM (NAME).” Issue these at the same times as scheduled tropical cyclone forecast/advisories.

3. Special Advisories. Special advisories are issued whenever an unexpected significant change has occurred or when watches or warnings are to be issued between regularly scheduled advisories. (Watches or warnings may be discontinued on intermediate public advisories.) When a special advisory is required, the entire advisory package must be issued, including a public advisory, a forecast/advisory, a tropical cyclone discussion, probabilistic winds products, and an ICAO/WMO tropical cyclone advisory. The Mass News Disseminator Header block is (Tropical Cyclone Type) (Name) Special (Product Type (e.g., Discussion, Forecast Advisory, Wind Speed Probabilities, or Aviation Advisory)) Number xx. For example, Tropical Storm Gustav Special Forecast/Advisory Number 14.

When the special advisory is issued only for a watch or warning, it will contain the track and intensity forecast from the previous regularly scheduled advisory with only the initial position and intensity updated. When the special advisory is issued for an unexpected change, the previous track and intensity forecast will be updated to reflect the unexpected change.

## 4. Numbering and Naming Tropical and Subtropical Cyclones.

4.1 Numbering and Naming Tropical Cyclones. NHC and CPHC will number tropical depressions in their areas of responsibility. Number tropical depressions consecutively beginning each season with the spelled out number “ONE.” In the North Pacific, for ease in

differentiation, tropical depression numbers, assigned by NHC or CPHC, will include the suffix “E” for eastern (east of 140°W) or “C,” for central (180 to 140°W) respectively, after the number. In the Atlantic, eastern and central Pacific, once the depression reaches tropical storm intensity, NHC and CPHC will name it and drop the depression number. The depression number will not be used again until the following year. Give tropical cyclones a name in the first advisory after intensifying to 34 knots (39 mph) or greater. In the western Pacific, once the depression is named by Regional Specialized Meteorological Center (RSMC) Tokyo, use the RSMC name followed by the Joint Typhoon Warning Center (JTWC) number in parentheses. If the JTWC upgrades the depression to tropical storm before the RSMC names it, the term Tropical Storm Noname with the JTWC number in parentheses will be used.

The following rules apply for tropical cyclones passing from one basin to another: Retain the name if a tropical cyclone passes from one basin into another basin as a tropical cyclone, i.e. advisories are continuous. An unnamed tropical depression will also retain its number (e.g. Tropical Depression Six-E remains Tropical Depression Six-E) if it crosses into another area of responsibility. For unnamed tropical depressions moving from west to east across 180°, CPHC will use the associated JTWC number, and indicate JTWC in parentheses following the number. For named systems, CPHC will use the associated RSMC Tokyo name and provide the associated JTWC number in parentheses.

Within a basin, if the remnant of a tropical cyclone redevelops into a tropical cyclone, it is assigned its original number or name. If the remnants of a former tropical cyclone regenerate in a new basin, the regenerated tropical cyclone will be given a new designation.

If NHC uses all of the names for a given year and another storm requires a name, the Greek alphabet will be used (Alpha, Beta, etc.)

4.2 Numbering and Naming Subtropical Storms. A single list of numbers and names will be used for all tropical and subtropical cyclones. Therefore, numbering of subtropical depressions will follow the same procedure as tropical depressions. For example, if the first subtropical depression follows the first tropical depression, the subtropical depression will be given the designation SUBTROPICAL DEPRESSION TWO. If a subtropical depression becomes a subtropical storm, it receives the next available name in the tropical cyclone naming sequence.

5. Numbering Advisories and Tropical/Subtropical Cyclone Discussions. Number tropical and subtropical cyclone advisories and discussions in the Atlantic and the Pacific similarly. Number scheduled and special advisories and TCDs consecutively beginning with the number 1 (not spelled out) for each new tropical or subtropical cyclone, and continue through the duration of the cyclone. In both the Atlantic and the Pacific, intermediate advisories and TCDs will retain the advisory number of the scheduled or special advisory they update and append an alphabetic designator (i.e., “HURRICANE ALLISON INTERMEDIATE ADVISORY NUMBER 20A”).

6. Other Tropical Cyclone Centers and NCEP Products.

6.1 Satellite Interpretation Message (SIM).

6.1.1 Mission Connection. The SIM locates hazardous weather areas over land and sea, to locate obscured higher terrain, to describe general meteorological conditions, and to make plans for outdoor events, and other activities.

6.1.2 Issuance Guidelines.

6.1.2.1 Creation Software. AWIPS.

6.1.2.2 Issuance Criteria. Issued by WFO Honolulu four times a day for the Hawaiian Islands, with updates as required. Issued by WFO Guam twice daily.

6.1.2.3 Issuance Times. For Hawaii: 0030, 0530, 1230, and 1830 UTC. For WFO Guam: 0300 and 1500 UTC

6.1.2.4 Valid Time. SIMs are valid from the time of issuance until the next scheduled issuance or update.

6.1.2.5 Product Expiration Time. Generally should coincide with the next expected update.

6.1.3 Technical Description. SIMs will follow the format and content described in this section.

6.1.3.1 UGC Type. Not applicable.

6.1.3.2. Mass News Disseminator Header. The SIM MND header block product type line is “HAWAIIAN ISLANDS SATELLITE INTERPRETATION MESSAGE” or “SATELLITE INTERPRETATION MESSAGE.”

6.1.3.3 Content. The SIM is an alphanumeric product providing an interpretation of synoptic weather features, significant weather areas, and various cloud and weather phenomena based upon satellite imagery (visual, infrared, water vapor, etc.). WFO Honolulu prepares the SIM for a portion of their area of responsibility (AOR). The AORs for WFO Honolulu vary and depend upon the program (tropical cyclone, aviation, marine, public, and satellite). For the SIM program, WFO Honolulu’s AOR is from 140W to 180W longitude between 10N and 30N latitude. The office can include a description of more distant features if these features relate to significant weather affecting or will soon affect WFO Honolulu’s AOR. WFO Honolulu determines the criteria for significant cloud features based upon users inputs.

6.1.3.4 Format.

ATHW40 PFHO ddhhmm  
SIMHI

HAWAIIAN ISLANDS SATELLITE INTERPRETATION MESSAGE  
CENTRAL PACIFIC HURRICANE CENTER/WEATHER FORECAST OFFICE  
HONOLULU HI

time am/pm time\_zone day of week mon dd yyyy

TEXT

\$\$

ATPQ40 PGUM ddhhmm  
SIMGUM

SATELLITE INTERPRETATION MESSAGE  
NATIONAL WEATHER SERVICE TIYAN GU

time am/pm time\_zone day of week mon dd yyyy

WESTERN NORTH PACIFIC BETWEEN THE EQUATOR AND 25N FROM 130E TO 180

TEXT

\$\$

**Figure 8.** Satellite Interpretation Message Format

6.2 Tropical Weather Discussion (TWD). TPC's TAFB will issue these discussions to describe major synoptic weather features and significant areas of disturbed weather in the tropics.

6.2.1 Mission Connection. This product is intended to provide current weather information for those who need to know the current state of the atmosphere and expected trends to assist them in their decision making. The product provides significant weather features, areas of disturbed weather, expected trends, the meteorologic reasoning behind the forecast, model performance, and in some cases a degree of confidence.

6.2.2 Issuance Guidelines.

6.2.2.1 Creation Software. N-AWIPS.

6.2.2.2 Issuance Criteria. The product is issued routinely and updated if necessary, when significant changes occur, e.g., a tropical cyclone's intensity category is upgraded or downgraded.

6.2.2.3 Issuance Times. One TAFB discussion will cover the Gulf of Mexico, the Caribbean, and the Atlantic between the equator and 32° north latitude and be transmitted at 0605, 1205, 1805, 0005 UTC. A second TAFB message for the eastern Pacific between the equator and 32° north and east of 140° west will be transmitted at 0405, 1005, 1605, and 2205 UTC.

6.2.2.4 Valid Time. TWDs are valid from the time of issuance until the next scheduled issuance or update.

6.2.2.5 Product Expiration Time. Generally 6 hours after the issuance time and should coincide with the next expected update.

6.2.3 Technical Description. TWDs will follow the format and content described in this section.

6.2.3.1 UGC Type. Not applicable.

6.2.3.2. Mass News Disseminator Header. The TWD MND header block product type line is “TROPICAL WEATHER DISCUSSION.”

6.2.3.3 Content. The TWD product is an alphanumeric format and contains sections on Tropical Cyclones/Tropical Waves/Disturbances, the location of the Intertropical Convergence Zone and associated convection along it, surface/middle/upper level synoptic discussion, and significant clouds/convection. The product is written in a plain language format but will contain meteorological terms such as trough, ridge, subsidence, jet stream, etc.

6.2.3.4 Format. This product is available in industry standard encoding and languages, and may include, but not limited to, ASCII, XML, WML and HTML.

```

Ataai cccc ddhhmm
TWDxx

TROPICAL WEATHER DISCUSSION
ISSUING OFFICE CITY STATE
time am/pm time_zone day of week mon dd yyyy

TEXT

$$
FORECASTER NAME
    
```

**Figure 9.** Tropical Weather Discussion Format  
See complete example in Appendix A.

6.3 Tropical Weather Outlook (TWO). NHC and CPHC will prepare the TWO during their respective tropical cyclone seasons.

6.3.1 Mission Connection. The TWO provides users with a general assessment of activity in the tropics, pertaining to tropical cyclone formation by providing to users possible areas where tropical cyclones could develop.

6.3.2 Issuance Guidelines.

6.3.2.1 Creation Software. N-AWIPS.

6.3.2.2 Issuance Criteria. Routinely during the tropical cyclone season. A Special Tropical Weather Outlook is issued when important changes in areas of disturbed weather over tropical or subtropical waters must be conveyed before the next scheduled release of the TWO.

6.3.2.3 Issuance Times. In the Atlantic and east Pacific, transmission times are 0000, 0600, 1200, and 1800 UTC. For the central Pacific issuance times are 0200, 0800, 1400 and 2000 UTC.

6.3.2.4 Valid Time. TWOs are valid from the time of issuance until the next scheduled issuance.

6.3.2.5 Product Expiration Time. Generally 6 hours after the issuance time and should coincide with the next expected update.

6.3.3 Technical Description. TWOs will follow the format and content described in this section.

6.3.3.1 UGC Type. Not applicable.

6.3.3.2 Mass News Disseminator Header. The TWO MND header block product type line is “TROPICAL WEATHER OUTLOOK” or “SPECIAL TROPICAL WEATHER OUTLOOK.”

6.3.3.3 Content. The outlook, a text , covers tropical and subtropical waters and discusses areas of disturbed weather and the potential for tropical cyclone development during the next 48 hours. The outlook will mention tropical cyclones and may mention subtropical cyclones, including the system's location (in either general terms or map coordinates), status, and change in status. For the first 24 hours of a tropical cyclone, the outlook will include a statement identifying the NWS product header and WMO headers for the advisory (see Appendix B).

For the Atlantic and Eastern Pacific hurricane basins, a graphical version of the product is also provided on the NHC web page.

For the Atlantic and Eastern Pacific hurricane basins, the product will include a probability genesis forecast for the probability of tropical cyclone formation within the next 48 hours.

6.3.3.4 Format. This product is available in industry standard encoding and languages, and may include, but not limited to, ASCII, XML, WML and HTML.

```

Ataaii cccc ddhhmm
TWOxxx

TROPICAL WEATHER OUTLOOK
ISSUING OFFICE CITY STATE
time am/pm time_ zone day of week mon dd yyyy

TEXT

$$

```

**Figure 10.** Tropical Weather Outlook Message Format  
See complete example in Appendix A.

6.4 Tropical Weather Summary (TWS).

6.4.1 Mission Connection. These products are used by a variety of users for historical purpose, business (e.g. insurance) and climatological needs.

6.4.2 Issuance Guidelines.

6.4.2.1 Creation Software. ATCF.

6.4.2.2 Issuance Criteria. Monthly.

6.4.2.3 Issuance Times. Summaries are issued on the first day of each month from June through December for the Eastern Pacific and from July through December for the Atlantic and Central Pacific hurricane basins. The last TWS of the tropical cyclone season (December issuance) covers activity during the entire season from June through the end of November.

6.4.2.4 Valid Time. Not applicable.

6.4.2.5 Product Expiration Time. Not applicable.

6.4.3 Technical Description. TWSs will follow the format and content described in this section.

6.4.3.1 UGC Type. Not applicable.

6.4.3.2 Mass News Disseminator Header. The TWS MND header block product type line is "TROPICAL WEATHER SUMMARY."

6.4.3.3 Content. The TWS is a monthly alphanumeric product which the NHC and CPHC issue to summarize tropical cyclone activity during the previous month. NHC issues summaries which cover tropical cyclone activity over the Atlantic and eastern North Pacific (north of the equator and east of 140W longitude) basins. CPHC issues summaries which cover tropical cyclone activity over the central North Pacific (north of the equator between 140W and 180W longitude).

The product provides a table of basic meteorological statistics...such as the dates of occurrence and estimated peak intensity...for all of the season's tropical cyclones to date. It may contain brief descriptions for records of interest. Monthly updates permit a timely release of tropical cyclone information. In addition to the TWS, NHC and CPHC prepare and submit formal, detailed end-of-season tropical cyclone reports which involves a lengthy review and publication process, providing comprehensive information on each tropical cyclone, including synoptic history, meteorological statistics, casualties and damages, and the post-analysis best track six-hourly positions and intensities.

6.4.3.4 Format.

```

Ataai cccc ddhhmm
TWSxx

TROPICAL WEATHER SUMMARY
ISSUING OFFICE CITY STATE
time am/pm time_zone day of week mon dd yyyy

TEXT

$$
    
```

**Figure 11.** Tropical Weather Summary Format

6.5 Tropical Cyclone Summary - Fixes (TCS).

6.5.1 Mission Connection. This provides meteorological information to marine interests, military forecasters and national meteorological services of countries/members in the Pacific Ocean area by CPHC.

6.5.2 Issuance Guidelines.

6.5.2.1 Creation Software. N-AWIPS.

6.5.2.2 Issuance Criteria. When a tropical cyclone is classifiable using the Dvorak technique.

6.5.2.3 Issuance Times. After the initial tropical cyclone fix, succeeding products will be done at approximately 0000, 0600, 1200, and 1800 UTC as long as the system is classifiable.

6.5.2.4 Valid Time. TCSs are valid from the time of issuance until the next scheduled issuance or update.

6.5.2.5 Product Expiration Time. Generally 6 hours after the issuance time and should coincide with the next expected update or when the event is forecast to end.

6.5.3 Technical Description. TCSs will follow the format and content described in this section.

6.5.3.1 UGC Type. Not applicable.

6.5.3.2 Mass News Disseminator Header. The TCS header block product type line is “CENTRAL PACIFIC TROPICAL CYCLONE SUMMARY - FIXES” or “SOUTH PACIFIC TROPICAL CYCLONE SUMMARY - FIXES.”

6.5.3.3 Content. TCS is an alphanumeric product provided by CPHC when there is classifiable (using the Dvorak technique) tropical cyclone activity in the central north or south Pacific. The TCS is a satellite-based estimate of tropical cyclone location, movement, and intensity with a brief remarks section. CPHC prepares TCS for a portion of their area of responsibility (AOR). The AORs for CPHC/Weather Forecast Office (WFO) Honolulu (CPHC is collocated with the Weather Forecast Office Honolulu) varies depending upon the program (tropical cyclone, aviation, marine, public, and satellite). For TCS program, CPHC’s AOR is the area north of the equator between 140W – 160E longitude and from the equator to 25S latitude between 120W to 160E.

6.5.3.4 Format.

```

TXPaii cccc ddhhmm
TCSxxx

CENTRAL PACIFIC TROPICAL CYCLONE SUMMARY - FIXES or
SOUTH PACIFIC TROPICAL CYCLONE SUMMARY - FIXES
NWS CENTRAL PACIFIC HURRICANE CENTER HONOLULU HI
time am/pm time_zone day of week mon dd yyyy

TEXT

$$
    
```

**Figure 12.** Tropical Cyclone Summary - Fixes Format

## 6.6 Tropical Cyclone Danger Area Graphic

6.6.1 Mission Connection. The product is used to assist mariners and military agencies avoid high seas associated with tropical cyclones. Also, it provides guidance to users on possible tropical cyclone genesis.

### 6.6.2 Issuance Guidelines

6.6.2.1 Creation Software. N-AWIPS.

6.6.2.2 Issuance Criteria. Routinely prepared by NHC and CPHC during the tropical cyclone season for all on-going tropical cyclone activity in their respective areas of responsibility.

6.6.2.3 Issuance Times. The product is disseminated four times per day during the hurricane season within one hour after the advisory package issuance. This would be at 0400, 1000, 1600 and 2200 UTC.

6.6.2.4 Valid Time. Tropical Cyclone Danger Area graphic is valid from the time of issuance until the next scheduled issuance or update.

6.6.2.5 Product Expiration Time. Generally 6 hours after the issuance time and should coincide with the next expected update.

6.6.3 Technical Description. The Tropical Cyclone Danger Area graphic will follow the format and content described in this section.

6.6.3.1 UGC Type. Not applicable.

6.6.3.2 Mass News Disseminator Header. Not applicable.

6.6.3.3 Content. The Tropical Cyclone Danger Area is a TPC graphical marine product depicting a tropical cyclone's track (out to 72 hours) and shades in a danger area determined by adding 100, 200, and 300 nautical miles plus the 34-knot wind radii to the 24-, 48-, and 72- hour forecast position respectively in the Atlantic and east Pacific. In addition, areas of possible tropical cyclone genesis with a 30 percent or greater chance of formation out to 48 hours are included. The area of possible formation is depicted on the graphic as a circular, rectangle, oval, or polygon shaped area. The product is prepared by the TPC and covers the entire Atlantic north of the equator and the Pacific north of the equator from the Mexican and Central America coast west to 140° west. CPHC prepares a separate chart for 140° west to 180° longitude north of the equator.

6.6.3.4 Format. An example of a graphic can be found on the internet at:  
<http://www.nhc.noaa.gov/abouttafbprod.shtml>

6.7 Aviation Tropical Cyclone Advisory (TCA).

6.7.1 Mission Connection. The TCA is intended to provide short-term tropical cyclone forecast guidance for international aviation safety and routing purposes.

6.7.2 Issuance Guidelines.

6.7.2.1 Creation Software. ATCF

6.7.2.2 Issuance Criteria. Prepared by NHC and CPHC for all on-going tropical and subtropical cyclone activity in their respective areas of responsibility. This requirement is stated in the World Meteorological Organization Region IV and V hurricane plan.

6.7.2.3 Issuance Times. 0300, 0900, 1500, and 2100 UTC.

6.7.2.4 Valid Times. TCAs are valid from the time of issuance until the next scheduled issuance or update.

6.7.2.5 Product Expiration Time. Generally 6 hours after the issuance time and should coincide with the next expected update.

6.7.3 Technical Description. TCAs will follow the format and content described in this section.

6.7.3.1 UGC Type. Not applicable.

6.7.3.2 Mass News Disseminator Header. The TCA header block product type line is “(TROPICAL CYCLONE TYPE) ICAO ADVISORY #.”

6.7.3.3 Content. TCAs list the current TC position, motion and intensity, and 6-, 12-, 18- and 24-hour forecast positions and intensities. It is an alphanumeric text product produced by hurricane forecasters, and consists of information extracted and interpolated from the official forecasts. This forecast is produced from subjective evaluation of current meteorological and oceanographic data as well as output from numerical weather prediction models, and is coordinated with affected WFOs, the National Centers, and the Department of Defense.

6.7.3.4 Format.

```
FKaa2i cccc ddhhmm
TCAxxx

(TROPICAL CYCLONE TYPE) (NAME)ICAO ADVISORY NUMBER ##
(ISSUING OFFICE CITY STATE ) BBCCYYYY
time UTC day of week mon dd yyyy

TC ADVISORY
DTG:
TCAC:
TC:
NR:
PSN:
MOV:
C:
MAX WIND:
FCST PSN + 06 HR:
FCST MAX WIND + 06 HR:
FCST PSN + 12 HR:
FCST MAX WIND + 12 HR:
FCST PSN + 18 HR:
FCST MAX WIND + 18 HR:
FCST PSN + 24 HR:
FCST MAX WIND + 24 HR:
RMK

NXT MSG:

$$
```

**Figure 13.** Aviation Tropical Cyclone Advisory Format

NOTE: As part of the header, a coded string will be appended at the end of the “ISSUING OFFICE CITY STATE” line. (Example: NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL BBCCYYYY)

Format:

where: (BB) is the basin AL - North Atlantic, EP - East Pacific, or CP - Central Pacific

where: (CC) is the cyclone number (01, 02, 03,...49)

where: (YYYY) is the 4 digit year.

## 6.8 HPC Public Advisories (TCP).

6.8.1 Mission Connection. Provides users with meteorological information, primarily the potential of heavy rain and flash flooding, from decaying subtropical or tropical systems which have moved inland.

### 6.8.2 Issuance Guidelines.

#### 6.8.2.1 Creation Software. Word Processor

6.8.2.2 Issuance Criteria. The HPC will issue public advisories after NHC discontinues its advisories on subtropical and tropical cyclones that have moved inland in the conterminous United States or Mexico, but still pose a threat of heavy rain and flash floods in the conterminous United States or Mexico. The last NHC advisory will normally be issued when winds in an inland tropical cyclone drop below tropical storm strength, and the tropical depression is not forecast to regain tropical storm intensity or re-emerge over water. Therefore HPC will only handle tropical depressions or remnants. HPC advisories will terminate when the threat of flash flooding has ended.

6.8.2.3 Issuance Times. Advisories are issued at 0300, 0900, 1500, and 2100 UTC.

6.8.2.4 Valid Times. TCPs are valid from the time of issuance until the next scheduled issuance or update.

6.8.2.5 Product Expiration Time. Generally 6 hours after the issuance time and should coincide with the next expected update or when the event is forecast to end.

### 6.8.3 Technical Description. TCPs will follow the format and content described in this section.

6.8.3.1 UGC Type. Not applicable.

6.8.3.2 Mass News Disseminator Header. The TCP MND header block product type line is “PUBLIC ADVISORY NUMBER XX FOR (TROPICAL CYCLONE TYPE) (NAME).”

6.8.3.3 Content. The TCP is an alphanumeric product. TCP products, issued by HPC, will continue to be numbered in sequence with tropical cyclone advisories issued by TPC and will reference the former storm’s name in the text. If the system is a tropical depression HPC should

refer to it as “Tropical Depression XX.” If the system is no longer a tropical cyclone then HPC will refer to it as “remnants of XX.” Content will refer to the decaying system’s position, intensity, general forecast trends, highlight impacts which occurred and are expected to occur (usually in relation to heavy rain/flooding and tornadoes), and indicate when the next summary will be issued. A table at the end of the message will provide forecast latitude and longitude of the remnant low.

6.8.3.4 Format. This product is available in industry standard encoding and languages, and may include, but not limited to, ASCII, XML, WML and HTML.

```

WTNT3i KWNH Ddhmm
TCPATc

PUBLIC ADVISORY NUMBER XX FOR (TROPICAL CYCLONE TYPE) (NAME)
NWS HYDROMETEOROLOGICAL PREDICTION CENTER CAMP SPRINGS MD BBCCYYYY
time am/pm time_ zone day of week mon dd yyyy

TEXT

SZATANEK/BANN

FORECAST POSITIONS

INITIAL 25/2100Z 29.0N 77.4W
12HR VT 26/0600Z 33.1N 72.6W
24HR VT 26/1800Z 39.4N 65.2W
36HR VT 27/0600Z 43.1N 58.2W
48HR VT 27/1800Z...DISSIPATED

$$

```

**Figure 14.** HPC Public Advisory Product Format  
See complete example in Appendix A.

NOTE: As part of the header, a coded string will be appended at the end of the “ISSUING OFFICE CITY STATE” line. (Example: NWS HYDROMETEOROLOGICAL PREDICTION CENTER CAMP SPRINGS MD BBCCYYYY)

Format:

- where: (BB) is the basin AL - North Atlantic, EP - East Pacific, or CP - Central Pacific
- where: (CC) is the cyclone number (01, 02, 03,...49)
- where: (YYYY) is the 4 digit year.

## 6.9 Tropical Cyclone Reports (TCR).

6.9.1 Mission Connection. The TCR is the official record of each tropical cyclone within NHC’s and CPHC’s respective areas of responsibility and documents each storm’s intensity (wind and pressure) and location throughout its lifetime. These detailed reports are used by various users for research, NWS verification and historical purposes.

6.9.2 Issuance Guidelines.

6.9.2.1 Creation Software. Word Processor

6.9.2.2 Issuance Criteria. Not applicable

6.9.2.3 Issuance Times. The report will be released as soon as practical after the last advisory on each tropical cyclone.

6.9.2.4 Valid Times. Not applicable.

6.9.2.5 Product Expiration Time. Not applicable.

6.9.3 Technical Description. TCRs will follow the format and content described in this section.

6.9.3.1 UGC Type. Not applicable.

6.9.3.2 Mass News Disseminator Header. Not applicable. Internet product.

6.9.3.3 Content. The TCR is a post-event overview of a tropical cyclone comprised of a narrative describing the overall storm and a detailed listing of 6-hourly location and intensity data in both text and graphic format. NHC issues TCRs for tropical cyclone activity in the Atlantic and eastern North Pacific (north of the equator and east of 140 degrees west longitude) basins. CPHC issues TCRs for tropical cyclone activity in the central North Pacific (north of the equator between 140W and 180 degrees west longitude) basin. The tropical cyclone report will include landfall and 6-hourly synoptic track and intensity data (i.e. the “best track”). NHC will post reports on the Internet at [www.nhc.noaa.gov/pastall.shtml](http://www.nhc.noaa.gov/pastall.shtml) and CPHC at [www.prh.noaa.gov/cphc](http://www.prh.noaa.gov/cphc). Any changes to the best track or intensity for the Atlantic and east Pacific will be made by NHC’s Best Track Committee. Reviews at CPHC will be conducted by the director and deputy director CPHC, warning coordination meteorologist and hurricane program leader.

6.9.3.4 Format. This product is available in industry standard encoding and languages, and may include, but not limited to, ASCII, XML, WML and (HTML).

6.10 Tropical Cyclone Track and Watch/Warning Graphic.

6.10.1 Mission Connection. This product is a graphical representation of text products (TCP and TCM) issued by NHC and CPHC. It provides critical information on the forecast path of the tropical cyclone, and watches and warnings.

6.10.2 Issuance Guidelines.

6.10.2.1 Creation Software. N-AWIPS

6.10.2.2 Issuance Criteria. Created when routine, intermediate and special TCPs are issued.

6.10.2.3 Issuance Times. The product is available on the Internet at approximately 0300, 0900, 1500, and 2100 UTC for the routine advisories. The graphic is also produced for intermediate and special advisories.

6.10.2.4 Valid Times. Valid from the time of issuance until the next routine issuance or by an intermediate or special advisory.

6.10.2.5 Product Expiration Time. Generally 6 hours after the issuance time and should coincide with the next expected update or when the event is forecast to end.

6.10.3 Technical Description. The graphic will follow the format and content described in this section.

6.10.3.1 UGC Type. Not applicable.

6.10.3.2 Mass News Disseminator Header. Not applicable. Internet product.

6.10.3.3 Content. The Tropical Cyclone Track and Watch/Warning graphic contains the storm's forecast track, a cone along the track based upon the average area of uncertainty, and watches/warnings. The cone (solid white and hatched area) represents the probable track of the center of a tropical cyclone, and is formed by enclosing the area swept out by a set of circles along the forecast track (at 12, 24, 36 hours, etc). The size of each circle is set so that two-thirds of historical official forecast errors over a 5-year sample fall within the circle. This product is also issued for subtropical cyclones.

The coastal watches and warnings display shows an approximate representation of coastal areas under a hurricane warning (red), hurricane watch (pink), tropical storm warning (blue) and tropical storm watch (yellow). The orange circle indicates the current position of the center of the tropical cyclone. The black line and dots show the NHC/CPHC forecast track of the center at the times indicated. A second version of this graphic is available that does not explicitly show the forecast track; this version of the graphic shows the cone along the track based on the average area of uncertainty, the forecast points of the cyclone's center, and watches/warnings.

6.10.3.4 Format. Examples of the graphic can be found on the internet at:  
<http://www.nhc.noaa.gov/aboutnhcgraphics.shtml>

6.11 Cumulative Wind Distribution.

6.11.1 Mission Connection. This NHC product is a graphical representation of the past track and size of the storm. This information can be used to provide areas impacted by the past track of the storm.

6.11.2 Issuance Guidelines.

6.11.2.1 Creation Software. N-AWIPS

6.11.2.2 Issuance Criteria. Created when routine TCPs and TCMs are issued and for special advisories.

6.11.2.3 Issuance Times. The product is available on the Internet at 0300, 0900, 1500, and 2100 UTC. The graphic is also produced for special advisories.

6.12.2.4 Valid Times. Valid from the time of issuance until the next routine issuance or by a special advisory.

6.11.2.5 Product Expiration Time. Generally 6 hours after the issuance time and should coincide with the next expected update or when the event is forecast to end.

6.11.3 Technical Description. The graphic will follow the format and content described in this section.

6.11.3.1 UGC Type. Not applicable.

6.11.3.2 Mass News Disseminator Header. An example of a graphic can be found on the internet at: <http://www.nhc.noaa.gov/aboutnhcgraphics.shtml>

6.11.3.3 Content. This graphic shows how the size of the storm has changed, and the areas potentially affected so far by sustained winds of tropical storm force (in orange) and hurricane force (in red). The display is based on the wind radii contained in the set of Forecast/Advisories indicated at the top of the figure. Users are reminded the Forecast/Advisory wind radii represent the maximum possible extent of a given wind speed within particular quadrants around the tropical cyclone. As a result, not all locations falling within the orange or red swaths will have experienced sustained tropical storm or hurricane force winds, respectively.

## 6.12 Tropical Cyclone Surface Wind Field Graphic

6.12.1 Mission Connection. This NHC graphic supplements text products by illustrating the area potentially affected by the tropical cyclone's sustained tropical storm and hurricane force winds at the initial advisory time. In addition to the wind field, the graphic provides an approximate representation of coastal areas under tropical storm/hurricane watches/warnings.

6.12.2 Issuance Guidelines.

6.12.2.1 Creation Software. N-AWIPS

6.12.2.2. Issuance Criteria. Created for each tropical cyclone in the Atlantic and Eastern Pacific basins.

6.12.2.3 Issuance Times. The product is available on the internet at 0300, 0900, 1500, and 2100 UTC. The graphic is also produced for special advisories.

6.12.2.4 Valid Times. Valid from the time of issuance until the next routine issuance or by a special advisory.

6.12.2.5 Product Expiration Time. Generally 6 hours after the issuance time and should coincide with the next expected update or when the event is forecast to end.

6.12.3.1 UGC Type. Not applicable.

6.12.3.2 Mass News Disseminator Header. Not applicable. Internet product.

6.12.3.3 Content. Tropical storm force winds are shown in orange and hurricane force winds are shown in red. The display is based on the wind radii contained in the latest Forecast/Advisory (indicated at the top of the figure). Users are reminded that the Forecast/Advisory wind radii represent the maximum possible extent of a given wind speed within particular quadrants around the tropical cyclone. As a result, not all locations falling within the orange or red shaded areas will be experiencing sustained tropical storm or hurricane force winds, respectively. In addition to the wind field, this graphic shows an approximate representation of coastal areas under a hurricane warning (red), hurricane watch (pink), tropical storm warning (blue) and tropical storm watch (yellow). The white dot indicates the current position of the center of the tropical cyclone, and the dashed black line shows the history of the center of the tropical cyclone.

6.12.3.4 Format. An example of the product can be found on the internet at:

<http://www.nhc.noaa.gov/aboutnhcgraphics.shtml>

6.13 Maximum Wind Speed Probability Table.

6.13.1 Mission Connection. This NHC product provides probabilistic information for decision makers such as emergency managers.

6.13.2 Issuance Guidelines.

6.13.2.1 Creation Software. N-AWIPS

6.13.2.2 Issuance Criteria. Created when routine TCPs and TCMs are issued and for special advisories.

6.13.2.3 Issuance Times. The product is available on the Internet at 0300, 0900, 1500, and 2100 UTC. The graphic is also produced for special advisories.

6.13.2.4 Valid Times. Valid from the time of issuance until the next routine issuance or by a special advisory.

6.13.2.5 Product Expiration Time. Generally 6 hours after the issuance time and should coincide with the next expected update or when the event is forecast to end.

6.13.3 Technical Description. The table will follow the format and content described in this section.

6.13.3.1 UGC Type. Not applicable.

6.13.3.2 Mass News Disseminator Header. Not applicable. Internet product.

6.13.3.3 Content. This product provides probabilities, in percent, for the maximum sustained (1-minute average) surface (10 meter elevation) wind speed of a tropical cyclone for various intensity categories. The NHC issues this product for tropical cyclones in the Atlantic and Eastern Pacific basins and for subtropical storms.

The probabilities in this product are statistically based on the errors in the official track and intensity forecasts issued during the past five years by NHC. The product provides maximum wind speed (intensity) probabilities at standard forecast hours (12, 24, 36, 48, 72, 96, and 120) for various stages of a tropical cyclone (dissipated, depression, tropical storm and hurricane) and for the five categories of the Saffir-Simpson Hurricane Scale. The table also includes the official deterministic maximum wind speed (intensity) forecast in miles per hour (mph) for reference.

6.13.3.4 Format. An example of the table can be found on the internet at:  
<http://www.nhc.noaa.gov/aboutnhcgraphics.shtml>

#### 6.14 Tropical Cyclone Storm Surge Probability Products

6.14.1 Mission Connection. This NHC product provides probabilistic information for decision makers such as emergency managers.

6.14.2 Issuance Guidelines.

6.14.2.1 Creation Software. N-AWIPS

6.14.2.2 Issuance Criteria. Created when a hurricane watch or hurricane warning is in effect for any portion of the Gulf or Atlantic coasts of the continental United States.

6.14.2.3 Issuance Times. The product is available on the internet approximately one hour after the issuance of routine NHC tropical cyclone advisories which are issued at 0300, 0900, 1500, and 2100 UTC.

6.14.2.4 Valid Times. Valid from the time of issuance until the next routine issuance.

6.14.2.5 Product Expiration Time. Generally 6 hours after the issuance time and should coincide with the next expected update or when the event is forecast to end.

6.14.3 Technical Description. The storm surge graphic is based upon an ensemble of Sea, Lake, and Overland Surge from Hurricanes (SLOSH) model runs using the NHC official

advisory and accounts for track, size, and intensity errors based on historical errors. The product is a statistical combination of an ensemble of SLOSH model runs. All ensemble members are based on the current NHC's tropical cyclone advisory. They take into account historical error characteristics by varying input parameters such as forward speed, cross track location, radius of maximum wind, and hurricane intensity. Cumulative probabilities, from 2 through 25 feet above normal tide levels at a given location during the hurricane, at intervals of one foot, will be provided. Product images are generated in .png format.

6.14.3.1 UGC Type. Not applicable.

6.14.3.2 Mass News Disseminator Header. Not applicable. Internet product.

6.14.3.3 Content. The product consists of graphics and GRIB2 files for creating the graphics for the Gulf of Mexico and the Eastern Atlantic coastal areas. The graphics show the probabilities, in percent, of storm surge equaling or exceeding 2 through 25 feet, at intervals of one foot.

6.14.3.4 Format. An example of the graphics can be found on the internet at:  
<http://www.nhc.noaa.gov/aboutnhcgraphics.shtml>

## 7. WFO Products.

7.1 Hurricane/Typhoon Local Statements (HLS). WFOs with coastal county responsibilities and selected inland WFOs will issue these segmented products which are very specific and designed to inform media, local decision makers, and the public on present and anticipated storm effects in their county warning area (CWA) and adjacent coastal waters. **Keep HLSs as succinct as possible.**

7.1.1 Mission Connection. Alert the public, media, and local decision makers of potential or actual storm effects due to tropical cyclones. The product is intended to provide information to assist in the preparation and implementation of necessary precautions for the protection of life and property, as well as to minimize the economic losses as a result of tropical cyclones.

7.1.2 Issuance Guidelines.

7.1.2.1 Creation Software. AWIPS Graphical Hazard Generator (GHG).

7.1.2.2 Issuance Criteria. The following WFOs will issue HLSs when their area of responsibility is affected by a tropical cyclone watch/warning or evacuation orders. HLSs may also be issued as needed to dispel rumors or to clarify tropical cyclone related information for their CWA. Coastal WFOs have the option to include coastal or inland counties in the HLS not affected by a watch or warning.

Coastal WFOs are defined as those having at least one county with significant tidal influences. They are:

Eastern Region  
Caribou, ME  
Portland, ME

Southern Region  
Brownsville, TX  
Corpus Christi, TX

Western Region  
San Diego, CA  
Los Angeles/Oxnard, CA

Boston, MA	Houston/Galveston, TX	
New York City, NY	Lake Charles, LA	<u>Pacific Region</u>
Philadelphia, PA	New Orleans, LA	Honolulu, HI
Baltimore, MD/Washington, DC	Mobile, AL	Guam
Wakefield, VA Tallahassee, FL		WSO Pago Pago, American Samoa
Newport/Morehead City, NC	Tampa Bay, FL	
Wilmington, NC	Miami, FL	
Charleston, SC	Key West, FL	
	Melbourne, FL	
	Jacksonville, FL	
	San Juan, PR	

The inland WFOs listed below will also issue HLSs when hurricane or tropical storm force winds are expected to impact their area of responsibility. Reference section 7.3.

Atlanta, GA	Jackson, MS	Albany, NY (selected counties)
Austin/San Antonio, TX	Lubbock, TX	
Birmingham, AL	Midland, TX	
Fort Worth, TX	San Angelo, TX	
Huntsville, AL	Shreveport, LA	

The inland offices listed below may issue HLSs when hurricane or tropical storm force winds are expected to impact their area of responsibility. Reference section 7.3.

Albuquerque, NM	Little Rock, AR	Nashville, TN
Amarillo, TX	Memphis, TN	Norman, OK
El Paso, TX	Morristown, TN	Tulsa, OK

7.1.2.3 Issuance Times.

- a. Initial: The initial HLS should be issued as soon as possible following the first issuance of a tropical storm/hurricane watch/warning for the WFOs area of responsibility.
- b. Subsequent updates: When a tropical storm or hurricane is close to the coast, issue HLSs every 2 to 3 hours or more frequently as circumstances warrant.

Do not release HLSs immediately before an advisory unless information is coordinated with the appropriate tropical cyclone center.

HLSs do not need to immediately follow the issuance of a new hurricane advisory.

Issuing HLSs midway between advisories maintains a steady flow of information to the media and the public.

When local storm impacts are changing rapidly or a new advisory changes the potential impact on a local area, information needs to be distributed in a fresh HLS as soon as possible.

- c. Final: Routine HLSs may cease when the tropical cyclone is no longer a threat to an office's CWA.

7.1.2.4 Valid Time. HLSs are valid at time of issuance until a subsequent HLS is issued. HLSs are issued at least once every 6 hours

7.1.2.5 Event Beginning Time. The event beginning time is when the hazardous event is expected to begin. The event beginning time is placed in the P-VTEC line.

7.1.2.6 Event Ending Time. The event ending time is when the hazardous event is expected to end. The event ending time is placed in the P-VTEC line. A word description (e.g. MONDAY MORNING, TUESDAY AFTERNOON) is not placed in the headline for the marine segment or the first tier of coastal land zones, since there is no event ending time. However, the event ending time is included for the Tropical Cyclone wind watches and warnings issued for inland areas.

7.1.2.7 Product Expiration Time. Generally 6 hours after the issuance time and should coincide with the next expected update or when the event is forecast to end.

7.1.3 Technical Description. HLSs will follow the format and content described in this section.

7.1.3.1 UGC Type. HLSs will use the zone (Z) form of the UGC.

7.1.3.2 Mass News Disseminator Header. The HLS MND header block product type line is “(TROPICAL CYCLONE TYPE) (NAME or NUMBER) LOCAL STATEMENT.”

7.1.3.3 Content. HLSs will add localized details to Tropical cyclone forecast center’s advisory releases and should not conflict with, or repeat advisory information, not directly applicable to the local office’s CWA. Before the first HLS, use public information statements (PNS) to inform the public on routine hurricane preparedness information. The first HLS may also contain standard preparedness messages. Information may be added to the end of the HLS describing where additional storm information can be found in supporting Center’s TCP and TCM as well as PNSs and NOWs (Short Term Forecast) issued by the local office.

HLSs should use tropical cyclone position estimates provided by their tropical cyclone forecast center between advisories when appropriate. When tropical cyclones threaten the Samoas (American Samoa and Samoa), the two local offices will coordinate with RSMC Nadi, CPHC, and with each other to determine the best integrated and internally consistent forecast of conditions expected in the area.

Table 1 defines which products are issued via the normal suite of product headers during tropical cyclone watches/warnings and those products superseded by tropical cyclone watches/warnings and carried in a HLS.

In the event where a WFO has previously issued CFW products, Table 2 defines the recommended WFO actions to take when NHC begins issuance of tropical cyclone advisories for the CWA.

Similarly, in the event where a WFO has previously issued MWW products, Table 3 defines the recommended WFO actions to take when NHC begins issuance of tropical cyclone advisories for the CWA.

**Table 1. HLS Product Table**

Product	Tropical Cyclone Watch/Warning	
	HLS	Stand-alone
Flash Flood Watch/Warning/Statement		X
Tornado Warning		X
Severe Thunderstorm Warning		X1
Coastal Flood Advisory/Watch/Warning/Statement	X2	X2
Special Marine Warning		X3
Severe Weather Statement		X1
Marine Weather Statement		X3
Special Weather Statement	X	
Surf Zone Forecast/Surf Forecast	X	
High Surf Advisory/Warning issued by WFO Honolulu	X	

**1** Can be issued as stand-alone products at the discretion of the WFO. However, their use should be confined to peripheral events, such as outer rain bands, prior to sustained tropical storm or hurricane strength winds.

**2** If no CFW products were issued by the WFO prior to the issuance of a tropical cyclone watch or warning, then no CFW products will be issued when tropical cyclone watches or warnings are in effect.

Complications occur when a CFW product is in effect and tropical cyclone watches and/or warnings are issued. The basic premise is if the threat level of a tropical cyclone product equals or exceeds the threat level of an existing CFW, then the CFW will be discontinued. Below are details that are further summarized in Table 2.

- A CFW product is in effect for a Coastal Flood Warning, and/or High Surf Advisory or High Surf Warning, and a tropical cyclone *watch* is issued - CFW will **continue** as standalone product along with HLS product.
- A CFW product is in effect for a Coastal Flood Warning, and/or High Surf Warning or High Surf Advisory, and a tropical cyclone *warning* is issued - CFW will be **canceled** and users directed to the HLS for further information on coastal hazards.
- A CFW product is in effect for a Coastal Flood Watch and a tropical cyclone *watch* or *warning* is issued - CFW will be **canceled** and users directed to the HLS for further information on coastal hazards.

3 WFOs have the option to issue stand-alone special marine warnings (SMWs) on an as needed basis. This will primarily occur during watch situations prior to the onset of tropical storm winds impacting a marine zone. In cases of waterspouts, SMWs may be issued anytime during tropical cyclone watch/warning situations.

**Table 2. CFW Product Actions when Tropical Cyclone Advisories are Subsequently Issued**

INITIAL WFO PRODUCT IN EFFECT	SUBSEQUENTLY-ISSUED TROPICAL CYCLONE (TC) ADVISORY	CONTINUE CFW	CANCEL CFW
Coastal Flood Advisory	TC WATCH	X	
Coastal Flood Advisory	TC WARNING		X
Coastal Flood WATCH (CFW)	TC WATCH/WARNING		X
Coastal Flood WARNING (CFW)	TC WATCH	X	
Coastal Flood WARNING (CFW)	TC WARNING		X
High Surf ADVISORY (CFW)	TC WATCH	X	
High Surf ADVISORY (CFW)	TC WARNING		X
High Surf WARNING (CFW) (Pacific, Western Regions only)	TC WATCH	X	
High Surf WARNING (CFW) (Pacific, Western Regions only)	TC WARNING		X

Finally, if tropical cyclone advisories are discontinued and coastal hazards are expected behind the departing tropical cyclone, then CFW products will be issued as appropriate.

**Table 3. MWW Product Actions when Tropical Cyclone Advisories are Subsequently Issued**

Initial WFO Product In Effect	Subsequently-Issued Tropical Cyclone (TC) Advisory	Continue MWW	Cancel MWW
Storm WATCH (MWW)	TC WATCH/WARNING		X
Storm WARNING (MWW)	TC WATCH	X	
Storm WARNING (MWW)	TC WARNING		X
Gale WATCH (MWW)	TC WATCH/WARNING		X
Gale WARNING (MWW)	TC WATCH	X	
Gale WARNING (MWW)	TC WARNING		X
Hazardous Seas WATCH (MWW)	TC WATCH/WARNING		X
Hazardous Seas WARNING (MWW)	TC WATCH	X	
Hazardous Seas WARNING (MWW)	TC WARNING		X
Small Craft Advisory (MWW)	TC WATCH	X	
Small Craft Advisory (MWW)	TC WARNING		X
Small Craft Advisory for Hazardous Seas (MWW)	TC WATCH	X	
Small Craft Advisory for Hazardous Seas (MWW)	TC WARNING		X
Small Craft Advisory for Winds (MWW)	TC WATCH	X	
Small Craft Advisory for Winds (MWW)	TC WARNING		X

7.1.3.4 Format. As appropriate, the product type line in the Mass News Disseminator header block options are “Hurricane (Name) or Typhoon (Name) Local Statement,” “Tropical Storm (Name) Local Statement” , “Tropical Depression (Number) Local Statement” , “Subtropical Storm (Name) Local Statement” or “Subtropical Depression (Number) Local Statement.”

Many private sector vendors parse and scroll HLS section information. The vendor’s software will key in on the headlines in each VTEC segment, using the ellipsis (...) at the beginning and ending of each headline. NWR broadcasts of the HLS are also connected to the exact formatting of the HLS. Therefore, format consistency (ellipses, carriage returns, exact section wording) of the HLS information is essential.

#### OVERVIEW BLOCK OF THE HLS WITH SECTION HEADERS

The optional Overview Block describes the expected evolution for the event. It will prioritize the hazards from greatest to least concern. The Overview Block and optional Section Headers may be used to provide information common to all of the VTEC segments which follow. Use of the Overview Block will help decrease the overall length of the HLS (so common information is not repeated in each VTEC segment) and provide increased product compatibility with NOAA Weather Radio (NWR).

After the headline(s), the first section of the HLS may be introduced with the following section headers. The section headers will automatically be generated by the Graphical Hazards Generator (GHG) in the Graphical Forecast Editor (GFE). The section headers in bold must be written exactly as noted below. Each section header is preceded by one dot and followed by three dots. Section headers will be ordered with the most important information or potential impact appearing first. All, some, or none of the following section headers may be used. Additionally, WFOs retain the option to use non-specific headers not covered by one of the section headers below.

**.AREAS AFFECTED...**

Details of which counties/parishes or cities are included in the HLS.

**.WATCHES/WARNINGS...**

Watches and warnings in effect and counties/parishes to which they apply.

**.STORM INFORMATION...**

Present location, movement, and winds. Use the tropical cyclone forecast/advisory as guidance.

**.SITUATION OVERVIEW...**

**.PRECAUTIONARY/PREPAREDNESS ACTIONS...**

Short-term precautionary actions and times they should be completed.

This includes any evacuation recommendations as provided or stated by state and/or local authorities. The actions provided here are general in nature.

&&

**.NON-SPECIFIC SECTION HEADER- Substitute appropriate header...**

**.NEXT UPDATE...**

VTEC SEGMENTS OF THE HLS

After the optional Overview Block, the HLS next contains VTEC segments. The number of segments will vary depending on the geographic area impacted and the tropical cyclone watches and warnings in effect. The HLS will contain tropical cyclone watches and warnings for the coastal marine zones, coastal land zones, and the inland zones. The VTEC phenomena codes used are:

<u>EVENT NAME</u>	<u>PHENOMENA CODE</u>
TROPICAL STORM	TR
HURRICANE	HU
TROPICAL STORM WIND	TI
HURRICANE WIND	HI
TYPHOON	TY

The VTEC Significance codes for the HLS are:

Warning	W
Watch	A
Statement	S

The /S/ significance code may be issued, as deemed necessary by a WFO, to address rumors or other storm-related issues.

The Event Tracking Numbers (ETNs) for the coastal marine zones and the inland zones are assigned by each WFO. These ETNs may not always be the same.

The ETN for the (first tier) coastal land zones is assigned through NHC's Tropical Cyclone Watch Warning (TCV) product. Thus, the TCV ETN and the (first tier) coastal land zone ETN in the HLS will be the same; however, coastal land zone ETNs will usually differ from the marine and inland zone ETNs.

**...HEADLINE(s)...**

Each section headline begins and ends with ellipses (three dots). Headlines will be automatically generated by the GHG in the GFE. The headlines will be based on VTEC values in each segment. At least one headline is provided in each VTEC segment. The number and type of headlines to be generated is based on forecaster-selected segments.

Additionally, WFOs retain the option to use a non-specific section header which is not covered by the section headers listed below.

**...NEW INFORMATION...**

Specific new and vital information which you wish to bring to the attention of users. New Information will always be the first section header, except where it is optional in the initial HLS issuance.

**...PRECAUTIONARY/PREPAREDNESS ACTIONS...(optional)**

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Short-term precautionary actions and times they should be completed.

This includes any evacuation recommendations as provided or stated by state and/or local authorities. Listing these actions is particularly important once a tropical cyclone watch or warning is announced. The actions here are more specific in nature and may be supplemented with wind and surge impact statements, based on the magnitude of the tropical cyclone.

&&

**...PROBABILITY TROPICAL STORM/HURRICANE CONDITIONS...(optional)**

Information on probability of hurricane/typhoon/tropical storm conditions.

**...WINDS...(optional)**

Expected time of onset of tropical storm/hurricane/typhoon force winds. (Use the tropical cyclone forecast/advisory as guidance.) WFOs may provide information about the local impacts of the expected winds. Give timing of impacts in ranges or general terms such as “afternoon,” “evening,” and so on.

**...STORM SURGE AND STORM TIDE... (optional)**

Storm surge and storm tide (storm surge plus astronomical tide) information, including times various heights are expected, present heights, and their locations. If data exists, a comparison of storm surge heights from previous tropical cyclones should be included. Storm surge information should be forecast as a range (i.e. 18-22 feet with locally higher values to 25 feet) and must agree with tropical cyclone center forecasts as included in the advisories. Include storm tide information because local officials might not have access to tide tables. WFOs will use the same wording as NHC, referencing storm surge information and forecasts as height above ground level, as provided in the TCP product. See NWSI 10-601 section 1.1.3.3f. Additionally, WFOs, as a local option, may include a second reference to local tide datum which emergency managers and other users are familiar with and use for making critical decisions. As an example, one such datum is Mean Lower Low Water (MLLW).

**...INLAND FLOODING...(optional)**

**...TORNADOES...(optional)**

**...(Non-specific section header - Substitute appropriate header)...**

CALL-TO-ACTION STATEMENTS IN THE HLS

Generic tropical cyclone Call-To-Action statements (CTAs) have been baselined into the AWIPS Graphical Hazards Generation (GHG) application. The CTAs have been organized to describe the likely impacts, given the expected wind speed and/or storm surge, from a given magnitude tropical storm/hurricane. Some localization of the CTAs is recommended in areas where effects to certain native vegetation (e.g. palm trees), local building characteristics (e.g. lanai screens, skyscrapers), bathymetry, etc. will enhance impacts.

In addition, the relative infrequency of certain magnitude winds/surge may require some local CTA re-wording. CTAs for extreme events (e.g. Category 4 or 5 hurricanes) should be used only for these events. Use of phrases such as “certain death” have not been included in the baseline CTAs, but may be inserted if the extreme nature of the event warrants. However, forecasters should carefully consider the potential benefits before including such deterministic wording.

**Example:**

This example is for illustrative purposes only and the geographical/meteorological representations may not be accurate. See a complete HLS example in Appendix A.

WTUS82 KTBW 251748  
HLSTBW

URGENT - IMMEDIATE BROADCAST REQUESTED  
HURRICANE FOX LOCAL STATEMENT  
NATIONAL WEATHER SERVICE TAMPA BAY RUSKIN FL  
148 PM EDT TUE SEP 25 2007

...OVERVIEW HEADLINE... (optional)

.AREAS AFFECTED... (optional)  
TEXT

.WATCHES/WARNINGS... (optional)  
TEXT

.STORM INFORMATION... (optional)  
TEXT

.SITUATION OVERVIEW... (optional)  
TEXT

.PRECAUTIONARY/PREPAREDNESS ACTIONS... (optional)  
PRECAUTIONARY/PREPAREDNESS ACTIONS...  
TEXT

&&

.NEXT UPDATE... (optional)

TEXT

GMZ850-870-260000-  
/O.NEW.KTBW.HU.W.0002.070925T1748Z-000000T0000Z/  
COASTAL WATERS FROM TARPON SPRINGS TO SUWANNEE RIVER FL OUT 20 NM-WATERS  
FROM TARPON SPRINGS TO SUWANNEE RIVER FL OUT 20 TO 60 NM-  
148 PM EDT TUE SEP 25 2007

...HURRICANE WARNING IN EFFECT...

...NEW INFORMATION...  
(TEXT)

ETC...

\$\$

FLZ039-042-048-049-260000-  
/O.NEW.KTBW.HU.W.1006.070925T1748Z-000000T0000Z/  
LEVY-CITRUS-HERNANDO-PASCO-  
148 PM EDT TUE SEP 25 2007

...HURRICANE WARNING IN EFFECT...

...NEW INFORMATION...  
(TEXT)

ETC...

\$\$

FLZ043-260000-  
/O.NEW.KTBW.TI.W.0002.070925T1748Z-070926T0000Z/  
SUMTER-  
148 PM EDT TUE SEP 25 2007

...TROPICAL STORM WIND WARNING IN EFFECT UNTIL 8 PM EDT THIS  
EVENING...

...NEW INFORMATION...  
(TEXT)

ETC...

\$\$

This product is available in industry standard encoding and languages, and may include, but not limited to, ASCII, XML, WML and HTML.

Wtaaii cccc ddhhmm  
HLSxxx

URGENT – IMMEDIATE BROADCAST REQUESTED  
(TROPICAL CYCLONE TYPE) LOCAL STATEMENT  
NATIONAL WEATHER SERVICE CITY, STATE  
time am/pm time\_zone day of week mon dd yyyy

...<Overview headline statement>...(optional)

.AREAS AFFECTED...(optional)

.WATCHES/WARNINGS...(optional)

.STORM INFORMATION...(optional)

.SITUATION OVERVIEW...(optional)

.PRECAUTIONARY/PREPAREDNESS ACTIONS...(optional)  
PRECAUTIONARY/PREPAREDNESS ACTIONS...

&&

.NEXT UPDATE....(optional)

stZ001-005>015 (or marine GMZxxx-xxx) ddhhmm-  
/k.aaa.cccc.pp.ss#####.yymmddThhnnZ-yymmddThhnnZ/ (P-VTEC line)  
Zone-zone-zone-  
Time am/pm time\_zone day mon dd yyyy

...HEADLINE...

...NEW INFORMATION...

...PRECAUTIONARY/PREPAREDNESS ACTIONS...(optional)  
PRECAUTIONARY/PREPAREDNESS ACTIONS...

&&

...PROBABILITY TROPICAL STORM/HURRICANE CONDITIONS...(optional)

...WINDS...(optional)

```

...TORNADOES...(optional)

$$

stZ001-005>015 (or marine GMZxxx-xxx) ddhmm-
/k.aaa.cccc.pp.ss#####.yymmddThhnnZ-yymmddThhnnZ/          (P-VTEC line)
Zone-zone-zone-
Time am/pm time_zone day mon dd yyyy

...HEADLINE...

...NEW INFORMATION...

...PRECAUTIONARY/PREPAREDNESS ACTIONS...(optional)
PRECAUTIONARY/PREPAREDNESS ACTIONS...

&&

...PROBABILITY TROPICAL STORM/HURRICANE CONDITIONS...(optional)

...WINDS...(optional)

...INLAND FLOODING...(optional)

...TORNADOES...(optional)

$$

```

**Figure 15.** Hurricane Local Statement format  
See a complete example in Appendix A.

7.1.4 Relationship of HLSs to the NOW. The NOW is a stand-alone product focused on conditions impacting the office’s CWA for the next 0 to 6 hours. It will complement the HLS by providing critical storm information.

7.2 Tropical Storm/Hurricane Wind Watch or Warning. Coastal and some inland WFOs will issue a Tropical Storm Wind Watch or Warning, or Hurricane Wind Watch or Warning, when a tropical cyclone is expected to spread tropical storm or hurricane force winds inland under the Hurricane Local Statement. The following WFOs are exempt from this policy and will issue a non precipitation weather product (NPW) for high wind watches and/or warnings if hurricane or tropical storm winds move into their area of responsibility.

Albany, NY (selected counties)	Flagstaff, AZ
Binghamton, NY	Hanford, CA
Buffalo, NY	Las Vegas, NV

Burlington, VT  
Charleston, WV  
Cleveland, OH  
Columbia, SC  
Greer, SC  
Pittsburgh, PA  
Raleigh, NHC  
Roanoke, VA  
State College, PA  
Wilmington, OH

Phoenix, AZ  
Tuscon, AZ

7.2.1 Mission Connection. Long duration warnings are issued by WFOs to protect lives and property. Watches and warnings provide our users and partners advance notice of hazardous weather events which have the potential to threaten life and property.

7.2.2 Issuance Guidelines.

7.2.2.1 Creation Software. Use AWIPS Graphical Hazards Generator (GHG).

7.2.2.2 Issuance Criteria. A Tropical Cyclone Wind Watch or Warning will be issued when the following criteria are met:

- a. Watch - WFOs will issue Tropical Storm/Hurricane Wind Watches for their inland areas when tropical storm/hurricane force winds are possible within the watch area within 36 hours.
- b. Warning - WFOs will issue Tropical Storm/Hurricane Wind Warnings for their areas when tropical storm/hurricane force winds are expected within the warning area within 24 hours.
- c. Coastal Counties/Zones - when the effects of the tropical cyclone can be clearly described to the public and not lead to confusion, inland sections of coastal counties or parishes may be placed under inland tropical storm/hurricane wind watches or warnings commensurate with NHC tropical cyclone watches or warnings. Coordination will occur with all impacted offices and NHC before the issuance.

7.2.2.3 Issuance Times. Event driven.

7.2.2.4 Valid Time. Watch is valid up to 48 hours after the issuance time. The valid time (event start and end times) is described in the watch headline. A warning is valid up to 36 hours after issuance time. The valid time (event start and end times) is described in the warning headline.

7.2.2.5 Product Expiration Time. Generally 6-8 hours after the issuance time and should coincide with the next expected update or when the event is forecast to end.

7.2.3 Technical Description. Follow the format and content described in section 7.1 for Hurricane Local Statements.

7.2.3.1 UGC Type. Use the segmented zone (Z) form of the UGC.

7.2.3.2 Mass News Disseminator Header. Not applicable.

7.2.3.3 Content. Follow guidance provided in section 7.1 – Hurricane Local Statement.

7.2.3.4 Updates and Amendments. For guidance provided in section 7.1 – Hurricane Local Statement.

7.2.3.5 Cancellations and Expirations. WFOs will provide the public, media and emergency management notice that Tropical Storm/Hurricane Wind watches or warnings have expired or been cancelled.

7.2.3.6 Relationship to ZFP Products. The appropriate forecasts will highlight watches and warnings.

7.2.3.7 Format. Use format in section 7.1 for Hurricane Local Statements.

7.3 Tropical Storm/Hurricane Wind Watch/Warning for Subtropical Storms. WFOs will issue a Tropical Storm Wind Watch or Warning, or Hurricane Wind Watch or Warning, when a subtropical storm is expected to spread tropical storm or hurricane force winds inland. Use the same procedures as noted in section 7.1, Hurricane Local Statements.

The following WFOs are exempt from this policy and will issue a non-precipitation weather product (NPW) for high wind watches and/or warnings if subtropical storm winds move into their area of responsibility.

Albany, NY (selected counties)	Flagstaff, AZ
Binghamton, NY	Hanford, CA
Buffalo, NY	Las Vegas, NV
Burlington, VT	Phoenix, AZ
Charleston, WV	Tuscon, AZ
Cleveland, OH	
Columbia, SC	
Greer, SC	
Pittsburgh, PA	
Raleigh, NHC	
Roanoke, VA	
State College, PA	
Wilmington, OH	

#### 7.4 Extreme Wind Warning

7.4.1 Mission Connection. Short duration warnings are issued by WFOs to protect lives and property. WFO forecasters issue short duration EWW products to provide the public with advance notice of the onset of extreme sustained winds of a major hurricane (category 3 or higher), usually associated with the eyewall of a hurricane. Extreme Wind Warnings inform the public of the need to take immediate shelter in an interior portion of a well-built structure due to the onset of extreme tropical cyclone winds.

#### 7.4.2 Issuance Guidelines.

7.4.2.1 Creation Software. WFOs will use WarnGen to issue Extreme Wind Warnings.

7.4.2.2 Issuance Criteria. An EWW for extreme tropical cyclone winds should be issued when both of the following criteria are met:

- a. Tropical cyclone is a category 3 or greater on the Saffir Simpson hurricane scale as designated by NHC, CPHC or JTWC.
- b. Sustained tropical cyclone surface winds of 100 knots (115 mph) or greater are occurring or are expected to occur in a WFO's county warning area within one hour.

7.4.2.3 Issuance Time. Short duration warnings are non-scheduled, event driven products.

7.4.2.4 Valid Time. The warning valid time should be two hours or less. In rare situations, the valid time may be for a three hour period. Forecasters should use good judgment to ensure the valid time of the short duration warning takes into account the geographic size of area warned versus the forward speed of the tropical cyclone. Once the EWW for an area has expired, WFOs should use the HLS or NOW products to provide additional information about the status of tropical cyclone winds for a previously warned area.

7.4.2.5 Product Expiration Time. The product expiration time is the end of the warning valid time.

7.4.3 Technical Description. The EWW will follow the format and content described in this section. WFOs should not use a call to action statement advising the public to go to the lowest floor if the warning area is susceptible to flooding.

7.4.4 UGC Type. County

7.4.5. Mass News Disseminator Broadcast Line. EWWs will include the broadcast line "BULLETIN – EAS ACTIVATION REQUESTED." The term "BULLETIN" is used when information is sufficiently urgent to warrant breaking into a normal broadcast.

7.4.6 Mass News Disseminator Header. The EWW MND header is "EXTREME WIND WARNING".

7.4.7 Updates and Amendments. Updated EWWs and amendments are not applicable. WFOs should issue Severe Weather Statements (SVS) to update the status of specific Extreme Wind Warnings. Updated information should include observed wind observations and/or reports of damage when available.

7.4.8 Cancellations and Expirations. WFOs may issue SVSs to inform the public when all or portions of an EWW have been canceled or have expired.

7.4.9 Corrections. WFOs will correct Extreme Wind Warnings for significant grammatical errors, format or dissemination code errors, or for counties either omitted or erroneously added to a warning. Corrected warnings will have the same time in the Mass News Dissemination Header and the same Event Tracking Number in the Valid Time Event Code line as the original warning.

7.4.10. Format

```

WFUS5i cccc ddhhmm
EWWccc
STC001-002-ddhhmm-
/k.aaa.cccc.pp.s.####.yymmddThhnnZB-yymmddThhnnZE/

BULLETIN - EAS ACTIVATION REQUESTED
EXTREME WIND WARNING
NATIONAL WEATHER SERVICE city state
time am/pm time_zone day of the week mon dd yyyy

THE NATIONAL WEATHER SERVICE IN city HAS ISSUED AN

* EXTREME WIND WARNING FOR THE ONSET OF SUSTAINED WINDS OF 115 MPH
OR GREATER FOR...
county one in section state (List warned counties)
county two in section state (# Counties will match # counties in UGC Line)
IN ASSOCIATION WITH (Phenomenon/The Event)

* UNTIL hhmm am/pm time_zone (Expiration time of warning)

* AT hhmm am/pm time_zone...(Warning basis statement and forecast impacts)

* THESE EXTREME WINDS WILL AFFECT... (Pathcast Version)
location #1 AROUND hhmm am/pm time_zone...
location #2 AROUND hhmm am/pm time_zone...

OR

LOCATIONS IMPACTED INCLUDE... (Pathcast Version w/o time)
location #1...
location #2...
(Impact Locations are mandatory, either pathcast or no pathcast version listed above)

CALL TO ACTION
LAT...LON (Mandatory list of latitude/longitude points outlining the forecaster-drawn area of
greatest impact)
TIME...MOT...LOC

$$
FORECASTER NAME/NUMBER (OPTIONAL)

```

**Figure 16.** Extreme Wind Warning  
See complete example in Appendix A.

7.5 Post-Tropical Cyclone Reports (PSH). The PSH is the primary WFO post tropical cyclone product issued to the public to report and document local tropical cyclone impacts.

7.5.1 Mission Connection. The PSH product is intended to provide the NHC, NWS Headquarters, media, public and emergency management officials with a record of peak tropical cyclone conditions. This data are then used to formulate other post-event reports, news articles and historical records. A standardized format has been introduced for easier post-processing of the data by end users. An example of this format can be found in the appendix.

7.5.2 Issuance Guidelines.

7.5.2.1 Creation Software. AWIPS Post Tropical Cyclone Storm Report software or text editor.

7.5.2.2 Issuance Criteria. All WFOs issuing HLSs will prepare post-storm reports. Inland offices issuing Tropical Storm/Hurricane Wind watches or warnings will also submit reports. Other offices whose county warning area experiences wind gusts greater than 33 knots, flooding, tornadoes, damage or casualties will also submit reports.

7.5.2.3 Issuance Times. Transmit the reports within 5 days following the transmission of the last HLS or Tropical Storm/Hurricane Wind watches or warnings. Amend reports as needed.

7.5.2.4 Valid Times. Not applicable.

7.5.2.5 Product Expiration Time. Not applicable

7.5.3 Technical Description.

7.5.3.1 UGC Type. Not applicable.

7.5.3.2 Mass News Disseminator Header. The PSH header block product type line is “POST-TROPICAL CYCLONE REPORT...(TROPICAL CYCLONE TYPE)(NAME).”

7.5.3.3 Content. Include the following items in the initial report and in any subsequent updated reports:

Sections a and b. Wind data: If the observed peak gusts are greater than 33 knots, report highest sustained surface wind speed (knots) and duration (1-, 2- 8-, or 10-minute average which ever applies), peak gust (knots), and date/times of occurrence in UTC. Specify anemometer height (meters) if other than 10 meters. Report all land-based NOAA, Department of Defense, and Federal Aviation Administration official observing sites (ASOS/AWOS) in the OFFICIAL OBSERVATIONS portion of section A. Report other reliable land-based data collected by government sources or other institutions in the UNOFFICIAL OBSERVATIONS portion of section A. These include reports from stations maintained by the U. S. Coast Guard; state, county, and local governments; universities; private companies; and experimental networks. Report NOAA buoy/Coastal Marine Automated Network (C-MAN) stations, National Ocean Service stations, and trusted private or university observations in, or near, a WFO’s marine

warning area, in section b. Also list adjusted speeds corrected for instrument type and speed range if known. Data reports from the public are optional. However, NWS offices should encourage these data and include them in the PSH when considered reliable.

Pressure data: Report lowest sea level pressure (millibars), and date/time of occurrence (UTC). Report data from all sources given in the wind data section and other stations where significant pressure observations are available. Report pressures less than 1005 mb, with pressure greater than 1005 mb reported as needed or as requested.

Section c. Storm total rainfall: Report amount (inches) and duration (dates). Report data from all sources given in Section a, and other stations where significant rainfall observations are available. Report storm total rainfalls of 3 inches or more, with amounts less than 3 inches reported as needed or as requested.

Section d. Inland flooding: Report to include date/times (UTC) and counties/parishes/independent cities of occurrence, along with a brief worded summary, as appropriate.

Section e. Maximum storm surge and storm tide: Reference storm tide to appropriate datums understood by local authorities. The preferred datum for reporting purposes is North American Vertical Datum of 1988 (NAVD). Some areas may still be using the National Geodetic Vertical Datum of 1929 (NGVD) or Mean Lower Low Water (MLLW). Report storm tide in feet above the datum, and storm surge/wind waves in feet above the normal, predicted (astronomical) tide level. Identify location and date/time (UTC) of occurrence where possible. Report tides of 1 foot or greater above normal, with tides of less than 1 foot above normal reported as needed or as requested. Report extent of beach erosion as appropriate.

Section f. Tornadoes: Report times (UTC) and locations, along with a brief description of damage, as appropriate. The reports may be taken from Local Storm Reports (LSR) issued for the event.

Section g. Storm impacts: Including deaths, injuries, dollar damages, number of people evacuated, etc., per county/parish/independent city as reported by emergency management, trusted media sources, etc.

Please note: For data in sections (A, land observations), (B, marine observations), (C, storm total rainfall), and (F, tornadoes), latitude and longitude should be included. The AWIPS software will output the values, in the form xx.m (-)byy.n, where

xx = degrees north latitude

m = rounded decimal value for latitude, in tenths of a degree

(-) = negative, or west, longitude, as necessary

b = 100's place, if needed

yy = degrees longitude, zero to 99

n = rounded decimal value for longitude, in tenths of a degree

7.5.3.4 Format.

```

ACUS72 Kccc ddhhmm
PSHxxx

POST TROPICAL CYCLONE REPORT...(TROPICAL CYCLONE TYPE) (NAME)
NATIONAL WEATHER SERVICE CITY STATE
Time am/om time_zone day of week mon dd yyyy

TEXT (see Appendix A for specific details)
$$
    
```

**Figure 16.** Post Tropical Cyclone Report Format  
See complete example in Appendix A.

7.6 Information for Service Assessments. CONUS WFOs will forward a copy of media reports, especially newspaper clippings (online and printed) representative of the event and its impacts. Send reports to the appropriate regional headquarters and TPC within 7 days following the issuance of the last product concerning the storm. Reports do not have to include all interviews or radio or television spots concerning the landfall event in each local office’s CWA.

7.7 Local Storm Reports (LSR). WFOs will prepare these reports in accordance with LSR instructions (Reference directive 10-517).

7.8 Storm Reports. WFOs will prepare these reports in accordance with Storm Data Preparation instruction (Reference directive 10-1605).

8. Correction Procedures. Tropical cyclone centers and WFOs should correct products using the following format:

```

WTNT KNHC 161441 CCA
TCDAT1
    
```

```

TROPICAL STORM ARTHUR DISCUSSION NUMBER 8...CORRECTED
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL
11 AM EDT TUE JULY 16 2002
    
```

CORRECTED FOR (GIVE REASON)

TEXT FOLLOWS....

CCA - If a second correction is necessary, the “A” becomes a “B” (CCB).  
“CORRECTED FOR” is optional but encouraged.

9. Procedures for Populating WFO-Generated Wind Forecast Grids for Tropical Cyclone Events. The following are short-term solutions to be followed by all impacted WFOs for populating WFO wind grids for tropical cyclones. Updates to this directive will take place as better methods for populating WFO-generated wind forecasts are integrated into the Interactive Forecast Preparation System.

9.1 Wind Speed Values Within the 34 kt Wind Radii

0-120 hours

WFOs will use the TCMWindTool to populate wind grids. The AWIPS GFE Smart Tool uses the official tropical cyclone forecast center's TCM forecast advisory wind radii. For storm size, WFOs are not to exceed the wind radii specified in the official forecast advisory. For period when the wind radii are not available from the official forecast advisory, WFOs will coordinate as needed with the tropical cyclone forecast center and with adjacent WFOs.

For storm intensity, the AWIPS GFE Smart Tool uses the full continuum of values, up to the maximum sustained wind speed value provided by the tropical cyclone forecast center through the forecast advisory. WFOs are not to exceed this maximum wind speed forecast.

Within the stated constraints, WFOs will apply local knowledge and mesoscale expertise to produce the final set of explicit/deterministic wind speed forecasts for the County Forecast and Warning Area/Marine Area of Responsibility.

121-168 hours

Use HPC guidance on the location of tropical low pressure systems and associated wind fields and WFO discretion to produce explicit/deterministic wind speed forecasts for all County Forecast and Warning Area/Marine Area of Responsibility grids using a full continuum of wind speeds up to 30 knots. The choice for 30 knots avoids potential confusion which can result from the automated rounding of 33 knots to 35 knots when generating graphical wind barbs, and with associated textual formatters which convert knots to miles per hour (then round to the nearest 5 mph).

9.2 Wind Speed Values Outside the 34 kt Wind Radii

0-120 hours

Use deterministic wind speed values.

9.3 Wind Direction Values Inside or Outside the 34 kt Wind Radii

0-168 hours

Use deterministic wind direction values.

9.4 Wind Gust Values Inside or Outside the 34 kt Wind Radii. At this time there is no requirement to produce a gust grid. As an option, if a WFO desires to produce a gust grid it will have to be created with little or no guidance.

9.5 Caveat. It is highly recommended the following caveat be placed on all text and graphical products...“Winds in and near tropical cyclones should be used with caution due to uncertainty in forecast track, size, and intensity.”

**APPENDIX A**

**EXAMPLES OF TROPICAL WEATHER PRODUCTS**

**Products from National Forecast Centers**

Tropical Weather Outlook (TWO).....	A-2
Product Type Lines in Mass News Disseminator Header Block for TCP Products.....	A-4
Tropical Storm Public Advisory (TCP) .....	A-4
Intermediate Public Advisory (TCP) .....	A-6
Special Public Advisory (TCP).....	A-7
Public Advisory Correction .....	A-9
Subtropical Cyclone Public Advisory (TCP).....	A-9
HPC Public Advisory (TCP).....	A-10
Hurricane Forecast/Advisory (TCM).....	A-12
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Example: Tropical Weather Outlook from NHC

ABNT20 KNHC 011140  
TWOAT  
TROPICAL WEATHER OUTLOOK  
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL  
800 AM EDT WED JUN 1 2009

FOR THE NORTH ATLANTIC...CARIBBEAN SEA AND THE GULF OF MEXICO...

THE AREA OF LOW PRESSURE ASSOCIATED WITH A TROPICAL WAVE LOCATED JUST EAST OF THE WINDWARD ISLANDS HAS BECOME A LITTLE BETTER ORGANIZED THIS MORNING...AND AN AIR FORCE RECONNAISSANCE AIRCRAFT IS SCHEDULED TO INVESTIGATE THIS AREA THIS AFTERNOON. ENVIRONMENTAL CONDITIONS APPEAR FAVORABLE FOR DEVELOPMENT DURING THE NEXT DAY OR TWO AS THE TROPICAL WAVE MOVES WESTWARD NEAR 15 TO 20 MPH. REGARDLESS OF WHETHER DEVELOPMENT OCCURS...THIS SYSTEM WILL LIKELY BRING SQUALLS TO THE WINDWARD ISLANDS DURING THE NEXT DAY OR SO. THERE IS A HIGH CHANCE...GREATER THAN 50 PERCENT...OF THIS SYSTEM BECOMING A TROPICAL CYCLONE DURING THE NEXT 48 HOURS.

THE LARGE AREA OF CLOUDINESS BETWEEN BERMUDA AND NOVA SCOTIA IS ASSOCIATED WITH AN EXTRATROPICAL LOW. THERE IS A LOW CHANCE...LESS THAN 30 PERCENT...OF THIS SYSTEM BECOMING A TROPICAL CYCLONE DURING THE NEXT 48 HOURS.

A LARGE AREA OF CLOUDINESS AND SHOWERS HAS DEVELOPED OVER THE NORTHEASTERN GULF OF MEXICO IN ASSOCIATION WITH AN OLD FRONTAL ZONE. SOME SLOW DEVELOPMENT OF THIS SYSTEM IS POSSIBLE DURING THE NEXT DAY OR TWO AS IT REMAINS NEARLY STATIONARY. THERE IS A MEDIUM CHANCE...30 TO 50 PERCENT...OF THIS SYSTEM BECOMING A TROPICAL CYCLONE DURING THE NEXT 48 HOURS.

ELSEWHERE...TROPICAL CYCLONE FORMATION IS NOT EXPECTED DURING THE NEXT 48 HOURS.

\$\$  
FORECASTER NAME

Example: Tropical Weather Outlook from CPHC

ACPN50 PHFO 051350  
TWOCP  
TROPICAL WEATHER OUTLOOK  
NWS CENTRAL PACIFIC HURRICANE CENTER HONOLULU HI  
400 AM HST TUE AUG 5 2008

FOR THE CENTRAL NORTH PACIFIC...BETWEEN 140W AND 180

1. AN AREA OF PERSISTENT THUNDERSTORMS ASSOCIATED WITH A SURFACE TROUGH ABOUT 1200 MILES SOUTHEAST OF HILO...HAWAII REMAINS DISORGANIZED EARLY THIS MORNING. HOWEVER...CONDITIONS APPEAR SOMEWHAT FAVORABLE FOR SLOW DEVELOPMENT OF THIS SYSTEM AS IT MOVES WESTWARD AT 10 TO 15 MPH DURING THE NEXT COUPLE OF DAYS.

THEREFORE...THIS AREA WILL BE CLOSELY MONITORED FOR ANY SIGNS OF IMPROVED ORGANIZATION.

ELSEWHERE...NO TROPICAL CYCLONES ARE EXPECTED THROUGH EARLY THURSDAY MORNING.

\$\$  
FORECASTER NAME

Example: Special Tropical Weather Outlook from NHC

ABNT20 KNHC 161145  
TWOAT  
SPECIAL TROPICAL WEATHER OUTLOOK  
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL  
1245 PM EDT WED JUL 1 200x

FOR THE NORTH ATLANTIC...CARIBBEAN SEA AND THE GULF OF MEXICO...

SPECIAL OUTLOOK ISSUED TO UPDATE DISCUSSION OF LOW PRESSURE AREA EAST OF THE WINDWARD ISLANDS.

THE NATIONAL HURRICANE CENTER IS ISSUING ADVISORIES ON TROPICAL STORM BERTHA...LOCATED ABOUT 335 MILES NORTHEAST OF BERMUDA.

UPDATED...SATELLITE IMAGES AND SURFACE OBSERVATIONS INDICATE THAT THE AREA OF LOW PRESSURE LOCATED ABOUT 225 MILES EAST OF THE WINDWARD ISLANDS HAS BECOME BETTER-ORGANIZED AND A TROPICAL DEPRESSION COULD BE FORMING. AN AIR FORCE RESERVE HURRICANE HUNTER AIRCRAFT WILL BE INVESTIGATING THIS SYSTEM THIS AFTERNOON TO DETERMINE IF A TROPICAL CYCLONE HAS FORMED. EVEN IF NO DEVELOPMENT OCCURS...LOCALIZED HEAVY RAINS AND GUSTY WINDS ARE POSSIBLE IN THE WINDWARD ISLANDS TODAY AND TONIGHT. ALL INTERESTS IN THE WINDWARD ISLANDS SHOULD MONITOR THE PROGRESS OF THIS SYSTEM...AND FOR INFORMATION SPECIFIC TO YOUR AREA...PLEASE CONSULT STATEMENTS FROM YOUR LOCAL WEATHER OFFICE. THERE IS A HIGH CHANCE...GREATER THAN 50 PERCENT...OF THIS SYSTEM BECOMING A TROPICAL CYCLONE DURING THE NEXT 48 HOURS.

DISORGANIZED THUNDERSTORM ACTIVITY OFF THE SOUTHWEST FLORIDA COAST IS ASSOCIATED WITH AN AREA OF LOW PRESSURE. THIS SYSTEM IS EXPECTED TO PRODUCE LOCALLY HEAVY RAINS OVER PORTIONS OF THE FLORIDA PENINSULA AS IT MOVES EASTWARD OR NORTHEASTWARD DURING THE NEXT DAY OR SO. SIGNIFICANT DEVELOPMENT IS NOT EXPECTED DUE TO PROXIMITY TO LAND. THERE IS A LOW CHANCE...LESS THAN 30 PERCENT...OF THIS SYSTEM BECOMING A TROPICAL CYCLONE DURING THE NEXT 48 HOURS.

ELSEWHERE...TROPICAL CYCLONE FORMATION IS NOT EXPECTED DURING THE NEXT 48 HOURS.

\$\$  
FORECASTER NAME

Examples: Product Type Lines in Mass News Disseminator Headers for TCP products

TROPICAL DEPRESSION ONE-E ADVISORY NUMBER 1  
TROPICAL STORM ALEX ADVISORY NUMBER 3  
HURRICANE ALEX ADVISORY NUMBER 4  
SUBTROPICAL STORM GABRIELLE ADVISORY NUMBER 1

Example: Tropical Storm Public Advisory

WTNT34 KNHC 260359  
MIATCPAT4

BULLETIN  
TROPICAL STORM DEBBY ADVISORY NUMBER 18  
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL042006  
1100 PM AST FRI AUG 25 2006

...DEBBY BARELY HANGING ON AS A TROPICAL STORM...

AT 1100 PM AST...0300 UTC...THE CENTER OF TROPICAL STORM DEBBY WAS  
LOCATED NEAR LATITUDE 25.2 NORTH...LONGITUDE 45.6 WEST OR ABOUT 1400  
MILES...2255 KM...SOUTHWEST OF THE AZORES.

DEBBY IS MOVING TOWARD THE WEST-NORTHWEST NEAR 14 MPH...22 KM/HR...  
AND A TURN TO THE NORTHWEST AND THEN NORTH-NORTHWEST IS EXPECTED  
DURING THE NEXT DAY OR TWO.

MAXIMUM SUSTAINED WINDS ARE NEAR 40 MPH...65 KM/HR...WITH HIGHER  
GUSTS. LITTLE CHANGE IN STRENGTH IS FORECAST DURING THE NEXT 24  
HOURS.

TROPICAL STORM FORCE WINDS EXTEND OUTWARD UP TO 105 MILES...165 KM  
FROM THE CENTER.

ESTIMATED MINIMUM CENTRAL PRESSURE IS 1008 MB...29.77 INCHES.

...SUMMARY OF 1100 PM AST INFORMATION...  
LOCATION...25.2N 45.6W  
MAXIMUM SUSTAINED WINDS...40 MPH  
PRESENT MOVEMENT...WEST-NORTHWEST OR 295 DEGREES AT 14 MPH  
MINIMUM CENTRAL PRESSURE...1008 MB

THE NEXT ADVISORY WILL BE ISSUED BY THE NATIONAL HURRICANE CENTER AT  
500 AM AST.

\$\$  
FORECASTER NAME

WTNT32 KNHC 020240  
TCPAT2  
BULLETIN  
TROPICAL STORM EXAMPLE ADVISORY NUMBER 2  
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL052009

1100 PM EDT FRI JUN 01 2009

...RAINS ASSOCIATED WITH EXAMPLE SOAKING FLORIDA...MORE TO COME...

A TROPICAL STORM WARNING REMAINS IN EFFECT FOR THE WEST COAST OF FLORIDA FROM BONITA BEACH NORTHWARD TO KEATON BEACH. MARKS. A TROPICAL STORM WARNING MEANS THAT TROPICAL STORM CONDITIONS ARE EXPECTED WITHIN THE WARNING AREA WITHIN THE NEXT 24 HOURS.

A TROPICAL STORM WATCH REMAINS IN EFFECT FROM NORTH OF KEATON BEACH TO ST. MARKS FLORIDA. A TROPICAL STORM WATCH MEANS THAT TROPICAL STORM CONDITIONS ARE POSSIBLE WITHIN THE WATCH AREA WITHIN THE NEXT 24 HOURS.

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

AT 1100 PM EDT...0300 UTC...THE CENTER OF TROPICAL STORM EXAMPLE WAS LOCATED NEAR LATITUDE 24.7 NORTH...LONGITUDE 84.9 WEST OR ABOUT 270 MILES...440 KM...SOUTHWEST OF TAMPA FLORIDA AND ABOUT 195 MILES... 315 KM...WEST OF KEY WEST FLORIDA.

EXAMPLE HAS BEEN DRIFTING TOWARD THE NORTHEAST DURING THE PAST FEW HOURS BUT THE CYCLONE SHOULD SOON BEGIN TO MOVE TOWARD THE NORTH-NORTHEAST NEAR 9 MPH...15 KM/HR. A GRADUAL INCREASE IN FORWARD SPEED IS EXPECTED ON SATURDAY.

MAXIMUM SUSTAINED WINDS ARE NEAR 50 MPH...85 KM/HR...WITH HIGHER GUSTS. SOME FLUCTUATIONS IN INTENSITY ARE POSSIBLE IN THE SHORT TERM BUT A GRADUAL WEAKENING TREND IS FORECAST DURING THE NEXT DAY OR SO.

TROPICAL STORM FORCE WINDS EXTEND OUTWARD UP TO 90 MILES...150 KM MAINLY TO THE NORTH AND EAST OF THE CENTER.

ESTIMATED MINIMUM CENTRAL PRESSURE IS 997 MB...29.44 INCHES.

STORM SURGE WILL RAISE WATER LEVELS BY AS MUCH AS \*XX\* FEET ABOVE GROUND LEVEL ALONG THE COAST...WITH LARGE AND DANGEROUS BATTERING WAVES...NEAR AND TO THE \*ZZZZ\* OF WHERE THE CENTER MAKES LANDFALL. THE SURGE COULD PENETRATE AS FAR INLAND AS ABOUT \*YY\* MILES FROM THE SHORE WITH DEPTH GENERALLY DECREASING AS THE WATER MOVES INLAND.

EXAMPLE IS EXPECTED TO PRODUCE TOTAL RAINFALL ACCUMULATIONS OF 3 TO 6 INCHES OVER THE FLORIDA KEYS AND PENINSULA INTO SOUTHEASTERN GEORGIA...COASTAL SOUTH CAROLINA AND NORTH CAROLINA. ISOLATED MAXIMUM AMOUNTS OF 10 INCHES ARE POSSIBLE.

ISOLATED TORNADOES ARE POSSIBLE OVER PORTIONS OF SOUTHERN FLORIDA.

...SUMMARY OF 1100 PM EDT INFORMATION...

LOCATION...24.7N 84.9W

MAXIMUM SUSTAINED WINDS...50 MPH

PRESENT MOVEMENT...NORTH-NORTHEAST OR 295 DEGREES AT 9 MPH

MINIMUM CENTRAL PRESSURE...997 MB

AN INTERMEDIATE ADVISORY WILL BE ISSUED BY THE NATIONAL HURRICANE CENTER AT 200 AM EDT FOLLOWED BY THE NEXT COMPLETE ADVISORY AT 500 AM EDT.

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FORECASTER NAME

Example: Intermediate Public Advisory

WTNT33 KNHC 221858  
TCPAT3

BULLETIN  
HURRICANE RITA INTERMEDIATE ADVISORY NUMBER 20A  
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL  
1 PM CDT THU SEP 22 2005

...RITA WEAKENS A LITTLE FURTHER...REMAINS AN EXTREMELY DANGEROUS HURRICANE...

A HURRICANE WARNING IS IN EFFECT FROM PORT O'CONNOR TEXAS TO MORGAN CITY LOUISIANA. A HURRICANE WARNING MEANS THAT HURRICANE CONDITIONS ARE EXPECTED WITHIN THE WARNING AREA WITHIN THE NEXT 24 HOURS. PREPARATIONS TO PROTECT LIFE AND PROPERTY SHOULD BE RUSHED TO COMPLETION.

A TROPICAL STORM WARNING REMAINS IN EFFECT FROM SOUTH OF PORT O'CONNOR TO PORT MANSFIELD TEXAS AND FOR THE SOUTHEASTERN COAST OF LOUISIANA EAST OF MORGAN CITY TO THE MOUTH OF THE MISSISSIPPI RIVER. A TROPICAL STORM WARNING MEANS THAT TROPICAL STORM CONDITIONS ARE EXPECTED WITHIN THE WARNING AREA WITHIN THE NEXT 24 HOURS.

A TROPICAL STORM WATCH IS IN EFFECT FROM NORTH OF THE MOUTH OF THE MISSISSIPPI RIVER TO THE MOUTH OF THE PEARL RIVER INCLUDING METROPOLITAN NEW ORLEANS AND LAKE PONTCHARTRAIN...FROM SOUTH OF PORT MANSFIELD TO BROWNSVILLE TEXAS...AND FOR THE NORTHEASTERN COAST OF MEXICO FROM RIO SAN FERNANDO NORTHWARD TO THE RIO GRANDE. A TROPICAL STORM WATCH MEANS THAT TROPICAL STORM CONDITIONS ARE POSSIBLE WITHIN THE WATCH AREA...GENERALLY WITHIN 36 HOURS.

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

AT 1 PM CDT...1800 UTC...THE CENTER OF HURRICANE RITA WAS LOCATED NEAR LATITUDE 25.5 NORTH...LONGITUDE 89.2 WEST OR ABOUT 435 MILES...700 KM...SOUTHEAST OF GALVESTON TEXAS AND ABOUT 430 MILES...695 KM... SOUTHEAST OF PORT ARTHUR TEXAS.

RITA IS MOVING TOWARD THE WEST-NORTHWEST NEAR 9 MPH...15 KM/HR. A GRADUAL TURN TO THE NORTHWEST IS EXPECTED DURING THE NEXT 24 TO 36 HOURS.

DATA FROM A NOAA RECONNAISSANCE AIRCRAFT INDICATE THAT MAXIMUM

SUSTAINED WINDS HAVE DECREASED TO NEAR 150 MPH...240 KM/HR... WITH HIGHER GUSTS. RITA IS NOW A STRONG CATEGORY FOUR HURRICANE ON THE SAFFIR-SIMPSON SCALE. SOME SLIGHT WEAKENING IS FORECAST DURING THE NEXT 24 HOURS BUT RITA IS EXPECTED TO REMAIN AN EXTREMELY DANGEROUS HURRICANE.

HURRICANE FORCE WINDS EXTEND OUTWARD UP TO 85 MILES...140 KM... FROM THE CENTER...AND TROPICAL STORM FORCE WINDS EXTEND OUTWARD UP TO 185 MILES...295 KM.

LATEST MINIMUM CENTRAL PRESSURE REPORTED BY A NOAA HURRICANE HUNTER PLANE WAS 915 MB...27.01 INCHES.

STORM SURGE WILL RAISE WATER LEVELS BY AS MUCH AS 4 FEET ABOVE GROUND LEVEL ALONG THE WEST COAST OF FLORIDA IN AREAS OF ONSHORE FLOW SOUTH OF VENICE AND IN FLORIDA BAY...WITH LARGE AND DANGEROUS BATTERING WAVES...THE SURGE COULD PENETRATE AS FAR INLAND AS ABOUT 30 MILES FROM THE SHORE WITH DEPTH GENERALLY DECREASING AS THE WATER MOVES INLAND. STORM SURGE SHOULD BEGIN TO DECREASE ALONG THE EAST COAST OF FLORIDA.

RAINFALL ACCUMULATIONS OF 8 TO 12 INCHES WITH ISOLATED MAXIMUM 15 INCH TOTAL ARE POSSIBLE ALONG THE PATH OF RITA PARTICULARLY OVER SOUTHEAST TEXAS AND WESTERN LOUISIANA. IN ADDITION...RAINFALL AMOUNTS OF 3 TO 5 INCHES ARE POSSIBLE OVER SOUTHEASTERN LOUISIANA INCLUDING NEW ORLEANS. BASED ON THE FORECAST TRACK...RAINFALL TOTALS IN EXCESS OF 25 INCHES ARE POSSIBLE AFTER RITA MOVES INLAND.

...SUMMARY OF 1 PM CDT INFORMATION...

LOCATION...25.5N 89.2W

MAXIMUM SUSTAINED WINDS...150 MPH

PRESENT MOVEMENT...WEST-NORTHWEST OR 295 DEGREES AT 9 MPH

MINIMUM CENTRAL PRESSURE...915 MB

THE NEXT ADVISORY WILL BE ISSUED BY THE NATIONAL HURRICANE CENTER AT 4 PM CDT.

FORECASTER NAME

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Example: Special Public Advisory

ZCZC MIATCPAT4 ALL

TTAA00 KNHC DDHMM

BULLETIN

HURRICANE HUMBERTO SPECIAL ADVISORY NUMBER 4

NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL092007

1215 AM CDT THU SEP 13 2007

...HUMBERTO BECOMES A HURRICANE JUST BEFORE LANDFALL...

...HURRICANE FORCE WINDS COVER SMALL AREA NORTHEAST OF CENTER...

AT 1215 AM CDT...0515 UTC...A HURRICANE WARNING HAS BEEN ISSUED FROM EAST OF HIGH ISLAND TEXAS TO CAMERON LOUISIANA. THE HURRICANE WARNING FOR HUMBERTO MEANS THAT HURRICANE CONDITIONS ARE EXPECTED

WITHIN THE WARNING AREA WITHIN THE NEXT FEW HOURS.

A TROPICAL STORM WARNING REMAINS IN EFFECT FROM EAST OF SARGENT TEXAS TO HIGH ISLAND TEXAS...AND FROM EAST OF CAMERON LOUISIANA TO TO INTRACOASTAL CITY LOUISIANA.

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

AT 1215 AM CDT...0515 UTC...THE CENTER OF HURRICANE HUMBERTO WAS LOCATED NEAR LATITUDE 29.4 NORTH...LONGITUDE 94.4 WEST OR ABOUT 20 MILES...30 KM...EAST OF GALVESTON TEXAS...AND ABOUT 15 MILES...20 KM...SOUTH OF HIGH ISLAND TEXAS.

HUMBERTO IS MOVING TOWARD THE NORTH-NORTHEAST NEAR 8 MPH...13 KM/HR ...AND THIS GENERAL DIRECTION OF MOTION WITH SOME INCREASE IN FORWARD SPEED IS EXPECTED OVER THE NEXT 24 HOURS. ON THE FORECAST TRACK THE CENTER WILL BE CROSSING THE UPPER TEXAS COAST WITHIN THE NEXT FEW HOURS.

DATA FROM AN AIR FORCE RECONNAISSANCE AIRCRAFT AND DOPPLER RADAR INDICATE THAT THE MAXIMUM SUSTAINED WINDS HAVE INCREASED TO NEAR 80 MPH...130 KM/HR...WITH HIGHER GUSTS...CONFINED TO A SMALL AREA NORTHEAST OF THE CENTER. HUMBERTO IS NOW A CATEGORY ONE HURRICANE ON THE SAFFIR-SIMPSON SCALE. LITTLE ADDITIONAL STRENGTHENING IS EXPECTED PRIOR TO LANDFALL.

HURRICANE FORCE WINDS EXTEND OUTWARD UP TO 15 MILES...30 KM... NORTHEAST OF THE CENTER...AND TROPICAL STORM FORCE WINDS EXTEND OUTWARD UP TO 60 MILES...95 KM.

MINIMUM CENTRAL PRESSURE RECENTLY REPORTED BY THE AIRCRAFT WAS 992 MB...29.29 INCHES.

RAINFALL AMOUNTS OF 5 TO 10 INCHES ARE EXPECTED ALONG THE TRACK OF HUMBERTO THROUGH EASTERN TEXAS AS WELL AS WESTERN AND CENTRAL LOUISIANA...WITH ISOLATED MAXIMUM ACCUMULATIONS OF 15 INCHES POSSIBLE.

STORM SURGE WILL RAISE WATER LEVELS BY AS MUCH AS 4 FEET ABOVE GROUND LEVEL ALONG THE COAST...NEAR AND TO THE EAST OF WHERE THE CENTER MAKES LANDFALL. THE SURGE COULD PENETRATE AS FAR INLAND AS ABOUT TWO MILES FROM THE SHORE WITH DEPTH GENERALLY DECREASING AS THE WATER MOVES INLAND.

ISOLATED TORNADOES ARE POSSIBLE IN SOUTHEASTERN TEXAS AND SOUTHWESTERN LOUISIANA THROUGH EARLY THURSDAY.

...SUMMARY OF 1215 AM CDT INFORMATION...  
LOCATION...29.4N 94.4W  
MAXIMUM SUSTAINED WINDS...80 MPH  
PRESENT MOVEMENT...NORTH-NORTHEAST OR 25 DEGREES AT 8 MPH  
MINIMUM CENTRAL PRESSURE...992 MB.

THE NEXT ADVISORY WILL BE ISSUED BY THE NATIONAL HURRICANE CENTER AT 400 AM CDT.

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FORECASTER MAINELLI/AVILA

Example: Public Advisory Correction

WTNT31 KNHC 240855 CCA  
TCPAT3

HURRICANE ANDREW ADVISORY NUMBER 25...CORRECTED  
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL011992  
500 AM EDT MON AUG 24 1992

CORRECTED FOR CENTRAL PRESSURE...

BODY OF TEXT

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Example: Subtropical Cyclone Public Advisory

WTNT31 KNHC 040255  
BULLETIN  
SUBTROPICAL STORM ANDREA ADVISORY NUMBER 3  
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL012007  
1100 PM EDT WED MAY 09 2007

...ANDREA NEARLY STATIONARY...FORECAST TO WEAKEN...

A TROPICAL STORM WATCH REMAINS IN EFFECT ALONG THE SOUTHEAST COAST OF THE UNITED STATES FROM ALTAMAHA SOUND GEORGIA SOUTHWARD TO FLAGLER BEACH FLORIDA. A TROPICAL STORM WATCH MEANS THAT TROPICAL STORM CONDITIONS ARE POSSIBLE WITHIN THE WATCH AREA...GENERALLY 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.

AT 1100 PM EDT...0300UTC...THE CENTER OF SUBTROPICAL STORM ANDREA WAS LOCATED NEAR LATITUDE 30.5 NORTH...LONGITUDE 79.8 WEST OR ABOUT 135 MILES...215 KM...SOUTHEAST OF SAVANNAH GEORGIA AND ABOUT 115 MILES ...185 KM...NORTHEAST OF DAYTONA BEACH FLORIDA.

THE STORM IS NEARLY STATIONARY AND NO SIGNIFICANT MOTION IS EXPECTED DURING THE NEXT 24 HOURS.

MAXIMUM SUSTAINED WINDS ARE NEAR 45 MPH...75 KM/HR...WITH HIGHER GUSTS. SOME WEAKENING IS POSSIBLE DURING THE NEXT 24 HOURS.

WINDS OF TROPICAL STORM FORCE EXTEND OUTWARD UP TO 105 MILES...165 KM TO THE EAST OF THE CENTER.

ESTIMATED MINIMUM CENTRAL PRESSURE IS 1003 MB...29.62 INCHES.

ANDREA IS EXPECTED TO PRODUCE TOTAL RAINFALL ACCUMULATIONS OF 1 TO 2 INCHES ALONG COASTAL AREAS OF THE SOUTHEASTERN U.S. ISOLATED MAXIMUM AMOUNTS OF ABOUT 3 INCHES ARE POSSIBLE IN SOME RAINBANDS.

...SUMMARY OF 1100 PM EDT INFORMATION...

LOCATION...30.5N 79.8W  
MAXIMUM SUSTAINED WINDS...45 MPH  
PRESENT MOVEMENT...STATIONARY  
MINIMUM CENTRAL PRESSURE...1003 MB

AN INTERMEDIATE ADVISORY WILL BE ISSUED BY THE NATIONAL HURRICANE CENTER AT 200 AM EDT FOLLOWED BY THE NEXT COMPLETE ADVISORY AT 500 AM EDT.

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FORECASTER AVILA

Example: HPC Public Advisory

PUBLIC ADVISORY NUMBER 55 FOR REMNANTS OF IKE  
NWS HYDROMETEOROLOGICAL PREDICTION CENTER CAMP SPRINGS MD AL092008  
400 PM CDT SUN SEP 14 2008

...REMNANTS OF IKE RACING NORTHEAST AND PRODUCING HEAVY RAINFALL...STRONG AND DAMAGING WINDS...

FLOOD AND FLASH FLOOD WATCHES ARE IN EFFECT FOR COASTAL TEXAS INTO EASTERN LOUISIANA AND CENTRAL MISSISSIPPI. ADDITIONAL FLOOD AND FLASH FLOOD WATCHES ARE IN EFFECT FOR MUCH OF ILLINOIS...NORTHERN INDIANA INTO SOUTHERN MICHIGAN. MANY COUNTIES ARE CURRENTLY UNDER FLOOD AND FLASH FLOOD WARNINGS FROM THE CENTRAL GULF COAST NORTHWARD INTO THE MIDDLE MISSISSIPPI VALLEY AND GREAT LAKES REGION.

THE REMNANTS OF IKE ARE SUPPORTING STRONG AND DAMAGING WINDS THRU THE LOWER OHIO VALLEY. SEVERAL STATIONS HAVE BEEN REPORTING WINDS OF 30 TO 40 MPH WITH GUSTS OVER 60 MPH. THIS HAS RESULTED IN WIDESPREAD DOWNED TREES AND STRUCTURAL DAMAGE TO BUILDINGS.

AT 400 PM CDT...21UTC...LOW PRESSURE...WHICH WAS IKE...WAS LOCATED NEAR LATITUDE 41.6 NORTH...AND LONGITUDE 84.5 WEST...OR 40 MILES WEST OF TOLEDO...OHIO. THE LOW IS MOVING NORTHEAST AT 50 MPH OR 80 KM/HR.

THE LOW WILL RACE NORTHEASTWARD...ALONG A FRONTAL BOUNDARY...ACROSS THE LOWER GREAT LAKES THIS EVENING. BY MONDAY MORNING THE LOW WILL BE MOVING THROUGH THE ST. LAWRENCE RIVER VALLEY.

MAXIMUM SUSTAINED WINDS ARE 35 TO 45 MPH...65 TO 80 KM/HR...WITH GUSTS OF 60 TO 70 MPH...95 TO 115 KM/HR. THE MINIMUM CENTRAL PRESSURE WAS 990 MB...OR 29.23 INCHES.

SELECTED HIGH WIND REPORTS SINCE 700 AM SUNDAY

LOUISVILLE KY	75 MPH
COVINGTON KY	74 MPH
HUNTINGBURG IN	67 MPH
FORT KNOX KY	64 MPH
OWENSBORO KY	63 MPH
WALNUT RIDGE AR	62 MPH
POPULAR BLUFF MO	61 MPH
CINCINNATI/LUNKIN	61 MPH

SELECTED STORM TOTAL RAINFALL AMOUNTS IN INCHES THROUGH 100 PM CDT

...LOUISIANA...

NATCHITOCHE	3.68
GOLDONNA	2.57
MONROE	2.45

...TEXAS...

SPRING BRANCH (HARRIS COUNTY)	15.20
CYPRESS CREEK (HARRIS COUNTY)	14.21
HALLS BAYOU (HARRIS COUNTY)	13.94
HARRIS GULLEY (HARRIS COUNTY)	10.71
GOOSE CREEK (HARRIS COUNTY)	10.39
BUFFALO BAYOU (HARRIS COUNTY)	10.12
MISSION BEND	7.37
BEAUMONT/PORT ARTHUR	4.99
HUNTSVILLE	4.90
COLLEGE STATION	3.45
TYLER	2.69
PARIS	2.44

...ARKANSAS...

FAYETTEVILLE/DRAKE	4.35
HARRISON	2.26
FORT SMITH	2.23

...ILLINOIS...

DECATUR	5.00
PEORIA	4.74
CAHOKIA	3.69
CHAMPAIGN	3.60
SCOTT AFB	3.42
QUINCY	3.32

...MISSOURI...

FAIR GROVE	5.52
ASHLAND	5.39
JEFFERSON CITY	5.35
BUFFALO	5.28
LIBERAL	5.25
CROSS TIMBERS	5.18
BROOKFIELD	5.11
COLE CAMP	5.06
PLATTSBURG	5.06
HERMITAGE	5.06
HIGHLANDVILLE	5.02

WHEATLAND	5.02
FORNEY AAF	4.82
COLUMBIA	4.72
...KANSAS...	
MCCUNE	3.80
COFFEYVILLE	3.16
...OKLAHOMA...	
CLAREMORE	2.44
MUSKOGEE	2.38
SAND SPRINGS	2.10

THE REMNANTS OF IKE WILL CONTINUE TO PRODUCE HEAVY RAINFALL INTO THIS EVENING OVER THE LOWER GREAT LAKES AS IT MOVES INTO THE ST. LAWRENCE RIVER VALLEY. MAXIMUM RAINFALL AMOUNTS ARE EXPECTED TO RANGE FROM 1 TO 3 INCHES WITH ISOLATED HEAVIER TOTALS THROUGH MONDAY MORNING.

A SEVERAL HOUR PERIOD OF STRONG WINDS WILL ALSO ACCOMPANY THE SYSTEM FROM NORTHEASTERN OHIO INTO WESTERN PENNSYLVANIA...WESTERN AND NORTHERN NEW YORK STATE AND NORTHERN VERMONT. WINDS OF 30 TO 50 MPH WILL BE POSSIBLE WITH HIGHER GUSTS. THE STRONGEST WINDS SHOULD BE OVER HIGHER ELEVATIONS OF WESTERN PENNSYLVANIA...WESTERN AND NORTHERN NEW YORK AND NORTHERN VERMONT.

...SUMMARY OF 400 PM CDT INFORMATION...  
 LOCATION...41.6N 84.5W  
 MAXIMUM SUSTAINED WINDS...45 MPH  
 PRESENT MOVEMENT...NORTHEAST OR 45 DEGREES AT 50 MPH  
 MINIMUM CENTRAL PRESSURE...997 MB

THE NEXT ADVISORY WILL BE ISSUED AT 1000 PM CDT SUNDAY BY THE HYDROMETEOROLOGICAL PREDICTION CENTER. PLEASE REFER TO YOUR LOCAL NATIONAL WEATHER SERVICE OFFICE FOR FURTHER INFORMATION ON THIS STORM.

ECKERT/FRACASSO

FORECAST POSITIONS

INITIAL 14/2100Z 41.6N 84.5W...EXTRATROPICAL  
 12HR VT 15/0600Z 44.8N 76.7W...EXTRATROPICAL  
 24HR VT 15/1800Z 49.6N 64.4W...EXTRATROPICAL

Example: Hurricane Forecast/Advisory

WTNT25 KNHC 230300  
 TCMAT5

TROPICAL STORM ERNESTO FORECAST/ADVISORY NUMBER 22  
 NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL052006  
 0300 UTC WED AUG 30 2006

**NWSI 10-601 JULY 27, 2009**

AT 11 PM EDT...0300Z...THE TROPICAL STORM WARNING IS DISCONTINUED NORTH OF BONITA BEACH ON THE FLORIDA WEST COAST...AND THE TROPICAL STORM WATCH FROM ENGLEWOOD TO TARPON SPRINGS FLORIDA IS ALSO DISCONTINUED.

A TROPICAL STORM WARNING REMAINS IN EFFECT FROM BONITA BEACH ON THE FLORIDA WEST COAST SOUTHWARD...AROUND THE FLORIDA PENINSULA...AND NORTHWARD TO ALTAMAHA SOUND GEORGIA...INCLUDING ALL THE FLORIDA KEYS AND LAKE OKEECHOBEE.

A HURRICANE WATCH REMAINS IN EFFECT FROM NORTH OF ALTAMAHA SOUND TO CAPE FEAR NORTH CAROLINA.

A TROPICAL STORM WARNING REMAINS IN EFFECT FOR ANDROS ISLAND...THE BERRY ISLANDS... THE BIMINIS AND GRAND BAHAMA ISLAND IN THE NORTHWESTERN BAHAMAS.

TROPICAL STORM CENTER LOCATED NEAR 24.9N 80.5W AT 30/0300Z  
POSITION ACCURATE WITHIN 20 NM

PRESENT MOVEMENT TOWARD THE NORTH-NORTHWEST OR 330 DEGREES AT  
7 KT

ESTIMATED MINIMUM CENTRAL PRESSURE 1004 MB  
MAX SUSTAINED WINDS 40 KT WITH GUSTS TO 50 KT.  
34 KT..... 90NE 60SE 25SW 25NW.  
12 FT SEAS.. 90NE 90SE 0SW 0NW.  
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 24.9N 80.5W AT 30/0300Z  
AT 30/0000Z CENTER WAS LOCATED NEAR 24.8N 80.4W

FORECAST VALID 30/1200Z 26.6N 81.1W...INLAND  
MAX WIND 35 KT...GUSTS 45 KT.  
34 KT... 90NE 60SE 0SW 0NW.

FORECAST VALID 31/0000Z 28.6N 80.8W...INLAND  
MAX WIND 35 KT...GUSTS 45 KT.  
34 KT... 75NE 75SE 0SW 50NW.

FORECAST VALID 31/1200Z 31.2N 80.1W  
MAX WIND 45 KT...GUSTS 55 KT.  
34 KT...100NE 100SE 60SW 100NW.

FORECAST VALID 01/0000Z 33.8N 79.2W  
MAX WIND 55 KT...GUSTS 65 KT.  
50 KT... 40NE 40SE 0SW 0NW.  
34 KT...100NE 100SE 60SW 60NW.

FORECAST VALID 02/0000Z 37.5N 78.0W...INLAND  
MAX WIND 30 KT...GUSTS 40 KT.

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 03/0000Z 40.0N 78.0W...EXTRATROPICAL

MAX WIND 25 KT...GUSTS 35 KT.

OUTLOOK VALID 04/0000Z...DISSIPATED

REQUEST FOR 3 HOURLY SHIP REPORTS WITHIN 300 MILES OF 24.9N 80.5W

NEXT ADVISORY AT 30/0900Z

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FORECASTER FRANKLIN

Example: Hurricane Forecast Discussion

WTNT45 KNHC 230300  
TCDAT5

HURRICANE ISIDORE DISCUSSION NUMBER 28  
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL102002  
1100 PM EDT SUN SEP 22 2002

THE CENTER HAS MOVED SOUTH OF THE SHORT-TERM FORECAST TRACK...AND MOVED INLAND OVER NORTHWESTERN YUCATAN A FEW HOURS AGO. THUS THE CYCLONE IS WEAKENING...AND WILL CONTINUE TO DO SO UNTIL IT MOVES BACK OVER WATER. ASIDE FROM THE INTERACTION WITH LAND...ATMOSPHERIC AND OCEANIC CONDITIONS REMAIN QUITE FAVORABLE FOR INTENSIFICATION SO THE OFFICIAL FORECAST CALLS FOR ISIDORE TO RECOVER ITS PREVIOUS INTENSITY AND MORE...PRESUMING THAT IT RE-ENTERS THE GULF TOMORROW. THE OFFICIAL WIND SPEED FORECASTS BY DAYS 2 AND 3 ARE BACK TO THOSE SHOWN IN THE PREVIOUS ADVISORY. HOWEVER...TROPICAL CYCLONE INTENSITY FORECASTING HAS A LOT OF UNCERTAINTIES. IF THE INNER CORE STRUCTURE IS SEVERELY DISRUPTED BY THE CYCLONES TRANSIT OVER LAND...IT MAY NOT BE ABLE TO RE-INTENSIFY AS MUCH AS ANTICIPATED.

THE FORWARD SPEED APPEARS TO HAVE SLOWED AND CURRENT MOTION IS ESTIMATED TO BE A SOUTHWESTWARD DRIFT...220/4. THE MORE SOUTHERLY MOTION WAS PROBABLY THE RESULT OF MID-LEVEL RIDGING TO THE WEST-NORTHWEST OF ISIDORE. GLOBAL MODELS AND THE GFDL HURRICANE MODEL AGREE THAT THE SYSTEM WILL TURN BACK TO THE WEST AND NORTHWEST WITHIN 12 TO 24 HOURS. AFTERWARDS...A MID-TROPOSPHERIC RIDGE SHOULD BEGIN TO BUILD TO THE EAST OF ISIDORE...WHICH SHOULD INDUCE A MORE NORTHWARD MOTION. NOT MUCH INCREASE IN FORWARD SPEED IS EXPECTED UNTIL A MID-LATITUDE TROUGH BEGINS TO AFFECT THE SYSTEM...PROBABLY BEYOND THIS FORECAST PERIOD.

THE THREE-DAY FORECAST POINT IMPLIES AN EVENTUAL THREAT TO EITHER THE NORTHWEST OR NORTHERN GULF OF MEXICO COAST...HOWEVER IT IS STILL TOO EARLY TO BE MORE SPECIFIC ABOUT THE THREAT.

FORECASTER PASCH

FORECAST POSITIONS AND MAX WINDS

INITIAL	23/0300Z	20.8N	89.5W	90 KT
12HR VT	23/1200Z	20.7N	90.3W	80 KT
24HR VT	24/0000Z	21.0N	91.0W	95 KT

36HR VT	24/1200Z	21.8N	92.0W	115 KT
48HR VT	25/0000Z	22.8N	92.5W	125 KT
72HR VT	26/0000Z	25.0N	93.0W	125 KT
96HR VT	27/0000Z	27.0N	92.5W	100 KT
120HR VT	28/0000Z	29.0N	92.0W	90 KT

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Example: Tropical Cyclone Update

WTPA61 PHFO 222000  
TCUCP4  
HURRICANE INIKI TROPICAL CYCLONE UPDATE  
NWS CENTRAL PACIFIC HURRICANE CENTER HONOLULU HI CP091992  
1000 AM PST SAT AUG 22 1992

...RECONNAISSANCE AIRCRAFT INDICATE WINDS IN INIKI HAVE REACHED  
HURRICANE STRENGTH...

SHORTLY AFTER 10 AM HST...AIR FORCE RESERVE RECONNAISSANCE AIRCRAFT  
INDICATED MAXIMUM SUSTAINED WINDS IN TROPICAL STORM INIKI HAD  
INCREASED TO HURRICANE FORCE. DETAILS WILL FOLLOW IN A SPECIAL  
HURRICANE ADVISORY AT 11 AM HST.

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Example: Tropical Cyclone Position Estimate

WTNT51 KNHC 190755  
TCEAT3  
  
HURRICANE HUGO...POSITION ESTIMATE  
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL081989  
300 AM AST TUE SEP 19 1989

AT 3 AM AST THE CENTER OF HURRICANE HUGO WAS ESTIMATED NEAR LATITUDE  
20.7 NORTH AND LONGITUDE 67.3 WEST. THIS IS APPROXIMATELY 155 MILES  
NORTH NORTHWEST OF SAN JUAN PUERTO RICO AND 220 MILES EAST SOUTHEAST  
OF GRAND TURK ISLAND OF THE BAHAMAS.

\$\$  
FORECASTER LAWRENCE

Example: Text Wind Speed Probabilities

ZCZC MIAPWSAT3 ALL  
 TTAA00 KNHC DDHMM  
 TROPICAL STORM HANNA WIND SPEED PROBABILITIES NUMBER 12...CORRECTED  
 NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL082008  
 0300 UTC SUN AUG 31 2008

AT 0300Z THE CENTER OF TROPICAL STORM HANNA WAS LOCATED NEAR  
 LATITUDE 22.9 NORTH...LONGITUDE 67.8 WEST WITH MAXIMUM SUSTAINED  
 WINDS NEAR 45 KTS...50 MPH...85 KM/HR.

Z INDICATES COORDINATED UNIVERSAL TIME (GREENWICH)  
 ATLANTIC STANDARD TIME (AST)...SUBTRACT 4 HOURS FROM Z TIME  
 EASTERN DAYLIGHT TIME (EDT)...SUBTRACT 4 HOURS FROM Z TIME  
 CENTRAL DAYLIGHT TIME (CDT)...SUBTRACT 5 HOURS FROM Z TIME

I. MAXIMUM WIND SPEED (INTENSITY) PROBABILITY TABLE

CHANCES THAT THE MAXIMUM SUSTAINED (1-MINUTE AVERAGE) WIND SPEED OF  
 THE TROPICAL CYCLONE WILL BE WITHIN ANY OF THE FOLLOWING CATEGORIES  
 AT EACH OFFICIAL FORECAST TIME DURING THE NEXT 5 DAYS.  
 PROBABILITIES ARE GIVEN IN PERCENT. X INDICATES PROBABILITIES LESS  
 THAN 1 PERCENT.

- - - MAXIMUM WIND SPEED (INTENSITY) PROBABILITIES - - -

VALID TIME	12Z SUN	00Z MON	12Z MON	00Z TUE	00Z WED	00Z THU	00Z FRI
FORECAST HOUR	12	24	36	48	72	96	120
DISSIPATED	X	1	1	2	4	6	9
TROP DEPRESSION	6	7	7	11	14	15	16
TROPICAL STORM	90	78	65	57	50	49	42
HURRICANE	4	14	27	30	32	31	33
HUR CAT 1	3	12	23	24	23	22	21
HUR CAT 2	X	1	3	5	5	6	9
HUR CAT 3	1	1	1	2	3	2	2
HUR CAT 4	X	X	X	X	1	1	1
HUR CAT 5	X	X	X	X	X	X	X
FCST MAX WIND	45KT	50KT	55KT	55KT	55KT	55KT	60KT

II. WIND SPEED PROBABILITY TABLE FOR SPECIFIC LOCATIONS

CHANCES OF SUSTAINED (1-MINUTE AVERAGE) WIND SPEEDS OF AT LEAST  
 ...34 KT (39 MPH... 63 KPH)...  
 ...50 KT (58 MPH... 93 KPH)...  
 ...64 KT (74 MPH...119 KPH)...

FOR LOCATIONS AND TIME PERIODS DURING THE NEXT 5 DAYS

PROBABILITIES FOR LOCATIONS ARE GIVEN AS IP(CP) WHERE

IP IS THE PROBABILITY OF THE EVENT BEGINNING DURING  
 AN INDIVIDUAL TIME PERIOD (INDIVIDUAL PROBABILITY)  
 (CP) IS THE PROBABILITY OF THE EVENT OCCURRING BETWEEN  
 00Z SUN AND THE FORECAST HOUR (CUMULATIVE PROBABILITY)

PROBABILITIES ARE GIVEN IN PERCENT  
 X INDICATES PROBABILITIES LESS THAN 1 PERCENT  
 PROBABILITIES FOR 34 KT AND 50 KT ARE SHOWN AT A GIVEN LOCATION WHEN  
 THE 5-DAY CUMULATIVE PROBABILITY IS AT LEAST 3 PERCENT.  
 PROBABILITIES FOR 64 KT ARE SHOWN WHEN THE 5-DAY CUMULATIVE  
 PROBABILITY IS AT LEAST 1 PERCENT.

- - - - WIND SPEED PROBABILITIES FOR SELECTED LOCATIONS - - - -

TIME PERIODS	FROM						
	00Z SUN TO 12Z SUN	12Z SUN TO 00Z MON	00Z MON TO 12Z MON	12Z MON TO 00Z TUE	00Z TUE TO 00Z WED	00Z WED TO 00Z THU	00Z THU TO 00Z FRI
FORECAST HOUR	(12)	(24)	(36)	(48)	(72)	(96)	(120)
LOCATION	KT						
MOREHEAD CITY	34 X	X ( X )	X ( X )	X ( X )	X ( X )	1 ( 1 )	2 ( 3 )
WILMINGTON NC	34 X	X ( X )	X ( X )	X ( X )	X ( X )	1 ( 1 )	3 ( 4 )
COLUMBIA SC	34 X	X ( X )	X ( X )	X ( X )	X ( X )	X ( X )	3 ( 3 )
MYRTLE BEACH	34 X	X ( X )	X ( X )	X ( X )	X ( X )	1 ( 1 )	3 ( 4 )
CHARLESTON SC	34 X	X ( X )	X ( X )	X ( X )	X ( X )	1 ( 1 )	4 ( 5 )
AUGUSTA GA	34 X	X ( X )	X ( X )	X ( X )	X ( X )	1 ( 1 )	2 ( 3 )
SAVANNAH GA	34 X	X ( X )	X ( X )	X ( X )	X ( X )	2 ( 2 )	3 ( 5 )
JACKSONVILLE	34 X	X ( X )	X ( X )	X ( X )	X ( X )	2 ( 2 )	4 ( 6 )
DAYTONA BEACH	34 X	X ( X )	X ( X )	X ( X )	1 ( 1 )	2 ( 3 )	5 ( 8 )
ORLANDO FL	34 X	X ( X )	X ( X )	X ( X )	1 ( 1 )	3 ( 4 )	4 ( 8 )
COCOA BEACH FL	34 X	X ( X )	X ( X )	X ( X )	1 ( 1 )	4 ( 5 )	5 (10)
COCOA BEACH FL	50 X	X ( X )	X ( X )	X ( X )	X ( X )	2 ( 2 )	1 ( 3 )
FT PIERCE FL	34 X	X ( X )	X ( X )	X ( X )	1 ( 1 )	5 ( 6 )	5 (11)
FT PIERCE FL	50 X	X ( X )	X ( X )	X ( X )	X ( X )	2 ( 2 )	1 ( 3 )
W PALM BEACH	34 X	X ( X )	X ( X )	X ( X )	2 ( 2 )	5 ( 7 )	5 (12)
W PALM BEACH	50 X	X ( X )	X ( X )	X ( X )	X ( X )	2 ( 2 )	1 ( 3 )
MIAMI FL	34 X	X ( X )	X ( X )	X ( X )	2 ( 2 )	5 ( 7 )	5 (12)
MIAMI FL	50 X	X ( X )	X ( X )	X ( X )	X ( X )	1 ( 1 )	2 ( 3 )
MIAMI FL	64 X	X ( X )	X ( X )	X ( X )	X ( X )	1 ( 1 )	X ( 1 )

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MARATHON FL	34	X	X ( X )	X ( X )	X ( X )	1 ( 1 )	3 ( 4 )	5 ( 9 )
MARATHON FL	50	X	X ( X )	X ( X )	X ( X )	X ( X )	1 ( 1 )	3 ( 4 )
MARATHON FL	64	X	X ( X )	X ( X )	X ( X )	X ( X )	X ( X )	1 ( 1 )
KEY WEST FL	34	X	X ( X )	X ( X )	X ( X )	1 ( 1 )	2 ( 3 )	4 ( 7 )
MARCO ISLAND	34	X	X ( X )	X ( X )	X ( X )	1 ( 1 )	2 ( 3 )	5 ( 8 )
FT MYERS FL	34	X	X ( X )	X ( X )	X ( X )	1 ( 1 )	2 ( 3 )	4 ( 7 )
FT MYERS FL	64	X	X ( X )	X ( X )	X ( X )	X ( X )	X ( X )	1 ( 1 )
VENICE FL	34	X	X ( X )	X ( X )	X ( X )	X ( X )	2 ( 2 )	3 ( 5 )
TAMPA FL	34	X	X ( X )	X ( X )	X ( X )	X ( X )	2 ( 2 )	3 ( 5 )
CEDAR KEY FL	34	X	X ( X )	X ( X )	X ( X )	X ( X )	2 ( 2 )	2 ( 4 )
GFMX 290N 850W	34	X	X ( X )	X ( X )	X ( X )	X ( X )	1 ( 1 )	2 ( 3 )
GRAND BAHAMA	34	X	X ( X )	X ( X )	1 ( 1 )	3 ( 4 )	7 (11)	7 (18)
GRAND BAHAMA	50	X	X ( X )	X ( X )	X ( X )	X ( X )	3 ( 3 )	3 ( 6 )
GRAND BAHAMA	64	X	X ( X )	X ( X )	X ( X )	X ( X )	1 ( 1 )	1 ( 2 )
NEW PROVIDENCE	34	X	X ( X )	1 ( 1 )	2 ( 3 )	7 (10)	8 (18)	5 (23)
NEW PROVIDENCE	50	X	X ( X )	X ( X )	X ( X )	2 ( 2 )	3 ( 5 )	3 ( 8 )
NEW PROVIDENCE	64	X	X ( X )	X ( X )	X ( X )	X ( X )	1 ( 1 )	2 ( 3 )
ANDROS	34	X	X ( X )	1 ( 1 )	2 ( 3 )	6 ( 9 )	8 (17)	5 (22)
ANDROS	50	X	X ( X )	X ( X )	X ( X )	2 ( 2 )	2 ( 4 )	2 ( 6 )
ANDROS	64	X	X ( X )	X ( X )	X ( X )	X ( X )	1 ( 1 )	1 ( 2 )
GREAT EXUMA	34	X	1 ( 1 )	4 ( 5 )	6 (11)	10 (21)	8 (29)	4 (33)
GREAT EXUMA	50	X	X ( X )	X ( X )	2 ( 2 )	3 ( 5 )	3 ( 8 )	2 (10)
GREAT EXUMA	64	X	X ( X )	X ( X )	1 ( 1 )	X ( 1 )	1 ( 2 )	1 ( 3 )
SAN SALVADOR	34	X	3 ( 3 )	10 (13)	10 (23)	11 (34)	7 (41)	5 (46)
SAN SALVADOR	50	X	X ( X )	1 ( 1 )	4 ( 5 )	6 (11)	3 (14)	2 (16)
SAN SALVADOR	64	X	X ( X )	X ( X )	1 ( 1 )	2 ( 3 )	2 ( 5 )	1 ( 6 )
MAYAGUANA	34	1	3 ( 4 )	14 (18)	11 (29)	9 (38)	4 (42)	3 (45)
MAYAGUANA	50	X	X ( X )	3 ( 3 )	3 ( 6 )	5 (11)	2 (13)	1 (14)
MAYAGUANA	64	X	X ( X )	1 ( 1 )	1 ( 2 )	2 ( 4 )	1 ( 5 )	X ( 5 )
GRAND TURK	34	1	5 ( 6 )	12 (18)	5 (23)	7 (30)	3 (33)	2 (35)
GRAND TURK	50	X	X ( X )	2 ( 2 )	2 ( 4 )	3 ( 7 )	1 ( 8 )	1 ( 9 )
GRAND TURK	64	X	X ( X )	X ( X )	1 ( 1 )	1 ( 2 )	X ( 2 )	X ( 2 )
HAVANA	34	X	X ( X )	X ( X )	X ( X )	X ( X )	2 ( 2 )	2 ( 4 )
CIENFUEGOS	34	X	X ( X )	X ( X )	X ( X )	1 ( 1 )	2 ( 3 )	3 ( 6 )
CAMAGUEY	34	X	X ( X )	X ( X )	X ( X )	4 ( 4 )	3 ( 7 )	3 (10)
GUANTANAMO BAY	34	X	X ( X )	2 ( 2 )	1 ( 3 )	4 ( 7 )	4 (11)	2 (13)
GUANTANAMO BAY	50	X	X ( X )	X ( X )	X ( X )	1 ( 1 )	1 ( 2 )	1 ( 3 )
MONTEGO BAY	34	X	X ( X )	X ( X )	X ( X )	X ( X )	2 ( 2 )	1 ( 3 )

KINGSTON	34	X	X( X)	X( X)	X( X)	1( 1)	1( 2)	1( 3)
LES CAYES	34	X	X( X)	1( 1)	X( 1)	2( 3)	2( 5)	1( 6)
PORT-AU-PRINCE	34	X	X( X)	1( 1)	1( 2)	3( 5)	2( 7)	1( 8)
CAPE BEATA	34	X	X( X)	X( X)	1( 1)	1( 2)	1( 3)	1( 4)
PUERTO PLATA	34	X	2( 2)	3( 5)	3( 8)	4(12)	2(14)	1(15)
SANTO DOMINGO	34	X	1( 1)	X( 1)	1( 2)	2( 4)	1( 5)	1( 6)

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FORECASTER ROBERTS

Example: Graphical Wind Speed Probabilities

An example of this graphic can be found on the internet at:

<http://www.nhc.noaa.gov/aboutnhcgraphics.shtml>

Example: Graphical Storm Surge Probabilities

An example of this graphic can be found on the internet at:

<http://www.nhc.noaa.gov/aboutnhcgraphics.shtml>

Example: Tropical Cyclone Watch Warning Product (TCV)

WTNT81 KNHC  
TCVAT1

ALPHA WATCH/WARNING BREAKPOINTS/ADVISORY NUMBER 10  
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL012006  
1000 AM EST THU DEC 14 2006

.HURRICANE ALPHA

NCZ095-097-098-100-101-SCZ034-046-142100-  
/O.NEW.KNHC.HU.W.1001.061214T1500Z-000000T0000Z/  
1000 AM EST THU DEC 14 2006

SOUTH-SANTEE-RIVER-SC 33.12N 79.27W  
CAPE-LOOKOUT-NC 34.60N 76.53W

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GAZ116-117-118-119-138-139-140-141-154-166-SCZ043-047-048-049-050-  
051-142100-  
/O.NEW.KNHC.HU.A.1001.061214T1500Z-000000T0000Z/  
1000 AM EST THU DEC 14 2006

FERNANDINA-BEACH-FL 30.66N 81.44W  
SOUTH-SANTEE-RIVER-SC 33.12N 79.27W

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NCZ017-102-103-104-142100-  
/O.NEW.KNHC.HU.A.1001.061214T1500Z-000000T0000Z/  
1000 AM EST THU DEC 14 2006

CAPE-LOOKOUT-NC 34.60N 76.53W  
NC/VA-BORDER 36.55N 75.87W

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NCZ080-081-093-094-142100-  
/O.NEW.KNHC.HU.A.1001.061214T1500Z-000000T0000Z/  
1000 AM EST THU DEC 14 2006

PAMLICO-SOUND-NC 35.35N 75.85W

\$\$

NCZ015-016-032-045-046-047-142100-  
/O.NEW.KNHC.HU.A.1001.061214T1500Z-000000T0000Z/  
1000 AM EST THU DEC 14 2006

ALBEMARLE-SOUND-NC 36.05N 76.00W

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ATTN...WFO...AKQ...MHX...JAX...ILM...CHS...

Example: Tropical Cyclone Summary – Fixes (WFO Honolulu/CPHC)

TXPS41 PHFO 091728  
TCSSP1

SOUTH PACIFIC TROPICAL CYCLONE SUMMARY - FIXES  
NWS CENTRAL PACIFIC HURRICANE CENTER HONOLULU HI  
1723 UTC THU APR 09 2009

A. TROPICAL DISTURBANCE TEST

B. 09/1630Z

C. 8.1S

D. 163.9E

E. MTSAT

F. T1.5/2.0/S0.0/24 HOURS

G. IR

H. REMARKS...CURVE BAND WRAPPING .20 ON LOG 10 SPIRAL. POORLY  
DEFINED LOW LEVEL CIRCULATION CENTER POSITON BASED ON ANIMATION.

I. ADDL POSITIONS  
09/1254Z 8.0S 163.3E AMSU

\$\$  
MORRISON

Example: Tropical Weather Discussion

AXNT20 KNHC 060538  
TWDAT  
TROPICAL WEATHER DISCUSSION  
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL  
205 AM EDT SAT OCT 06 2007

TROPICAL WEATHER DISCUSSION FOR NORTH AMERICA...CENTRAL AMERICA...THE GULF OF MEXICO...THE CARIBBEAN SEA...NORTHERN SECTIONS OF SOUTH AMERICA...AND THE ATLANTIC OCEAN TO THE AFRICAN COAST FROM THE EQUATOR TO 32N. THE FOLLOWING INFORMATION IS BASED ON SATELLITE IMAGERY...METEOROLOGICAL ANALYSIS... WEATHER OBSERVATIONS...AND RADAR.

BASED ON 0000 UTC SURFACE ANALYSIS AND SATELLITE IMAGERY THROUGH 0500 UTC.

...TROPICAL WAVES...

TROPICAL WAVE IS IN THE CENTRAL ATLANTIC ALONG 49W S OF 18N MOVING W 10 KT OVER THE PAST 24 HOURS. AN ILL-DEFINED 1010 MB LOW IS ALONG THE WAVE AXIS NEAR 12N. THIS WAVE REMAINS STRONGLY SHEARED UNDER THE INFLUENCE OF SWIFT UPPER SOUTHWESTERLY WINDS TO THE E OF COMPLEX TROUGHING. THIS SHEAR HAS STAGGERED THE ASSOCIATED SCATTERED SHOWERS AND ISOLATED TSTMS TO THE E OF THE WAVE AXIS WITHIN 360 NM. MORE ORGANIZED CLUSTERS OF TSTMS ARE TO THE N AND NE OF THE WAVE IN AN UPPER DIFFLUENT ZONE.

...THE ITCZ...

AXIS CENTERED ALONG 8N13W 6N20W 8N40W 9N48W 9N61W. SCATTERED MODERATE CONVECTION IS WITHIN 75 NM N OF THE AXIS BETWEEN 31W-37W.

DISCUSSION...

THE GULF OF MEXICO...

THE AREA OF LOW PRES THAT WE HAVE BEEN TRACKING FOR SEVERAL DAYS HAS NOW MOVED INLAND OVER SE TEXAS. MOST OF THE SHOWER AND TSTM ACTIVITY HAS NOW DIMINISHED WITH DOPPLER RADAR ONLY DEPICTING A A FEW SHOWERS IN VERY CLOSE TO THE CENTER. THE MORE ACTIVE AREA IS IN THE EXTREME SE GULF AND OVER CENTRAL AND SOUTH FLORIDA. DOPPLER RADAR IN THIS AREA IS SHOWING A CONCENTRATION OF SHOWER AND TSTM ACTIVITY OVER THE CENTRAL WEST COAST OF THE STATE. SMALLER QUICK MOVING SHOWERS LIE ACROSS THE REMAINDER OF THE REGION S OF 29N E OF 84W. THIS ACTIVITY IS ASSOCIATED WITH LOW LEVEL CONVERGENCE NEAR AN ATLC SFC TROUGH AND A MID TO UPPER LEVEL DISTURBANCE. THE REMAINDER OF THE REGION IS FAIRLY QUIET UNDER THE INFLUENCE OF UPPER RIDGING RUNNING N-S ALONG 91W WITH

WIDESPREAD STABLE SINKING AIR. A MID TO UPPER LEVEL LOW LIES ABOVE CENTRAL MEXICO GENERATING TSTM ACTIVITY OVER THE NW PART OF THE COUNTRY...text continues..

Example: Aviation Tropical Cyclone Advisory

FKPA22 PHFO 140250  
TCAPA2

HURRICANE TEST ICAO ADVISORY NUMBER 2  
NWS CENTRAL PACIFIC HURRICANE CENTER HONOLULU HI CP012008  
0300 UTC TUE AUG 14 2008

TC ADVISORY

DTG: 20080814/0300Z  
TCAC: PHFO  
TC: TEST  
NR: 012  
PSN: N1554 W15200  
MOV: WNW 14KT  
C: 0957HPA  
MAX WIND: 105KT  
FCST PSN + 06 HR: 140900 N1615 W15254  
FCST MAX WIND + 06 HR: 105KT  
FCST PSN + 12 HR: 141500 N1636 W15348  
FCST MAX WIND + 12 HR: 105KT  
FCST PSN + 18 HR: 142100 N1706 W15500  
FCST MAX WIND + 18 HR: 105KT  
FCST PSN + 24 HR: 150300 N1736 W15612  
FCST MAX WIND + 24 HR: 100KT  
RMK The forecast position information in this product is interpolated from official forecast data valid at 0000, 0600, 1200, and 1800Z.  
NXT MSG: 20080814/0900Z

\$\$

Example: Tropical Cyclone Track and Watch/Warning graphic

An example of this graphic can be found on the internet at:  
<http://www.nhc.noaa.gov/aboutnhcgraphics.shtml>

Example: Cumulative Wind Distribution graphic

An example of this graphic can be found on the internet at:  
<http://www.nhc.noaa.gov/aboutnhcgraphics.shtml>

Example: Tropical Cyclone Wind Field graphic

An example of this graphic can be found on the internet at:  
<http://www.nhc.noaa.gov/aboutnhcgraphics.shtml>

Example: Maximum Wind Speed Probability Table

An example of this table can be found on the internet at:

<http://www.nhc.noaa.gov/aboutnhcgraphics.shtml>

Example: Hurricane Local Statement

The example illustrates the proper formatting, including VTEC, of a segmented HLS. Its intent is not for it to be perfectly correct or logical according to the meteorology or geographic area.

WTUS82 KMFL 170941  
HLSMFL

URGENT - IMMEDIATE BROADCAST REQUESTED  
TROPICAL STORM FAY LOCAL STATEMENT  
NATIONAL WEATHER SERVICE MIAMI FL  
541 AM EDT SUN AUG 17 2008

...HURRICANE AND TROPICAL STORM WATCHES ISSUED FOR PORTIONS OF SOUTH FLORIDA...

.AREAS AFFECTED...

THIS LOCAL STATEMENT PROVIDES IMPORTANT INFORMATION AND RECOMMENDED ACTIONS FOR PEOPLE AND MARINE INTERESTS IN SELECT COUNTIES AND COASTAL WATER LEGS OF SOUTH FLORIDA.

.WATCHES/WARNINGS...

A HURRICANE WATCH IS IN EFFECT FOR COASTAL COLLIER...MAINLAND MONROE...AND FAR SOUTH MIAMI DADE COUNTIES.

A TROPICAL STORM WATCH IS IN EFFECT FOR COASTAL PALM BEACH...COASTAL BROWARD...AND COASTAL MIAMI DADE COUNTIES.

A TROPICAL STORM WIND WATCH IS IN EFFECT FOR METRO PALM BEACH...INLAND PALM BEACH...METRO BROWARD...INLAND BROWARD...METRO MIAMI DADE...INLAND MIAMI DADE...INLAND COLLIER...GLADES...AND HENDRY COUNTIES.

A HURRICANE WATCH IS IN EFFECT FROM EAST CAPE SABLE TO BONITA BEACH OUT 20 NM AND FROM CHOKOLOSKEE TO BONITA BEACH 20 TO 60 NM.

A TROPICAL STORM WATCH IS IN EFFECT FOR THE COASTAL WATERS FROM OCEAN REEF TO JUPITER INLET OUT 60 NAUTICAL MILES...BISCAYNE BAY...AND LAKE OKEECHOBEE.

.STORM INFORMATION...

AT 500 AM EDT...THE CENTER OF TROPICAL STORM FAY WAS LOCATED NEAR LATITUDE 19.7 NORTH...LONGITUDE 77.3 WEST OR ABOUT 460 MILES SOUTHEAST OF MIAMI AND 525 MILES SOUTHEAST OF NAPLES.

FAY IS MOVING TOWARD THE WEST-NORTHWEST NEAR 13 MPH. A TURN TO THE NORTHWEST WITH A DECREASE IN FORWARD SPEED IS EXPECTED WITHIN THE NEXT 24 HOURS.

MAXIMUM SUSTAINED WINDS ARE NEAR 50 MPH WITH HIGHER GUSTS. SOME STRENGTHENING IS FORECAST DURING THE NEXT 24 HOURS AND FAY COULD BE

APPROACHING HURRICANE STRENGTH WHEN IT REACHES CENTRAL CUBA.

.SITUATION OVERVIEW...

WHEN MAKING DECISIONS...DO NOT FOCUS ON THE EXACT FORECAST TRACK. IT IS TOO EARLY TO PROVIDE EXACT WIND AND SURGE FORECAST VALUES FOR SPECIFIC LOCATIONS. A GENERAL CONCERN SHOULD BE FOR THE POSSIBILITY OF AT LEAST MINOR TO MODERATE DAMAGE SOMEWHERE WITHIN SOUTH FLORIDA. THE SYSTEM IS FORECAST TO SLOW DOWN AS IT MOVES ACROSS THE SOUTHEAST GULF OF MEXICO AND IN THE GENERAL DIRECTION OF THE WEST FLORIDA COAST. SO AT THIS TIME THERE IS CONCERN WITH POTENTIALLY HEAVY AND FLOOD-PRODUCING RAIN ACROSS PORTIONS OF SOUTH FLORIDA. GIVEN THE DIRECTION OF APPROACH THERE IS ALSO THE POSSIBILITY OF ISOLATED TORNADOES IN RAIN BANDS WELL AHEAD OF THE SYSTEM.

.PRECAUTIONARY/PREPAREDNESS ACTIONS...

PRECAUTIONARY/PREPAREDNESS ACTIONS...

FOR THOSE UNDER A WATCH...NOW IS THE TIME TO BEGIN PREPARING YOUR HOME OR BUSINESS ACCORDING TO YOUR HURRICANE DISASTER PLAN. LISTEN FOR POSSIBLE WARNINGS AND BE READY TO EVACUATE IF NECESSARY. HEED THE ADVICE OF LOCAL OFFICIALS AND COMPLY WITH ANY ORDERS THAT ARE ISSUED.

SMALL CRAFT SHOULD RETURN TO PORT OR SEEK SAFE HARBOR. FOR INTERESTS AT PORTS...DOCKS...AND MARINAS...IT IS RECOMMENDED THAT YOU PERFORM THE PRESCRIBED PREPARATIONS ACCORDING TO YOUR EMERGENCY OPERATIONS PLAN FOR TROPICAL CYCLONES. IF YOU LIVE ON A BOAT...BEGIN TO SAFELY SECURE YOUR CRAFT AND MAKE PLANS TO LEAVE IT FOR ADEQUATE LAND BASED SHELTER. LISTEN FOR POSSIBLE WARNINGS.

FOR ADDITIONAL PRECAUTIONARY AND PREPAREDNESS INFORMATION...PLEASE REFER TO THE DETAILED RECOMMENDATIONS RELATIVE TO YOUR LOCATION AS FURTHER DESCRIBED BY YOUR LOCAL NATIONAL WEATHER SERVICE OFFICE AND YOUR COUNTY EMERGENCY MANAGEMENT.

&&

.NEXT UPDATE...

THE NEXT LOCAL STATEMENT WILL BE ISSUED BY THE NATIONAL WEATHER SERVICE IN MIAMI AROUND NOON OR SOONER IF CONDITIONS WARRANT.

FLZ069-075-174-171600-  
/O.CON.KMFL.HU.A.1006.000000T0000Z-000000T0000Z/  
COASTAL COLLIER-FAR SOUTH MIAMI DADE-MAINLAND MONROE-  
655 AM EDT SUN AUG 17 2008

...HURRICANE WATCH IN EFFECT...

...NEW INFORMATION...

AT 5 AM A HURRICANE WATCH HAS BEEN ISSUED FOR THE AREA.

...PRECAUTIONARY/PREPAREDNESS ACTIONS...

PRECAUTIONARY/PREPAREDNESS ACTIONS...

COLLIER COUNTY EMERGENCY MANAGEMENT IS ADVISING RESIDENTS WEST OF TAMiami TRAIL TO MAKE EVACUATION PLANS. EVACUATION ORDERS MAY BE PUT IN PLACE LATER TODAY.

&&

...PROBABILITY TROPICAL STORM/HURRICANE CONDITIONS...  
THE CHANCE FOR HURRICANE CONDITIONS AT THIS TIME IS LESS THAN OR EQUAL  
TO 5 PERCENT. THE CHANCE FOR TROPICAL STORM CONDITIONS AT THIS TIME IS  
45 PERCENT TO 55 PERCENT. THE MOST LIKELY PERIOD OF ONSET OF TROPICAL  
STORM CONDITIONS IS MONDAY EVENING.

...WINDS...  
AS TROPICAL STORM FAY MOVES CLOSER...THE THREAT FOR SUSTAINED HIGH  
WINDS IS LIKELY TO INCREASE. THE LATEST FORECAST IS FOR STRONG  
TROPICAL STORM FORCE WINDS FROM LATE MONDAY NIGHT TO TUESDAY MORNING.  
TROPICAL STORM FORCE WINDS ARE CURRENTLY FORECAST TO BEGIN AFFECTING  
THE AREA MONDAY EVENING.

...STORM SURGE AND STORM TIDE...  
AT THIS TIME...IT IS TOO EARLY TO PROVIDE DETAILED INFORMATION ON WHAT  
THE SURGE IMPACT COULD SPECIFICALLY BE ALONG THE SOUTHWEST FLORIDA  
COAST AS IT IS HIGHLY DEPENDENT ON THE EXACT TRACK...SIZE AND  
INTENSITY OF THE STORM. GIVEN THESE PROSPECTS...RESIDENTS ARE ADVISED  
TO MONITOR THE LATEST INFORMATION AND BE READY TO EVACUATE IF ORDERED  
TO DO SO AS THE STORM NEARS AND BECOMES MORE LIKELY THAT THEIR  
LOCATION WOULD BE IMPACTED IN SOME WAY BY THE STORM SURGE.

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GMZ656-657-676-171600-  
/O.CON.KMFL.HU.A.0001.000000T0000Z-000000T0000Z/  
COASTAL WATERS FROM CHOKOLOSKEE TO BONITA BEACH, FL OUT 20 NM-COASTAL  
WATERS FROM EAST CAPE SABLE TO CHOKOLOSKEE, FL OUT 20 NM-GULF WATERS  
FROM CHOKOLOSKEE TO BONITA BEACH, FL EXTENDING FROM 20 TO 60 NM-  
655 AM EDT SUN AUG 17 2008

...HURRICANE WATCH IN EFFECT...

...NEW INFORMATION...

AT 5 AM A HURRICANE WATCH HAS BEEN ISSUED FOR THE AREA.

...PROBABILITY TROPICAL STORM/HURRICANE CONDITIONS...  
THE CHANCE FOR HURRICANE CONDITIONS AT THIS TIME IS 5 PERCENT TO 10  
PERCENT. THE CHANCE FOR TROPICAL STORM CONDITIONS AT THIS TIME IS 45  
PERCENT TO 55 PERCENT. THE MOST LIKELY PERIOD OF ONSET OF TROPICAL  
STORM CONDITIONS IS MONDAY EVENING.

...WINDS...  
AS TROPICAL STORM FAY MOVES CLOSER...THE THREAT FOR SUSTAINED HIGH  
WINDS IS LIKELY TO INCREASE. THE LATEST FORECAST IS FOR STRONG  
TROPICAL STORM FORCE WINDS FROM LATE MONDAY NIGHT TO TUESDAY MORNING.  
TROPICAL STORM FORCE WINDS ARE CURRENTLY FORECAST TO BEGIN AFFECTING  
THE AREA MONDAY EVENING.

...SEAS...  
SEAS WILL LIKELY BEGIN TO INCREASE EARLY MONDAY MORNING. MARINERS ARE  
ADVISED TO RETURN TO PORT AND INITIATE PREPARATIONS TO SECURE THEIR  
VESSELS.

...WATERSPOUTS...AS TROPICAL STORM FAY MOVES CLOSER...THE THREAT FOR WATERSPOUTS WILL INCREASE. THE GREATEST WATERSPOUT THREAT WILL BE WITH THE OUTER BANDS OF FAY.

\$\$

FLZ168-172-173-171600-  
/O.CON.KMFL.TR.A.1006.000000T0000Z-000000T0000Z/  
COASTAL BROWARD-COASTAL MIAMI DADE-COASTAL PALM BEACH-  
655 AM EDT SUN AUG 17 2008

...TROPICAL STORM WATCH IN EFFECT...

...NEW INFORMATION...

AT 5 AM A TROPICAL STORM WATCH HAS BEEN ISSUED FOR THE AREA.

...PRECAUTIONARY/PREPAREDNESS ACTIONS...  
PRECAUTIONARY/PREPAREDNESS ACTIONS...

EMERGENCY MANAGERS OFFICIALS ADVISE RESIDENTS REMAIN ON THE ALERT IN CASE FORECAST PROJECTIONS CHANGE AND EVACUATION ORDERS BECOME NECESSARY.

&&

...PROBABILITY TROPICAL STORM/HURRICANE CONDITIONS...  
THERE IS LITTLE CHANCE FOR HURRICANE CONDITIONS AT THIS TIME. THE CHANCE FOR TROPICAL STORM CONDITIONS AT THIS TIME IS 30 PERCENT TO 50 PERCENT. THE MOST LIKELY PERIOD OF ONSET OF TROPICAL STORM CONDITIONS IS MONDAY EVENING.

...WINDS...  
AS TROPICAL STORM FAY MOVES CLOSER...THE THREAT FOR SUSTAINED HIGH WINDS IS LIKELY TO INCREASE. THE LATEST FORECAST IS FOR TROPICAL STORM FORCE WINDS FROM LATE MONDAY NIGHT TO TUESDAY MORNING WITH THE MAIN THREAT CONFINED AT THIS TIME TO SOUTHERN PORTIONS OF THE AREA OR MIAMI DADE COUNTY. ONLY WINDY CONDITIONS ARE FORECAST AT THE PRESENT TIME ELSEWHERE. CONTINUE TO MONITOR THE FORECASTS IN CASE SIGNIFICANT CHANGES EVOLVE.

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AMZ610-630-650-651-670-671-171600-  
/O.CON.KMFL.TR.A.0001.000000T0000Z-000000T0000Z/  
BISCAYNE BAY-COASTAL WATERS FROM DEERFIELD BEACH TO OCEAN REEF, FL OUT  
20 NM-COASTAL WATERS FROM JUPITER INLET TO DEERFIELD BEACH, FL OUT  
20 NM-LAKE OKEECHOBEE-WATERS FROM DEERFIELD BEACH TO OCEAN REEF, FL  
EXTENDING FROM  
20 NM TO THE TERRITORIAL WATERS OF THE BAHAMAS-WATERS FROM JUPITER  
INLET TO DEERFIELD BEACH, FL EXTENDING FROM 20 NM TO 60 NM-  
655 AM EDT SUN AUG 17 2008

...TROPICAL STORM WATCH IN EFFECT...

...NEW INFORMATION...

AT 5 AM A TROPICAL STORM WATCH HAS BEEN ISSUED FOR THE AREA.

...PROBABILITY TROPICAL STORM/HURRICANE CONDITIONS...

THERE IS LITTLE CHANCE FOR HURRICANE CONDITIONS AT THIS TIME. THE CHANCE FOR TROPICAL STORM CONDITIONS AT THIS TIME IS 40 PERCENT TO 50 PERCENT FOR LAKE OKEECHOBEE AND 30 TO 40 PERCENT ELSEWHERE ACROSS THE AREA. THE MOST LIKELY PERIOD OF ONSET OF TROPICAL STORM CONDITIONS IS MONDAY AFTERNOON FOR THE SOUTHERN PORTIONS OF THE ATLANTIC COASTAL WATERS AND LATE MONDAY NIGHT FOR LAKE OKEECHOBEE.

...WINDS...

AS TROPICAL STORM FAY MOVES CLOSER...THE THREAT FOR SUSTAINED HIGH WINDS IS LIKELY TO INCREASE. THE LATEST FORECAST IS FOR BORDERLINE TROPICAL STORM FORCE WINDS FROM MONDAY AFTERNOON TO MONDAY NIGHT FOR BISCAYNE BAY AND THE ADJACENT COASTAL WATERS. FOR THE BROWARD AND PALM BEACH WATERS...WINDS ARE FORECAST TO REMAIN BELOW TROPICAL STORM. HOWEVER...MARINERS ARE ADVISED TO KEEP MONITORING THE FORECAST IN CASE SIGNIFICANT CHANGES OCCUR.

FOR LAKE OKEECHOBEE...THE LATEST FORECAST IS FOR STRONG TROPICAL STORM FORCE WINDS ON TUESDAY WITH TROPICAL STORM FORCE WINDS BEGINNING SOMETIME EARLY TUESDAY MORNING.

...SEAS...

SEAS WILL LIKELY BEGIN TO INCREASE EARLY MONDAY MORNING. MARINERS ARE ADVISED TO RETURN TO PORT AND INITIATE PREPARATIONS TO SECURE THEIR VESSELS.

...STORM SURGE AND STORM TIDE...

AT THIS TIME...IT IS TOO EARLY TO PROVIDE DETAILED INFORMATION ON WHAT THE SURGE IMPACT COULD BE SPECIFICALLY ACROSS LAKE OKEECHOBEE AS IT IS HIGHLY DEPENDENT ON THE EXACT TRACK...SIZE AND INTENSITY OF THE STORM. RESIDENTS ARE ADVISED TO MONITOR THE LATEST INFORMATION AS IT BECOMES AVAILABLE.

...WATERSPOUTS...AS TROPICAL STORM FAY MOVES CLOSER...THE THREAT FOR WATERSPOUTS WILL INCREASE. THE GREATEST WATERSPOUT THREAT WILL BE WITH THE OUTER BANDS OF FAY.

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FLZ063-066>068-070>074-171600-  
/O.CON.KMFL.TI.A.0001.000000T0000Z-080820T0000Z/  
GLADES-HENDRY-INLAND BROWARD-INLAND COLLIER-INLAND MIAMI DADE-INLAND  
PALM BEACH-METRO BROWARD-METRO MIAMI DADE-METRO PALM BEACH-  
655 AM EDT SUN AUG 17 2008

...TROPICAL STORM WIND WATCH IN EFFECT THROUGH TUESDAY EVENING...

...NEW INFORMATION...

AT 5 AM A TROPICAL STORM WIND WATCH HAS BEEN ISSUED FOR THE AREA.

...PRECAUTIONARY/PREPAREDNESS ACTIONS...

PRECAUTIONARY/PREPAREDNESS ACTIONS...  
EMERGENCY MANAGERS OFFICIALS ACROSS INLAND COLLIER...GLADES...AND HENDRY COUNTIES ADVISE MOBILE HOMES RESIDENTS TO MAKE EVACUATION PLANS. EVACUATION ORDERS MIGHT BE ISSUED LATER TODAY OR EARLY MONDAY.

&&

...PROBABILITY OF HURRICANE/TROPICAL STORM CONDITIONS...  
THE CHANCE FOR HURRICANE CONDITIONS AT THIS TIME IS VERY SMALL. THE  
CHANCE FOR TROPICAL STORM CONDITIONS AT THIS TIME IS 40 PERCENT TO 50  
PERCENT. THE MOST LIKELY PERIOD OF ONSET OF TROPICAL STORM CONDITIONS  
IS MONDAY EVENING.

...WINDS...  
AS TROPICAL STORM FAY MOVES CLOSER...THE THREAT FOR SUSTAINED HIGH  
WINDS IS LIKELY TO INCREASE. THE LATEST FORECAST IS FOR STRONG  
TROPICAL STORM FORCE WINDS FROM LATE MONDAY NIGHT TO TUESDAY MORNING.  
TROPICAL STORM FORCE WINDS ARE CURRENTLY FORECAST TO BEGIN AFFECTING  
THE AREA MONDAY EVENING.

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Example: Extreme Wind Warning (EWW)

WFUS52 KTBW 131938  
EWWTBW  
FLC015-071-132100-  
/O.NEW.KTBW.EW.W.0013.040813T1938Z-040813T2100Z/

BULLETIN - EAS ACTIVATION REQUESTED  
EXTREME WIND WARNING  
NATIONAL WEATHER SERVICE TAMPA BAY - RUSKIN FL  
338 PM EDT FRI AUG 13 2004

THE NATIONAL WEATHER SERVICE IN RUSKIN HAS ISSUED AN

\* EXTREME WIND WARNING FOR THE ONSET OF SUSTAINED WINDS OF 115 MPH OR  
GREATER FOR...

CHARLOTTE COUNTY IN SOUTHWEST FLORIDA  
LEE COUNTY IN SOUTHWEST FLORIDA

\* UNTIL 500 PM EDT

\* AT 335 PM EDT...SURFACE OBSERVATIONS AND NATIONAL WEATHER SERVICE  
DOPPLER RADAR INDICATED EXTREME WINDS...ASSOCIATED WITH THE EYEWALL  
OF HURRICANE CHARLEY...WERE MOVING ONSHORE NEAR NORTH CAPTIVA ISLAND.  
SUSTAINED WINDS IN EXCESS OF 140 MPH...CAPABLE OF PRODUCING  
WIDESPREAD DESTRUCTION...CAN BE EXPECTED AS THE EYEWALL PASSES  
OVERHEAD. MOVEMENT WAS NORTH NORTHEAST AT 20 MPH.

\* THESE EXTREME WINDS WILL AFFECT...

ST. JAMES CITY BY 345 PM  
BOKEELIA BY 350 PM  
PUNTA GORDA BY 400 PM

THIS IS A DANGEROUS STORM! MOVE INTO AN INTERIOR ROOM AWAY FROM  
WINDOWS AND OUTER WALLS. COVER YOUR HEAD AND BODY WITH PILLOWS OR  
BLANKETS.

LAT...LON 2672 8226 2644 8213 2702 8174 2702 8207  
TIME...MOT...LOC 1935 200DEG 17KT 2665 8210

\$\$

Example: SVS followup for EWW

WWUS52 KTBW 132015  
SVSTBW

SEVERE WEATHER STATEMENT  
NATIONAL WEATHER SERVICE TAMPA BAY - RUSKIN FL  
415 PM EDT FRI AUG 13 2004

FLC071-132030-  
/O.CAN.KTBW.EW.W.0013.000000T0000Z-040813T2100Z  
LEE-  
415 PM CDT FRI AUG 13 2004

...EXTREME WIND WARNING CANCELLED FOR LEE COUNTY...

EXTREME WINDS...ASSOCIATED WITH THE EYEWALL OF HURRICANE CHARLEY...  
HAVE MOVED NORTHEAST OF LEE COUNTY. THUS THE EXTREME WIND WARNING HAS  
BEEN CANCELLED FOR LEE COUNTY.

LAT...LON 2672 8226 2644 8213 2702 8174 2702 8207

\$\$

Example: Short Term Forecast (NOWcast)

FPUS71 KMOB 192130  
NOWMOB

SHORT TERM FORECAST  
NATIONAL WEATHER SERVICE MOBILE AL  
430 PM CDT SAT AUG 19 1995

ALZ051>064-MSZ067-075-076-078-079-192330-  
BALDWIN- MOBILE-HANCOCK-HARRISON-JACKSON  
0430 PM CDT SAT AUG 19 1995

.NOW...  
...HURRICANE GARY WILL MOVE ACROSS BALDWIN AND MOBILE COUNTIES BY 530  
PM...

SUSTAINED WINDS ABOVE 80 MPH WITH HIGHER GUSTS AND TORRENTIAL RAINFALL CAN BE EXPECTED AS THE RAIN BAND MOVES ACROSS. THE RAIN BAND SHOULD WEAKEN SLIGHTLY AS IT MOVES ACROSS CLARKE...WASHINGTON...AND GEORGE COUNTIES BY 6 PM. BUT PEOPLE IN THESE COUNTIES SHOULD EXPECT WIND GUSTS TO NEAR HURRICANE FORCE AND EXTREMELY HEAVY RAINFALL.

SCATTERED AREAS OF MODERATE TO HEAVY RAINFALL WILL CONTINUE ACROSS SOUTHERN ALABAMA AND MISSISSIPPI THROUGH 6 PM. BANDS OF STRONG STORMS WILL MOVE NORTHWESTWARD ACROSS THE AREA. EAST WINDS OF 30-40 MPH AND HEAVY RAIN WILL PERSIST WITH STRONGER WINDS AND HEAVIER RAINFALL NEAR THE RAIN BANDS. TEMPERATURES ACROSS THE REGION WILL REMAIN IN THE 70S.

\$\$

Example: Post-Tropical Cyclone Report

ACUS72 KTBW  
PSHTBW

POST TROPICAL CYCLONE REPORT...TROPICAL STORM ALBERTO  
NATIONAL WEATHER SERVICE TAMPA BAY AREA - RUSKIN FL  
900 PM EDT TUE JUN 13 2006

COUNTIES INCLUDED: LEVY...CITRUS...HERNANDO...PASCO...HILLSBOROUGH...  
POLK...PINELLAS...MANATEE...SARASOTA...

A. LOWEST SEA LEVEL PRESSURE/MAXIMUM SUSTAINED WINDS AND PEAK GUSTS

-----  
OFFICIAL OBSERVATIONS...

NOTE: ANEMOMETER HEIGHT IS 10 METERS AND WIND AVERAGING IS 2 MINUTES

LOCATION	ID	MIN	DATE/	MAX	DATE/	PEAK	DATE/
LAT LON		PRES	TIME	SUST	TIME	GUST	TIME
DEG DECIMAL		(MB)	(UTC)	(KT)	(UTC)	(KT)	(UTC)
-----							
KVVG-THE VILLAGES							
28.9	-81.9	1008.1	13/0745	210/024	13/1805	210/036	13/1805
KBKV-BROOKSVILLE							
28.5	-82.5	1006.8	13/0859	210/024	13/1928	210/037	13/1656
KPIE-SAINT PETERSBURG							
27.9	-82.7	1007.1	13/0836	200/035	13/0540	200/044	13/0547
KGIF-WINTER HAVEN							
28.0	-81.7	1009.1	13/0640	220/023	13/1706	220/030	13/1705
KTPA-TAMPA INTERNATIONAL							
28.0	-82.5	1007.8	13/0931	200/029	13/0509 I	220/039	13/0707 I

REMARKS: TAMPA ANEMOMETER STOPPED WORKING AT 13/0800.

UNOFFICIAL OBSERVATIONS...

NOTE: ANEMOMETER HEIGHT IN METERS AND WIND AVERAGING PERIOD IN

NWSI 10-601 JULY 27, 2009

MINUTES INDICATED UNDER MAXIMUM SUSTAINED WIND IF KNOWN

LOCATION	ID	MIN	DATE/	MAX	DATE/	PEAK	DATE/
LAT LON		PRES	TIME	SUST	TIME	GUST	TIME
DEG DECIMAL		(MB)	(UTC)	(KT)	(UTC)	(KT)	(UTC)
-----							
CDRF1	CEDAR KEY						
29.1	-83.0	1004.1	13/1100	185/036	13/0830	180/048	13/0900
				02/10			
PTRF1	PORT RICHEY						
28.3	-82.7	1005.4	13/1205	210/029	13/1154	220/035	13/1200
				01/05			
VENF1	VENICE						
27.1	-82.6	1005.6	13/0705	209/036	13/0610	210/046	13/0637

REMARKS: PRESSURE SENSOR AT PORT RICHEY STOPPED WORKING AT 13/1245.

B. MARINE OBSERVATIONS...

NOTE: ANEMOMETER HEIGHT IN METERS AND WIND AVERAGING PERIOD IN MINUTES INDICATED UNDER MAXIMUM SUSTAINED WIND IF KNOWN

LOCATION	ID	MIN	DATE/	MAX	DATE/	PEAK	DATE/
LAT LON		PRES	TIME	SUST	TIME	GUST	TIME
DEG DECIMAL		(MB)	(UTC)	(KT)	(UTC)	(KT)	(UTC)
-----							
42036	100 NM WEST OF BAYPORT						
28.5	-84.5	1008.5	13/0905	280/035	13/1040	080/045	12/1050
				05/08			
42013	30 NM WEST OF VENICE						
25.9	-85.9	1003.7	13/1040	170/029	12/2210	200/035	13/0310
				03/10			I
42003	210 NM W OF CAPTIVA ISLAND						
25.9	-85.9	1005.6	13/1350	196/038	12/1350	160/049	12/0516

REMARKS: WIND SENSOR AT USF COMPS BUOY 42013 STOPPED WORKING AT 13/0311.

C. STORM TOTAL RAINFALL FROM 0000 UTC JUNE 12 UNTIL 2359 UTC JUNE 13 2006

CITY/TOWN	COUNTY	ID	RAINFALL
LAT LON			(IN)
DEG DECIMAL			
-----			
SUWANNEE	LEVY	SUWF1	4.23
29.2 -83.1			
CHIEFLAND	LEVY	CHIF1	3.67
29.5 -82.9			
WILLISTON	LEVY	WLSF1	4.53
29.4 -82.5			
THE VILLAGES	SUMTER	KVVG	0.87
28.9 -81.9			
DADE CITY	PASCO	STLF1	2.62



COUNTY ROAD CREW OBSERVED THE TORNADO NEAR HIGHWAY 62.

2 E BARTOW POLK 12/0809 EF0  
27.9 -81.8

TORNADO OBSERVED 1 MILE EAST OF BARTOW AIRPORT.

1 S ARCADIA DESOTO 12/0658 EF0  
27.2 -81.9

TORNADO OBSERVED 1 MILE SOUTH OF ARCADIA.

REMARKS: NONE.

G. STORM IMPACTS BY COUNTY...

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COUNTY DESCRIPTION	DEATHS	INJURIES	EVACUATIONS
LEVY 20 HOMES IN YANKEETOWN RECEIVED FLOOD DAMAGE AS TWO FEET OF WATER COVERED THE ROAD DOWNTOWN. WATER ALSO CLOSED NEAR SHORE AREAS OF HIGHWAY 40 AND 24.	0	0	100
CITRUS SURGE FLOODING NEAR HOMOSSASSA PUT 3 FEET OF WATER INTO ONE RESTAURANT AND DAMAGED 20 HOMES. TWO PEOPLE WHO DID NOT EVACUATE HAD TO BE RESCUED...ONE IN HOMOSASSA AND THE OTHER IN CRYSTAL RIVER. FORT ISLAND TRAIL WAS COVERED WITH 4 FEET OF WATER.	0	0	25
PASCO 4 FOOT SURGE UP AND DOWN THE COUNTY COAST LINE. WAS NOT HIGH ENOUGH TO FLOOD PROPERTY...EVEN AT HIGH TIDE.	0	0	0
HILLSBOROUGH A COUPLE OF TREES ON HOUSES. FRESH WATER FLOODING AND BAY OVERSPRAY CLOSED PARTS OF BAY SHORE BOULEVARD FOR A TIME.	0	0	0
MANATEE NO PROBLEMS.	0	0	0
SARASOTA NO PROBLEMS.	0	0	0

&&

Legend:

- I-Incomplete Data
- E-Estimated

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**APPENDIX B**

**TROPICAL CYCLONE ASSESSMENT AND WARNING PRODUCT IDENTIFIERS**

<b><u>AREA</u></b>	<b><u>WMO</u></b>	<b><u>AWIPS</u></b>
Caribbean	CA	#
North Atlantic and Caribbean	NT	AT
East Pacific	PZ	EP
Central Pacific	PA	CP
West Pacific	PW	WP
North Pacific	PN	
West North Pacific	PQ	#
South Pacific	PS	#
Indian Ocean	IO	#
South Indian Ocean	XS	#
<b><u>Issuing Office</u></b>	<b><u>WMO CCCC</u></b>	
WFO HFO/CPHC - Honolulu	PHFO	
WFO Guam	PGUM	
JTWC - Pearl Harbor	PGTW	
NHC - Miami	KNHC	
HPC - Camp Springs, Maryland	KWNH	
NAVPACMETOCCEN - Naval Pacific Metr. And Oceanography Center - Pearl Harbor	PHNC	
Offutt AFB	KGWC	
<b><u>PRODUCT TITLE</u></b>	<b><u>WMO HEADER</u></b>	<b><u>AWIPS PRODUCT IDENTIFIER (NNNXXX)</u></b>
<b><u>Tropical Weather Outlook</u></b>		
Atlantic Basin	ABNT20 KNHC	TWOAT
Eastern Pacific	ABPZ20 KNHC	TWOEP
Central Pacific	ACPN50 PHFO	TWOCN
San Juan - Spanish	ACCA62 TJSJ	TWOSPN
Western Pacific	ABPW10 PGTW	N/A
Indian Ocean	ABIO10 PGTW	N/A
<b><u>Tropical Weather Discussion</u></b>		
Atlantic Basin	AXNT20 KNHC	TWDAT
Eastern Pacific	AXPZ20 KNHC	TWDEP

<u>PRODUCT TITLE</u>	<u>WMO HEADER</u>	<u>AWIPS PRODUCT IDENTIFIER (NNNXXX)</u>
<b><u>Tropical/Subtropical Cyclone</u></b>		
<b><u>Public Advisory</u></b>		
Atlantic Basin	WTNT/31-35/ KNHC	TCPAT/1-5/
San Juan - Spanish	WTCA/41-45/ TJSJ	TCPSP/1-5/
Eastern Pacific	WTPZ/31-35/ KNHC	TCPEP/1-5/
Central Pacific	WTPA/31-35/ PHFO	TCPCP/1-5/
Western Pacific	WTPQ/31-35/ PGUM	TCPPQ/1-5/
<b><u>Public Advisory from HPC</u></b>		
Conterminous US - HPC issued	WTNT/31-35/ KWNH	TCPAT/1-5/
<b><u>Tropical Cyclone Surface Wind Speed</u></b>		
<b><u>Probabilities Text Product</u></b>		
Atlantic	FONT/11-15/ KNHC	PWSAT/1-5/
East Pacific	FOPZ/11-15/ KNHC	PWSEP/1-5/
Central Pacific	FOPA/11-15/ PHFO	PWSCP/1-5/
<b><u>Tropical/Subtropical Cyclone</u></b>		
<b><u>Forecast/Advisory</u></b>		
Atlantic Basin	WTNT/21-25/ KNHC	TCMAT/1-5/
Eastern Pacific	WTPZ/21-25/ KNHC	TCMEP/1-5/
Central Pacific	WTPA/21-25/ PHFO	TCMCP/1-5/
<b><u>Tropical Cyclone Discussion</u></b>		
Atlantic Basin	WTNT/41-45/ KNHC/	TCDAT/1-5/
Eastern Pacific	WTPZ/41-45/ KNHC	TCDEP/1-5/
Central Pacific	WTPA/41-45/ PHFO	TCDCP/1-5/
<b><u>Tropical Cyclone Valid Time Event</u></b>		
<b><u>Code Product</u></b>		
Atlantic Basin	WTNT/81-85/ KNHC	TCVAT/1-5/
East Pacific Basin	WTPZ/81-85/ KNHC	TCVEP/1-5/
Central Pacific Basin	WTPA/81-85/ PHFO	TCVCP/1-5/
<b><u>Prognostic Reasoning of Warnings for NW Pacific</u></b>		
	WDPN/31-36/ PGTW	N/A
<b><u>Tropical Cyclone Position Estimate</u></b>		
Atlantic Basin	WTNT/51-55/ KNHC	TCEAT/1-5/
Eastern Pacific	WTPZ/51-55/ KNHC	TCEEP/1-5/
Central Pacific	WTPA/51-55/ PHFO	TCECP/1-5/
Western North Pacific	WTPQ/51-55/ PGUM	TCEPQ/1-5/

<b><u>PRODUCT TITLE</u></b>	<b><u>WMO HEADER</u></b>	<b><u>AWIPS PRODUCT IDENTIFIER (NNNXXX)</u></b>
<b><u>Tropical Cyclone Position and Intensity from Satellite Data</u></b>		
NW Pacific	TPPN10 PGTW	N/A
SW Pacific	TPPS10 PGTW	N/A
S central Pacific 120W-160E	TXPS40 PHFO	TCSSP
N central Pacific 140W-180	TXPN40 PHFO	TCSCP
N Indian Ocean	TPIO10 PGTW	N/A
S Indian Ocean	TPXS10 PGTW	N/A
<b><u>Tropical Cyclone Formation Alert Message</u></b>		
Issued by JTWC		
Northwest Pacific	WTPN/21-25/PGTW	N/A
Southwest Pacific	WTPS/21-25/PGTW	N/A
North Indian Ocean	WTIO/21-25/PGTW	N/A
South Indian Ocean	WTXS/21-25/PGTW	N/A
Issued by NAVPACMETOCEN		
Southeast Pacific	WTPS/21-25/PHNC	N/A
<b><u>Tropical Cyclone Update</u></b>		
Atlantic Basin	WTNT/61-65/KNHC	TCUAT/1-5/
Eastern Pacific	WTPZ/61-65/KNHC	TCUEP/1-5/
Central Pacific	WTPA/61-65/PHFO	TCUCP/1-5/
<b><u>Tropical Cyclone Warnings</u></b>		
Northwest Pacific	WTPN/31-35/PGTW	TCPWP/1-5/
Southwest Pacific	WTPS/31-35/PGTW	N/A
North Indian Ocean	WTIO/31-35/PGTW	N/A
South Indian Ocean	WTXS/31-35/PGTW	N/A
<b><u>Tropical Weather Summary</u></b>		
Atlantic Basin	ABNT30 KNHC	TWSAT
Eastern Pacific	ABPZ30 KNHC	TWSEP
Central Pacific	ACPN60 PHFO	TWSCP
<b><u>Satellite Interpretation Message</u></b>		
Hawaiian Islands	ATHW40 PHFO	SIMHI
West Pacific (Guam)	ATPQ40 PGUM	SIMGUM

<u>PRODUCT TITLE</u>	<u>WMO HEADER</u>	<u>AWIPS PRODUCT IDENTIFIER (NNNXXX)</u>
<b><u>Satellite-Derived Rainfall</u></b>		
Eastern Caribbean	TCCA21 KNHC	STDECA
Central Caribbean	TCCA22 KNHC	STDCCA
Western Caribbean	TCCA23 KNHC	STDWCA
<b><u>Aircraft Reconnaissance Messages Reports-Atlantic Basin</u></b>		
Reco Observation non-tropical (NHC)	URNT10 KNHC	REPNT0
Reco Observation non-tropical (DOD)	URNT10 KBIX	REPNT0
Reco Obs. non-tropical (NOAA/AOC)	URNT10 KWBC	
Reco Observation (NHC)	URNT11 KNHC	REPNT1
Reco Observation (DOD)	URNT11 KBIX	REPNT1
Reco Observation (NOAA/AOC)	URNT11 KWBC	
Vortex Data Message (NHC)	URNT12 KNHC	REPNT2
Vortex Data Message (DOD)	URNT12 KBIX	REPNT2
Vortex Data Message (NOAA/AOC)	URNT12 KWBC	
High Density Obs. (HDOB) (DOD)	URNT15 KNHC	AHONT1
High Density Obs. (HDOB)	URNT15 KBIX	AHONT1
High Density Obs. (HDOB) (NOAA/AOC)	URNT15 KWBC	
Dropsonde Report (NHC)	UZNT13 KNHC	REPNT3
Dropsonde Report (DOD)	UZNT13 KBIX	REPNT3
Dropsonde Report (NOAA/AOC)	UZNT13 KWBC	
Airbourne Expendable Bathythermograph	SOVX81 KNHC	OCDXBT
MinObs	URNT40 KWBC	

<u>PRODUCT TITLE</u>	<u>WMO HEADER</u>	<u>AWIPS PRODUCT IDENTIFIER (NNNXXX)</u>
<b><u>Aircraft Reconnaissance Messages- East and Central Pacific Basins</u></b>		
Reco Observation non-tropical (NHC)	URPN10 KNHC	REPPN0
Reco Observation non-tropical (DOD)	URPN10 KBIX	REPPN0
Reco Obs. non-tropical (NOAA/AOC)	URPN10 KWBC	
Reco Observation (NHC)	URPN11 KNHC	REPPN1
Reco Observation (DOD)	URPN11 KBIX	REPPN1
Reco Observation (NOAA/AOC)	URPN11 KWBC	
Vortex Data Message (NHC)	URPN12 KNHC	REPPN2
Vortex Data Message (DOD)	URPN12 KBIX	REPPN2
Vortex Data Message (NOAA/AOC)	URPN12 KWBC	
High Density Obs. (HDOB) (NHC)	URPN15 KNHC	AHOPN1
High Density Obs. (HDOB) (DOD)	URPN15 KBIX	AHOPN1
High Density Obs. (HDOB) (NOAA/AOC)	URPN15 KWBC	
Dropsonde Report (NHC)	UZPN13 KNHC	REPPN3
Dropsonde Report (DOD)	UZPN13 KBIX	REPPN3
Dropsonde Report (NOAA/AOC)	UZPN13 KWBC	
<b><u>Aircraft Reconnaissance Messages- West Pacific Basins</u></b>		
Reco Observation non-tropical (NHC)	URPA10 KNHC	REPPA0
Reco Observation non-tropical (DOD)	URPA10 KBIX	REPPA0
Reco Obs. Non-tropical (NOAA/AOC)	URPA10 KWBC	
Reco Observation (NHC)	URPA11 KNHC	REPPA1
Reco Observation (DOD)	URPA11 KBIX	REPPA1
Reco Observation (NOAA/AOC)	URPA11 KWBC	
Vortex Data Message (NHC)	URPA12 KNHC	REPPA2
Vortex data message (DOD)	URPA12 KBIX	REPPA2
Vortex Data Message (NOAA/AOC)	URPA12 KWBC	
High Density Obs. (HDOB) (NHC)	URPA15 KNHC	AHOPA1
High Density Obs. (HDOB) (DOD)	URPA15 BKIX	AHOPA1
High Density Obs. (HDOB) (NOAA/AOC)	URPA15 KWBC	
Dropsonde Report (NHC)	UZPA13 KNHC	REPPA3
Dropsonde Report (DOD)	UZPA13 KBIX	REPPA3
Dropsonde Report (NOAA/AOC)	UZPA13 KWBC	
<b><u>Summer/Winter Reconnaissance Schedule [Atlantic/Pacific]</u></b>	NOUS42 KNHC	REPRPD

<b><u>PRODUCT TITLE</u></b>	<b><u>WMO HEADER</u></b>	<b><u>AWIPS PRODUCT IDENTIFIER (NNNXXX)</u></b>
<b><u>Hurricane Local Statement</u></b>		
Atlantic	WTUS/81-84/ KCCC	HLSNNN
San Juan	WWCA31 TJSJ	HLSSJU
San Juan (Spanish)	WWCA39 TJSJ	HLSSPN
Eastern Pacific	WTUS86 KCCC	HLSNNN
Central Pacific (All Hawaiian Islands)	WTHW80 PHFO	HLSHFO
Western Pacific (Guam)	WTPQ/81-85/ PGUM	HLSPQ/1-5/
South Pacific (Pago Pago, American Samoa)	WTZS/81-85/ NSTU	HLSZS/1-5/
<b><u>Tropical Cyclone Objective Guidance Products</u></b>		
Atlantic Basin	WHXX01 KMIA	CHGHUR
Pacific Basin	WHXX01 KWBC	CHGE77
Atlantic Basin	WHXX04 KWBC	CHGQLM
<b><u>Aviation Tropical Cyclone Advisory Message</u></b>		
Atlantic Basin	FKNT/21-25/ KNHC	TCANT/1-5/
East Pacific	FKPZ/21-25/ KNHC	TCAPZ/1-5/
Central Pacific	FKPA/21-25/ PHFO	TCAPA/1-5/
<b><u>Tropical Cyclone Summary - Fixes</u></b>		
South Central Pacific 120W - 160E	TXPS/41-45/ PHFO	TCSSP/1-5/
North Central Pacific 140W - 180	TXPN/41-45/ PHFO	TCSCP/1-5/

N/A indicates currently none assigned.\*\*