Department of Commerce • National Oceanic & Atmospheric Administration • National Weather Service

NATIONAL WEATHER SERVICE INSTRUCTION 10-601
SEPTEMBER 29, 2016
Operations and Services
Tropical Cyclone Weather Services Program, NWSPD 10-6
TROPICAL CYCLONE PRODUCTS

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

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Type of Issuance: Routine

SUMMARY OF REVISIONS: This directive supersedes NWS Instruction 10-601 *Tropical Cyclone Products*, dated June 10, 2014. Changes made to reflect the NWS Headquarters reorganization effective April 1, 2015.

The following revisions were made to this directive:

- Changed OPR, Certifying Official and Signature block.

- Section 1.1.1.2 The NHC-issued Tropical Cyclone Public Advisory (TCP) product for the Atlantic and Eastern Pacific basins is prepared in mixed-case text.

- Section 1.1.2.3 NHC, CPHC and WFO Guam no longer issue 2-hourly intermediate public advisories, and maintain a 3-hourly advisory cycle. Any important information between TCPs is relayed via the Tropical Cyclone Update (TCU).

- Section 1.1.3.3 The NHC-issued TCP for the Atlantic basin will contain information on the new prototype storm surge watch / warning graphic issued by NHC.

- Section 1.3.1 NHC and CPHC will issue the Tropical Cyclone Discussion (TCD) in mixed case.

- Section 1.4.3.3 NHC will prepare the TCU in mixed-case text beginning with the 2015 hurricane season.

- Section 1.7 Changed to indicate the section describes the National Center TCV.

- Section 1.9.3.3 Changes to the NHC Forecast Cone are provided.

- Section 2.1 NHC Subtropical Storm TCP will be prepared in mixed-case text format beginning with the 2015 hurricane season.

- Section 6.3.3 For the NHC Tropical Weather Outlook, the category bin definitions

(Low, Medium, High) have been adjusted due to improvements in forecast accuracy over the past few seasons. In addition, the Five-Day Graphical Tropical Weather Outlook became operational in 2015.

- Added Section 7.1 on the new WFO Tropical Cyclone Watch Warning Product (WFO TCV) for the Atlantic Basin.

- Updated Section 7.2 to reflect Hurricane Local Statement (HLS) changes for the Atlantic basin, and also to reflect a change that all marine based warnings will now be issued via the Marine Weather Warning (MWW) product.

- Added section 7.3 to reflect HLS changes for the Pacific Basin, and also note that all marine based warnings will now be issued via the MWW product.

- Updated examples in Appendix A to reflect product additions / changes.

- Appendix B: Provided some clarifying language in the HLS section.

Signed 9/15/2016
Andrew D. Stern Date
Director,
Analyze, Forecast and Support Office

Tropical Cyclone Products

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).

Refer to Appendix A for tropical cyclone product examples.

1.1 Tropical Cyclone Public Advisory (TCP). The TCP is the primary tropical cyclone information product issued to the public. The National Hurricane Center (NHC), the Central Pacific Hurricane Center (CPHC), and Weather Forecast Office (WFO) Tiyan, Guam issue TCPs.

1.1.1 Mission Connection. 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 AWIPS.

1.1.2.2 Issuance Criteria. In the Atlantic and east Pacific, NHC will issue TCPs for all tropical cyclones (except for certain tropical depressions over land, for which Weather Prediction Center (WPC) issues a similar product under the TCP header; see Section 6.6). In the central Pacific, CPHC will issue TCPs for all tropical cyclones. In the western North Pacific, WFO Guam will issue public advisories using Joint Typhoon Warning Center (JTWC) forecast products as guidance for all tropical cyclones within their Area of Responsibility (AOR) from 130°E to 180° between the Equator and 25°N. The NHC-issued TCP for the Atlantic and eastern Pacific basins are prepared in mixed-case text.

The initial advisory will be issued when data confirm a tropical or subtropical cyclone has developed. The title of the advisory will depend upon the intensity of the tropical cyclone as follows: A tropical depression advisory refers to a tropical cyclone with 1-minute sustained surface winds up to 33 knots (38 miles per hour (mph)); a tropical storm advisory for tropical cyclones with 1-minute sustained surface winds 34 to 63 knots (39 to 73 mph); a hurricane / typhoon advisory for tropical cyclones with 1-minute sustained surface of 64 knots (74 mph) or greater.

The final Public Advisory from NHC, CPHC, or WFO Guam will be issued when any of the following criteria are met:

a. System ceases to be a tropical (or subtropical) cyclone through dissipation (i.e., no longer has a closed circulation).

b. The system becomes a post-tropical cyclone. However, NHC and CPHC advisory products will continue if a post-tropical cyclone continues to pose a significant threat to life and property, and if the transfer or responsibility to another office would result in an unacceptable discontinuity of service. For WFO Guam, they will issue Special Weather Statements, if the JTWC stops warning on an existing system that is deemed unacceptable to WFO Guam. NHC will coordinate closely with the Ocean Prediction Center (OPC), WPC, Regional Headquarters, and affected WFOs; NHC will make the final decision on the transfer of responsibility after coordinating with the aforementioned offices. For these situations, NHC and CPHC, and WFO Guam advisory products will continue to be issued under the POST-TROPICAL CYCLONE XXXX header and will be accompanied by the full suite of standard tropical cyclone graphical products. Local WFOs would continue to issue Hurricane Local Statements (HLSs) under the POST-TROPICAL CYCLONE XXXX header, as appropriate, until NHC and CPHC advisories are discontinued.

   See Section 6.6 for information on TCPs issued by the WPC.
   See Section 7.1 for information on HLSs issued by WFOs.

c. The system is centered over land, is below tropical storm strength, and is not forecast to move back over water as a tropical cyclone, and no coastal tropical cyclone watches or warnings are in effect.

   For Guam, when the tropical cyclone moves out of the WFO AOR.

1.1.2.3 Issuance Time

a. Public Advisories. 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 0100, 0700, 1300, and 1900 UTC.

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

   Intermediate advisories can be used to clear all, or parts of, a watch or warning area. Content should be similar to the scheduled advisory.

   Intermediate advisory issuances…NHC / CPHC at 0000, 0600, 1200, and 1800 UTC. WFO Guam at 0400, 1000, 1600, and 2200 UTC. An example of the product issuance sequence for 2015 follows on the next page:

Time (UTC)	Watches / Warnings not in effect	Watches / Warnings in effect	Watches / Warnings in effect and center can be easily located on coastal radar
0900	Public Advisory	Public Advisory	Public Advisory
1000			Tropical Cyclone Update
1100			Tropical Cyclone Update
1200		Intermediate Public Advisory	Intermediate Public Advisory
1300			Tropical Cyclone Update
1400			Tropical Cyclone Update
1500	Public Advisory	Public Advisory	Public Advisory

Table 1 NHC and CPHC Product Issuance Schedule

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 or NUMBER) ADVISORY NUMBER XX".

The eight Tropical Cyclone Types are:
Tropical Depression
Tropical Storm
Hurricane
Typhoon
Subtropical Depression
Subtropical Storm
Post-Tropical Cyclone
Remnants of

1.1.3.3 Content. The TCP comprises five sections: Summary, Watches and Warnings, Discussion and 48-hour Outlook, Hazards, and Next Advisory. (For WFO Guam, the sections are: Watches and Warnings, Summary, Discussion and Outlook, and Next Advisory). Each section of the TCP begins with a specific header text string (see Appendix A examples). An optional lead statement or headline may precede the Summary section to emphasize significant aspects of the tropical cyclone. The forecaster's name should appear at the end of the advisory.

a. Summary. This section follows a fixed format, containing lines for the location, geographical reference(s), maximum winds, direction of movement, and minimum pressure (WFO Guam does not indicate minimum pressure). The section will always contain at least one geographical reference, but not more than two. Geographical reference lines begin with the keyword ABOUT. In the summary section, all directions are abbreviated (e.g., N, NNE, NE, ENE, E, etc.). If the forward speed is zero, the motion will be given as STATIONARY. In the summary section header, UTC time will always be given with four characters (e.g., 0300 UTC). No other numerical values in this section will appear with leading zeros.

b. Watches and Warnings (NHC, CPHC and WFO Guam). This section lists coastal watches and warnings in effect for hurricane / typhoon and tropical storm conditions. It may also include watch / warning definitions and call to action statements as described below. Whenever watches or warnings are issued, continue in effect, or are discontinued, the Watches and Warnings section will contain the following two subsections:

CHANGES WITH THIS ADVISORY...
SUMMARY OF WATCHES AND WARNINGS IN EFFECT...

List changes to watches and warnings since the last TCP or Tropical Cyclone Update (TCU) in paragraph form, one change per paragraph.

Summarize active watches and warnings as a bulleted list, grouped by warning type. Each grouping will begin with a statement similar to "A Hurricane Warning is in effect for..." Each watch or warning segment that follows will appear on a separate line beginning with an asterisk. However, watches or warnings that encompass entire islands or jurisdictions may be grouped together as a single segment, for example,

A Tropical Storm Warning is in effect for…
* Antigua, Barbuda, Anguilla, and St. Martin

A Tropical storm warning is in effect for…
* The Cuban Provinces of Guantanamo and Holguin

NHC issues tropical storm / hurricane watches / warnings for the Atlantic, Pacific, and Gulf of Mexico coasts of the conterminous United States (U.S.), the U.S. Virgin Islands, and Puerto Rico.

CPHC and WFO Guam 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, Guam (including the islands and coastal waters out to 40 nautical miles (nm)), Northern Mariana Islands and selected points in the Micronesian countries. (WFO Guam will place the information on watches and warnings in the first section, after any lead statement or headline).

The definitions of hurricane / typhoon and tropical storm watches / warnings allow these watches and warnings to be issued or remain in effect after a tropical cyclone becomes post-tropical in those cases where the system continues to pose a significant threat to life and property, and where the transfer of responsibility to another office would result in an unacceptable discontinuity of service.

Tropical Storm Watches will be issued if tropical storm conditions are possible within the specified area within 48 hours.

Tropical Storm Warnings will be issued if tropical storm conditions are expected somewhere within the specified area within 36 hours, or 24 hours for WFO Guam.

Hurricane / Typhoon Watches will be issued if hurricane / typhoon conditions are possible within the specified area. Because hurricane / typhoon preparedness activities become difficult once winds reach tropical storm force, the hurricane / typhoon watch is typically issued 48 hours before the anticipated initial onset of tropical-storm-force winds.

Hurricane / Typhoon Warnings will be issued if hurricane / typhoon conditions are expected somewhere within the specified area. Because hurricane / typhoon preparedness activities become difficult once winds reach tropical storm force, the hurricane warning is typically issued 36 hours before the anticipated initial onset of tropical-storm-force-winds. Typhoon warnings are typically issued by WFO Guam 24 hours before the anticipated, initial onset of tropical-storm-force-winds. A hurricane or typhoon warning can remain in effect when dangerously high water or a combination of dangerously high water and waves continue, even though winds may be less than hurricane or typhoon force.

Whenever possible, 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. Tropical storm warnings may be issued on either side of a hurricane / typhoon warning area.

If tropical storm force winds directly associated with a tropical cyclone are expected to affect an area for which a gale warning is already in place, a tropical storm warning may be issued, replacing the gale warning, at the discretion of the hurricane specialist after coordinating with the impacted WFO(s).

It is not normally advantageous to step down warnings for tropical cyclones. Do not use intermediate advisories to issue U.S. tropical cyclone watches or warnings. Intermediate advisories can be used to clear all, or parts of, a watch or warning area.

When a watch or warning is introduced for a new major geographical area, the watch / warning section should contain a definition of the watch or warning. These definitions may also be included at other times. The definitions will appear after the list of active

watches and warnings in effect. Other statements (e.g., "Interests in the Leeward Islands should monitor the progress of Bill.") may also appear after the list of active watches and warnings.

When watches or warnings are in effect for the U.S., include the following statement: "For storm information specific to your area, including possible inland watches and warnings...please monitor products issued by your local NWS Weather Forecast Office."

When watches or warnings are in effect for areas outside the U.S., include the following statement: "For storm information specific to your area outside of the United States, please monitor products issued by your national meteorological service."

When a tropical cyclone watch is in effect and a tropical cyclone is either approaching or departing and conditions warrant, forecasters may include the statement: "A Small Craft Advisory is in effect. Small craft should stay in port." When discontinuing tropical cyclone warnings for an area where small craft advisories are to remain in effect, use the following statement: "Small Craft Advisories remain in effect for portions of the coast. Please monitor products issued by your local NWS Weather Forecast Office."

c. Discussion and Outlook. This is a free-text section that describes the current location and motion, maximum winds, extent of hurricane- and tropical-storm-force winds, and minimum pressure. It will provide a general outlook for the track and intensity of the cyclone over the next 24 to 48 hours.

Include the location of the center of the tropical cyclone by its latitude and longitude. 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. 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…"). Make landfall forecasts of the center with caution to avoid giving the public any false sense of security. 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.").

Give the estimated maximum 1-minute sustained surface wind speed rounded to the nearest 5 mph. 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.").

Provide the area (or radius) of both tropical storm and hurricane / typhoon force winds. Provide central pressure values in millibars (mb) and inches (excludes WFO Guam).

d. Hazards (excludes WFO Guam). This section of the TCP describes the threats of a tropical cyclone. The information in this section will be given in descending order of importance or urgency. Most paragraphs will begin with one of the following keywords: STORM SURGE, WIND, RAINFALL, TORNADOES, SURF, or OTHER. Discuss storm hazards whenever warnings are in effect or earlier if possible and appropriate.

Storm Surge: Storm surge forecasts will 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.

For storm surges affecting the conterminous U.S., TCP estimates of surge-related flooding will be expressed in terms of storm tide (i.e., the combination of storm surge and astronomical tide). The TCP statements will also be referenced in terms of height above ground level (e.g., "The combination of storm surge and tides will cause normally dry areas near the coast to be flooded by rising waters. The water could reach the following heights above ground if the peak surge occurs at the time of high tide…"). For areas outside of the conterminous U.S., surge-related statements will be expressed in terms of storm surge (not storm tide), and any quantitative estimates will be referenced to normal tide levels (e.g., "…will raise water levels by as much as 5 to 9 feet above normal tide levels…").

Information on the prototype storm surge watch / warning graphic will also be provided in this section for areas that have a significant risk of life-threatening inundation from storm surge along the Gulf and Atlantic coasts on the contiguous U.S. The following verbiage will be used:

STORM SURGE: The combination of a dangerous storm surge and the tide will cause normally dry areas near the coast to be flooded by rising waters moving inland from the shoreline. There is a danger of life-threatening inundation during the next 36 hours along [location]. For a depiction of areas at risk, please see the Prototype National Weather Service Storm Surge Watch/Warning Graphic. This is a life-threatening situation. Persons located within these areas should take all necessary actions to protect life and property from rising water and the potential for other dangerous conditions. Promptly follow evacuation and other instructions from local officials. The water could reach the following heights above ground if the peak surge occurs at the time of high tide...

Area 1...x to y ft
Area 2...x to y ft
Area 3...x to y ft

The deepest water will occur along the immediate coast near and to the [direction] of the landfall location, where the surge will be accompanied by large and destructive waves. Surge-related flooding depends on the relative timing of the surge and the tidal cycle, and can vary greatly over short distances. For information specific to your area, please see products issued by your local National Weather Service forecast office.

The Prototype Storm Surge Watch/Warning Graphic is a depiction of areas that would qualify for inclusion under a storm surge watch or warning currently under development by the National Weather Service and planned for operational use in 2017, if approved. The Prototype Graphic is available at hurricanes.gov.

Surf: On a case by case basis, NHC will discuss with the affected 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."

Wind: When watches or 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." Such statements should be general in nature and appropriately reflect forecast uncertainties.

Rainfall: NHC and CPHC will provide quantitative rainfall forecasts generally only when warnings are in effect. Identify the geographical area(s) at greatest risk, including inland areas. 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, use storm-total values.

Tornadoes: When appropriate, provide information on the threat of tornadoes. Identify the geographic area(s) at greatest risk.

Other: When appropriate, highlight the inland hazards of tropical cyclones. This includes the threat of strong winds, heavy rainfall, flooding, and tornadoes. Mention actual occurrences of tornadoes, floods, and high winds and reference supporting warnings and statements from WFOs.

e. Next Advisory. This section identifies the scheduled issuance time and office responsible for the next regular advisory and any intervening intermediate advisories. With the last advisory, identify the issuing office and product where subsequent information on the system remnants can be found.

When WPC is going to issue the next 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 Weather Prediction Center under AWIPS header TCPATN and WMO header WTNT3N KWNH, beginning at xx AM / PM EDT." See Section 6.6 for details on TCPs issued by the WPC.

When OPC is going to provide information on a tropical system that has been declared post-tropical 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. For additional information on this system please see High Seas Forecasts issued by the National Weather Service under AWIPS header NFDHSFAT1 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."

When the Tropical Analysis Forecast Branch (TAFB) is going to provide information on a tropical system that has been declared post-tropical 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. For additional information on this system please see High Seas Forecasts issued by the National Weather Service under AWIPS header NFDHSFAT1 and WMO header FZNT01 KWBC, and the Marine Weather Discussion under AWIPS header MIMATS and WMO header AGXX40 KNHC, 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 additional information, see the public advisories issued by the U.S. NWS Weather Forecast Office Guam and DOD warnings issued by the Joint Typhoon Warning Center."

For a tropical cyclone moving out of the WFO Guam AOR, WFO Guam will insert at the end of their last advisory / forecast: "This is the last bulletin issued by the NWS Weather Forecast Office Guam on (storm name). For continued information on (storm name), see JTWC bulletins under WMO header WTPN3N PGTW or RSMC Tokyo bulletins under WMO header WTJP3n RJTD."

f. General. 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. For WFO Guam, use Chamorro Standard Time for all local times. All advisories will use statute miles and statute miles per hour. NHC, CPHC and WFO Guam, at their discretion, may use nautical miles, following statute miles and preceded by ellipsis, and knots, following miles per hour and preceded by ellipsis. NHC advisories should include the metric units of kilometers and kilometers per hour following the equivalent English units.

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 ddhhmm
TCPxxx

BULLETIN
(TROPICAL CYCLONE TYPE) (Name) Advisory Number XX
(ISSUING OFFICE CITY STATE) BBCCYYYY
time am/pm time time zone day of week mon dd yyyy

...HEADLINE...

Text
$$

FORECASTER NAME
```

Figure 1 Tropical Cyclone Public Advisory 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 NATIONAL HURRICANE CENTER MIAMI FL BBCCYYYY).

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

Note: WFO Guam will normally include the JTWC cyclone number in parentheses along with the name, once it is provided by the Regional Specialized Meteorological Center (RSMC) Tokyo.

1.2 Tropical Cyclone Forecast / Advisory (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. The TCM is issued any time a Public Advisory or Special Public Advisory product is issued.

1.2.2.3 Issuance Times. Issue TCMs at 0300, 0900, 1500 and 2100 UTC, and with all Special Public Advisories.

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 MND Header. The TCM MND header block product type line is: "(TROPICAL CYCLONE TYPE) (NAME or NUMBER) 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 nm 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 or NUMBER) 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 / Advisory 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 NATIONAL HURRICANE CENTER MIAMI FL BBCCYYYY).

Format:
Where: (BB) is the basin (AL - North Atlantic; EP - East Pacific; CP - Central Pacific).
Where: (CC) is the cyclone number (01, 02, 03...49).

Where: (YYYY) is the 4 digit year.

1.3 Tropical Cyclone Discussion (TCD). NHC and CPHC issue TCDs to explain the 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 the forecaster's reasoning behind analysis and the forecast for a tropical cyclone. It also provides 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. The TCD is prepared in mixed-case text.

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 Public Advisory or Special Public Advisory product is issued.

1.3.2.3 Issuance Times. Issue TCDs at 0300, 0900, 1500, and 2100 UTC, and with all Special Public 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 MND Header. The TCD MND header block product type line is: "(TROPICAL CYCLONE TYPE) (NAME or NUMBER) DISCUSSION NUMBER XX".

1.3.3.3 Content. Discussions include prognostic reasoning; objective techniques employed; 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. The TCD is issued in mixed-case. The TCD may revert back to using all uppercase letters at any time to meet operational requirements.

```
Wtaa4i cccc ddhhmm
TCDxxx

 time zone(TROPICAL CYCLONE TYPE) (NAME or NUMBER) 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 NATIONAL HURRICANE CENTER MIAMI FL BBCCYYYY).

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

1.4 Tropical Cyclone Update (TCU)

1.4.1 Mission Connection. The TCU is issued by NHC, CPHC and WFO Guam and provides users with timely, succinct information on significant changes to tropical cyclones.

1.4.2 Issuance Guidelines

1.4.2.2 Creation Software. ATCF system and AWIPS.

1.4.2.2 Issuance Criteria. TCUs are issued to inform users of significant changes in a tropical cyclone in between regularly scheduled public advisories. Such uses include, but are not limited to the following:

- To provide timely information of an unusual nature, such as the time and location of landfall, or to announce an expected change in intensity that results in an upgrade or downgrade of status (e.g., from a tropical storm to a hurricane).

- To provide a continuous flow of information regarding the center location of a tropical cyclone when watches or warnings are in effect and the center can be easily tracked with land-based radar.
- To provide advance notice that significant changes to storm information will be conveyed shortly, either through a subsequent TCU or through a Special Advisory.
- To announce changes to international watches or warnings made by other countries, or to cancel U.S. watches or warnings.
- To issue a U.S. watch or warning, but only if the 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. TCUs issued to provide updated center position information (i.e., when watches / warnings are in effect and when the center is easily tracked with land-based radar) are issued between scheduled three-hourly TCPs near the beginning of the hour. All other 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 MND Header. The TCU MND header block product type line is: "(TROPICAL CYCLONE TYPE) (NAME or NUMBER) UPDATE".

1.4.3.3 Content. The TCU is a brief alphanumeric text product containing block paragraph text, a formatted storm summary section, or both. The TCU is prepared in mixed-case.

The storm summary section is identical in format to the storm summary section found in the TCP. The storm summary section is required whenever the TCU is issued to update storm intensity, location, or motion information. The storm summary section is not required for TCUs issued to provide advance notice that significant changes to storm information will be conveyed shortly, or for those issued to convey changes to watches or warnings.

TCUs issued to provide hourly storm location information will contain a headline indicating the purpose of the TCU (e.g., "...11 AM POSITION UPDATE...").

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. Local Weather Offices will use this information in all official statements. WFO Guam bases the information on all sources of data, including that available from the Weather Service Radar 1988 Doppler (WSR-88D) Dual-Polarization radar.

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 or NUMBER) 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 NATIONAL HURRICANE CENTER MIAMI FL BBCCYYYY).

Format:
Where: (BB) is the basin (AL - North Atlantic; EP - East Pacific; CP - Central Pacific; WP - western North Pacific).
Where: (CC) is the cyclone number (01, 02, 03...49). WFO Guam uses the JTWC cyclone number.
Where: (YYYY) is the 4 digit year.

1.5. Graphical Tropical Cyclone Surface Wind Speed Probabilities

1.5.1 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.

1.5.2 Issuance Guidelines

1.5.2.1 Creation Software. National Centers AWIPS (N-AWIPS).

1.5.2.2 Issuance Criteria. The product will be issued for all named or numbered tropical and subtropical cyclones in the Atlantic and North Pacific basins.

1.5.2.3 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.

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

1.5.2.5 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.

1.5.3 Technical Description. Graphical product.

1.5.3.1 UGC Type. Not applicable.

1.5.3.2 MND Header. Not applicable.

1.5.3.3 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 to 12 hours, 0 to 24 hours, etc.) from 0 through 120 hours. They are available in graphical forms in static and animated displays. These wind speed probabilities are based on the track, intensity, and wind structure uncertainties in the official forecasts from the tropical cyclone centers.

1.5.3.4 Format. An example of a graphic can be found on the Internet at: http://www.nhc.noaa.gov/aboutnhcgraphics.shtml.

1.6 Tropical Cyclone Surface Wind Speed Probabilities Text (PWS)

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

1.6.2 Issuance Guidelines

1.6.2.1 Creation Software. ATCF system.

1.6.2.2 Issuance Criteria. The product will be issued for all named or numbered tropical and subtropical cyclones in the Atlantic, East Pacific, Central Pacific, and western North Pacific basins.

1.6.2.3 Issuance Times. These products will be issued at 03, 09, 15, and 21 UTC and with all 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. The text probabilities will follow the format and content described in this section.

1.6.3.1 UGC Type. Not applicable.

1.6.3.2 MND Header. The PWS MND header product type line is: "(TROPICAL CYCLONE TYPE) (NAME or NUMBER) WIND SPEED PROBABILITIES NUMBER XX".

1.6.3.3 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.

Probabilities for specific locations are provided 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: onset and cumulative. Onset probabilities are provided for each of the following time intervals: 0 to12 hours, 12 to 24 hours, 24 to 36 hours, 36 to 48 hours, 48 to 72 hours, 72 to 96 hours, and 96 to 120 hours. These onset 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 to 12 hours, 0 to 24 hours, 0 to 36 hours, 0 to 48 hours, 0 to 72 hours, 0 to 96 hours, and 0 to 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.

1.6.3.4 Format

```
FOaa5i cccc ddhhmm
PWSxxx

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

TEXT
$$
```

Figure 5 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 NATIONAL HURRICANE CENTER MIAMI FL BBCCYYYY).

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

1.7 National Tropical Cyclone Watch/Warning Product (TCV). The national 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 coasts, 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. Two TCVs will be issued: the national TCV described below, and a new WFO TCV described in section 7.1.

1.7.1 Mission Connection. The national TCV provides users with a complete listing of all coastal tropical cyclone watches and warnings.

1.7.2 Issuance Guidelines

1.7.2.1 Creation Software. N-AWIPS.

1.7.2.2 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.

1.7.2.3 Issuance Times. These products will be issued with all routine, intermediate, and special advisories if U.S. watches or warnings are continued, posted, changed or canceled.

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. Not more than 6 hours, or when superseded by the next update (generally 2 or 3 hours later).

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

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

1.7.3.2 MND Header. The TCV MND header product type line is: "(NAME) WATCH/WARNING BREAKPOINTS/ ADVISORY NUMBER XX".

1.7.3.3 Content. The TCV 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 conterminous 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 breakpoints and their latitude and longitude as defined in NWS Instruction (NWSI) 10-605, *Tropical Cyclone Official Defining Points and Geographic Defining Points*. In rare instances, other supplemental breakpoints, 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 – Western North Pacific

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.

1.7.3.4 Format

```
WTNT8i KNHC ddhhmm
TCVxxx

(NAME) WATCH/WARNING BREAKPOINTS/ADVISORY NUMBER XX
NWS 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.####.YYMMDDTHHNNZb-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.####.YYMMDDTHHNNZb-000000T0000Z/
TIME AM/PM TIME_ZONE DAY MMM DD YYY

BREAKPOINT START {etc.}

$$
```

Figure 6 National 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 NATIONAL HURRICANE CENTER MIAMI FL BBCCYYYY).

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

1.8 Aviation Tropical Cyclone Advisory (TCA)

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

1.8.2 Issuance Guidelines

1.8.2.1 Creation Software. ATCF system.

1.8.2.2 Issuance Criteria. Prepared by NHC and CPHC for all ongoing tropical and subtropical cyclone activity in their respective AORs. This requirement is stated in the World Meteorological Organization (WMO) Region IV and Region V hurricane plans.

1.8.2.3 Issuance Times. 0300, 0900, 1500, and 2100 UTC, and with all special advisories.

1.8.2.4 Valid Times. TCAs are valid from the time of issuance 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. TCAs will follow the format and content described in this section.

1.8.3.1 UGC Type. Not applicable.

1.8.3.2 MND Header. The TCA header block product type line is: "(TROPICAL CYCLONE TYPE) (NAME or NUMBER) ICAO ADVISORY #".

1.8.3.3 Content. TCAs list the current tropical cyclone 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 (DoD).

1.8.3.4 Format

```
FKaa2i cccc ddhhmm
TCAxxx

(TROPICAL CYCLONE TYPE) (NAME or NUMBER)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 7 Aviation Tropical Cyclone Advisory 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 NATIONAL HURRICANE CENTER MIAMI FL BBCCYYYY).

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

1.9 Tropical Cyclone Track and Watch / Warning Graphic

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

1.9.2 Issuance Guidelines

1.9.2.1 Creation Software. N-AWIPS. Personal Computer (PC) for WFO Guam.

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

1.9.2.3 Issuance Times. The product is available on the Internet at approximately 0300, 0900, 1500, and 2100 UTC for the routine advisories. For NHC and CPHC, the graphic is also produced for intermediate and special advisories. For WFO Guam, the graphic is produced for special advisories only if there is a significant change in the forecast track and / or intensity.

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

1.9.2.5 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.

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

1.9.3.1 UGC Type. Not applicable.

1.9.3.2 MND Header. Not applicable. Internet product.

1.9.3.3 Content. For NHC and CPHC, the Tropical Cyclone Track and Watch / Warning graphic contains the storm's forecast track, a cone along the track based upon the 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 circle radii defining the cones in 2015 for the Atlantic and eastern North Pacific basins are given in the table below:

Forecast Period (hours)	Circle radius Atlantic Basin (nm)	Circle radius Eastern North Pacific Basin (nm)
12	32	26
24	52	42
36	71	54
48	90	69
72	122	100
96	170	143
120	225	182

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. A second version of this graphic includes a black line and dots to depict the NHC / CPHC forecast track of the center at the times indicated. WFO Guam issues two types of graphics, one provides the forecast track, intensity and radius of 34, 50 and 64 knot winds; and the second provides the forecast track with a probability cone similar to that described above.

1.9.3.4 Format. Examples of the graphic can be found on the Internet at: http://www.nhc.noaa.gov/aboutnhcgraphics.shtml.

1.10 Cumulative Wind Distribution Graphic

1.10.1 Mission Connection. This 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.

1.10.2 Issuance Guidelines

1.10.2.1 Creation Software. N-AWIPS.

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

1.10.2.3 Issuance Times. The product is available on the Internet at 0300, 0900, 1500, and 2100 UTC. For NHC and CPHC, the graphic is also produced for special advisories. For WFO Guam, the graphic is also produced for special advisories only if there is a significant change in forecast track and / or intensity.

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

1.10.2.5 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.

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

1.10.3.1 UGC Type. Not applicable.

1.10.3.2 MND Header. Not applicable. Internet product.

1.10.3.3 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.

1.10.3.4 Format. An example of a graphic can be found on the Internet at: http://www.nhc.noaa.gov/aboutnhcgraphics.shtml.

1.11 Tropical Cyclone Surface Wind Field Graphic

1.11.1 Mission Connection. These NHC and CPHC graphics supplement 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 / typhoon watches / warnings.

1.11.2 Issuance Guidelines

1.11.2.1 Creation Software. N-AWIPS.

1.11.2.2 Issuance Criteria. Created for each tropical cyclone in the Atlantic, Eastern Pacific, and Central Pacific basins.

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

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

1.11.2.5 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.

1.11.3.1 UGC Type. Not applicable.

1.11.3.2 MND Header. Not applicable. Internet product.

1.11.3.3 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 / typhoon warning (red), hurricane / typhoon 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.

1.11.3.4 Format. An example of the product can be found on the Internet at: http://www.nhc.noaa.gov/aboutnhcgraphics.shtml.

1.12 Tropical Cyclone Storm Surge Probability Product

1.12.1 Mission Connection. This series of NHC products provides probabilistic information for decision makers such as emergency managers.

1.12.2 Issuance Guidelines

1.12.2.1 Creation Software. N-AWIPS.

1.12.2.2 Issuance Criteria. Created when a hurricane watch or hurricane warning is in effect for any portion of the Gulf or Atlantic coasts of the conterminous U.S.

1.12.2.3 Issuance Times. The products are 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.

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

1.12.2.5 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.

1.12.3 Technical Description. The storm surge probabilities are based on an ensemble of Sea, Lake, and Overland Surge from Hurricanes (SLOSH) model runs using the NHC official advisory and account 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 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.

There are two suites of storm surge (with tide) products provided, above ground and above datum (North American Vertical Datum (NAVD)-88).

Above Ground – Consists of two products: a) probabilities, in percent, of inundation exceeding 0 through 20 feet above ground level, at 1 foot intervals (e.g., the probabilities in percent of inundation exceeding 0, 1, 2, ..., 20 feet); b) heights, above ground level, that are exceeded by specific probabilities ranging from 10 to 50 percent at 10 percent intervals. Each of the probabilistic products will be provided as a cumulative probability, defined as the overall probability the event will occur at each grid cell from the start of the run until some specified time (e.g., 0 to 6 hours, 0 to 12, 0 to 18, etc.) and as an incremental probability, defined as the probability the event will occur sometime during the specified forecast period (e.g., 0 to 6 hours, 6 to 12, 12 to 18, etc.) at each grid cell.

NAVD-88 – Consists of two products: a) probabilities, in percent, of storm surge (with tide) exceeding 2 through 25 feet above NAVD-88, at 1 foot intervals (e.g., 2, 3, 4, ..., 25 feet); b) heights, above NAVD-88, that are exceeded by specific probabilities ranging from 10 to 90 percent at 10 percent intervals. The products are provided as a cumulative probability, defined as the overall probability the event will occur at each grid cell from the start of the run until 80 hours.

These products are provided in several formats including: .Keyhole Markup Language file (.kmz), Portable Network Graphics (.png) file, Google map interface, shape files, GRIdded Binary or General Regularly-distributed Information in Binary form (GRIB)2.

1.12.3.1 UGC Type. Not applicable.

1.12.3.2 MND Header. Not applicable. Internet product.

1.12.3.3 Content. The storm surge products consist of graphics and GRIB2 files for creating the graphics for the U.S. Gulf of Mexico and the Atlantic coastal areas.

1.12.3.4 Format. An example of the graphics can be found on the Internet at: http://www.nhc.noaa.gov/aboutnhcgraphics.shtml.

2 Subtropical Cyclone Forecast and Advisory Products

2.1 Subtropical Cyclone Public Advisory (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, and are issued in mixed-case format. (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)". 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 will be issued, including a public advisory, a forecast / advisory, a tropical cyclone discussion, probabilistic winds products, and an International Civil Aviation Organization (ICAO) / WMO tropical cyclone advisory. The MND Header block is "(TROPICAL CYCLONE TYPE) (NAME or NUMBER) SPECIAL (Product Type (e.g., PUBLIC ADVISORY, FORECAST ADVISORY, DISCUSSION, 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. Depression numbers are always spelled out (e.g., "ONE", "TWO", "THREE", etc.). Depression numbers are assigned to match the seasonal cyclone number, even if a previous cyclone has bypassed the depression stage. For example, if the first tropical cyclone of the season forms directly as a storm (e.g., a fast-moving tropical wave becomes a tropical storm without ever becoming a depression), then the depression number "ONE" would be skipped and not used until the following year. 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 North Pacific, once the depression is named by RSMC Tokyo, use the RSMC name followed by the JTWC number in parentheses. If the JTWC upgrades the depression to tropical storm before the RSMC names it, the term Tropical Storm xxW will be used, where xxW is the JTWC tropical cyclone number.

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 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 National Centers for Environmental Prediction (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, with updates as necessary.

6.1.2.3 Issuance Times. For WFO Honolulu: 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 MND 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 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 140°W to 180° and between 10°N and 30°N. WFO Guam's AOR is from 130°E to 180° between the equator and 25°N. WFOs Honolulu and Guam can include a description of more distant features if these features relate to significant weather affecting or will soon affect their AOR. WFOs Honolulu and Guam each determine the criteria for significant cloud features based on user inputs.

6.1.3.4 Format

```
ATHW40 PHFO ddhhmm
SIMHI

HAWAIIAN ISLANDS SATELLITE INTERPRETATION MESSAGE
NWS CENTRAL PACIFIC HURRICANE CENTER 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). NHC'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 meteorological 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. 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°N latitude and will be transmitted by 0005, 0605, 1205, and 1805 UTC. A second TAFB discussion for the eastern Pacific between the equator and 32°N and east of 140°W will be transmitted by 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 MND Header. The TWD MND header block product type line is: "TROPICAL WEATHER DISCUSSION".

6.2.3.3 Content. The TWD is an alphanumeric product which contains sections on tropical cyclones, tropical disturbances, tropical waves, the location of the Intertropical Convergence Zone and associated convection along it, and a discussion on surface / middle / upper level features 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.

```
Ataaii 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. ATCF system.

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

6.3.2.3 Issuance Times. In the Atlantic, Eastern Pacific, and Central Pacific, transmission times are 0000, 0600, 1200, and 1800 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 MND Header. The TWO MND header block product type line is: "TROPICAL WEATHER OUTLOOK" or "SPECIAL TROPICAL WEATHER OUTLOOK".

6.3.3.3 Content. The TWO will be issued in mixed case. The outlook covers tropical and subtropical waters and discusses areas of disturbed weather and the potential for tropical cyclone development during the next 48 hours for CPHC and the next 120 hours for NHC. The outlook will mention tropical and 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 Central Pacific hurricane basin, a graphical version of the product is provided on the CPHC web page.

For the Atlantic, Eastern Pacific, and Central Pacific hurricane basins, the product will include a probability genesis forecast, to the nearest 10 percent, for the probability of tropical cyclone formation within the next 48 hours, as well as 120-hour formation likelihood for the Atlantic and Eastern North Pacific basins.

The categorical bins in the Tropical Weather Outlook are defined as follows:

Category Label	2014 Range	2015 Range
Low	0-20%	0-30%
Medium	30-50%	40-60%
High	60-100%	70-100%

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 Cyclone Summary - Fixes (TCS)

6.4.1 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.

6.4.2 Issuance Guidelines

6.4.2.1 Creation Software. N-AWIPS.

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

6.4.2.3 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.

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

6.4.2.5 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.

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

6.4.3.1 UGC Type. Not applicable.

6.4.3.2 MND Header. The TCS header block product type line is: "CENTRAL PACIFIC TROPICAL CYCLONE SUMMARY - FIXES" or "SOUTH PACIFIC TROPICAL CYCLONE SUMMARY - FIXES".

6.4.3.3 Content. The 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 the TCS for a portion of their AOR. The

AORs for CPHC / WFO Honolulu (CPHC is collocated with WFO Honolulu) varies depending upon the program (tropical cyclone, aviation, marine, public, and satellite). For the TCS program, CPHC's AOR is the area north of the equator between 140°W to 160°E and from the equator to 25°S between 120°W to 160°E.

6.4.3.4 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 11 Tropical Cyclone Summary - Fixes Format

6.5 Tropical Cyclone Danger Area Graphic

6.5.1 Mission Connection. The product is used to assist mariners and military agencies in avoiding high seas associated with tropical cyclones.

6.5.2 Issuance Guidelines

6.5.2.1 Creation Software. N-AWIPS.

6.5.2.2 Issuance Criteria. Routinely prepared by NHC / TAFB and CPHC during the tropical cyclone season for all on-going tropical cyclone activity in their respective AORs.

6.5.2.3 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.

6.5.2.4 Valid Time. The Tropical Cyclone Danger Area graphic is 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.

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

6.5.3.1 UGC Type. Not applicable.

6.5.3.2 MND Header. Not applicable.

6.5.3.3 Content. The Tropical Cyclone Danger Area graphic is an NHC / TAFB graphical marine product depicting a tropical cyclone's track (out to 72 hours) and outlines a "possible" avoidance area using the 5% 34-knot wind speed probability contour and a "likely" avoidance area using the 50% 34-knot wind speed probability contour. The probability contours are generated for each tropical cyclone advisory issuance for both the Atlantic and East Pacific basins. The product is prepared by the NHC / TAFB and covers the entire Atlantic north of the equator and the Pacific north of the equator from the Mexican and Central American coasts west to 140°W. CPHC prepares a separate chart for 140°W to 180° and north of the equator. The Tropical Cyclone Danger Area Graphic from CPHC depicts 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.

6.5.3.4 Format. An example of a Tropical Cyclone Danger Graphic can be found on the Internet at: http://www.nhc.noaa.gov/abouttafbprod.shtml**.**

6.6 WPC Public Advisory (TCP)

6.6.1 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.

6.6.2 Issuance Guidelines

6.6.2.1 Creation Software. Word Processor.

6.6.2.2 Issuance Criteria. The WPC will issue public advisories after NHC discontinues its advisories on subtropical and tropical cyclones that have moved inland in the conterminous U.S. or Mexico, but still pose a threat of heavy rain and flash floods in the conterminous U.S. 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, WPC will only handle tropical depressions or remnants. WPC advisories will terminate when the threat of flash flooding has ended.

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

6.6.2.4 Valid Times. TCPs are 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 or when the event is forecast to end.

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

6.6.3.1 UGC Type. Not applicable.

6.6.3.2 MND Header. The TCP MND header block product type line is: "(TROPICAL CYCLONE TYPE) (NAME or NUMBER) ADVISORY NUMBER XX".

The WPC Tropical Cyclone Types are:
Tropical Depression
Subtropical Depression
Post-tropical Cyclone
Remnants of

6.6.3.3 Content. The TCP is an alphanumeric product. TCP products issued by WPC will continue to be numbered in sequence following the tropical cyclone advisories issued by NHC. The content will be less structured than the NHC TCP products, and 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.

6.6.3.4 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 ddhhmm
TCPATc

(TROPICAL CYCLONE TYPE)(NAME or NUMBER) ADVISORY NUMBER XX
NWS WEATHER PREDICTION CENTER COLLEGE PARK 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 12 WPC 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 WEATHER PREDICTION CENTER COLLEGE PARK MD BBCCYYYY).

Format:
Where: (BB) is the basin (AL - North Atlantic; EP - East Pacific).
Where: (CC) is the cyclone number (01, 02, 03...49).
Where: (YYYY) is the 4 digit year.

6.7 Tropical Weather Summary (TWS)

6.7.1 Mission Connection. These products are used by a variety of users for historical purposes, business (e.g., insurance) and climatological needs. NHC and CPHC will prepare the TWS in mixed case text.

6.7.2 Issuance Guidelines

6.7.2.1 Creation Software. ATCF system.

6.7.2. Issuance Criteria. Monthly.

6.7.2.3 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.

6.7.2.4 Valid Time. Not applicable.

6.7.2.5 Product Expiration Time. Not applicable.

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

6.7.3.1 UGC Type. Not applicable.

6.7.3.2 MND Header. The TWS MND header block product type line is: "TROPICAL WEATHER SUMMARY".

6.7.3.3 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 140°W) basins. CPHC issues summaries which cover tropical cyclone activity over the central North Pacific (north of the equator between 140°W and 180°). 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.

6.7.3.4 Format

```
Ataaii cccc ddhhmm
TWSxx

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

Text...

$$
```

Figure 13 Tropical Weather Summary Format

6.8 Tropical Cyclone Report (TCR)

6.8.1 Mission Connection. The TCR is the official record of each tropical cyclone within NHC's and CPHC's respective AORs 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.

6.8.2 Issuance Guidelines

6.8.2.1 Creation Software. Word Processor.

6.8.2.2 Issuance Criteria. Not applicable.

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

6.8.2.4 Valid Times. Not applicable.

6.8.2.5 Product Expiration Time. Not applicable.

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

6.8.3.1 UGC Type. Not applicable.

6.8.3.2 MND Header. Not applicable. Internet product.

6.8.3.3 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°W) basins. CPHC issues TCRs for tropical cyclone activity in the Central North Pacific (north of the equator between 140°W and 180°). A single report will be jointly issued for systems that were tropical cyclones in both the Eastern and Central Pacific basins. 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 and CPHC at www.prh.noaa.gov/cphc. Reviews at CPHC will be conducted by the director and deputy director of CPHC, warning coordination meteorologist and hurricane program leader.

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.

7 WFO Products

7.1 WFO Hurricane Local Watch / Warning Product (WFO TCV). For the 2016 Atlantic Hurricane season, offices in Eastern and Southern Regions with tropical cyclone wind Watch / Warning responsibility will issue the WFO TCV. **This product will be issued for the Atlantic Basin only during the 2016 season.**

The WFO TCV text product is a segmented, nearly automated, VTEC product with each segment being a discrete forecast zone. Each segment contains land-based tropical cyclone watches / warnings in effect, meteorological information, threats (Wind, Storm Surge, Flooding Rain, Tornadoes) and their potential impacts. The product is generated from local gridded forecast information and national guidance and is, therefore, not intended to be manually edited by the forecaster.

This text product is intended for parsing by the weather enterprise, and is paired with the WFO HLS to provide a complete, localized tropical forecast. It can also be useful to decision makers as it provides detailed information on timing, threats, and impacts on a zone level.

7.1.1 Mission Connection. The TCV is the primary WFO product for providing their users with critical information for the protection of life and property and to minimize the economic and environmental losses associated with tropical cyclones and their impacts. The TCV is the WFO product vehicle to provide and issue all tropical cyclone watches and warnings. Specifically, the TCV conveys tropical cyclone watches and warnings issued by NHC, and the TCV is used to issue tropical cyclone watches and warnings for inland zones. In addition to the watch / warning information, the TCV details, on a zone-level, forecasts and potential threats and impacts for each of the four hazards associated with tropical cyclones. The TCV product format is intended to facilitate the parsing of the information by the weather enterprise and other users for integration into their products and Common Operating Picture.

7.1.2 Issuance Guidelines

7.1.2.1 Creation Software. AWIPS Graphical Forecast Editor (GFE).

7.1.2.2 Issuance Criteria. The national center issuance of a TCP precedes the issuance of a TCV for consistency of formatting. WFO TCVs cannot be issued for systems that have yet to be formally recognized by NHC through formal advisories since the ETN for the WFO watches and warnings is derived from the national products.

Offices that issue TCVs are listed below.

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

Eastern Region	Southern Region
Caribou, ME	Brownsville, TX
Portland, ME	Corpus Christi, TX

Boston, MA
New York City, NY
Philadelphia, PA
Baltimore, MD / Washington, DC
Wakefield, VA
Newport / Morehead City, NC
Wilmington, NC
Charleston, SC
Houston / Galveston, TX
Lake Charles, LA
New Orleans, LA
Mobile, AL
Tallahassee, FL
Tampa Bay, FL
Miami, FL
Key West, FL
Melbourne, FL
Jacksonville, FL
San Juan, PR

The inland WFOs listed below will issue tropical cyclone watches and warnings via the TCV when hurricane or tropical storm force winds are expected to impact their area of responsibility.

Albany, NY (selected counties)
Albuquerque, NM
Amarillo, TX
Atlanta, GA
Austin / San Antonio, TX
Birmingham, AL
El Paso, TX
Fort Worth, TX
Huntsville, AL
Jackson, MS
Little Rock, AR
Lubbock, TX
Memphis, TN
Midland, TX
Morristown, TN
Nashville, TN
Norman, OK
San Angelo, TX
Shreveport, LA
Tulsa, OK

Inland WFOs not listed in above will not issue the TCV and will instead use the Non-precipitation Warning (NPW) products when hurricane or tropical storm force winds from a tropical cyclone are expected to impact their area of responsibility.

7.1.2.3 Issuance Times

a. Initial Issuances

Initial Issuance by coastal WFOs: The initial TCV should be issued as TCV should be issued as closely as possible to the first issuance of a tropical storm / hurricane watch / warning for the coastal WFO's AOR by NHC.

Initial Issuance by inland WFOs: The initial TCV, with associated tropical storm watches or warnings, for the inland WFOs listed in Section 7.2.2.2 should be issued when tropical storm or hurricane force winds are expected to impact their area of responsibility within 48 hours (watches) to 36 hours (warnings). The initial TCV should be issued as closely as possible to the initial NHC advisory package issuance.

b. Subsequent updates: TCVs should be updated upon release of an advisory from the tropical cyclone centers, or may be updated for operationally significant changes. However, do not release a TCV immediately before the official release of a NHC advisory unless information is coordinated ahead of time.

c. Final: Routine TCVs may cease when the tropical cyclone is no longer a threat to an office's County Warning Area (CWA) and / or when all local tropical cyclone watches / warnings are no longer in effect for the CWA.

7.1.2.4 Valid Time. TCVs are valid at the time of issuance and until a subsequent TCV is issued, or when tropical cyclone watches and / or warnings are no longer in effect for the local area. During an event, TCVs are issued at least once every 6 hours.

7.1.2.5 Event Beginning Time. The event's VTEC contains a start time, which is the time when the NEW or EXA is issued, and possible impact times are included in the segments.

7.1.2.6 Event Ending Time. Given the inherent uncertainties with forecasting tropical cyclones, an event ending time is not explicitly provided.

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. Note that the product expiration time is set to 8 hours to allow for possible issues.

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

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

7.1.3.2 MND Header. The TCV MND header product type line is: "(NAME) LOCAL WATCH/WARNING STATEMENT/ADVISORY NUMBER XX".

7.1.3.3 Content. The TCV content consists of one or more formatted segments. The number of segments will vary depending on the tropical cyclone watches and warnings in effect. Each segment contains formatted content for one UGC zone consisting of:

UGC / VTEC encoding for the zone and watch / warning
Watch / warning headline
Plain language locations affected
Hazard sections consisting of:
- Meteorological forecast information
- Threat information
- Potential Impacts

Sources of additional information

7.1.3.4 Format
Each UGC / VTEC segment will contain a mandatory headline(s) and section header (s). The section headers within each UGC / VTEC segment should provide detailed and specific tropical cyclone hazard / impact information for the geographical zone grouping.

The TCV will contain tropical cyclone watches and warnings for all land. The VTEC phenomena codes used are:

EVENT NAME	PHENOMENA CODE
TROPICAL STORM	TR
HURRICANE	HU

The VTEC Significance codes for the TCV are:

Warning	W
Watch	A

The ETN for tropical cyclone watches and warnings in all zones (inland, coastal) is assigned through the basin's storm number in the coded string found in the Issuing Office Line of NHC's TCP product. Thus, the ETN in the National Center's TCV product is the same as the ETNs in the TCV. See NWSI 10-315, Marine Weather Message, for the latest information on the use of the Marine Weather Message during tropical events.

...HEADLINE(s)... (mandatory)

Each segment headline begins and ends with ellipses (three dots). The headlines will be based on the corresponding VTEC code values in each segment. At least one headline is provided in each VTEC segment.

Segment Subsections

*** LOCATIONS AFFECTED** (mandatory)

A listing of significant locations within the zone.

*** WIND** (mandatory)

Description of wind forecast, threats and potential impacts.

*** STORM SURGE** (mandatory for surge-prone zones)

Description of storm surge forecast, threats and potential impacts.

*** FLOODING RAIN** (mandatory)

Description of flooding rain forecast, threats and potential impacts.

*** TORNADO** (mandatory)

Description of tornado forecast, threats and potential impacts.

*** FOR MORE INFORMATION** (mandatory)

Preparedness information including World Wide Web links.

The overall format of the WFO TCV follows.

```
WTNT8i Kxxx ddhhmm
TCVxxx

URGENT - IMMEDIATE BROADCAST REQUESTED
(NAME) LOCAL WATCH/WARNING STATEMENT/ADVISORY NUMBER XX
NATIONAL WEATHER SERVICE xxx XX
time am/pm time zone day of week mon dd yyyy

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

HEADLINE

* LOCATIONS AFFECTED

* WIND
   - LATEST LOCAL FORECAST:

   - THREAT TO LIFE AND PROPERTY:

   - POTENTIAL IMPACTS:

* STORM SURGE
   - LATEST LOCAL FORECAST:

   - THREAT TO LIFE AND PROPERTY:

   - POTENTIAL IMPACTS:

* FLOODING RAIN

   - LATEST LOCAL FORECAST:

   - THREAT TO LIFE AND PROPERTY:

   - POTENTIAL IMPACTS:

* TORNADO
   - LATEST LOCAL FORECAST:

   - THREAT TO LIFE AND PROPERTY:

   - POTENTIAL IMPACTS:

* FOR MORE INFORMATION:

$$
```

Product header – includes advisory # from NHC

Segment information including tropical VTEC

Tropical headlines

Locations in this segment

Wind information including:
- *Forecast with potential windows for TS and Hurricane force winds.*
- *Threat for which preparations need to be made. Includes general trend of this particular threat, with statements geared toward time to impact.*
- *Potential impacts for this area.*

Surge information including:
- *Forecast and potential window for storm surge flooding*
- *Threat for which preparations need to be made*
- *Includes general trend of this particular threat.*
  Statements are geared toward time to impact
- *Potential impacts for surge-prone areas.*

Flooding rain forecast (including watches), threats and potential impacts.

Tornado watch information, threats and potential impacts.

General and zone-specific websites.

Figure 14 WFO Hurricane Local Watch / Warning Product

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

7.1.3.4 Relationship of TCV to other WFO-issued advisory / watch / warning products. Three tables follow to clarify WFO product issuance actions once a TCV, carrying tropical cyclone watches and / or warnings, has been issued for their CWA.

Table 1A – Defines the products issued and those discontinued at coastal WFOs when tropical cyclone watches and warnings, issued via the TCV, are in effect for their CWA.

Table 1B – Defines the products issued and those discontinued at inland WFOs listed in Section 7.1.2.2 when tropical cyclone watches and warnings, issued via the TCV, are in effect for their CWA.

Table 2 – Defines recommended WFO actions to take when NHC begins issuance of tropical cyclone advisories for the CWA when CFW products are currently in effect.

Table 1A. Coastal WFO Product Table

Tropical Cyclone Watch / Warning in Effect – Coastal WFOs	
Product	**Product Issuance – Yes / No**
Local Watch/Warning Statement / Advisory (WFO TCV)	Yes
Marine Weather Warning (MWW)	Yes
Hurricane Local Statement (HLS)	Yes
Tornado Warning (TOR)	Yes
Extreme Wind Warning (EWW)	Yes
Severe Thunderstorm Warning (SVR)	Yes (See condition 1)
Special Marine Warning (SMW)	Yes (See condition 2)
Severe Weather Statement (SVS)	Yes
Special Weather Statement (SPS)	No
Marine Weather Statement (MWS)	Yes (See condition 2)
Non-precipitation Weather (NPW)	No (See condition 3)
Flash Flood Watches / Warnings (FFA / FFW)	Yes
Coastal Hazard Message (CFW)	Yes (See condition 4)
Surf Zone Forecast / Surf Forecast (SRF)	No

Table 1B. Inland WFO Product Table

Tropical Cyclone Watch / Warning in Effect – Inland WFOs in Section 7.2.2.2	
Product	**Product Issuance – Yes / No**
Local Watch/Warning Statement / Advisory (WFO TCV)	Yes
Hurricane Local Statement (HLS)	Yes
Tornado Warning (TOR)	Yes
Extreme Wind Warning (EWW)	Yes
Severe Thunderstorm Warning (SVR)	Yes (See condition 1)
Severe Weather Statement (SVS)	Yes
Special Weather Statement (SPS)	No
Non-precipitation Weather (NPW)	No (See condition 3)

Conditions for Tables 1A and 1B:

1 Severe Thunderstorm Warnings (SVR) and follow up statements may 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 the onset of sustained tropical storm or hurricane force winds. If multiple SVR issuances are anticipated, the issuing WFO should contact the Storm Prediction Center, adjacent WFOs, and affected Regional Operations Centers (ROCs) to collaborate on the potential need for convective watch products.

2 WFOs have the option to issue stand-alone Special Marine Warnings (SMWs) and follow up Marine Weather Statements (MWSs) 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.

3 WFOs will not issue NPW High Wind Watch / Warning products when tropical cyclone watch or warning conditions are expected, with the exception of those offices listed in Section 7.2. Those WFOs in Section 7.5 will issue NPW products in lieu of tropical cyclone watches or warnings.

4 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 once the 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 via the TCV. In general, 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. However, in cases where the threat level of the CFW product exceeds that of the tropical cyclone watch, then the CFW product will continue to be issued as a stand-alone product along with the TCV.

If a Rip Current or Beach Hazards Statement is in effect (via RP.S/BH.S in the CFW) to heighten awareness for a Moderate or High Risk of Rip Currents and tropical cyclone watches / warnings are subsequently issued for any zone in the CWA, then the RP.S/BH.S will be cancelled and rip current information will be provided within the HLS.

Table 2. CFW VTEC Actions When Tropical Cyclone Watches / Warnings Are Subsequently Issued

VTEC Event and Significance Level	Tropical Cyclone (TC) Watch / Warning Subsequently Issued via the HLS	Continue VTEC Event	Cancel VTEC Event
Coastal Flood Watch /CF.A/	TC Watch		X
Coastal Flood Watch /CF.A/	TC Warning		X
Coastal Flood Advisory /CF.Y/	TC Watch	X	
Coastal Flood Advisory /CF.Y/	TC Warning		X
Coastal Flood Warning /CF.W/	TC Watch	X	
Coastal Flood Warning /CF.W/	TC Warning		X
High Surf Advisory /SU.Y/	TC Watch	X	
High Surf Advisory /SU.Y/	TC Warning		X
Beach Hazards Statement /BH.S/	TC Watch / TC Warning		X
Rip Current Statement /RP.S/	TC Watch		X
Rip Current Statement /RP.S/	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.

7.2 Hurricane Local Statement (HLS) – Atlantic Basin. The HLS for the Atlantic Hurricane basin is designed to be a discussion preparedness product which conveys a succinct message on land-based local impacts. The HLSs issued for the Atlantic Hurricane basin do not contain VTEC information and are not segmented. The WFO TCV, described in Section 7.1 of this instruction, is the land based WFO tropical cyclone watch / warning product for the Atlantic hurricane basin. In addition, for ALL areas, tropical hazards for marine zones are contained in the Marine Weather Message (MWW) product. For information on the MWW and how it relates to tropical VTEC, refer to NWSI 10-315, Marine Weather Message. Also, refer to Service Change Notice 15-10, issued on March 2, 2015 for changes to the Marine Weather Message effective June 1, 2015 at:
http://www.nws.noaa.gov/om/notification/scn15-10vtec_tropical_hls_mww.htm

The HLS contains an overview of the storm from a local perspective along with a succinct message on local impacts. The HLS is a common source of textual information to simultaneously communicate information to diverse user types (media, key decision makers, and the public).

7.2.1 Mission Connection. Along with the WFO TCV, the HLS provides critical information for the protection of life and property and to minimize the economic and environmental losses associated with tropical cyclones and their impacts. The WFOs detailed in Section 7.1.2.2 will issue the Atlantic basin version of the HLS. The HLS product is a non-segmented product intended to communicate important information to customers interested in a bigger picture. The HLS contains a succinct overview of the tropical event and a generalized summary of potential impacts and preparedness information for land areas only. Potential impact information is ordered based upon the greatest expected impact within the entire CWA. Possible sections are wind, surge, flooding rain, tornadoes, and other coastal hazards.

7.2.2 Issuance Guidelines

7.2.2.1 Creation Software. AWIPS GFE.

7.2.2.2 Issuance Criteria. The national center issuance of a TCP and the WFO TCV precedes the issuance of an HLS. The HLS can be used to dispel rumors when a storm or disturbance is not expected to impact an area. In these cases neither a WFO TCV nor NHC TCP are required. Before the first HLS, the use of Public Information Statements (PNSs) is encouraged to inform the public on routine hurricane preparedness information.

Special Weather Statements (SPSs) may also be used to address rumors associated with systems for which the national center is not yet writing advisories. Hazardous Weather Outlooks (HWOs) may be used to address peripheral weather of concern until the national center issues the first advisory or (if necessary) before the initial issuance of local tropical cyclone watches / warnings from active systems.

The coastal WFOs listed in Section 7.1.2.2 of this document will issue HLSs when their area of responsibility is subject to a tropical cyclone watch / warning or evacuation orders.

7.2.2.3 Issuance Times

a. Initial issuances

b. Subsequent updates: All HLS issuances should follow closely after the WFO TCV issuance for each advisory.

c. Final: The final HLS should be issued soon after all tropical wind hazards have been cancelled through the WFO TCV.

After the final HLS issuance, a PNS may be used to relay critical post-storm information.

7.2.2.4 Valid Time. HLSs are valid at the time of issuance and until a subsequent HLS is issued during an event, HLSs are issued at least once every 6 hours. The approximate time of the next update is to be indicated within the body of the product text.

7.2.2.5 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. Note that the product expiration time is set to 8 hours to allow for possible issues.

7.2.3 Technical Description. Atlantic basin HLSs will follow the prescribed format and content described in this section.

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

7.2.3.2 MND Header. The HLS MND header block product type line is: "(TROPICAL CYCLONE TYPE) (NAME or NUMBER) LOCAL STATEMENT ADVISORY NUMBER ##". Appropriate product type line options are:

Hurricane (Name) Local Statement
Tropical Storm (Name) Local Statement
Tropical Depression (Number) Local Statement
Subtropical Storm (Name) Local Statement
Subtropical Depression (Number) Local Statement
Post-tropical Cyclone (Name) Local Statement
Remnants of (Name) Local Statement

The "##" is the sequential number of the advisory in the series issued by the WFO for the particular tropical cyclone.

7.2.3.3 Content. Content should always focus on the most impacting hazards, describing the most threatened areas.

HLSs will use tropical cyclone position information according to the latest advisory, or according to position estimates provided by the national center between advisories (when appropriate). Distance / bearing information should be provided relative to one or two well-known local locations or landmarks.

7.2.3.4 Format. The HLS is available in industry standard encoding and languages, and may include, but not limited to, ASCII, XML, WML and HTML.

The HLS content is organized into the following sections: Affected Area, Headline / Primary Message, New Information, Situation Overview, Precautionary / Preparedness Actions, and Next Update.

THIS PRODUCT COVERS < **Affected Area**> (mandatory)

The general area covered by the HLS is described in a line that begins with "THIS PRODUCT COVERS" followed by a generic geographic description.

** <**Headline or Primary Message** > ** (mandatory)

The plain text headline is located between doubles asterisks ("******") and may be more than one line.

NEW INFORMATION (mandatory)

This section includes: "Changes to Watches and Warnings", "Current Watches and Warnings", and "Storm Information." This is pre-populated with information primarily pulled from the TCP and the hazard history. This section should concisely list what is new and, if applicable, state "None".

SITUATION OVERVIEW (mandatory)

The mandatory Situation Overview section of the HLS concisely describes aspects of the tropical cyclone which are of the greatest importance to customers in the WFO's CWA. This can include thresholds for threats and impacts which assist in making decisions related to personal protective action.

POTENTIAL IMPACTS (mandatory)

Potential impact information is ordered based upon the greatest expected impact within the entire CWA. The five possible sections are Wind, Surge, Flooding Rain, Tornadoes, and Other Coastal Hazards.

Not every section will be present. Only those with a legitimate threat will be included, and specific potential impacts are only given for the highest threat across the area. If there are a range of threats across the area, those will also be highlighted.

PRECAUTIONARY / PREPAREDNESS ACTIONS (mandatory)

This section may contain general protective action information as well as an overview of significant protective actions underway within the CWA. Significant protective actions may include recommendations, announcements, or evacuation information for the general public provided by local or state officials. Listing these actions is particularly important once a tropical cyclone watch or warning is announced.

Much of the protective action information contained in this section can be coordinated with local and state officials both before an event (general protective action statements), and during an event (significant protective actions).

Sub-bullets include:

- Evacuations: Contains generic evacuation information.
- Other Preparedness Information: Contains generic preparedness information.
- Additional Sources of Information: Contains links to area-wide sources for additional information, such as links to local emergency management sites and other government sites (Federal Emergency Management Agency, American Red Cross, etc.).

NEXT UPDATE (mandatory)

This section provides a quick sentence stating the approximate time when the next HLS will be issued.

The overall format of the HLS follows.

```
Wtaaii cccc ddhhmm
HLSxxx
STZxxx-xxx>xxx-ddhhmm-

(TROPICAL CYCLONE TYPE)(NAME OR NUMBER) LOCAL STATEMENT ADVISORY
NUMBER XX
NATIONAL WEATHER SERVICE CITY, STATE     ALnnyyyy
time am/pm time_zone day of week mon dd yyyy

THIS PRODUCT COVERS general description of area

**<Overview headline statement>**(mandatory)

NEW INFORMATION (mandatory)
--------------- (mandatory)

* CHANGES TO WATCHES AND WARNINGS: (mandatory)
    - <Description>

* CURRENT WATCHES AND WARNINGS: (mandatory)
    - <Description>

* STORM INFORMATION: (mandatory)
    - <Description>

SITUATION OVERVIEW (mandatory)
------------------ (mandatory)

POTENTIAL IMPACTS (mandatory)
----------------- (mandatory)
* <Hazard section header (Surge, Wind, etc.)>:
<Content about that hazard>

PRECAUTIONARY/PREPAREDNESS ACTIONS (mandatory)
---------------------------------- (mandatory)
* Evacuations: (mandatory)
   - <Description>

* Other Preparedness Information: (mandatory)
    - <Description>

* Additional Sources of Information: (mandatory)
    - <Description>

NEXT UPDATE (mandatory)
----------- (mandatory)

<Description>
$$
```

Note – the HLS will contain every land zone in the WFO's CWA.

Figure 14 Hurricane Local Statement Format – Atlantic Basin
See complete examples in Appendix A.

7.2.3.5 Relationship of HLSs to the Short Term Forecast (NOW). The NOW is a stand-alone product focused on conditions impacting the office's CWA for the next 0 to 6 hours. It may be used to complement the HLS by providing critical storm information.

7.2.3.6 Relationship of HLSs to the Zone Forecast Product (ZFP). The appropriate forecasts will highlight tropical cyclone watches and warnings.

7.3 Hurricane / Typhoon Local Statement (HLS) – Pacific Basin. Beginning with the 2015 Atlantic Hurricane Season, the HLS for the Pacific Hurricane basin (except American Samoa) will be changed. Tropical hazards for marine zones will move to the MWW product. For more information on the MWW, please see NWS Instruction 10-315. WFO Guam is the only WFO that issues both a TCP and an HLS. As a result, both the land and marine zones are already covered in both the TCP and the HLS.

Information contained in the HLS will be relevant and should be expressed in a concise and succinct manner with limited redundancy.

The HLS is a discussion preparedness product which contains a succinct message on local impacts. The HLS is a common source of textual information to simultaneously communicate information to diverse user types (media, key decision makers, and the public). It provides decision-making support for local authorities with generalized and specific tropical cyclone information from a CWA perspective, as well as from a local zone perspective.

7.3.1 HLS Format for the Pacific Hurricane Basin and for American Samoa. The HLS for Guam and the Northern Mariana Islands consists of two components: Overview Block and UGC / VTEC formatted segments. American Samoa does not issue VTEC in its products.

- Overview Block – The Overview Block provides users generalized tropical cyclone information that is relative to the entire CWA.
- UGC / VTEC formatted segments – The segment headers build on the Overview Block to provide users detailed tropical cyclone information for specific zones within a CWA.

```
Wtaaii cccc ddhhmm
HLSxxx

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

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

.NEW INFORMATION (mandatory)

.AREAS AFFECTED(mandatory)

.WATCHES/WARNINGS(mandatory)

.STORM INFORMATION (mandatory)

.SITUATION OVERVIEW (mandatory)

.PRECAUTIONARY/PREPAREDNESS ACTIONS (mandatory)

&&

.NEXT UPDATE (mandatory)

stZ001-005>015 ddhhmm-
/k.aaa.cccc.pp.ss####.yymmddThhnnZ-000000T0000Z/
Zone-zone-zone-
Time am/pm time zone day mon dd yyyy

...HEADLINE... (mandatory)

...NEW INFORMATION...(optional)

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

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

...WINDS... (optional)
```

```
...TORNADOES... (optional)

$$

stZ001-005>015 -ddhhmm-
/k.aaa.cccc.pp.ss####.yymmddThhnnZ-000000T0000Z/
Zone-zone-zone-
Time am/pm time zone day mon dd yyyy

...HEADLINE... (mandatory)

...NEW INFORMATION...(optional)


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

...WINDS... (optional)

...INLAND FLOODING...(optional)

...TORNADOES... (optional)

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

...OTHER...(optional non-specific as included by forecaster)

$$
```

Figure 15 Hurricane Local Statement Format – Pacific Basin
See complete examples in Appendix A.

7.3.2 Mission Connection. The HLS is the primary Pacific basin WFO product for providing critical information for the protection of life and property and to minimize the economic and environmental losses associated with tropical cyclones and their impacts. For the Pacific Basin, the WFOs detailed in Section 7.3.3.2 will issue the HLS. The HLS product is a segmented product intended to communicate important information to diverse customers – media, emergency managers, and the public. The HLS contains a succinct meteorological discussion for the tropical event and a generalized summary of potential impacts and preparedness information for land areas only. Potential impact information is ordered based upon the greatest expected impact within the entire CWA.

7.3.3 Issuance Guidelines

7.3.3.1 Creation Software. AWIPS GFE. (For WFO Guam areas outside of the AWIPS graphics domain in Micronesia, by PC).

7.3.3.2 Issuance Criteria. The national center issuance of a TCP precedes the issuance of an HLS. HLSs should not be issued for systems that have yet to be formally recognized by the national center through formal advisories.

The following coastal Pacific Basin WFOs / WSOs will issue HLSs when their area of responsibility is subject to a tropical cyclone watch / warning or evacuation orders. In addition, HLSs may also be issued as needed to dispel rumors or to clarify tropical cyclone-related information for their CWA. WFOs / WSOs have the option to additionally include coastal or inland zones in the HLS not affected by a tropical cyclone watch or warning.

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

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

Pacific Region
Honolulu, HI
Guam
WSO Pago Pago, American Samoa

Before the first HLS, the use of PNSs is encouraged to inform the public on routine hurricane preparedness information. SPSs may also be used to address rumors associated with systems for which the national center is not yet writing advisories. HWOs may be used to address peripheral weather of concern until the national center issues the first advisory or (if necessary) before the initial issuance of local tropical cyclone watches / warnings from active systems.

7.3.3.3 Issuance Times

a. Initial issuances

Initial issuance by WFOs: The initial HLS for the Pacific Basin WFOs should be issued as soon as possible following the first issuance of a tropical storm / hurricane watch / warning for the WFO's area of responsibility by NHC / CPHC. WFO Guam will issue each HLS one hour after the Tropical Cyclone Public Advisory (TCP) is issued.

Note: An HLS cannot be issued prior to the release of the initial national center's advisory for a given system.

When a new tropical cyclone watch or warning is issued for one or more land zones in a coastal WFO's AOR, an "abbreviated HLS" will be issued to expedite the release of time-sensitive alerting information for the newly added zones. This shortened version will contain all mandatory components and sections of the HLS and headline the issuance of all new tropical cyclone watches and warnings within corresponding segments. The "abbreviated HLS" should state "a more detailed statement will follow shortly." The issuance of an "abbreviated HLS" will minimize the delay between the national center's issuance of the NHC / CPHC TCV product and

the coastal WFO's issuance of tropical cyclone watches and warnings via the HLS. Note that only the information contained within newly added zone segments will be abbreviated. See the example in the Appendix for an "abbreviated HLS". Following the issuance of the "abbreviated HLS," coastal WFOs will initiate and issue a comprehensive HLS (see the example in Appendix A).

b. Subsequent updates: HLSs should be updated upon release of an advisory from the tropical cyclone centers, or may be updated for operationally significant changes.

c. Final: Routine HLSs may cease when the tropical cyclone is no longer a threat to an office's CWA and / or when all local tropical cyclone watches / warnings are no longer in effect for the CWA . However, Pacific Basin WFOs have the option to continue to issue HLS products for sub-warning tropical cyclone impacts utilizing the HU.S VTEC in the segment headers, as long as NHC / CPHC continues to issue active tropical cyclone advisories on the particular storm.

After the final HLS issuance, a PNS may be used to relay critical post-storm information.

7.3.3.4 Valid Time. HLSs are valid at the time of issuance and until a subsequent HLS is issued, or when tropical cyclone watches and / or warnings are no longer in effect for the local area. During an event, HLSs are issued at least once every 6 hours. The approximate time of the next update is to be indicated within the body of the product text.

7.3.3.5 Event Beginning Time. Given the inherent uncertainties with forecasting tropical cyclones, an event beginning time is not explicitly provided. (WFO Guam does not issue P-VTEC outside of the AWIPS graphics domain).

7.3.3.6 Event Ending Time. Given the inherent uncertainties with forecasting tropical cyclones, an event ending time is not explicitly provided.

7.3.3.7 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.

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

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

7.3.3.10 MND Header. The HLS MND header block product type line is: "(TROPICAL CYCLONE TYPE) (NAME or NUMBER) LOCAL STATEMENT". Appropriate product type line options are:

Hurricane (Name) or Typhoon (Name) Local Statement
Tropical Storm (Name) Local Statement
Tropical Depression (Number) Local Statement
Subtropical Storm (Name) Local Statement

Subtropical Depression (Number) Local Statement
Post-tropical Cyclone (Name) Local Statement
Remnants of (Name) Local Statement

WFO Guam will include the JTWC tropical cyclone number in parentheses once a name is provided by RSMC Tokyo.

7.3.3.11 Content
For the Pacific Basin and for American Samoa, HLS content is organized in two separate parts. The first part is known as the Overview Block and contains generalized tropical cyclone information relative to a WFO's AOR. The second part contains UTC / VTEC formatted segments which expand on the information presented in the Overview Block and provides users detailed tropical cyclone information for specific zones within a CWA / Marine Area of Responsibility (MAOR). Note that because of the unique areas of responsibility for the Pacific Region offices, their HLSs may not always contain the Overview Block.

Content should always focus on the most impacting hazards, describing the most threatened areas, along with the associated peak magnitude, timing, and duration of each hazard.

HLSs will use tropical cyclone position information according to the latest advisory, or according to position estimates provided by the national center between advisories (when appropriate). Distance / bearing information should be provided relative to well-known locations or landmarks, with at least one located within the WFO's AOR.

When tropical cyclones threaten the Samoa's (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.

Wording may be added to the end of the HLS describing where additional storm information can be found within the supporting national center's TCP and TCM products, as well as PNSs and Short Term Forecasts (NOWs) issued by the local office.

7.3.3.12 Format. The HLS is available in industry standard encoding and languages, and may include, but not limited to, ASCII, XML, WML and HTML.

<u>OVERVIEW BLOCK OF THE HLS</u>
The intent of the Overview Block is to describe the expected evolution for the event relative to a WFO's CWA and to describe expected meteorological hazards, impacts and conditions across the affected areas. The Overview block and associated sections is mandatory, except for WFOs Guam and Honolulu. Effective 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 promotes increased product compatibility with NOAA Weather Radio and other automated systems.

After the headline(s), the Overview Block begins with a mandatory New Information section. The other section headers in the Overview Block are also mandatory and occur in a standardized order. The section headers will automatically be generated by GFE via the HLS Formatter.

Each section header is preceded by one dot and followed by three dots. In the Overview Block, the section headers and their associated content will always be listed in the same order and always present within each HLS issuance. WFOs will not add any additional section headers to those listed below.

.**NEW INFORMATION…** (mandatory)
Concisely list what is new. If applicable, state "NO SIGNIFICANT CHANGES".

.AREAS AFFECTED… (mandatory)
Details of which counties or cities are included in the HLS. At the WFO's discretion, this may simply be described in general terms or with the degree of specificity needed for the event.

.WATCHES / WARNINGS… (mandatory)
Watches and warnings in effect and counties to which they apply.

The watches and warnings will be ordered, primarily by warning type and secondarily by location, as follows:

```
HURRICANE / TYPHOON WARNING...FOR COASTAL AND/OR INLAND
ZONES
TROPICAL STORM WARNING AND HURRICANE WATCH...FOR COASTAL
AND/OR INLAND ZONES
TROPICAL STORM WARNING...FOR COASTAL AND/OR INLAND ZONES
TROPICAL STORM WATCH...FOR COASTAL AND/OR INLAND ZONES
```

.STORM INFORMATION… (mandatory)
Present location, movement, and winds. Use the tropical cyclone forecast / advisory as guidance. Forecast trend information may also be provided.

.SITUATION OVERVIEW… (mandatory)
The mandatory Situation Overview section of the HLS concisely describes, in general terms, the tropical cyclone's meteorological hazards (peak values, generalized onset / duration times and locations) and projected forecast track in relation to the WFO's CWA.

.PRECAUTIONARY / PREPAREDNESS ACTIONS… (mandatory)
This section may contain general protective action information as well as an overview of significant protective actions underway within the CWA. Significant protective actions may include recommendations, announcements, or evacuation information for the general public provided by local or state officials. Listing these actions is particularly important once a tropical cyclone watch or warning is announced.

Much of the protective action information contained in this section can be coordinated with local and state officials both before an event (general protective action statements), and during an event (significant protective actions).

...PROBABILITY TROPICAL STORM / HURRICANE CONDITIONS... (optional)
Information on the probability of hurricane / typhoon / tropical storm conditions.

...WINDS... (optional)
WFOs should provide information about the potential impacts of forecast winds. Supporting information should include the anticipated time of onset of tropical storm / hurricane / typhoon force winds, peak winds and gusts, as well as the approximate duration and cessation. Wind speed values should be expressed in appropriate ranges relative to the magnitude of the storm (40 to 50 mph instead of 45 mph). Timing of winds and their impacts should be in ranges or general terms such as "afternoon" or "evening". Ensure the information is consistent with national guidance.

...STORM SURGE AND STORM TIDE... (optional)
WFOs should provide information about the potential impacts of forecast storm surge and storm tide. Supporting information should include the anticipated time of onset of the storm surge and storm tide, as well as peak heights. Heights should be expressed in appropriate ranges relative to the magnitude of the surge and tide (8 to 12 feet above ground level). Timing of values and their impacts should be in ranges or general terms such as "afternoon" or "evening". Ensure the information is consistent with national guidance. WFOs will reference storm surge and storm tide relative to height above ground level (inundation). Additionally, WFOs may use other vertical datum references such as Mean Sea Level (MSL) and / or Mean Lower Low Water (MLLW).

...INLAND FLOODING... (optional)
Highlight the threat of flash flooding and rapid inundation relative to the zone or zone group as a result of heavy rain.

...TORNADOES... (optional)
Highlight the threat of tornadoes or waterspouts relative to the zone or zone group.

...OTHER… (Non-specific section header, substitute appropriate header)
The section is optional. WFOs may address other hazards specific to their area for the event (e.g., rip currents, mudslides).

&&

.NEXT UPDATE… (mandatory)
This section provides a quick sentence stating the approximate time when the next HLS will be issued.

IMPACT STATEMENTS IN THE HLS

Generic tropical cyclone Impact Statements have been baselined into the AWIPS GFE application. The impact statements have been organized to describe the expected or potential impacts, given the expected wind speed and / or storm surge, from a given magnitude tropical storm / hurricane. Localization of the impact statements 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 extreme magnitude winds / surge may require some local impact statement re-wording. Impact statements for extreme events (e.g., Category 3, 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 impact statements, 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.

UGC / VTEC SEGMENTS OF THE HLS

After the Overview Block, the HLS contains UGC / VTEC formatted segments. The information conveyed in the UGC / VTEC segments is more detailed and unique, relative to a specific zone or group of zones, and expands on the information contained in the Overview.

The number of segments will vary depending on the geographic area potentially impacted and the tropical cyclone watches and warnings in effect.

Each UGC / VTEC segment will contain a mandatory headline(s) and optional section headers. The optional section headers within each UGC / VTEC segment should provide detailed and specific tropical cyclone hazard / impact information for the geographical zone grouping.

The HLS will contain tropical cyclone watches and warnings for land areas only. The VTEC phenomena codes used in the HLS (Pacific Hurricane Basin) are:

EVENT NAME	PHENOMENA CODE
TROPICAL STORM	TR
HURRICANE	HU
TYPHOON	TY

The VTEC Significance codes for the HLS (Pacific Hurricane Basin) 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, for those zones not currently under a tropical cyclone watch or warning.

The ETN for tropical cyclone watches and warnings in all zones (inland, coastal, marine) is assigned through the basin's storm number in the coded string found in the Issuing Office Line

of NHC's / CPHC's / GUM's TCP product. Thus, the ETN in the National Center's TCV product is the same as the ETNs in the HLS. For additional information on the connection between the Marine Weather Message and tropical products, consult NWSI 10-315, Marine Weather Message.

Note for WFO Guam, an SPS will be used to notify regional users of hazards associated with tropical systems, until such time as the JTWC issues a tropical cyclone bulletin. Once this occurs, WFO Guam will issue an appropriate TCP and set watches and warnings as needed.

7.3.3.13 Relationship of HLS to other WFO-issued advisory / watch / warning products. Three tables follow to clarify WFO product issuance actions once an HLS, carrying tropical cyclone watches and / or warnings, has been issued for their CWA.

Table 3A – Defines the products issued and those discontinued at WFOs when tropical cyclone watches and warnings, issued via the HLS, are in effect for their CWA.

Table 4 - Defines recommended WFO actions to take when NHC (or CPHC or WFO Guam) begins issuance of tropical cyclone advisories for the CWA when CFW products are currently in effect.

Table 3A. Pacific Basin WFO Product Table

Tropical Cyclone Watch / Warning in Effect – Coastal WFOs	
Product	**Product Issuance – Yes / No**
Hurricane / Typhoon Local Statement (HLS)	Yes
Tornado Warning (TOR)	Yes
Extreme Wind Warning (EWW)	Yes
Severe Thunderstorm Warning (SVR)	Yes (See condition 1)
Marine Weather Warning (MWW)	Yes (see condition 2)
Special Marine Warning (SMW)	Yes (See condition 2)
Severe Weather Statement (SVS)	Yes
Special Weather Statement (SPS)	No
Marine Weather Statement (MWS)	Yes (See condition 2)
Non-precipitation Weather (NPW)	No (See condition 3)
Flash Flood Watches / Warnings (FFA / FFW)	Yes
Coastal Hazard Message (CFW)	Yes (See condition 4)
Beach Hazards Statement (BHS)	Yes
Surf Zone Forecast / Surf Forecast (SRF)	No
High Surf Warning / Advisory (CFW - issued by WFO Honolulu)	No

Conditions for Table 3A:

1 Severe Thunderstorm Warnings (SVR) and follow up statements may 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 the onset of sustained tropical storm or hurricane force winds. If multiple SVR issuances are anticipated, the issuing WFO should contact adjacent WFOs, and affected Regional Operations Centers (ROCs) to collaborate on the potential need for convective watch products.

2 WFOs have the option to issue stand-alone Special Marine Warnings (SMWs) and follow up Marine Weather Statements (MWSs) 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.

3 WFOs will not issue NPW High Wind Watch / Warning products when tropical cyclone watch or warning conditions are expected, with the exception of those offices listed in Section 7.3. Those WFOs in Section 7.5 will issue NPW products in lieu of tropical cyclone watches or warnings.

4 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 once the 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 via the HLS. See Table 4 for guidance. In general, 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. However, in cases where the threat level of the CFW product exceeds that of the tropical cyclone watch, then the CFW product will continue to be issued as a stand-alone product along with the HLS.

If a Rip Current or Beach Hazards Statement is in effect (via RP.S/BH.S in the CFW) to heighten awareness for a Moderate or High Risk of Rip Currents and tropical cyclone watches / warnings are subsequently issued for any zone in the CWA, then the RP.S/BH.S will be cancelled and rip current information will be provided within the HLS.

Table 4. CFW VTEC Actions When Tropical Cyclone Watches / Warnings Are Subsequently Issued

VTEC Event and Significance Level	Tropical Cyclone (TC) Watch / Warning Subsequently Issued via the HLS	Continue VTEC Event	Cancel VTEC Event
Coastal Flood Watch /CF.A/	TC Watch		X
Coastal Flood Watch /CF.A/	TC Warning		X
Coastal Flood Advisory /CF.Y/	TC Watch	X	
Coastal Flood Advisory /CF.Y/	TC Warning		X
Coastal Flood Warning /CF.W/	TC Watch	X	
Coastal Flood Warning /CF.W/	TC Warning		X
High Surf Advisory /SU.Y/	TC Watch	X	
High Surf Advisory /SU.Y/	TC Warning		X
High Surf Warning (Pacific, Western Regions only) /SU.W/	TC Watch	X	
High Surf Warning (Pacific, Western Regions only) /SU.W/	TC Warning		X
Beach Hazards Statement /BH.S/	TC Watch / TC Warning		X
Rip Current Statement /RP.S/	TC Watch		X
Rip Current Statement /RP.S/	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.

7.3.3.14 Relationship of HLSs to the Short Term Forecast (NOW). The NOW is a stand-alone product focused on conditions impacting the office's CWA for the next 0 to 6 hours. It may be used to complement the HLS by providing critical storm information.

7.3.3.15 Relationship of HLSs to the Zone Forecast Product (ZFP). The appropriate forecasts will highlight tropical cyclone watches and warnings.

7.4 Non-precipitation Weather Products (NPW). The following inland WFOs will **not** issue the TCV or HLS. These WFOs will issue the NPW for high wind watches and / or warnings if hurricane, tropical storm, subtropical storm, or post-tropical cyclone winds move into their area of responsibility.

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

For information on the Marine Weather Message (MWW) and how it relates to tropical VTEC, refer to NWSI 10-315, Marine Weather Message. Also, refer to Service Change Notice 15-10, issued on March 2, 2015 for changes to the Marine Weather Message effective June 1, 2015 at: http://www.nws.noaa.gov/om/notification/scn15-10vtec_tropical_hls_mww.htm

7.4.1 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.

7.4.2 Issuance Guidelines

7.4.2.1 Creation Software. AWIPS GFE.

7.4.2.2 Issuance Criteria. High Wind Watches and Warnings will be issued following the guidance in NWSI 10-515, *WFO Non-Precipitation Weather Products Specification* and Region-specific supplements, if applicable.

a. Watch - WFOs will issue High Wind Watches for their inland areas when tropical storm / hurricane force winds are possible within the watch area within 48 hours.

b. Warning - WFOs will issue High Wind Warnings for their areas when tropical storm / hurricane force winds are expected within the warning area within 36 hours.

7.5 Extreme Wind Warning (EWW)

7.5.1 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. EWWs 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. WFO Guam will not normally issue EWW products for islands already covered by typhoon warnings.

7.5.2 Issuance Guidelines

7.5.2.1 Creation Software. AWIPS WarnGen.

7.5.2.2 Issuance Criteria. A 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 Wind Scale as designated by NHC or CPHC.

b. Sustained tropical cyclone surface winds of 100 knots (115 mph) or greater are occurring or are expected to occur in a WFO's CWA within one hour.

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

7.5.2.4 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.

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

7.5.3 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.

7.5.4 UGC Type. County.

7.5.5 MND 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.

7.5.6 MND Header. The EWW MND header is: "EXTREME WIND WARNING".

7.5.7 Updates and Amendments. Updated EWWs and amendments are not applicable. WFOs should issue SVSs to update the status of specific EWWs. Updated information should include observed wind observations and / or reports of damage when available.

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

7.5.9 Corrections. WFOs will correct EWWs 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 MND Header and the same ETN in the VTEC line as the original warning.

7.5.10 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 without 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 Format
See complete example in Appendix A.

7.6 Post Tropical Cyclone Report (PSH). The PSH is the primary WFO tropical cyclone product issued to the public to report and document local tropical cyclone impacts.

7.6.1 Mission Connection. The PSH product is intended to provide the NHC, CPHC, 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 Appendix A.

7.6.2 Issuance Guidelines

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

7.6.2.2 Issuance Criteria. All WFOs issuing TCVs and/or HLSs will prepare post storm reports. Other offices, including those WSOs within the WFO Guam AOR, whose county warning area experiences wind gusts greater than 33 knots, flooding, tornadoes, damage or casualties will also submit reports (to WFO Guam in the case of the Micronesian WSOs).

7.6.2.3 Issuance Times. Transmit the reports within 5 days following the transmission of the last TCV / HLS. Amend reports as needed. WFO Guam will release a PSH as soon as practical after the last advisory on each tropical cyclone that a HLS was also issued.

7.6.2.4 Valid Times. Not applicable.

7.6.2.5 Product Expiration Time. Not applicable.

7.6.3 Technical Description.

7.6.3.1 UGC Type. Not applicable.

7.6.3.2 MND Header. The PSH header block product type line is: "POST TROPICAL CYCLONE REPORT... (TROPICAL CYCLONE TYPE) (NAME)."

The tropical cyclone type in the MND header is the intensity at the time it affected the WFO. If the intensity varies during the period of impact, use the peak intensity during the period of impact.

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

Note: WFO Guam may adapt the contents and format of this report to meet their observational network; to summarize the timing of their special weather statements, watches and warnings; and to provide any changes required from the JTWC and/or RJTD Tokyo guidance. A short synopsis of events during the history of the tropical cyclone while in their AOR may also be provided (or included).

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 whichever

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, DoD, and Federal Aviation Administration official observing sites (Automated Surface Observation Sites (ASOS) / Automated Weather Observation Sites (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 (NOS) 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. NWS offices may include these data in the PSH only when deemed reliable based on the particular facts and circumstances.

Pressure data: Report lowest sea level pressure (millibars (mb)) 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 NAVD-88. Some areas may still be using the National Geodetic Vertical Datum of 1929 (NGVD-29) or 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 storm surge greater than 1 foot. Report storm tides 1 foot or greater above the normal astronomical tide. 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.

The NOS Center for Operational Oceanographic Products and Services (NOS CO-OPS) will provide a final report of storm surge and storm tide information from NOS tide gauges to WFOs within 4 days following the issuance of the final HLS. The PSH will reflect the data and appropriate reference datums provided in the NOS report.

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 = 100s place, if needed
yy = degrees longitude, zero to 99
n = rounded decimal value for longitude, in tenths of a degree

7.6.3.4 Format

```
ACUS72 Kccc ddhhmm
PSHxxx

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

TEXT (see Appendix A for specific details)

$$
```

Figure 17 Post Tropical Cyclone Report Format
See complete example in Appendix A.

7.7 Information for Service Assessments. Conterminous U.S. 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 NHC 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.

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

7.9 Storm Reports. WFOs will prepare these reports in accordance with Storm Data Preparation instruction (Reference NWSI 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 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. Updates to this directive will take place as better methods for populating WFO-generated wind forecasts are integrated into the Interactive Forecast Preparation System. These instructions are primarily for CONUS WFOs.

9.1 Wind Speed Values Within the 34 knot Wind Radii

0 to 120 hours
WFOs will use the TCMWindTool to populate wind grids using the latest NHC advisory package. The AWIPS GFE Procedure 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 periods when the wind radii are not available from the official forecast advisory, WFOs will be provided output from a climatology-persistence model, but may also coordinate as needed with the tropical cyclone forecast center and with adjacent WFOs.

For storm intensity, the TCMWindTool 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 CWA / MAOR.

121 to 168 hours
Use WPC 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 CWA / MAOR 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 knot Wind Radii

0 to 168 hours
Use deterministic wind speed values.

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

0 to 168 hours
Use deterministic wind direction values.

9.4 Wind Gust Values Inside or Outside the 34 knot 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

Products from Weather Forecast Offices

Example: Tropical Weather Outlook from NHC

```
ZCZC MIATWOAT ALL
TTAA00 KNHC DDHHMM

TROPICAL WEATHER OUTLOOK
NWS NATIONAL HURRICANE CENTER MIAMI FL
200 PM EDT MON OCT 14 2013

For the North Atlantic, Caribbean Sea and the Gulf of Mexico:

The National Hurricane Center is issuing advisories on newly formed Tropical
Depression Eleven, located in the central Gulf of Mexico.

A broad area of low pressure located a couple of hundred miles south-
southwest of Jamaica is accompanied by showers and thunderstorms.  This
disturbance remains disorganized, and development, if any, should be slow to
occur over the next couple of days while it moves slowly northwestward.
Environmental conditions are expected to be marginally conducive for some
development when the system moves over the northwestern Caribbean Sea and the
southern Gulf of Mexico later this week.  Locally heavy rainfall is possible
over portions of Haiti and Jamaica today, and will likely spread across the
Cayman Islands and eastern Cuba on Tuesday.
* Formation chance through 48 hours...low...10 percent
* Formation chance through 5 days...low...30 percent

A westward-moving tropical wave is producing showers and thunderstorms across
the Windward Islands.  However, upper-level winds are becoming unfavorable
for further development of this system.
* Formation chance through 48 hours...low...10 percent
* Formation chance through 5 days...low...10 percent

A non-tropical area of low pressure could develop over the next couple of
days a few hundred miles east of Bermuda, and this low will have some
potential to gradually acquire tropical characteristics as it moves slowly
southward.
* Formation chance through 48 hours...low...near 0 percent
* Formation chance through 5 days...low...20 percent

&&

Public Advisories on Tropical Depression Eleven are issued under WMO header
WTNT31 KNHC and under AWIPS header MIATCPNT1.  Forecast/Advisories are issued
under WMO header WTNT21 KNHC and under AWIPS header MIATCMNT1.

$$
Forecaster Franklin
NNNN
```

Example: Tropical Weather Outlook from CPHC

```
ACPN50 PHFO 192350
TWOCP

TROPICAL WEATHER OUTLOOK
NWS CENTRAL PACIFIC HURRICANE CENTER HONOLULU HI
200 PM HST SUN SEP 19 2005


For The Central North Pacific...between 140W AND 180

1.  An area of thunderstorms about 900 miles south southeast of Hilo is
associated with a weak surface trough.  The thunderstorms are currently
poorly organized.  The trough was moving west slowly.
*Formation chance through 48 hours...low...20 percent

Elsewhere...no tropical cyclones are expected through 200 PM HST.


$$

Fujii
NNNN
```

Example: Special Tropical Weather Outlook from NHC

```
ABNT20 KNHC 011550
TWOAT

SPECIAL TROPICAL WEATHER OUTLOOK
NWS NATIONAL HURRICANE CENTER MIAMI FL
400 PM EDT MON OCT 14 2014

For the North Atlantic, Caribbean Sea and the Gulf of Mexico:

Special tropical weather outlook issued to update the discussion of the low-
pressure system near Jamaica.

Updated:  The broad area of low pressure located a couple of hundred miles
south-southwest of Jamaica has become significantly better organized over the
past few hours, and its chances of becoming a tropical cyclone have
increased.  Environmental conditions are expected to remain favorable as the
system moves slowly northwestward over the next couple of days.  Locally
heavy rainfall and strong gusty winds are possible over portions of Haiti and
Jamaica today, and will likely spread across the Cayman Islands and eastern
Cuba on Tuesday.
* Formation chance through 48 hours...medium...60 percent
* Formation chance through 5 days...high...80 percent

A westward-moving tropical wave is producing showers and thunderstorms across
the Windward Islands.  However, upper-level winds are becoming unfavorable
for further development of this system.
* Formation chance through 48 hours...low...10 percent
* Formation chance through 5 days...low...10 percent
```

```
A non-tropical area of low pressure could develop over the next couple of
days a few hundred miles east of Bermuda, and this low will have some
potential to gradually acquire tropical characteristics as it moves slowly
southward.
* Formation chance through 48 hours...low...near 0 percent
* Formation chance through 5 days...low...20 percent

$$
Forecaster Franklin
```

Examples: Product Type Lines in MND 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
 SUBTROPICAL DEPRESSION TWO ADVISORY NUMBER 1
 TYPHOON PARMA (19W) ADVISORY NUMBER 10
 POST-TROPICAL CYCLONE IRENE ADVISORY NUMBER 35
 REMNANTS OF JOSE ADVISORY NUMBER 6
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Example: Tropical Cyclone Public Advisory (TCP) issued by NHC

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WTNT34 KNHC 290252
TCPAT4

BULLETIN
HURRICANE ISAAC ADVISORY NUMBER 32
NWS NATIONAL HURRICANE CENTER MIAMI FL       AL092012
1000 PM CDT TUE AUG 28 2012

...ISAAC PRODUCING A DANGEROUS STORM SURGE ALONG THE NORTHERN GULF COAST...
...FLOODING FROM RAINFALL TO FOLLOW...


SUMMARY OF 1000 PM CDT...0300 UTC...INFORMATION
-----------------------------------------------
LOCATION...29.0N 89.7W
ABOUT 75 MI...120 KM SE OF HOUMA LOUISIANA
ABOUT 75 MI...120 KM SSE OF NEW ORLEANS LOUISIANA
MAXIMUM SUSTAINED WINDS...80 MPH...130 KM/H
PRESENT MOVEMENT...NW OR 310 DEGREES AT 8 MPH...13 KM/H
MINIMUM CENTRAL PRESSURE...968 MB...28.59 INCHES


WATCHES AND WARNINGS
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CHANGES WITH THIS ADVISORY:

The Tropical Storm Watch from west of Cameron Louisiana to Sabine Pass Texas
has been replaced with a Tropical Storm Warning.

SUMMARY OF WATCHES AND WARNINGS IN EFFECT:
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A Hurricane Warning is in effect for...
* East of Morgan City Louisiana to the Mississippi-Alabama border...including metropolitan New Orleans...Lake Pontchartrain...and Lake Maurepas

A Hurricane Watch is in effect for...
* Intracoastal City to Morgan City Louisiana

A Tropical Storm Warning is in effect for...
* The Mississippi-Alabama border to Destin Florida
* Morgan City to Sabine Pass Texas

A Tropical Storm Watch is in effect for...
* East of High Island Texas to just west of Sabine Pass

For storm information specific to your area, including possible inland watches and warnings, please monitor products issued by your local National Weather Service forecast office.

DISCUSSION AND 48-HOUR OUTLOOK

At 1000 PM CDT (0300 UTC), the eye of Hurricane Isaac was located by NOAA Doppler radar near latitude 29.0 North, longitude 89.7 West. Isaac is moving toward the northwest near 8 mph (13 km/h). A northwestward motion at a slightly slower speed is expected over the next day or two. On the forecast track, the center of Hurricane Isaac will continue moving near or over the southeastern coast of Louisiana tonight, and move farther inland over southeastern Louisiana during the next day or so.

Maximum sustained winds are near 80 mph (130 km/h), with higher gusts. Isaac is a category one hurricane on the Saffir-Simpson hurricane wind scale. Little change in strength is forecast tonight. Slow weakening is expected after that.

Hurricane force winds extend outward up to 60 miles (95 km) from the center, and tropical storm force winds extend outward up to 185 miles (295 km). Tropical storm conditions are occurring along the coastal areas of southeastern Louisiana, Mississippi, and Alabama. A sustained wind of 56 mph with a gust to 69 mph was observed within the past hour at a National Ocean Service site at Shell Beach Louisiana. A wind gust to 67 mph was recently reported at Lakefront Airport on the south shore of Lake Pontchartrain near New Orleans.

The latest minimum central pressure reported reconnaissance aircraft was 968 mb (28.59 inches).

HAZARDS AFFECTING LAND

STORM SURGE: The combination of a dangerous storm surge and the tide will cause normally dry areas near the coast to be flooded by rising waters. The water could reach the following heights above ground if the peak surge occurs at the time of high tide...

* Mississippi and southeastern Louisiana...6 to 12 ft
* Alabama...4 to 8 ft
* South-central Louisiana...3 to 6 ft
* Florida panhandle...3 to 6 ft

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* Apalachee Bay...2 to 4 ft
* Remainder of Florida west coast...1 to 3 ft

The deepest water will occur along the immediate coast in areas of onshore
winds.  Surge-related flooding depends on the relative timing of the surge
and the tidal cycle...and can vary greatly over short distances.  For
information specific to your area...please see products issued by your local
Weather Service office.  Near the coast...the surge will be accompanied by
large and dangerous waves.

A storm surge of 10.3 feet was recently reported at a National Ocean Service
tide gauge at Shell Beach Louisiana.  A storm surge of 6.7 feet was observed
at a National Ocean Service tide gauge in Waveland Mississippi.  For a
depiction of areas at risk, please see the prototype National Weather Service
storm surge watch/warning graphic.  This is a life-threatening situation.
Persons located within these areas should take all necessary actions to
protect life and property from rising water and the potential for other
dangerous conditions.  Promptly follow evacuation and other instructions from
local officials.

WIND:  Tropical storm conditions will continue across the warning area
overnight, and hurricane conditions will continue to spread onshore across
southeastern Louisiana.

Winds affecting the upper floors of high-rise buildings will be significantly
stronger than those near ground level.  At about the 30th story, winds would
likely be one Saffir-Simpson category stronger than at the surface.

RAINFALL:  Isaac is expected to produce total rainfall amounts of 7 to 14
inches, with possible isolated maximum amounts of 20 inches, over much of
Louisiana, southern Mississippi, southern Alabama, and the extreme western
Florida panhandle.  These rains could result in significant lowland flooding.

TORNADOES:  Isolated tornadoes are possible along the central gulf coast
region and parts of the lower Mississippi river valley through Wednesday.

SURF:  Dangerous surf and rip current conditions will continue to affect the
west coast of Florida and the northern gulf coast for the next day or so.


NEXT ADVISORY
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Next intermediate advisory at 100 AM CDT.
Next complete advisory at 400 AM CDT.

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Forecaster Brown
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Example: Tropical Cyclone Public Advisory issued by WFO Guam

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BULLETIN
TYPHOON BOPHA 26W ADVISORY NUMBER 29
NATIONAL WEATHER SERVICE TIYAN GU WP262012
800 AM CHST MON DEC 3 2012

...TYPHOON BOPHA (26W) WEAKENS AS IT MOVES AWAY FROM KOROR...
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WATCHES AND WARNINGS
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THE TYPHOON WARNINGS FOR KOROR AND KAYANGEL IN THE REPUBLIC OF PALAU ARE
CANCELLED.

THE TROPICAL STORM WARNING REMAINS IN EFFECT FOR SONSOROL IN THE REPUBLIC OF
PALAU.

SUMMARY OF 700 AM CHST...2100 UTC...INFORMATION
-----------------------------------------------
LOCATION...7.4N 133.6E
ABOUT 90 MI N OF SONSOROL
ABOUT 145 MI WSW OF KOROR AND
ABOUT 190 MI WSW OF KAYANGEL.
MAXIMUM SUSTAINED WINDS...130 MPH
PRESENT MOVEMENT...W OR 275 AT 17 MPH

DISCUSSION AND OUTLOOK
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AT 700 AM CHST...2100 UTC THE EYE OF TYPHOON BOPHA (26W) WAS LOCATED BY
SATELLITE NEAR LATITUDE 7.4 NORTH...LONGITUDE 133.6 EAST.  BOPHA IS MOVING
TOWARD THE WEST AT 17 MPH.  BOPHA IS EXPECTED TO MAINTAIN THIS GENERAL COURSE
WITH A DECREASE IN FORWARD SPEED OVER THE NEXT 24 TO 48 HOURS.  TYPHOON BOPHA
IS MOVING FARTHER AWAY FROM KOROR AND IS NOW HEADING IN THE DIRECTION OF
MINDANAO ISLAND IN THE SOUTHERN PHILIPPINES.

MAXIMUM SUSTAINED WINDS HAVE DECREASED TO 130 MPH...WITH HIGHER GUSTS TO 165
MPH.  TYPHOON BOPHA WILL CONTINUE TO WEAKEN DURING THE DAY...HOWEVER A
REINTENSIFICATION IS EXPECTED TONIGHT AND TOMORROW.  BOPHA REMAINS A
DANGEROUS CATEGORY FOUR TYPHOON ON THE SAFFIR-SIMPSON HURRICANE WIND SCALE.

TYPHOON FORCE WINDS EXTEND OUTWARD UP TO 35 MILES FROM THE CENTER AND
TROPICAL STORM FORCE WINDS EXTEND OUTWARD UP TO 105 MILES FROM THE CENTER.

NEXT ADVISORY
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NEXT INTERMEDIATE ADVISORY...1100 AM CHST THIS MORNING.
NEXT COMPLETE ADVISORY...200 PM CHST THIS AFTERNOON.

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KLEESCHULTE/AYDLETT
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<u>Example: Tropical Cyclone Public Advisory issued by NHC for system that has transitioned from a tropical cyclone to a post-tropical cyclone</u>

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BULLETIN
POST-TROPICAL CYCLONE MANDY ADVISORY NUMBER 29
NWS NATIONAL HURRICANE CENTER MIAMI FL       AL182020
1100 AM EDT MON OCT 29 2020

...MANDY LOSES TROPICAL CHARACTERISTICS BUT HURRICANE WARNINGS REMAIN IN
EFFECT...
...MANDY EXPECTED TO BRING LIFE-THREATENING STORM SURGE AND HURRICANE-FORCE
WINDS TO THE COAST THIS AFTERNOON...
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SUMMARY OF 1100 AM EDT...1500 UTC...INFORMATION

LOCATION...37.5N 71.5W
ABOUT 205 MI...330 KM SE OF ATLANTIC CITY NEW JERSEY
ABOUT 260 MI...415 KM SSE OF NEW YORK CITY
MAXIMUM SUSTAINED WINDS...90 MPH...150 KM/H
PRESENT MOVEMENT...NNW OR 330 DEGREES AT 18 MPH...30 KM/H
MINIMUM CENTRAL PRESSURE...943 MB...27.85 INCHES

WATCHES AND WARNINGS

CHANGES WITH THIS ADVISORY:

The Bermuda Weather Service has discontinued the Tropical Storm Warning for Bermuda.

SUMMARY OF WATCHES AND WARNINGS IN EFFECT:

A Hurricane Warning is in effect for...
* North of Chincoteague Virginia to Chatham Massachusetts
* The tidal Potomac from Cobb Island to Smith Point
* The middle and upper Chesapeake Bay and Delaware Bay

A Tropical Storm Warning is in effect for...
* North of Surf City North Carolina to Chincoteague
* Pamlico and Albemarle sounds
* North of Chatham to Merrimack River Massachusetts
* The lower Chesapeake Bay

For storm information specific to your area, including inland watches and warnings, please monitor products issued by your local National Weather Service forecast office.

DISCUSSION AND 48-HOUR OUTLOOK

Satellite and reconnaissance data indicate that the circulation of Mandy has become overtaken by a cold front during the past few hours, and as a result, Mandy can no longer be classified as a tropical cyclone. However, to avoid an unacceptable discontinuity in service, the National Hurricane Center will continue to issue advisories on Mandy as a post-tropical cyclone as long as the system poses a significant threat to life and property. In addition, the coastal hurricane and tropical storm warnings will remain in effect.

At 1100 AM EDT (1500 UTC), the center of Post-Tropical Cyclone Mandy was located near latitude 37.5 North, longitude 71.5 West. Mandy is moving toward the north-northwest near 18 mph (30 km/h). A turn toward the northwest is expected soon, followed by a turn toward the west-northwest tonight. On the forecast track, the center of Mandy is expected to make landfall along or just south of the southern New Jersey coast this evening or tonight.

Reports from an Air Force hurricane hunter aircraft indicate that the maximum sustained winds have increased to near 90 mph (150 km/h), with higher gusts. Although Mandy has become a frontal or wintertime low pressure system, this transition will not be accompanied by a weakening of the system. In fact, a

little strengthening is possible during this process. Mandy is expected to weaken after moving inland.

Hurricane-force winds extend outward up to 175 miles (280 km) mainly southwest of the center, and tropical-storm-force winds extend outward up to 485 miles (780 km). Sustained winds to tropical storm force are occurring from Long Island southward along the coasts of New Jersey, Delaware, and eastern Virginia, and extend as far inland as the central and southern Chesapeake Bay and Delaware Bay. A Weatherflow report indicates a sustained wind of 53 mph (85 km/h), with a gust to 63 mph (102 km/h), has recently occurred on Long Island at Eatons Neck, New York.

The estimated minimum central pressure recently reported by reconnaissance aircraft was 943 mb (27.85 inches).

HAZARDS AFFECTING LAND

WIND: Tropical-storm-force winds are already occurring over portions of the mid-atlantic states from North Carolina northward to Long Island. Tropical-storm-force winds are expected to continue to spread over other portions of the mid-atlantic coast, New York City...and southern New England today. Hurricane-force winds could reach the mid-atlantic states, including New York City and Long Island, by this evening. Winds affecting the upper floors of high-rise buildings will be significantly stronger than those near ground level.

STORM SURGE: The combination of an extremely dangerous storm surge and the tide will cause normally dry areas near the coast to be flooded by rising waters. The water could reach the following heights above ground if the peak surge occurs at the time of high tide...

* NC north of Surf City including Pamlico/Albemarle sounds...4 to 6 ft
* SE VA and Delmarva including lower Chesapeake Bay...2 to 4 ft
* Upper and middle Chesapeake Bay...1 to 3 ft
* Long Island Sound...Raritan Bay...and New York Harbor...6 to 11 ft
* Elsewhere from Ocean City MD to the CT/RI border...4 to 8 ft
* CT/RI border to the south shore of Cape Cod including Buzzards Bay and Narragansett Bay...3 to 6 ft
* Cape Cod to the MA/NH border including Cape Cod Bay...2 to 4 ft
* MA/NH border to the U.S./Canada border...1 to 3 ft

Surge-related flooding depends on the relative timing of the surge and the tidal cycle, and can vary greatly over short distances. Given the large wind field associated with Mandy, elevated water levels could span multiple tide cycles resulting in repeated and extended periods of coastal and bayside flooding. In addition, elevated waters could occur far removed from the center of Mandy. The transition of Mandy to a post-tropical cyclone will not in any way lessen these impacts. For a depiction of areas at risk, please see the prototype National Weather Service storm surge watch/warning graphic. This is a life-threatening situation. Persons located within these areas should take all necessary actions to protect life and property from rising water and the potential for other dangerous conditions. Promptly follow evacuation and other instructions from local officials.

RAINFALL: Rainfall totals of 3 to 6 inches are expected over far northeastern North Carolina with isolated maximum totals of 8 inches possible. Rainfall amounts of 4 to 8 inches are expected over portions of

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the Mid-Atlantic states, including the Delmarva Peninsula, with isolated
maximum amounts of 12 inches possible.  Rainfall amounts of 1 to 3 inches
with isolated maximum amounts of 5 inches are possible from the southern tier
of New York state northeastward through New England.

SNOWFALL:  Snow accumulations of 2 to 3 feet are expected in the mountains of
West Virginia with locally higher totals today through Wednesday.  Snowfall
of 1 to 2 feet is expected in the mountains of southwestern Virginia to the
Kentucky border, with 12 to 18 inches of snow expected in the mountains near
the North Carolina/Tennessee border and in the mountains of western Maryland.

SURF:  Dangerous surf conditions will continue from Florida through New
England for the next couple of days.


NEXT ADVISORY
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Next intermediate advisory at 200 PM EDT.
Next complete advisory at 500 PM EDT.

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FORECASTER STEWART

NNNN
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Example: Intermediate Public Advisory

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WTNT34 KNHC 241749
TCPAT4

BULLETIN
TROPICAL STORM DEBBY INTERMEDIATE ADVISORY NUMBER 5A
NWS NATIONAL HURRICANE CENTER MIAMI FL       AL042012
100 PM CDT SUN JUN 24 2012

...TROPICAL STORM CONDITIONS CONTINUE OVER PORTIONS OF THE NORTHEAST GULF
COAST...

SUMMARY OF 100 PM CDT...1800 UTC...INFORMATION
-----------------------------------------------
LOCATION...28.3N 85.9W
ABOUT 200 MI...325 KM ESE OF THE MOUTH OF THE MISSISSIPPI RIVER
ABOUT 105 MI...170 KM SSW OF APALACHICOLA FLORIDA
MAXIMUM SUSTAINED WINDS...60 MPH...95 KM/H
PRESENT MOVEMENT...NE OR 40 DEGREES AT 5 MPH...7 KM/H
MINIMUM CENTRAL PRESSURE...993 MB...29.32 INCHES


WATCHES AND WARNINGS
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CHANGES WITH THIS ADVISORY:

None.

SUMMARY OF WATCHES AND WARNINGS IN EFFECT:
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A Tropical Storm Warning is in effect for...
* The coast of Louisiana from the mouth of the Pearl River westward to Morgan City, not including the city of New Orleans or Lake Pontchartrain
* The Mississippi-Alabama border eastward to the Suwannee River Florida

A Tropical Storm Watch is in effect for...
* South of the Suwannee River to Anclote Key Florida

A Tropical Storm Warning means that tropical storm conditions are expected somewhere within the warning area within 36 hours.

A Tropical Storm Watch means that tropical storm conditions are possible within the watch area, in this case within 12 to 24 hours.

For storm information specific to your area, including possible inland watches and warnings, please monitor products issued by your local National Weather Service forecast office.

DISCUSSION AND 48-HOUR OUTLOOK

At 100 PM CDT (1800 UTC), the center of Tropical Storm Debby was located near latitude 28.3 North, longitude 85.9 West. Debby is moving toward the northeast near 6 mph (9 km/h). No significant motion is expected during the next 12 to 24 hours, and the track beyond that time is highly uncertain.

Maximum sustained winds remain near 60 mph (95 km/h) with higher gusts. Some slight strengthening is possible during the next 48 hours.

Tropical-storm-force winds extend outward up to 200 miles (325 km).

The latest minimum central pressure measured by a reconnaissance aircraft was 993 mb (29.32 inches).

HAZARDS AFFECTING LAND

WIND: Tropical Storm conditions are already near or over portions of the northeast gulf coast and are expected to reach the remainder of the warning area by tonight, making outside preparations difficult or dangerous.

STORM SURGE: The combination of a dangerous storm surge and the tide will cause normally dry areas near the coast to be flooded by rising waters. The water could reach the following heights above ground if the peak surge occurs at the time of high tide...

* Southeastern Louisiana eastward through Apalachee Bay...3 to 5 ft
* Florida west coast south of Apalachee Bay...1 to 3 ft
* Southwestern Louisiana...1 to 3 ft

The deepest water will occur along the immediate coast in areas of onshore flow. Surge-related flooding depends on the relative timing of the surge and the tidal cycle, and can vary greatly over short distances. For information specific to your area, please see products issued by your local National Weather Service office. For a depiction of areas at risk, please see the prototype National Weather Service storm surge watch/warning graphic. This is a life-threatening situation. Persons located within these areas should take all necessary actions to protect life and property from rising water and the

potential for other dangerous conditions. Promptly follow evacuation and other instructions from local officials.

RAINFALL: Debby is expected to produce rain accumulations of 5 to 10 inches along the immediate Gulf Coast from southeast Louisiana to the central west coast of Florida...with isolated maximum amounts of 15 inches possible. Given the recent heavy rainfall and wet soil conditions, these additional amounts will exacerbate the threat of flooding across portions of northern Florida and southern Alabama.

TORNADOES: Isolated tornadoes are possible over portions of the west-central and southwestern Florida peninsula today.

NEXT ADVISORY

Next complete advisory at 400 PM CDT.

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Forecaster Avila

Example: Special Public Advisory

WTPZ31 KNHC 161206
TCPEP1

BULLETIN
HURRICANE PAUL SPECIAL ADVISORY NUMBER 12
NWS NATIONAL HURRICANE CENTER MIAMI FL EP162012
500 AM PDT TUE OCT 16 2012

...PAUL MOVING FASTER TOWARD THE COAST OF SOUTHERN BAJA CALIFORNIA...
...LANDFALL EXPECTED THIS AFTERNOON...

SUMMARY OF 500 AM PDT...1200 UTC...INFORMATION

LOCATION...22.9N 112.3W
ABOUT 130 MI...210 KM S OF CABO SAN LAZARO MEXICO
MAXIMUM SUSTAINED WINDS...110 MPH...175 KM/H
PRESENT MOVEMENT...NNE OR 20 DEGREES AT 21 MPH...33 KM/H
MINIMUM CENTRAL PRESSURE...967 MB...28.56 INCHES

WATCHES AND WARNINGS

CHANGES WITH THIS ADVISORY:

None.

SUMMARY OF WATCHES AND WARNINGS IN EFFECT:

A Hurricane Warning is in effect for...
*West coast of Baja California from Santa Fe northward to Punta Abreojos

A Tropical Storm Warning is in effect for the...

* West coast of Baja California north of Punta Abreojos to El Pocito
* West coast of Baja California south of Santa Fe to Agua Blanca
* East coast of Baja California from La Paz to Bahia San Juan Bautista

A Tropical Storm Watch is in effect for the...
* West coast of Baja California north of El Pocito to Punta Eugenia

Preparations to protect life and property should be rushed to completion.

For storm information specific to your area please monitor products issued by your national meteorological service.

DISCUSSION AND 48-HOUR OUTLOOK

At 500 AM PDT (1200 UTC), the center of Hurricane Paul was located near latitude 22.9 North, longitude 112.3 West. Paul has accelerated and is now moving toward the north-northeast near 21 mph (33 km/h). On the forecast track, the core of the hurricane will make landfall within the hurricane warning area this afternoon. A turn to the north with a decrease in forward speed is expected on Wednesday.

Maximum sustained winds are near 110 mph (175 km/h) with higher gusts. Paul is a category two hurricane on the Saffir-Simpson hurricane wind scale. Little change in strength is expected prior to landfall, followed by weakening after landfall.

Hurricane force winds extend outward up to 30 miles (45 km) from the center, and tropical storm force winds extend outward up to 115 miles (185 km).

Estimated minimum central pressure is 967 mb (28.56 inches).

HAZARDS AFFECTING LAND

WIND: Tropical storm conditions are expected to begin in the Hurricane Warning area within the next few hours, with hurricane conditions arriving early this afternoon. Tropical storm conditions are expected to spread northward along the east coast of southern and central Baja California later today through early Wednesday. Tropical storm conditions are possible within the Tropical Storm Watch area on Wednesday.

RAINFALL: Paul is expected to produce total rain accumulations of 2 to 4 inches over the southern Baja peninsula, with possible isolated maximum amounts of 8 inches. These rains could produce life-threatening flash floods and mud slides, especially in areas of mountainous terrain.

STORM SURGE: A dangerous storm surge is expected to produce significant coastal flooding along the coast of southern and central Baja California in areas of onshore winds. Near the coast, the surge will be accompanied by large and destructive waves.

SURF: Swells generated by Paul will continue to affect the west coast of Baja California for the next day or so. These swells are likely to cause life-threatening surf and rip current conditions. Please consult products from your local weather office.

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NEXT ADVISORY
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Next complete advisory...800 AM PDT.

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Forecaster Avila/Franklin
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Example: Public Advisory Correction

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WTNT31 KNHC 240855 CCA
TCPAT3

HURRICANE ANDREW ADVISORY NUMBER 25...CORRECTED
NWS 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

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WTNT32 KNHC 260845
TCPAT2

BULLETIN
SUBTROPICAL STORM BERYL ADVISORY NUMBER 2
NWS NATIONAL HURRICANE CENTER MIAMI FL       AL022012
500 AM EDT SAT MAY 26 2012

...BERYL MOVING WEST-SOUTHWESTWARD...
...TROPICAL STORM CONDITIONS EXPECTED IN THE WARNING AREA ON SUNDAY...


SUMMARY OF 500 AM EDT...0900 UTC...INFORMATION
-----------------------------------------------
LOCATION...32.3N 75.6W
ABOUT 180 MI...285 KM SE OF CAPE FEAR NORTH CAROLINA
ABOUT 260 MI...415 KM E OF CHARLESTON SOUTH CAROLINA
MAXIMUM SUSTAINED WINDS...45 MPH...75 KM/H
PRESENT MOVEMENT...WSW OR 255 DEGREES AT 5 MPH...7 KM/H
MINIMUM CENTRAL PRESSURE...1001 MB...29.56 INCHES


WATCHES AND WARNINGS
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CHANGES WITH THIS ADVISORY:

None.

Summary of Watches and Warnings in effect...

A Tropical Storm Warning is in effect for...
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* Volusia/Brevard county line Florida to Edisto Beach South Carolina

A Tropical Storm Watch is in effect for...
* North of Edisto Beach to South Santee River South Carolina

A Tropical Storm Warning means that tropical storm conditions are expected somewhere within the warning area within 36 hours.

A Tropical Storm Watch means that tropical storm conditions are possible within the watch area, generally within 48 hours.

For storm information specific to your area in the United States, including possible inland watches and warnings, please monitor products issued by your local National Weather Service forecast office.

DISCUSSION AND 48-HOUR OUTLOOK

At 500 AM EDT (0900 UTC), the center of Subtropical Storm Beryl was located near latitude 32.3 North, longitude 75.6 West. Beryl is moving toward the west-southwest near 5 mph (7 km/h). A west-southwest or southwest motion with an increase in forward speed is expected through Sunday, with a turn toward the west expected on Sunday night. On the forecast track the center of Beryl will approach the coast in the warning area on Sunday.

Maximum sustained winds remain near 45 mph (75 km/h) with higher gusts. A little strengthening is possible during the next day or so.

Tropical storm force winds extend outward up to 115 miles (185 km) from the center.

The estimated minimum central pressure is 1001 mb (29.56 inches).

HAZARDS AFFECTING LAND

WIND: Tropical storm conditions are expected to reach the coast within the warning area from northeast Florida to South Carolina on Sunday. Tropical storm conditions are possible in the watch area along the central South Carolina coast late tonight or Sunday.

STORM SURGE: The combination of a storm surge and the tide will cause normally dry areas near the coast to be flooded by rising waters. The water could reach the following heights above ground if the peak surge occurs at the time of high tide...

* Coastal portions of South Carolina...Georgia...and north Florida...1 to 3 ft.

The deepest water will occur along the immediate coast near and to the north of the landfall location, where the surge will be accompanied by large waves. Surge-related flooding depends on the relative timing of the surge and the tidal cycle, and can vary greatly over short distances. For information specific to your area, please see products issued by your local National Weather Service office.

RAINFALL: Beryl is expected to produce total rain accumulations of 2 to 4 inches along the southeastern coast of the United States from northeastern Florida through southeastern North Carolina.

SURF: Dangerous surf conditions are possible along the northeast Florida, Georgia, South Carolina, and central and southern North Carolina coasts over the Memorial Day weekend. Please see statements issued by your local National Weather Service office for information specific to your area.

NEXT ADVISORY

Next intermediate advisory at 800 AM EDT.
Next complete advisory at 1100 AM EDT.

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Forecaster Brennan

Example: WPC Public Advisory

WTNT35 KWNH 050914
TCPAT5

REMNANTS OF LEE ADVISORY NUMBER 15
NWS WEATHER PREDICTION CENTER CAMP SPRINGS MD AL132011
400 AM CDT MON SEP 05 2011

...TROPICAL DEPRESSION LEE BECOMES EXTRATROPICAL IN SOUTHERN LOUISIANA...

SUMMARY OF 400 AM CDT...0900 UTC...INFORMATION

LOCATION...30.2N 90.8W
ABOUT 35 MILES...55 KM...WNW OF NEW ORLEANS/MOISANT LOUISIANA.
MAXIMUM SUSTAINED WINDS...35 MPH...55 KM/H
PRESENT MOVEMENT...E OR 090 DEGREES AT 12 MPH...19 KM/H
MINIMUM CENTRAL PRESSURE...994 MB...29.36 INCHES

WATCHES AND WARNINGS

FLASH FLOOD WARNINGS AND FLASH FLOOD WATCHES ARE IN EFFECT FROM THE LOWER MISSISSIPPI VALLEY EASTWARD INTO THE FLORIDA PANHANDLE AND THE SOUTHERN APPALACHIANS. WIND ADVISORIES ARE ALSO IN EFFECT FROM THE LOWER AND MID-MISSISSIPPI VALLEY WESTWARD INTO EASTERN TEXAS.

FOR INFORMATION SPECIFIC TO YOUR AREA...INCLUDING POSSIBLE WATCHES AND WARNINGS...PLEASE MONITOR PRODUCTS ISSUED BY YOUR LOCAL NATIONAL WEATHER SERVICE OFFICE AT WWW.WEATHER.GOV.

DISCUSSION AND 48-HOUR OUTLOOK

AT 400 AM CDT...0900 UTC...THE CENTER OF LEE WAS RELOCATED TO NEAR LATITUDE 30.2 NORTH...AND LONGITUDE 90.8 WEST. LEE HAS BECOME EXTRATROPICAL OVER SOUTHERN LOUISIANA AS IT HAS MERGED WITH A FRONTAL ZONE WITH COOL AND DRY AIR INFILTRATING THE CIRCULATION CENTER FROM THE NORTH AND WEST. THE EXTRATROPICAL LOW CENTER IS EXPECTED TO TURN TOWARDS THE NORTHEAST...BRINGING THE CENTER INTO SOUTHERN MISSISSIPPI TODAY AND INTO ALABAMA ON TUESDAY.

TROPICAL MOISTURE ASSOCIATED WITH THE REMNANTS OF LEE WILL CONTINUE TO INTERACT WITH THE FRONTAL ZONE...AND EXTREMELY HEAVY RAIN IS EXPECTED TO FALL IN LOCATIONS WELL IN ADVANCE OF THE CIRCULATION CENTER.

MAXIMUM SUSTAINED WINDS ARE NEAR 35 MPH...55 KM/H...WITH HIGHER GUSTS.

MINIMUM CENTRAL PRESSURE IS 994 MB...29.36 INCHES.

HAZARDS

RAINFALL...THE REMNANTS OF LEE IS EXPECTED TO PRODUCE TOTAL RAIN ACCUMULATIONS OF 10 TO 15 INCHES ACROSS THE CENTRAL GULF COAST REGION...WITH POSSIBLE ISOLATED MAXIMUM AMOUNTS OF 20 INCHES THROUGH TUESDAY. HEAVY RAINS WILL CONTINUE TO EXPAND NORTHEASTWARD INTO THE TENNESSEE VALLEY AND SOUTHERN APPALACHIAN MOUNTAINS THROUGH TUESDAY...WHERE RAINFALL AMOUNTS OF 4 TO 8 INCHES ARE EXPECTED...WITH ISOLATED AMOUNTS OF 12 INCHES POSSIBLE. THESE RAINS MAY CAUSE LIFE THREATENING FLASH FLOODS AND MUDSLIDES.

RAINFALL TOTALS

SELECTED STORM TOTAL RAINFALL IN INCHES THROUGH 3 AM CDT

...ALABAMA...	
MOBILE/BATES FIELD	9.80
MUSCLE SHOALS RGNL ARPT	2.52
CAIRNS AAF/OZARK	1.55
EVERGREEN	1.47
...FLORIDA...	
DESTIN AIRPORT	5.78
MILTON/WHITING FIELD NAS	5.25
HURLBURT FIELD AWS	5.24
PENSACOLA RGNL ARPT	4.37
APALACHICOLA MUNI ARPT	4.25
VALPARAISO/EGLIN AFB	4.24
TYNDALL AFB/PANAMA CITY	3.36
PENSACOLA NAS	3.29
...KENTUCKY...	
HENDERSON CITY	0.95
BOWLING GREEN-WARREN CO. ARPT	0.84
FORT KNOX AAF	0.43
...LOUISIANA...	
NEW ORLEANS/MOISANT	10.91
NEW ORLEANS/LAKEFRONT	9.85
BOOTHVILLE	8.64
BATON ROUGE/RYAN MUNI ARPT	8.20
SLIDELL	6.07
NEW IBERIA/ACADIANA	6.01
ALEXANDRIA/ESLER	5.90
LAFAYETTE RGNL ARPT	5.65
...MISSISSIPPI...	
PASCAGOULA	10.43
KEESLER AFB/BILOXI	9.79
GULFPORT-BILOXI	9.16
MCCOMB/LEWIS FIELD	6.35
HATTIESBURG/LAUREL	6.04
HATTIESBURG/CHAIN MUNI ARPT	6.00
JACKSON WFO	5.43
...TENNESSEE...	
CLARKSVILLE/OUTLAW FIELD	1.68

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OAK RIDGE (ASOS)                        1.58
CROSSVILLE MEMORIAL ARPT                1.46
KNOXVILLE MUNI ARPT                     1.02
NASHVILLE METRO ARPT                    1.00
...TEXAS...
BEAUMONT/PORT ARTHUR                    3.20

NEXT ADVISORY
-------------
THE NEXT ADVISORY WILL BE ISSUED AT 1000 AM CDT.  PLEASE REFER TO YOUR LOCAL
NATIONAL WEATHER SERVICE OFFICE FOR FURTHER INFORMATION ON THIS STORM.

FORECASTER KONG

FORECAST POSITIONS
------------------
INITIAL 05/0900Z 30.2N 90.8W
12HR VT 05/1800Z 31.9N 89.7W...POST-TROP/EXTRATROP
24HR VT 06/0600Z 32.9N 88.2W...POST-TROP/EXTRATROP
$$
```

Example: Watch/Warning Breakpoints (NHC TCV)

```
965
WTNT82 KNHC 291202
TCVAT2

BONNIE WATCH/WARNING BREAKPOINTS/INTERMEDIATE ADVISORY NUMBER 7A
NWS NATIONAL HURRICANE CENTER MIAMI FL     AL022016
800 AM EDT SUN MAY 29 2016

.TROPICAL STORM BONNIE

SCZ045-050-052-053-054-055-056-291500-
/O.CAN.KNHC.TR.W.1002.000000T0000Z-000000T0000Z/
800 AM EDT SUN MAY 29 2016

EDISTO-BEACH-SC                     32.49N 80.32W
LITTLE-RIVER-INLET-SC               33.85N 78.56W

$$

ATTN...WFO...CHS...ILM...
```

Example: Tropical Cyclone Forecast / Advisory (TCM)

```
WTNT24 KNHC 111505
TCMAT4

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

CHANGES IN WATCHES AND WARNINGS WITH THIS ADVISORY...

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

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

SUMMARY OF WATCHES AND WARNINGS IN EFFECT...

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

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

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

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

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

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

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

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

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

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

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

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

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

OUTLOOK VALID 16/1200Z...ABSORBED

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

NEXT ADVISORY AT 11/2100Z

$$
FORECASTER FRANKLIN

Example: Tropical Cyclone Forecast Discussion (TCD)

WTNT41 KNHC 021452
TCDAT1
TROPICAL STORM TOMAS DISCUSSION NUMBER 18
NWS NATIONAL HURRICANE CENTER MIAMI FL AL212010
1100 AM EDT TUE NOV 02 2010

Tomas has certainly become better organized since yesterday, with a large area of deep convection and increased banding seen in conventional satellite and microwave data. However, the storm has changed little in organization since the reconnaissance aircraft reported SFMR surface winds of 45 kt around 0800 UTC. Therefore, the initial intensity is held at that value, which is in line the latest DVORAK T-Numbers of 2.5 AND 3.5 from SAB AND TAFB, respectively. The next Air Force Hurricane Hunter aircraft is scheduled to investigate Tomas this afternoon.

Westerly shear continues to relax and the mid-level environment appears to be moistening. These atmospheric conditions, combined with high oceanic heat content, favor intensification during the next few days, which is shown by most of the guidance. In fact, the SHIPS rapid intensification index gives a 48 percent chance of a 30-kt increase in wind speed during the next 24 hours. The official forecast has been adjusted upward from the previous advisory and is now at or just above the high end of the intensity guidance. After a few days, land interaction, drier air, and some increase in southerly shear is likely to cause weakening.

The initial motion estimate is a little slower than before - 270/9. A turn to the west-northwest and northwest with a decrease in forward speed is forecast during the next 24-48 hours as a strong through moves eastward across the Gulf of Mexico. As a result, Tomas is expected to turn northward and northeastward beyond 48 hours in deep-layer southwesterly flow on the east side of the trough. Several of the global models suggest that the trough will not completely capture Tomas and there remains a large disagreement in the future position of the cyclone at days 4 and 5. The official forecast is of low confidence during that time period and is near a consensus of the GFS,GFDL,UKMET, NOGAPS and ECMWF models. Regardless of the exact track and intensity of Tomas, it appears that the tropical cyclone will pose a significant threat of heavy rainfall over Haiti and the Dominican Republic later in the week.

```
Forecast Positions and Max Winds

INIT    13/0900Z 20.5N 86.0W    80 KT   90 MPH
12H     13/1800Z 21.2N 85.9W    90 KT  105 MPH
24H     14/0600Z 22.0N 85.7W    95 KT  110 MPH
36H     14/1800Z 22.8N 85.6W   100 KT  115 MPH
48H     15/0600Z 23.7N 85.5W   105 KT  120 MPH
72H     16/0600Z 25.4N 85.2W   115 KT  135 MPH
96H     17/0600Z 27.1N 85.0W   120 KT  140 MPH
120H    18/0600Z 28.8N 84.7W   105 KT  120 MPH

$$
Forecaster Cangialosi/Brown
```

Example: Tropical Cyclone Update (TCU)

Example 1 - TCU to convey changes in storm information (with summary section)

```
TROPICAL STORM ANA TROPICAL CYCLONE UPDATE
NWS NATIONAL HURRICANE CENTER MIAMI FL       AL012015
615 AM EDT SUN MAY 10 2015

...CENTER OF TROPICAL STORM ANA MAKES LANDFALL...

NOAA Doppler radar data and nearby surface observations indicate that the
center of Tropical Storm Ana made landfall at 0600 AM EDT (1000 UTC) along
the South Carolina coast almost midway between Myrtle Beach and North Myrtle
Beach.


SUMMARY OF 0600 AM EDT...1000 UTC...INFORMATION
-----------------------------------------------
LOCATION...33.8N 78.8W
ABOUT 5 MI...10 KM NE OF MYRTLE BEACH SOUTH CAROLINA
ABOUT 10 MI...15 KM SW OF NORTH MYRTLE BEACH SOUTH CAROLINA
MAXIMUM SUSTAINED WINDS...45 MPH...75 KM/H
PRESENT MOVEMENT...NNW OR 330 DEGREES AT 5 MPH...7 KM/H
MINIMUM CENTRAL PRESSURE...1002 MB...29.59 INCHES

$$
Forecaster Stewart/Roberts
```

Example 2 - TCU to notify users that change in status is forthcoming (no summary section)

```
WTNT62 KNHC 251800
TCUAT2

TROPICAL DEPRESSION SEVEN TROPICAL CYCLONE UPDATE
NWS NATIONAL HURRICANE CENTER MIAMI FL   AL072008
200 PM EDT MON AUG 25 2008

Preliminary reports from an air force hurricane hunter aircraft indicate that
tropical depression seven has strengthened.  A special advisory will be
issued within the next 30 minutes to upgrade the depression to a tropical
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storm, to update the intensity forecast, and to issue new watches and
warnings for Hispaniola.

$$
Forecaster Pasch

NNNN
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Example 3 – TCU with position update

```
HURRICANE ISAAC TROPICAL CYCLONE UPDATE
NWS NATIONAL HURRICANE CENTER MIAMI FL     AL092012
1100 AM CDT WED AUG 29 2012

...11 AM POSITION UPDATE...

A gust to 67 mph was recently reported at Shell Beach Louisiana.  Tropical
storm conditions are continuing along the Mississippi and Alabama coasts.

SUMMARY OF 1100 AM CDT...1600 UTC...INFORMATION
-----------------------------------------------
LOCATION...29.6N 90.7W
ABOUT 1 MI...2 KM W OF HOUMA LOUISIANA
ABOUT 45 MI...75 KM SW OF NEW ORLEANS LOUISIANA
MAXIMUM SUSTAINED WINDS...75 MPH...120 KM/H
PRESENT MOVEMENT...NW OR 310 DEGREES AT 6 MPH...9 KM/H
MINIMUM CENTRAL PRESSURE...972 MB...28.70 INCHES

$$
Forecaster Stewart
```

Example: Text Wind Speed Probabilities

```
TROPICAL STORM ISAAC WIND SPEED PROBABILITIES NUMBER 23
NWS NATIONAL HURRICANE CENTER MIAMI FL       AL092012
2100 UTC SUN AUG 26 2012

AT 2100Z THE CENTER OF TROPICAL STORM ISAAC WAS LOCATED NEAR LATITUDE 24.2
NORTH...LONGITUDE 82.3 WEST WITH MAXIMUM SUSTAINED WINDS NEAR 50 KTS...60
MPH...95 KM/H.

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

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 OP (CP) WHERE
```

OP IS THE PROBABILITY OF THE EVENT BEGINNING DURING AN INDIVIDUAL TIME PERIOD (ONSET PROBABILITY)
(CP) IS THE PROBABILITY OF THE EVENT OCCURRING BETWEEN 18Z 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 18Z SUN TO 06Z MON	FROM 06Z MON TO 18Z MON	FROM 18Z MON TO 06Z TUE	FROM 06Z TUE TO 18Z TUE	FROM 18Z TUE TO 18Z WED	FROM 18Z WED TO 18Z THU	FROM 18Z THU TO 18Z FRI
FORECAST HOUR		(12)	(24)	(36)	(48)	(72)	(96)	(120)
LOCATION	KT							
FT PIERCE FL	34	9	2(11)	X(11)	X(11)	X(11)	X(11)	X(11)
W PALM BEACH	34	14	2(16)	X(16)	X(16)	X(16)	X(16)	X(16)
MIAMI FL	34	99	X(99)	X(99)	X(99)	X(99)	X(99)	X(99)
MARATHON FL	34	99	X(99)	X(99)	X(99)	X(99)	X(99)	X(99)
MARATHON FL	50	14	X(14)	X(14)	X(14)	X(14)	X(14)	X(14)
KEY WEST FL	34	99	X(99)	X(99)	X(99)	X(99)	X(99)	X(99)
KEY WEST FL	50	99	X(99)	X(99)	X(99)	X(99)	X(99)	X(99)
MARCO ISLAND	34	99	X(99)	X(99)	X(99)	X(99)	X(99)	X(99)
FT MYERS FL	34	48	1(49)	2(51)	X(51)	X(51)	X(51)	X(51)
VENICE FL	34	37	5(42)	2(44)	1(45)	X(45)	1(46)	X(46)
TAMPA FL	34	18	8(26)	3(29)	2(31)	X(31)	1(32)	X(32)
TALLAHASSEE FL	34	X	7(7)	10(17)	6(23)	6(29)	1(30)	X(30)
ST MARKS FL	34	1	9(10)	9(19)	6(25)	5(30)	1(31)	1(32)
APALACHICOLA	34	3	11(14)	16(30)	9(39)	7(46)	1(47)	X(47)
APALACHICOLA	50	X	X(X)	2(2)	2(4)	1(5)	1(6)	X(6)
APALACHICOLA	64	X	X(X)	X(X)	1(1)	X(1)	X(1)	X(1)
PANAMA CITY FL	34	1	11(12)	20(32)	13(45)	7(52)	1(53)	1(54)
PANAMA CITY FL	50	X	X(X)	3(3)	4(7)	3(10)	1(11)	X(11)
PANAMA CITY FL	64	X	X(X)	X(X)	1(1)	1(2)	X(2)	X(2)
COLUMBUS GA	34	X	X(X)	3(3)	6(9)	11(20)	2(22)	1(23)

```
MONTGOMERY AL  34  X   X( X)   7( 7)  10(17)  18(35)   3(38)   1(39)
MONTGOMERY AL  50  X   X( X)   X( X)   X( X)   5( 5)   2( 7)   X( 7)
MONTGOMERY AL  64  X   X( X)   X( X)   X( X)   1( 1)   1( 2)   X( 2)

PENSACOLA FL   34  X   6( 6)  24(30)  25(55)  14(69)   2(71)   X(71)
PENSACOLA FL   50  X   X( X)   2( 2)  14(16)  12(28)   1(29)   1(30)
PENSACOLA FL   64  X   X( X)   X( X)   4( 4)   5( 9)   2(11)   X(11)

MOBILE AL      34  X   3( 3)  22(25)  31(56)  20(76)   2(78)   X(78)
MOBILE AL      50  X   X( X)   2( 2)  15(17)  21(38)   2(40)   X(40)
MOBILE AL      64  X   X( X)   X( X)   3( 3)  12(15)   1(16)   X(16)

GULFPORT MS    34  X   3( 3)  22(25)  33(58)  21(79)   2(81)   X(81)
GULFPORT MS    50  X   X( X)   2( 2)  19(21)  22(43)   2(45)   X(45)
GULFPORT MS    64  X   X( X)   X( X)   5( 5)  13(18)   2(20)   X(20)

STENNIS SC     34  X   2( 2)  19(21)  32(53)  23(76)   3(79)   1(80)
STENNIS SC     50  X   X( X)   1( 1)  15(16)  22(38)   2(40)   X(40)
STENNIS SC     64  X   X( X)   X( X)   4( 4)  12(16)   1(17)   X(17)

BURAS LA       34  X   5( 5)  29(34)  33(67)  14(81)   2(83)   1(84)
BURAS LA       50  X   X( X)   5( 5)  25(30)  15(45)   2(47)   X(47)
BURAS LA       64  X   X( X)   1( 1)   8( 9)  11(20)   1(21)   X(21)

JACKSON MS     34  X   X( X)   3( 3)  11(14)  33(47)   6(53)   1(54)
JACKSON MS     50  X   X( X)   X( X)   X( X)  12(12)   4(16)   X(16)
JACKSON MS     64  X   X( X)   X( X)   X( X)   3( 3)   2( 5)   X( 5)

NEW ORLEANS LA 34  X   1( 1)  16(17)  29(46)  23(69)   3(72)   1(73)
NEW ORLEANS LA 50  X   X( X)   1( 1)  10(11)  18(29)   3(32)   1(33)
NEW ORLEANS LA 64  X   X( X)   X( X)   1( 1)   9(10)   1(11)   X(11)

BATON ROUGE LA 34  X   X( X)   9( 9)  18(27)  24(51)   6(57)   X(57)
BATON ROUGE LA 50  X   X( X)   X( X)   2( 2)  14(16)   3(19)   X(19)
BATON ROUGE LA 64  X   X( X)   X( X)   X( X)   5( 5)   2( 7)   X( 7)

NEW IBERIA LA  34  X   X( X)   7( 7)  12(19)  20(39)   7(46)   X(46)
NEW IBERIA LA  50  X   X( X)   X( X)   1( 1)   9(10)   2(12)   1(13)
NEW IBERIA LA  64  X   X( X)   X( X)   X( X)   3( 3)   2( 5)   X( 5)

SHREVEPORT LA  34  X   X( X)   X( X)   1( 1)   9(10)   6(16)   1(17)

PORT ARTHUR TX 34  X   X( X)   X( X)   3( 3)  10(13)   5(18)   X(18)
PORT ARTHUR TX 50  X   X( X)   X( X)   X( X)   1( 1)   2( 3)   1( 4)
PORT ARTHUR TX 64  X   X( X)   X( X)   X( X)   X( X)   1( 1)   X( 1)

$$
FORECASTER PASCH
NNNN
```

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 Summary – Fixes (TCS) (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 (TWD)

```
AXNT20 KNHC 032345
TWDAT

TROPICAL WEATHER DISCUSSION
NWS NATIONAL HURRICANE CENTER MIAMI FL
705 PM EST TUE NOV 03 2009

TROPICAL WEATHER DISCUSSION FOR NORTH AMERICA...CENTRAL AMERICA...GULF OF
MEXICO...CARIBBEAN SEA...NORTHERN SECTIONS OF SOUTH AMERICA...AND 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 1800 UTC SURFACE ANALYSIS AND SATELLITE IMAGERY THROUGH 2230 UTC.
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...SPECIAL FEATURE...

A 1008 MB LOW IS CENTERED OVER THE SW CARIBBEAN SEA NEAR 10N81W.  SCATTERED
MODERATE/ISOLATED STRONG CONVECTION IS FROM 9N-12N BETWEEN 79W-83W.  THE LOW
IS EXPECTED TO MOVE LITTLE OVER THE NEXT DAY OR SO.  UPPER LEVEL WINDS APPEAR
FAVORABLE FOR FURTHER DEVELOPMENT.  THERE IS A MEDIUM CHANCE...30 TO 50
PERCENT...FOR THIS SYSTEM TO BECOME A TROPICAL CYCLONE DURING THE NEXT 48
HRS.

...TROPICAL WAVES...

EASTERN CARIBBEAN SEA TROPICAL WAVE IS ALONG 68W S OF 16N MOVING W NEAR 20
KT.  THE WAVE COINCIDES WITH A DEEP LAYER MOISTURE MAXIMUM OBSERVED IN TOTAL
PRECIPITABLE WATER IMAGERY.  SCATTERED STRONG CONVECTION IS INLAND OVER
VENEZUELA AND COLOMBIA FROM 4N-7N BETWEEN 66W-70W.  SIMILAR ACTIVITY IS NEAR
THE VENEZUELA COASTLINE FROM 10N-12N BETWEEN 68W-72W.  ISOLATED
SHOWERS/POSSIBLE THUNDERSTORMS ARE FROM 13N-16N BETWEEN 65W-70W.

...ITCZ...

THE ITCZ AXIS IS CENTERED ALONG 5N9W 6N22W 8N32W 9N41W 10N53W 10N66W.
SCATTERED MODERATE/STRONG CONVECTION IS FROM 4N-8N BETWEEN 9W-16W.  A SURFACE
TROUGH IS EMBEDDED WITHIN THE AXIS FROM 11N30W TO 5N35W SUPPORTING A FEW
ISOLATED SHOWERS NEAR 5N36W.  A SECOND EMBEDDED SURFACE TROUGH IS FROM 12N41W
TO 8N42W SUPPORTING SHOWERS/THUNDERSTORMS NEAR 10N42W.  ISOLATED
MODERATE/STRONG CONVECTION IS FROM 9N-15N BETWEEN 43W-59W.

...DISCUSSION...

THE GULF OF MEXICO...
A STATIONARY FRONT EXTENDS FROM S FLORIDA ACROSS THE SE GULF TO THE BAY OF
CAMPECHE ALONG 25N81W 23N85W 22N92W 18N93W.  SCATTERED SHOWERS COVER THE SW
GULF FROM 20N-26N BETWEEN 90W-97W.  STRONG NE WINDS ARE BEHIND THE FRONT IN
THE SW GULF AS WELL.  IN FACT...A GALE WARNING IS IN EFFECT FOR THE AREA S OF
21N W OF 94W.  THE FRONT IS SUPPORTED BY A SHORTWAVE UPPER LEVEL TROUGH
EXTENDING DOWN CENTRAL MEXICO PROVIDING MOIST SWLY FLOW ALOFT ACROSS THE WRN
GULF.  THE DIFFLUENT FLOW AROUND THE BASE OF THIS UPPER TROUGH IS ALSO
ENHANCING THE SHOWER ACTIVITY IN THE SW GULF ALONG WITH SURFACE CONVERGENCE
NEAR THE FRONT.  ELSEWHERE...A SURFACE RIDGE BUILDS ACROSS THE NW GULF IN THE
WAKE OF THE FRONT.  AN UPPER LEVEL RIDGE ALONG WITH STRONG SUBSIDENCE COVER
THE SE GULF.  EXPECT STRONG WINDS AND SHOWER ACTIVITY TO CONTINUE OVER THE SW
GULF.  [text continues]
```

Example: Aviation Tropical Cyclone Advisory (TCA)

```
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

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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.

Products from Weather Forecast Offices

Example: WFO Local Watch/Warning Statement (TCV)

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WTUS82 KILM 291220
TCVILM

URGENT - IMMEDIATE BROADCAST REQUESTED
BONNIE LOCAL WATCH/WARNING STATEMENT/INTERMEDIATE ADVISORY NUMBER 7A
NATIONAL WEATHER SERVICE WILMINGTON NC  AL022016
820 AM EDT SUN MAY 29 2016

SCZ054-291330-
/O.CAN.KILM.TR.W.1002.000000T0000Z-000000T0000Z/
COASTAL HORRY-
820 AM EDT SUN MAY 29 2016

...TROPICAL STORM WARNING IS CANCELLED...
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* LOCATIONS AFFECTED
    - SURFSIDE BEACH
    - MYRTLE BEACH
    - NORTH MYRTLE BEACH

* WIND
    - LATEST LOCAL FORECAST: BELOW TROPICAL STORM FORCE WIND
        - PEAK WIND FORECAST: 10-15 MPH WITH GUSTS TO 25 MPH

    - CURRENT THREAT TO LIFE AND PROPERTY: NONE
        - THE WIND THREAT HAS DECREASED FROM THE PREVIOUS ASSESSMENT.
        - CONDITIONS MAY STILL BE BREEZY TO WINDY.
        - EXERCISE DUE SAFETY WHEN MOVING ABOUT.
        - REVIEW YOUR SEASONAL PLAN AND ENSURE READINESS FOR THE NEXT
          TROPICAL WIND EVENT.

    - REALIZED IMPACTS: STILL BEING ASSESSED
        - LITTLE TO NO ADDITIONAL WIND IMPACTS EXPECTED. COMMUNITY
          OFFICIALS ARE NOW ASSESSING THE EXTENT OF ACTUAL WIND
          IMPACTS ACCORDINGLY.

* STORM SURGE
    - NO STORM SURGE INUNDATION FORECAST

    - CURRENT THREAT TO LIFE AND PROPERTY: NONE
        - THE STORM SURGE THREAT HAS DECREASED FROM THE PREVIOUS
          ASSESSMENT.
        - SURF CONDITIONS MAY STILL BE ROUGH WITH SOME BEACH EROSION.
          STRONGER THAN NORMAL RIP CURRENTS MAY ALSO BE PRESENT.
        - EXERCISE DUE SAFETY.
        - REVIEW YOUR SEASONAL PLAN AND ENSURE READINESS FOR THE NEXT
          STORM SURGE EVENT.

    - REALIZED IMPACTS: STILL BEING ASSESSED
        - LITTLE TO NO ADDITIONAL SURGE IMPACTS EXPECTED. COMMUNITY
          OFFICIALS ARE NOW ASSESSING THE EXTENT OF ACTUAL SURGE
          IMPACTS ACCORDINGLY.

* FLOODING RAIN
    - LATEST LOCAL FORECAST:
        - PEAK RAINFALL AMOUNTS: ADDITIONAL 1-3 INCHES, WITH LOCALLY
          HIGHER AMOUNTS

    - CURRENT THREAT TO LIFE AND PROPERTY: NONE
        - THE FLOODING RAIN THREAT HAS DECREASED FROM THE PREVIOUS
          ASSESSMENT.
        - LOCALLY HEAVY RAIN AND NUISANCE FLOODING MAY STILL OCCUR.
        - EXERCISE DUE SAFETY.
        - REVIEW YOUR SEASONAL PLAN AND ENSURE READINESS FOR THE NEXT
          TROPICAL RAINFALL EVENT.

    - POTENTIAL IMPACTS: LITTLE TO NONE
        - LITTLE TO NO POTENTIAL IMPACTS FROM FLOODING RAIN.

* TORNADO
    - LATEST LOCAL FORECAST:
        - SITUATION IS UNFAVORABLE FOR TORNADOES

    - CURRENT THREAT TO LIFE AND PROPERTY: NONE
        - THE TORNADO THREAT HAS DECREASED FROM THE PREVIOUS
          ASSESSMENT.
        - SHOWERS AND THUNDERSTORMS WITH STRONG GUSTY WINDS MAY STILL
          OCCUR.
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        - EXERCISE DUE SAFETY.
        - REVIEW YOUR SEASONAL PLAN AND ENSURE READINESS FOR THE NEXT
          TROPICAL TORNADO EVENT.

    - POTENTIAL IMPACTS: LITTLE TO NONE
        - LITTLE TO NO POTENTIAL IMPACTS FROM TORNADOES.

* FOR MORE INFORMATION:
    - HTTP://WWW.WEATHER.GOV/ILM/TROPICS
    - HTTP://READY.GOV/HURRICANES

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SCZ053-291330-
/O.CAN.KILM.TR.W.1002.000000T0000Z-000000T0000Z/
INLAND HORRY-
820 AM EDT SUN MAY 29 2016

...TROPICAL STORM WARNING IS CANCELLED...

* LOCATIONS AFFECTED
    - CONWAY
    - LORIS

* WIND
    - LATEST LOCAL FORECAST: BELOW TROPICAL STORM FORCE WIND
        - PEAK WIND FORECAST: 10-15 MPH WITH GUSTS TO 20 MPH

    - CURRENT THREAT TO LIFE AND PROPERTY: NONE
        - THE WIND THREAT HAS DECREASED FROM THE PREVIOUS ASSESSMENT.
        - CONDITIONS MAY STILL BE BREEZY TO WINDY.
        - EXERCISE DUE SAFETY WHEN MOVING ABOUT.
        - REVIEW YOUR SEASONAL PLAN AND ENSURE READINESS FOR THE NEXT
          TROPICAL WIND EVENT.

    - REALIZED IMPACTS: STILL BEING ASSESSED
        - LITTLE TO NO ADDITIONAL WIND IMPACTS EXPECTED. COMMUNITY
          OFFICIALS ARE NOW ASSESSING THE EXTENT OF ACTUAL WIND
          IMPACTS ACCORDINGLY.

* STORM SURGE
    - NO STORM SURGE INUNDATION FORECAST

    - CURRENT THREAT TO LIFE AND PROPERTY: NONE
        - THE STORM SURGE THREAT HAS DECREASED FROM THE PREVIOUS
          ASSESSMENT.
        - SURF CONDITIONS MAY STILL BE ROUGH WITH SOME BEACH EROSION.
          STRONGER THAN NORMAL RIP CURRENTS MAY ALSO BE PRESENT.
        - EXERCISE DUE SAFETY.
        - REVIEW YOUR SEASONAL PLAN AND ENSURE READINESS FOR THE NEXT
          STORM SURGE EVENT.

    - REALIZED IMPACTS: STILL BEING ASSESSED
        - LITTLE TO NO ADDITIONAL SURGE IMPACTS EXPECTED. COMMUNITY
          OFFICIALS ARE NOW ASSESSING THE EXTENT OF ACTUAL SURGE
          IMPACTS ACCORDINGLY.

* FLOODING RAIN
    - LATEST LOCAL FORECAST:
        - PEAK RAINFALL AMOUNTS: ADDITIONAL 1-3 INCHES, WITH LOCALLY
          HIGHER AMOUNTS

    - CURRENT THREAT TO LIFE AND PROPERTY: NONE
        - THE FLOODING RAIN THREAT HAS DECREASED FROM THE PREVIOUS
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          ASSESSMENT.
        - LOCALLY HEAVY RAIN AND NUISANCE FLOODING MAY STILL OCCUR.
        - EXERCISE DUE SAFETY.
        - REVIEW YOUR SEASONAL PLAN AND ENSURE READINESS FOR THE NEXT
          TROPICAL RAINFALL EVENT.

    - POTENTIAL IMPACTS: LITTLE TO NONE
        - LITTLE TO NO POTENTIAL IMPACTS FROM FLOODING RAIN.

* TORNADO
    - LATEST LOCAL FORECAST:
        - SITUATION IS UNFAVORABLE FOR TORNADOES

    - CURRENT THREAT TO LIFE AND PROPERTY: NONE
        - THE TORNADO THREAT HAS DECREASED FROM THE PREVIOUS
          ASSESSMENT.
        - SHOWERS AND THUNDERSTORMS WITH STRONG GUSTY WINDS MAY STILL
          OCCUR.
        - EXERCISE DUE SAFETY.
        - REVIEW YOUR SEASONAL PLAN AND ENSURE READINESS FOR THE NEXT
          TROPICAL TORNADO EVENT.

    - POTENTIAL IMPACTS: LITTLE TO NONE
        - LITTLE TO NO POTENTIAL IMPACTS FROM TORNADOES.

* FOR MORE INFORMATION:
    - HTTP://WWW.WEATHER.GOV/ILM/TROPICS
    - HTTP://READY.GOV/HURRICANES

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SCZ056-291330-
/O.CAN.KILM.TR.W.1002.000000T0000Z-000000T0000Z/
COASTAL GEORGETOWN-
820 AM EDT SUN MAY 29 2016

...TROPICAL STORM WARNING IS CANCELLED...

* LOCATIONS AFFECTED
    - GEORGETOWN
    - MURRELLS INLET

* WIND
    - LATEST LOCAL FORECAST: BELOW TROPICAL STORM FORCE WIND
        - PEAK WIND FORECAST: 10-20 MPH WITH GUSTS TO 30 MPH

    - CURRENT THREAT TO LIFE AND PROPERTY: NONE
        - THE WIND THREAT HAS DECREASED FROM THE PREVIOUS ASSESSMENT.
        - CONDITIONS MAY STILL BE BREEZY TO WINDY.
        - EXERCISE DUE SAFETY WHEN MOVING ABOUT.
        - REVIEW YOUR SEASONAL PLAN AND ENSURE READINESS FOR THE NEXT
          TROPICAL WIND EVENT.

    - REALIZED IMPACTS: STILL BEING ASSESSED
        - LITTLE TO NO ADDITIONAL WIND IMPACTS EXPECTED. COMMUNITY
          OFFICIALS ARE NOW ASSESSING THE EXTENT OF ACTUAL WIND
          IMPACTS ACCORDINGLY.

* STORM SURGE
    - NO STORM SURGE INUNDATION FORECAST

    - CURRENT THREAT TO LIFE AND PROPERTY: NONE
        - THE STORM SURGE THREAT HAS DECREASED FROM THE PREVIOUS
          ASSESSMENT.
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        - SURF CONDITIONS MAY STILL BE ROUGH WITH SOME BEACH EROSION.
          STRONGER THAN NORMAL RIP CURRENTS MAY ALSO BE PRESENT.
        - EXERCISE DUE SAFETY.
        - REVIEW YOUR SEASONAL PLAN AND ENSURE READINESS FOR THE NEXT
          STORM SURGE EVENT.

    - REALIZED IMPACTS: STILL BEING ASSESSED
        - LITTLE TO NO ADDITIONAL SURGE IMPACTS EXPECTED. COMMUNITY
          OFFICIALS ARE NOW ASSESSING THE EXTENT OF ACTUAL SURGE
          IMPACTS ACCORDINGLY.

* FLOODING RAIN
    - LATEST LOCAL FORECAST:
        - PEAK RAINFALL AMOUNTS: ADDITIONAL 1-3 INCHES, WITH LOCALLY
          HIGHER AMOUNTS

    - CURRENT THREAT TO LIFE AND PROPERTY: NONE
        - THE FLOODING RAIN THREAT HAS DECREASED FROM THE PREVIOUS
          ASSESSMENT.
        - LOCALLY HEAVY RAIN AND NUISANCE FLOODING MAY STILL OCCUR.
        - EXERCISE DUE SAFETY.
        - REVIEW YOUR SEASONAL PLAN AND ENSURE READINESS FOR THE NEXT
          TROPICAL RAINFALL EVENT.

    - POTENTIAL IMPACTS: LITTLE TO NONE
        - LITTLE TO NO POTENTIAL IMPACTS FROM FLOODING RAIN.

* TORNADO
    - LATEST LOCAL FORECAST:
        - SITUATION IS UNFAVORABLE FOR TORNADOES

    - CURRENT THREAT TO LIFE AND PROPERTY: NONE
        - THE TORNADO THREAT HAS DECREASED FROM THE PREVIOUS
          ASSESSMENT.
        - SHOWERS AND THUNDERSTORMS WITH STRONG GUSTY WINDS MAY STILL
          OCCUR.
        - EXERCISE DUE SAFETY.
        - REVIEW YOUR SEASONAL PLAN AND ENSURE READINESS FOR THE NEXT
          TROPICAL TORNADO EVENT.

    - POTENTIAL IMPACTS: LITTLE TO NONE
        - LITTLE TO NO POTENTIAL IMPACTS FROM TORNADOES.

* FOR MORE INFORMATION:
    - HTTP://WWW.WEATHER.GOV/ILM/TROPICS
    - HTTP://READY.GOV/HURRICANES

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SCZ055-291330-
/O.CAN.KILM.TR.W.1002.000000T0000Z-000000T0000Z/
INLAND GEORGETOWN-
820 AM EDT SUN MAY 29 2016

...TROPICAL STORM WARNING IS CANCELLED...

* LOCATIONS AFFECTED
    - ANDREWS

* WIND
    - LATEST LOCAL FORECAST: BELOW TROPICAL STORM FORCE WIND
        - PEAK WIND FORECAST: 10-15 MPH WITH GUSTS TO 30 MPH

    - CURRENT THREAT TO LIFE AND PROPERTY: NONE
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        - THE WIND THREAT HAS DECREASED FROM THE PREVIOUS ASSESSMENT.
        - CONDITIONS MAY STILL BE BREEZY TO WINDY.
        - EXERCISE DUE SAFETY WHEN MOVING ABOUT.
        - REVIEW YOUR SEASONAL PLAN AND ENSURE READINESS FOR THE NEXT
          TROPICAL WIND EVENT.

    - REALIZED IMPACTS: STILL BEING ASSESSED
        - LITTLE TO NO ADDITIONAL WIND IMPACTS EXPECTED. COMMUNITY
          OFFICIALS ARE NOW ASSESSING THE EXTENT OF ACTUAL WIND
          IMPACTS ACCORDINGLY.

* STORM SURGE
    - NO STORM SURGE INUNDATION FORECAST

    - CURRENT THREAT TO LIFE AND PROPERTY: NONE
        - THE STORM SURGE THREAT HAS DECREASED FROM THE PREVIOUS
          ASSESSMENT.
        - SURF CONDITIONS MAY STILL BE ROUGH WITH SOME BEACH EROSION.
          STRONGER THAN NORMAL RIP CURRENTS MAY ALSO BE PRESENT.
        - EXERCISE DUE SAFETY.
        - REVIEW YOUR SEASONAL PLAN AND ENSURE READINESS FOR THE NEXT
          STORM SURGE EVENT.

    - REALIZED IMPACTS: STILL BEING ASSESSED
        - LITTLE TO NO ADDITIONAL SURGE IMPACTS EXPECTED. COMMUNITY
          OFFICIALS ARE NOW ASSESSING THE EXTENT OF ACTUAL SURGE
          IMPACTS ACCORDINGLY.

* FLOODING RAIN
    - LATEST LOCAL FORECAST:
        - PEAK RAINFALL AMOUNTS: ADDITIONAL 1-3 INCHES, WITH LOCALLY
          HIGHER AMOUNTS

    - CURRENT THREAT TO LIFE AND PROPERTY: NONE
        - THE FLOODING RAIN THREAT HAS DECREASED FROM THE PREVIOUS
          ASSESSMENT.
        - LOCALLY HEAVY RAIN AND NUISANCE FLOODING MAY STILL OCCUR.
        - EXERCISE DUE SAFETY.
        - REVIEW YOUR SEASONAL PLAN AND ENSURE READINESS FOR THE NEXT
          TROPICAL RAINFALL EVENT.

    - POTENTIAL IMPACTS: LITTLE TO NONE
        - LITTLE TO NO POTENTIAL IMPACTS FROM FLOODING RAIN.

* TORNADO
    - LATEST LOCAL FORECAST:
        - SITUATION IS UNFAVORABLE FOR TORNADOES

    - CURRENT THREAT TO LIFE AND PROPERTY: NONE
        - THE TORNADO THREAT HAS DECREASED FROM THE PREVIOUS
          ASSESSMENT.
        - SHOWERS AND THUNDERSTORMS WITH STRONG GUSTY WINDS MAY STILL
          OCCUR.
        - EXERCISE DUE SAFETY.
        - REVIEW YOUR SEASONAL PLAN AND ENSURE READINESS FOR THE NEXT
          TROPICAL TORNADO EVENT.

    - POTENTIAL IMPACTS: LITTLE TO NONE
        - LITTLE TO NO POTENTIAL IMPACTS FROM TORNADOES.

* FOR MORE INFORMATION:
    - HTTP://WWW.WEATHER.GOV/ILM/TROPICS
    - HTTP://READY.GOV/HURRICANES
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Example: Hurricane Local Statement (HLS) – Atlantic Basin

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WTUS82 KILM 290301
HLSILM
NCZ087-096-099-105>110-SCZ017-023-024-032-033-039-053>056-291115-

TROPICAL STORM BONNIE LOCAL STATEMENT ADVISORY NUMBER 6
NATIONAL WEATHER SERVICE WILMINGTON NC  AL022016
1101 PM EDT SAT MAY 28 2016

THIS PRODUCT COVERS SOUTHEAST NORTH CAROLINA AND NORTHEAST SOUTH CAROLINA

 **BONNIE STALLED OFF SC COAST**


NEW INFORMATION
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* CHANGES TO WATCHES AND WARNINGS:
    - NONE

* CURRENT WATCHES AND WARNINGS:
    - A TROPICAL STORM WARNING REMAINS IN EFFECT FOR INLAND
      HORRY...COASTAL HORRY...INLAND GEORGETOWN AND COASTAL GEORGETOWN

* STORM INFORMATION:
    - ABOUT 250 MILES SOUTH-SOUTHWEST OF WILMINGTON NC OR ABOUT 190
      MILES SOUTH OF MYRTLE BEACH SC
    - 31.0N 79.5W
    - STORM INTENSITY 45 MPH
    - MOVEMENT STATIONARY

SITUATION OVERVIEW
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TROPICAL STORM BONNIE HAS STALLED OFF THE SOUTH CAROLINA COAST. THE
SYSTEM WILL TAKE ON A NORTHWESTERLY MOVEMENT AND COME ASHORE NEAR
CHARLESTON SUNDAY EVENING. IT WILL THEN TURN TO THE NORTHEAST AND
CONTINUE UP THE NORTH CAROLINA COAST THROUGH WEDNESDAY.

RAINFALL OVER THE NEXT FEW DAYS SHOULD AVERAGE 2 TO 4 INCHES. A FEW
LOCATIONS MAY RECEIVE AS MUCH AS 5 INCHES.

ROUGH SURF AND A HIGH RISK OF RIP CURRENTS CAN BE EXPECTED ALONG THE
ENTIRE COAST OF SOUTH CAROLINA AND SOUTHEASTERN NORTH CAROLINA OVER
THE NEXT FEW DAYS.

POTENTIAL IMPACTS
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* FLOODING RAIN:
PROTECT AGAINST LOCALLY HAZARDOUS RAINFALL FLOODING HAVING POSSIBLE
LIMITED IMPACTS ACROSS SOUTHEAST NORTH CAROLINA AND NORTHEAST SOUTH
CAROLINA. POTENTIAL IMPACTS INCLUDE:
    - LOCALIZED FLOODING FROM RAINFALL MAY OCCUR, ESPECIALLY IN
      LOW-LYING AND POOR DRAINAGE AREAS. SOME RIVERS AND CREEKS MAY
      RISE AS A RESULT OF THE RAIN. SMALL STREAMS, CREEKS, AND
      DITCHES MAY OVERFLOW IN SOME LOCATIONS.
    - SEVERAL STORM DRAINS AND RETENTION PONDS MAY BECOME FULL AND
      BEGIN TO OVERFLOW. SOME BRIEF ROAD CLOSURES ARE POSSIBLE.

* OTHER COASTAL HAZARDS:
STRONG RIP CURRENTS ARE EXPECTED ALONG AREA BEACHES THROUGH THE
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HOLIDAY WEEKEND.

* WIND:
PROTECT AGAINST HAZARDOUS WIND HAVING POSSIBLE LIMITED IMPACTS ACROSS
SOUTHEAST NORTH CAROLINA AND NORTHEAST SOUTH CAROLINA. POTENTIAL
IMPACTS INCLUDE:
    - UNSECURED LIGHTWEIGHT OBJECTS MAY BE BLOWN ABOUT.
    - SOME LARGE LIMBS MAY BREAK FROM TREES.

* TORNADOES:
PROTECT AGAINST A TORNADO EVENT HAVING POSSIBLE LIMITED IMPACTS
ACROSS COASTAL SOUTH CAROLINA. POTENTIAL IMPACTS INCLUDE:
    - THE OCCURRENCE OF ISOLATED TORNADOES CAN HINDER THE EXECUTION
      OF EMERGENCY PLANS DURING TROPICAL EVENTS.


ELSEWHERE ACROSS SOUTHEAST NORTH CAROLINA AND NORTHEAST SOUTH
CAROLINA, LITTLE TO NO IMPACT IS ANTICIPATED.

PRECAUTIONARY/PREPAREDNESS ACTIONS
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* OTHER PREPAREDNESS INFORMATION:
IF YOU ARE A VISITOR AND STILL IN THE AREA, LISTEN FOR THE NAME OF
THE CITY OR TOWN IN WHICH YOU ARE STAYING WITHIN LOCAL NEWS UPDATES.
PAY ATTENTION FOR INSTRUCTIONS FROM LOCAL AUTHORITIES.

CLOSELY MONITOR NOAA WEATHER RADIO OR OTHER LOCAL NEWS OUTLETS FOR
OFFICIAL STORM INFORMATION.  BE READY TO ADAPT TO POSSIBLE CHANGES TO
THE FORECAST.

* ADDITIONAL SOURCES OF INFORMATION:
- FOR INFORMATION ON APPROPRIATE PREPARATIONS SEE READY.GOV
- FOR INFORMATION ON CREATING AN EMERGENCY PLAN SEE GETAGAMEPLAN.ORG
- FOR ADDITIONAL DISASTER PREPAREDNESS INFORMATION SEE REDCROSS.ORG

NEXT UPDATE
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THE NEXT LOCAL STATEMENT WILL BE ISSUED BY THE NATIONAL WEATHER
SERVICE IN WILMINGTON NC AROUND BY 3 AM, OR SOONER IF CONDITIONS
WARRANT.

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HLS example – Pacific Basin

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WTPQ82 PGUM 120953
HLSPQ2

URGENT - IMMEDIATE BROADCAST REQUESTED
TROPICAL STORM DOLPHIN (07W) LOCAL STATEMENT
NATIONAL WEATHER SERVICE TIYAN GU
900 PM CHST TUE MAY 12 2015

...TROPICAL STORM DOLPHIN SLOWLY INTENSIFYING AS IT MOVES WESTWARD...

.AREAS AFFECTED...
THIS LOCAL STATEMENT PROVIDES INFORMATION AND RECOMMENDED ACTIONS FOR PEOPLE
ON FANANU AND OTHER ATOLLS IN THE HALL ISLANDS OF CHUUK STATE.
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.WATCHES/WARNINGS...
A TROPICAL STORM WATCH REMAINS IN EFFECT FOR FANANU IN CHUUK STATE. TROPICAL STORM CONDITIONS...INCLUDING DAMAGING WINDS OF 39 TO 73 MPH...ARE POSSIBLE WITHIN 24 TO 48 HOURS.

SUMMARY OF 700 PM CHST...0900 UTC...INFORMATION

LOCATION...10.2N 157.9E

ABOUT 230 MILES NORTH OF POHNPEI
ABOUT 410 MILES EAST-NORTHEAST OF FANANU
ABOUT 450 MILES EAST-NORTHEAST OF WENO ISLAND CHUUK
ABOUT 575 MILES EAST-NORTHEAST OF ULUL
ABOUT 915 MILES EAST-SOUTHEAST OF GUAM

MAXIMUM SUSTAINED WINDS...55 MPH
PRESENT MOVEMENT...DRIFTING WEST...270 DEGREES AT 3 MPH.

.SITUATION OVERVIEW...
TROPICAL STORM DOLPHIN IS MOVING VERY SLOWLY TO THE WEST WHILE SHOWING SOME INDICATIONS OF DEVIATING JUST SOUTH AND NORTH OF 10N IN THE LATEST SATELLITE IMAGERY. RECENT LIGHTNING NEAR THE CENTER ARE POSSIBLE INDICATIONS THAT INTENSIFICATION HAS BEGUN IN EARNEST AS THE UPPER LEVEL SHEAR APPEARS TO BE WEAKENING. CURRENT TRACK HAS THE PATH WELL NORTH OF FANANU AND OTHER ATOLLS IN THE HALL ISLANDS IN CHUUK STATE HOWEVER TROPICAL STORM FORCE WINDS ARE ANTICIPATED TO PASS JUST TO THE NORTH OF THESE ISLANDS ON WEDNESDAY AND ANY FURTHER DEVIATION OF THE TRACK TO THE SOUTH MAY BRING THESE WINDS TEMPORARILY ACROSS THESE ISLANDS.

&&

...FANANU AND THE HALL ISLANDS...

.PRECAUTIONARY/PREPAREDNESS ACTIONS...
MAKE SURE YOU HAVE ENOUGH FOOD AND WATER FOR A FEW DAYS. DO NOT ATTEMPT INTER-ISLAND TRAVEL UNTIL DOLPHIN PASSES WELL TO THE WEST. FOLLOW INSTRUCTIONS FROM YOUR LOCAL EMERGENCY MANAGEMENT OFFICIALS. A DIP TOWARD THE SOUTH IN THE FORECAST TRACK COULD RESULT IN HIGHER WIND SPEEDS.

...WIND INFORMATION...
AS TROPICAL STORM DOLPHIN IS CURRENTLY FORECAST...TROPICAL STORM FORCE WINDS SHOULD REMAIN NORTH OF THE HALL ISLANDS...HOWEVER ANY SIGNIFICANT DEVIATION OF THE TRACK TO THE SOUTH COULD BRING TROPICAL FORCE WESTERLY WINDS ON WEDNESDAY THROUGH THURSDAY MORNING.

...STORM SURGE AND SURF INFORMATION...
COMBINED SEAS OF 10 TO 12 FEET ARE POSSIBLE BY WEDNESDAY NIGHT...PRODUCING DANGEROUS SURF UP TO 14 FEET.

...OTHER STORM EFFECTS...
RAINFALL TOTALS OF 2 TO 4 INCHES ARE POSSIBLE THROUGH THURSDAY.

.NEXT UPDATE...
THE NEXT LOCAL STATEMENT WILL BE ISSUED BY THE NATIONAL WEATHER SERVICE AT 300 AM CHST EARLY WEDNESDAY MORNING.

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HLS example – American Samoa and Samoa (English language version)

...TROPICAL CYCLONE IAN STEERS DIRECTLY FOR TONGA...

.NEW INFORMATION...
DETAILS REGARDING THE POTENTIAL IMPACTS ASSOCIATED WITH TROPICAL CYCLONE IAN UPON LOCAL AREA ARE DESCRIBED.

.AREAS AFFECTED...
THIS LOCAL STATEMENT PROVIDES IMPORTANT INFORMATION AND RECOMMENDED ACTIONS FOR PEOPLE AND MARINE INTERESTS IN ALL LOCATIONS AND COASTAL WATERS OF AMERICAN SAMOA.

.WATCHES WARNINGS...
A GALE WATCH REMAINS IN EFFECT FOR TUTUILA AUNUU AND MANUA. FOR MARINE INTERESTS...A GALE WATCH REMAINS IN EFFECT FOR ALL COASTAL WATERS OF AMERICAN SAMOA.

.STORM INFORMATION...
AT 530 PM SST...TROPICAL CYCLONE IAN WAS LOCATED NEAR 17.9 SOUTH... 175.0 WEST OR ABOUT 325 NAUTICAL MILES SOUTHWEST OF PAGO PAGO OR 385 NAUTICAL MILES SOUTHWEST OF MANUA. TROPICAL CYCLONE IAN IS SLOWLY MOVING SOUTHEAST AT ABOUT 10 MPH. MAXIMUM SUSTAINED WINDS WERE 115 MPH...WITH HIGHER GUSTS. SOME FLUCTUATIONS IN INTENSITY ARE FORECAST DURING THE NEXT 24 HOURS.

.SITUATION OVERVIEW...
AN ACTIVE MONSOONAL TROUGH ASSOCIATED WITH TROPICAL CYCLONE IAN IS EXPECTED TO GENERATE GALE FORCE WINDS ACROSS THE SAMOAN ISLANDS AND COASTAL WATERS LATE TONIGHT AND INTO FRIDAY MORNING. THE TROUGH EXTENDING FROM SOUTH OF TONGATAPU WILL CAPTURE TROPICAL CYCLONE IAN LATE FRIDAY NIGHT TO SATURDAY MORNING AND MOVE IT SOUTH ONTO COOLER WATERS. HIGH PRESSURE SYSTEM FAR SOUTHEAST IS SLOWLY WEAKENING WHILE THE RIDGE TO THE NORTHEAST OF THE ISLANDS BUILDS WESTWARD.

.WINDS...
STRONG NORTH AND NORTHWEST WINDS ARE EXPECTED TO INCREASE TO GALE FORCE CONDITIONS...OR 39 TO 47 MPH LATE TONIGHT AND INTO FRIDAY MORNING. WINDS ARE EXPECTED TO DIMINISH BELOW GALE CONDITIONS ON SATURDAY MORNING.

.INLAND FLOODING...
WITH AN ACTIVE MONSOONAL TROUGH REMAINING NEARLY STATIONARY ACROSS THE ISLANDS...INUNDATION OF LOW LYING AREAS AND LANDSLIDES ARE ALSO POSSIBLE AS GROUNDS HAD BEEN SATURATED IN THE LAST SEVERAL DAYS.

.PRECAUTIONARY / PREPAREDNESS ACTIONS...

.NEXT UPDATE...
THE NEXT LOCAL STATEMENT WILL BE ISSUED BY THE NATIONAL WEATHER SERVICE IN PAGO PAGO AT 12 AM SST...OR SOONER IF CONDITIONS WARRANT.

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Example: Extreme Wind Warning (EWW)

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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

* PRECAUTIONARY / PREPAREDNESS ACTIONS...
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

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Example: Severe Weather Statement (SVS) follow-up for EWW

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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
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...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

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Example: Short Term Forecast (NOW)

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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
430 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 TO 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.

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Example: Post Tropical Cyclone Report (PSH)

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ACUS72 KTBW 140058
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
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OFFICIAL OBSERVATIONS...
NOTE: ANEMOMETER HEIGHT IS 10 METERS AND WIND AVERAGING IS 2 MINUTES

LOCATION ID LAT LON DEG DECIMAL	MIN PRES (MB)	DATE/ TIME (UTC)	MAX SUST (KT)	DATE/ TIME (UTC)	PEAK GUST (KT)	DATE/ TIME (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 MINUTES
INDICATED UNDER MAXIMUM SUSTAINED WIND IF KNOWN

LOCATION ID LAT LON DEG DECIMAL	MIN PRES (MB)	DATE/ TIME (UTC)	MAX SUST (KT)	DATE/ TIME (UTC)	PEAK GUST (KT)	DATE/ TIME (UTC)
CDRF1 CEDAR KEY						
29.1 -83.0	1004.1	13/1100	185/036 02/10	13/0830	180/048	13/0900
PTRF1 PORT RICHEY						
28.3 82.7	1005.4	13/1205 I	210/029 01/05	13/1154	220/035	13/1200
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 LAT LON DEG DECIMAL	MIN PRES (MB)	DATE/ TIME (UTC)	MAX SUST (KT)	DATE/ TIME (UTC)	PEAK GUST (KT)	DATE/ TIME (UTC)
42036 100 NM WEST OF BAYPORT						
28.5 -84.5	1008.5	13/0905	280/035 05/08	13/1040	080/045	12/1050
42013 30 NM WEST OF VENICE						
25.9 -85.9	1003.7	13/1040	170/029 03/10	12/2210	200/035	13/0310 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 LAT LON DEG DECIMAL	COUNTY	ID	RAINFALL (IN)
SUWANNEE 29.2 -83.1	LEVY	SUWF1	4.23
CHIEFLAND 29.5 -82.9	LEVY	CHIF1	3.67
WILLISTON 29.4 -82.5	LEVY	WLSF1	4.53
THE VILLAGES 28.9 -81.9	SUMTER	KVVG	0.87
DADE CITY 28.3 -82.3	PASCO	STLF1	2.62
PINELLAS PARK 27.9 -82.7	PINELLAS	PINPK4.10	

REMARKS: NONE.

D. INLAND FLOODING...

LEVY...NUMEROUS REPORTS OF LOCALIZED FRESH WATER FLOODING IN URBAN AREAS.

CITRUS...LOCALIZED FRESH WATER FLOODING REPORTED IN SEVERAL AREAS.

HILLSBOROUGH...LOCALIZED FRESH WATER FLOODING WAS OBSERVED.

REMARKS: NONE.

E. MAXIMUM STORM SURGE AND STORM TIDE...
OFFICIAL TIDE GAUGES NOTED WITH LEADING "G"

COUNTY	CITY/TOWN OR LOCATION	SURGE (FT)	TIDE (FT)	DATE TIME	BEACH EROSION
LEVY	G CEDAR KEY	4.09	6.74	13/0800	MINOR
PINELLAS	G CLEARWATER	2.42	4.02	13/0900	MINOR
MANATEE	COQUINA BEACH	4.33	6.78	13/0700	MAJOR

MAJOR BEACH EROSION AT COQUINA BEACH WHERE THE SAND WAS DUG OUT 2 FEET DEEP AND HALF THE BEACH DISAPPEARED.

PINELLAS INDIAN SHORES 3.56 6.45 13/0800 MODERATE

MODERATE BEACH EROSION REPORTED AT INDIAN SHORES.

CITRUS NORTHERN COAST 4.00 N/A 13/1000 UNKNOWN

COUNTY EMERGENCY MANAGEMENT REPORTED A 3 TO 4 FOOT SURGE FROM HOMOSASSA TO JUST SOUTH OF INGLIS.

REMARKS: DATE AND TIME ESTIMATED FOR MANATEE PINELLAS AND CITRUS COUNTIES.

F. TORNADOES...

(DIST)CITY/TOWN LAT LON (DEG DECIMAL)	COUNTY	DATE/ TIME(UGC)	EF SCALE (IF KNOWN)	DESCRIPTION
3 NE WAUCHULA 27.6 -81.8	HARDEE	12/0650	EF0	COUNTY ROAD CREW OBSERVED THE TORNADO NEAR HIGHWAY 62.
2 E BARTOW 27.9 -81.8	POLK	12/0809	EF0	TORNADO OBSERVED 1 MILE EAST OF BARTOW AIRPORT.
1 S ARCADIA 27.2 -81.9	DESOTO	12/0658	EF0	TORNADO OBSERVED 1 MILE SOUTH OF ARCADIA.

REMARKS: NONE.

G. STORM IMPACTS BY COUNTY...

COUNTY	DEATHS	INJURIES	EVACUATIONS	DESCRIPTION
LEVY	0	0	100	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.
CITRUS	0	0	25	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.
PASCO	0	0	0	4 FOOT SURGE UP AND DOWN THE COUNTY COASTLINE. WAS NOT HIGH ENOUGH TO FLOOD PROPERTY...EVEN AT HIGH TIDE.
HILLSBOROUGH	0	0	0	A COUPLE OF TREES ON HOUSES. FRESH WATER FLOODING AND BAY OVERSPRAY CLOSED PARTS OF BAY SHORE BOULEVARD FOR A TIME.

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MANATEE           0           0                     0
NO PROBLEMS.

SARASOTA          0           0                     0
NO PROBLEMS.

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Legend:
I-Incomplete Data
E-Estimated

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APPENDIX B
TROPICAL CYCLONE ASSESSMENT AND WARNING PRODUCT IDENTIFIERS

AREA	WMO	AWIPS
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	

Issuing Office	WMO CCCC
WFO HFO / CPHC – Honolulu, HI	PHFO
WFO Guam	PGUM
JTWC - Pearl Harbor, HI	PGTW
NHC – Miami, FL	KNHC
WPC – College Park, MD	KWNH
NAVPACMETOCCEN - Naval Pacific Meteorology and Oceanography Center - Pearl Harbor, HI	PHNC
Offutt Air Force Base, NE	KGWC

PRODUCT TITLE	WMO HEADER	AWIPS PRODUCT IDENTIFIER (NNNXXX)
Tropical Weather Outlook		
Atlantic Basin	ABNT20 KNHC	TWOAT
Eastern Pacific	ABPZ20 KNHC	TWOEP
Central Pacific	ACPN50 PHFO	TWOCP
San Juan - Spanish	ACCA62 TJSJ	TWOSPN
Western Pacific	ABPW10 PGTW	N/A
Indian Ocean	ABIO10 PGTW	N/A
Tropical Weather Discussion		
Atlantic Basin	AXNT20 KNHC	TWDAT
Eastern Pacific	AXPZ20 KNHC	TWDEP

PRODUCT TITLE	WMO HEADER	AWIPS PRODUCT IDENTIFIER (NNNXXX)
Tropical / Subtropical Cyclone Public Advisory		
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 North Pacific	WTPQ/31-35/ PGUM	TCPPQ/1-5/
Public Advisory from WPC		
Conterminous U.S. - WPC issued	WTNT/31-35/ KWNH	TCPAT/1-5/
Tropical Cyclone Surface Wind Speed Probabilities Text Product		
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/
Tropical / Subtropical Cyclone Forecast / Advisory		
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/
Tropical Cyclone Discussion		
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/
Tropical Cyclone Valid Time Event Code Product		
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/
Prognostic Reasoning of Warnings for NW Pacific	WDPN/31-36/ PGTW	N/A

PRODUCT TITLE	WMO HEADER	AWIPS PRODUCT IDENTIFIER (NNNXXX)
Tropical Cyclone Position and Intensity from Satellite Data		
West Pacific Ocean	TXPQ/20-29/ KNES	TCSWNP
South Pacific Ocean	TXSP/20-29/ KNES	TCSWSP
South Atlantic Ocean	TXST/20-29/ KNES	TCSSTL
North Indian Ocean	TXIO/20-29/ KNES	TCSNIO
South Indian Ocean	TXXS/20-29/ KNES	TCSSIO
Tropical Cyclone Formation Alert Message		
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 NAVPACMETOCCEN		
Southeast Pacific	WTPS/21-25/ PHNC	N/A
Tropical Cyclone Update		
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/
Western North Pacific	WTPQ/61-65/ PGUM	TCUPQ/1-5/
Tropical Cyclone Warnings		
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
Tropical Weather Summary		
Atlantic Basin	ABNT30 KNHC	TWSAT
Eastern Pacific	ABPZ30 KNHC	TWSEP
Central Pacific	ACPN60 PHFO	TWSCP
Satellite Interpretation Message		
Hawaiian Islands	ATHW40 PHFO	SIMHI
Western North Pacific (Guam)	ATPQ40 PGUM	SIMGUM

PRODUCT TITLE	WMO HEADER	AWIPS PRODUCT IDENTIFIER (NNNXXX)
Satellite-Derived Rainfall		
Eastern Caribbean	TCCA21 KNHC	STDECA
Central Caribbean	TCCA22 KNHC	STDCCA
Western Caribbean	TCCA23 KNHC	STDWCA
Aircraft Reconnaissance Messages Reports - Atlantic Basin		
Recco Observation non-tropical (NHC)	URNT10 KNHC	REPNT0
Recco Observation non-tropical (DoD)	URNT10 KBIX	REPNT0
Recco Obs. non-tropical (NOAA / AOC)	URNT10 KWBC	
Recco Observation (NHC)	URNT11 KNHC	REPNT1
Recco Observation (DoD)	URNT11 KBIX	REPNT1
Recco 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	

PRODUCT TITLE	WMO HEADER	AWIPS PRODUCT IDENTIFIER (NNNXXX)
Aircraft Reconnaissance Messages - East and Central Pacific Basins		
Recco Observation non-tropical (NHC)	URPN10 KNHC	REPPN0
Recco Observation non-tropical (DoD)	URPN10 KBIX	REPPN0
Recco Obs. non-tropical (NOAA / AOC)	URPN10 KWBC	
Recco Observation (NHC)	URPN11 KNHC	REPPN1
Recco Observation (DoD)	URPN11 KBIX	REPPN1
Recco 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	
Aircraft Reconnaissance Messages - West Pacific Basins		
Recco Observation non-tropical (NHC)	URPA10 KNHC	REPPA0
Recco Observation non-tropical (DoD)	URPA10 KBIX/PGUA	REPPA0
Recco Obs. non-tropical (NOAA / AOC)	URPA10 KWBC	
Recco Observation (NHC)	URPA11 KNHC	REPPA1
Recco Observation (DoD)	URPA11 KBIX/PGUA	REPPA1
Recco Observation (NOAA / AOC)	URPA11 KWBC	
Vortex Data Message (NHC)	URPA12 KNHC	REPPA2
Vortex Data Message (DoD)	URPA12 KBIX/PGUA	REPPA2
Vortex Data Message (NOAA / AOC)	URPA12 KWBC	
High Density Obs. (HDOB) (NHC)	URPA15 KNHC	AHOPA1
High Density Obs. (HDOB) (DoD)	URPA15 BKIX/PGUA	AHOPA1
High Density Obs. (HDOB) (NOAA / AOC)	URPA15 KWBC	
Dropsonde Report (NHC)	UZPA13 KNHC	REPPA3
Dropsonde Report (DoD)	UZPA13 KBIX/PGUA	REPPA3
Dropsonde Report (NOAA / AOC)	UZPA13 KWBC	
Summer / Winter Reconnaissance Schedule [Atlantic / Pacific])	NOUS42 KNHC	REPRPD

PRODUCT TITLE	WMO HEADER	AWIPS PRODUCT IDENTIFIER (NNNXXX)
Hurricane Local Statement		
Atlantic	WTUS/81-84/ KCCC**	HLSNNN**
Brownsville, TX	WTUS84 KBRO	HLSSPN
San Juan, PR	WTCA82 TJSJ	HLSSJU
San Juan (Spanish)	WTCA82 TJSJ	HLSSPN
Eastern Pacific	WTUS86 KCCC**	HLSNNN**
Central Pacific	WTHW80 PHFO	HLSHFO
(All Hawaiian Islands)		
Western North Pacific		
(Guam)	WTPQ/81-85/ PGUM	HLSPQ/1-5/
South Pacific		
(Pago Pago, American Samoa)	WTZS/81-85/ NSTU	HLSZS/1-5/
Tropical Cyclone Objective Guidance Products		
Atlantic Basin	WHXX01 KMIA	CHGHUR
Pacific Basin	WHXX01 KWBC	CHGE77
Atlantic Basin	WHXX04 KWBC	CHGQLM
Aviation Tropical Cyclone Advisory Message		
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/
Tropical Cyclone Summary - Fixes		
South Central Pacific 120°W - 160°E	TXPS/41-45/ PHFO	TCSSP/1-5/
North Central Pacific 140°W - 180°	TXPN/41-45/ PHFO	TCSCP/1-5/

* N/A indicates currently none assigned.
**Where “CCC” and “NNN” are the valid WFO 4-letter and 3-letter station identifiers respectively.