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

NATIONAL WEATHER SERVICE INSTRUCTION 10-607

June 1, 2018

Operations and Services

Tropical Cyclone Weather Services Program, NWSPD 10-6

TROPICAL CYCLONE FORECAST CENTER PRODUCTS

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

OPR: W/AFS26 (J. Schauer) **Certified by:** W/AFS26 (A. Allen)
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SUMMARY: This directive supersedes NWS Instructions 10-607 "Tropical Cyclone Forecast Center Products", dated May 23, 2017.

The following revisions were made to this directive to include:

- Section 1.1 - Expansion of the "Discussion and Outlook" section of the Tropical Cyclone Public Advisory (TCP) product beyond a 48-hour forecast.
- Section 1.2 - Changes to the Tropical Cyclone Forecast/Advisory (TCM) product to include a 48-hour 64-knot wind radii forecast.
- Section 1.7 - Central Pacific Hurricane Center (CPHC) will no longer produce a National Tropical Cyclone Watch/Warning (TCV) product. Hurricane and tropical storm watch/warning information including Valid Time Event Code (VTEC) can be found in the WFO Honolulu Tropical Cyclone Local Watch/Warning Product (TCVHFO). Instructions for the local TCV product can be found in NWSI 10-601 Weather Forecast Office Tropical Cyclone Products.
- Section 1.15 - Instructions for the Tropical-Storm-Force-Winds Arrival Timing Graphics
- Section 5.5 - CPHC will change their procedures for producing the Tropical Cyclone Danger Area Graphic to do so in the same fashion as the National Hurricane Center (NHC).
- Section 5.6 - Changes to the format of the TCP product issued by the Weather Prediction Center.

Signed 5/21/2018

Andrew D. Stern Date
Director,
Analyze, Forecast and Support Office

Tropical Cyclone Forecast Center Products

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1 Tropical Cyclone Forecast and Advisory Products

The NWS tropical cyclone program has taken on additional responsibilities and now covers certain weather systems that are not tropical cyclones. In 2013, the program was extended to cover certain post-tropical cyclones and, in 2017, certain disturbances that pose the threat of becoming tropical cyclones. Every attempt has been made to be careful about the use of the term *tropical cyclone* whenever policy dictates a different treatment among the various system types covered by this directive. However, it should be understood that in some contexts, such as in the title of this section (Tropical Cyclone Forecast and Advisory Products), the expression is meant to refer to *all* the system types covered by this directive – that is, systems that could become, actually are, or used to be, tropical cyclones.

Weather Service Office (WSO) Pago Pago, American Samoa, is provided guidelines via this directive, but is ultimately 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), the Weather Prediction Center (WPC), 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 or AWIPS text editor.

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 the 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 addition, TCPs will be issued by NHC, WPC, and CPHC for certain post-tropical cyclones and for certain disturbances that could become tropical cyclones (i.e., potential tropical cyclones), as described below. 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. TCP products are prepared in mixed-case text.

NHC will issue TCPs for subtropical cyclones. 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 events in NWS High Seas forecast products. CPHC will

not issue TCPs for systems determined to be subtropical cyclones, including "Kona lows," but WFO Honolulu may issue non-tropical gale or storm warnings for such systems in their High Seas forecast product.

The initial advisory will be issued either when data confirm a tropical or subtropical cyclone has developed, or, for potential tropical cyclones, is threatening the United States, upon the first issuance of U.S. coastal tropical cyclone wind or storm surge watches/warnings. When potential tropical cyclones threaten land areas outside of the United States, the initial advisory will be issued when NHC or CPHC judges that a tropical storm or hurricane watch/warning for any international land areas would be appropriate. The actual existence or non-existence of watches or warnings issued by other countries is not a determining factor for the issuance of potential tropical cyclone advisories by NHC or CPHC. Advisories on potential tropical cyclones will not be issued for systems that pose a threat of tropical storm or hurricane conditions only to marine areas.

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, WPC, 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 any system that is no longer warned on by JTWC, WFO Guam may elect to issue Special Weather Statements if the situation warrants it for safety reasons. Actions taken for post-tropical cyclone advisories include:
    i. NHC will coordinate closely with the Ocean Prediction Center (OPC), WPC, Regional Headquarters, and affected WFOs.
    ii. NHC will make the final decision on the transfer of responsibility after coordinating with the aforementioned offices.
    iii. NHC and CPHC 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.
    iv. Local WFOs will continue to issue Hurricane Local Statements (HLSs) and Tropical Cyclone Local Watch/Warning products (TCVs) under the Post-Tropical Cyclone XXXX header, as appropriate, until NHC or CPHC advisories are discontinued.

    See Section 5.6 for information on TCPs issued by the WPC.

    See NWSI 10-601 – *Weather Forecast Office Tropical Cyclone Product* for information on HLSs issued by WFOs.

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

   For Guam, when the tropical cyclone moves out of the WFO Area of Responsibility (AOR).

d. For potential tropical cyclones, when the last coastal tropical cyclone wind or surge watch/warning is discontinued (U.S.), or NHC or CPHC judges that tropical cyclone wind watches/warnings for international land areas are no longer appropriate. However, to foster continuity of service, NHC or CPHC may continue to issue advisories on potential tropical cyclones if new tropical cyclone watches/warnings would likely be required within 24 hours of the cessation of advisories.

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 0400, 1000, 1600 and 2200 UTC for regular advisories.

b. Intermediate Public Advisories will be issued on a three-hourly interval between scheduled advisories (see times of issuance below). Three-hourly intermediate advisories are issued whenever: 1) a coastal tropical cyclone wind or storm surge watch or 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. Do not use intermediate advisories to issue U.S. tropical cyclone watches or warnings.

   Intermediate advisory issuances from WFO Guam are at 0100, 0700, 1300, and 1900 UTC. NHC/CPHC intermediate advisories are issued at 0000, 0600, 1200, and 1800 UTC. An example of the product issuance sequence at NHC/CPHC follows in Table 1:

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: "(System Type) (Name or Number) Advisory Number XX".

The system types are:
Potential Tropical Cyclone
Tropical Depression
Tropical Storm
Hurricane
Typhoon
Subtropical Depression
Subtropical Storm
Post-Tropical Cyclone
Remnants of

1.1.3.3 Content. The TCP is comprised of five sections: Summary, Watches and Warnings, Discussion and 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 tropical cyclone wind and surge watches and warnings. This section 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.

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 and 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. NHC also issues storm surge watches/warnings for the Atlantic coast of the conterminous U.S.

CPHC and WFO Guam issue tropical storm / hurricane / typhoon watches/warnings for the islands of Hawaii, northwest Hawaiian Islands, selected populated islands elsewhere in the central North Pacific, Guam, Northern Mariana Islands and selected points in the Micronesian countries.

The definitions of hurricane/typhoon and tropical storm watches/warnings allow these watches and warnings to be issued or remain in effect both before a system with significant potential to become a tropical cyclone is categorized as such or after a tropical cyclone becomes post-tropical in those cases where the system poses a significant threat to life and property. The transfer of responsibility to another office should not occur if it would result in an unacceptable discontinuity of service.

Tropical cyclone watches/warnings include:

Tropical Storm Watch: Sustained winds of 34 to 63 knots (39 to 73 mph or 63 to 118 km/hr) are possible within the specified area within 48 hours in association with a potential or ongoing tropical cyclone, a subtropical, or a post-tropical cyclone.

Tropical Storm Warning: Sustained winds of 34 to 63 knots (39 to 73 mph or 63 to 118 km/hr) are expected somewhere within the specified area within 36 hours (24 hours for WFO

Guam) in association with a potential or ongoing tropical, a subtropical, or a post-tropical cyclone.

Hurricane / Typhoon Watch: Sustained winds of 64 knots (74 mph or 119 km/hr) or higher are possible within the specified area in association with a potential or ongoing tropical cyclone, a subtropical cyclone, or a post-tropical cyclone. Because hurricane and typhoon preparedness activities become difficult once winds reach tropical storm force, the hurricane/typhoon watch is issued 48 hours in advance of the anticipated onset of tropical storm force winds.

Hurricane / Typhoon Warning: Sustained winds of 64 knots (74 mph or 119 km/hr) or higher are expected somewhere within the specified area in association with a potential or ongoing tropical cyclone, a subtropical cyclone, or a post-tropical cyclone. Because hurricane and typhoon preparedness activities become difficult once winds reach tropical storm force, the hurricane/typhoon warning is issued 36 hours in advance of the anticipated onset of tropical-storm-force winds. (Note that typhoon warnings are issued by WFO Guam 24 hours before the anticipated, initial onset of tropical-storm-force-winds).

Storm Surge Watch: The possibility of life-threatening inundation from rising water moving inland from the shoreline somewhere within the specified area, generally within 48 hours, in association with an ongoing or potential tropical cyclone, a subtropical cyclone, or a post-tropical cyclone. The watch may be issued earlier when other conditions, such as the onset of tropical storm-force winds, are expected to limit the time available to take protective actions for surge (e.g., evacuations). The watch may also be issued for locations not expected to receive life-threatening inundation, but could potentially be isolated by inundation in adjacent areas. Storm surge watches, collaborated by NHC and WFOs, are only issued for the Atlantic and Gulf coasts of the conterminous United States.

Storm Surge Warning: The danger of life-threatening inundation from rising water moving inland from the shoreline somewhere within the specified area, generally within 36 hours, in association with a an ongoing or potential tropical cyclone, a subtropical cyclone, or a post-tropical cyclone. The warning may be issued earlier when other conditions, such as the onset of tropical-storm-force winds, are expected to limit the time available to take protective actions for surge (e.g., evacuations). The warning may also be issued for locations not expected to receive life-threatening inundation, but could potentially be isolated by inundation in adjacent areas. Storm surge warnings, collaborated by NHC and WFOs, are only issued for the Atlantic and Gulf coasts of the conterminous United States.

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 relevant hazard has passed. For wind, 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/high wind watch/warning or wind advisory is already in place, a tropical storm warning may be issued, replacing the watch, warning, or advisory, at the discretion of

NHC/CPHC after coordinating with the affected forecast offices.

It will occasionally be advantageous to step down warnings for tropical cyclones, e.g., replacing a hurricane warning with a tropical storm warning as conditions subside, or replacing a hurricane warning with a hurricane watch as the likelihood of the threat diminishes. However, such actions should only be taken when a high degree of certainty exists that the warnings will not need to be reissued.

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.

Include the following language whenever a storm surge warning is in effect: "A storm surge warning means there is a danger of life-threatening inundation from rising water moving inland from the coastline, during the next 36 hours in the indicated locations. For a depiction of areas at risk, please see the National Weather Service Storm Surge Watch/Warning Graphic, available at hurricanes.gov. 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."

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."

c. Discussion and Outlook. This is a free-text section that describes the current location and motion, maximum winds, extent of hurricane/typhoon- and tropical-storm-force winds, and minimum pressure. It will provide a general outlook for the track and intensity of the cyclone or potential cyclone over the next 72 hours.

Include the location of the center of the tropical cyclone by its latitude and longitude. For potential tropical cyclones, the indicated center should generally correspond to the low-level vorticity maximum or cloud system center of the disturbance. When the center of the cyclone or disturbance 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 center of the tropical cyclone or disturbance. Give the present movement to 16 points of the compass. Include a generalized 72-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 72

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 72 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 72 hours may also be included (e.g., "Katrina could become a dangerous hurricane in the Gulf of Mexico in 4 to 5 days."). The area (or radius) of both tropical storm and hurricane/typhoon force winds will be provided, as well as central pressure values in millibars (mb) and inches (excludes WFO Guam).

For potential tropical cyclones, include the genesis probability forecasts from the most recent Tropical Weather Outlook.

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`. Storm hazards will be discussed whenever warnings are in effect or otherwise when 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. Atlantic WFOs, TCP estimates of surge-related flooding will be expressed in terms of inundation, or height above ground, using the following or similar wording:

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. The water could reach the following heights above ground somewhere within the following areas 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.

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…").

Surf: Tropical cyclone forecast centers will include rip current and/or dangerous surf statements as appropriate in the Tropical Cyclone Public Advisory. On a case by case basis, NHC will discuss with the affected WFOs 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 when tropical cyclone wind warnings are in effect, and may be included at other times when appropriate. The geographical area(s) at greatest risk, including inland areas will be identified. An estimate of the range of area-average amounts expected within the specified area(s) should be included, as well as an upper bound on the maximum spot values expected. Storm-total values will be most commonly used.

Tornadoes: When appropriate, information on the threat of tornadoes will be provided, including identification of 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, the issuing office and product where subsequent information on the system remnants can be found will be identified.

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 TCPAT4 and WMO header WTNT3N KWNH, beginning at (Time)." 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 (System Name or Number). 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 (Time)."

When OPC is going to provide information on a tropical system that has been declared post-tropical by CPHC, CPHC's last TCP should carry a statement similar to: "This is the last Public Advisory issued by the Central Pacific Hurricane Center on (System Name or Number). For additional information on this system please see High Seas Forecasts issued by the National Weather Service under AWIPS header NFDHSFEP1 and WMO header FZPN01 KWBC and the Marine Weather Discussion under AWIPS header MIMPAC and WMO header AGPN40 KWNM, beginning at (Time)."

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 (System Name or Number). 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 (Time)."

For a tropical cyclone moving east to west across 140W from the NHC to the CPHC area of responsibility, NHC will insert at the end of their last advisory/forecast: "This is the last public advisory issued by the National Hurricane Center for (System Name). Future information on (System Name) can be found in Public Advisories issued by the Central Pacific Hurricane Center beginning at (Time) under AWIPS header HFOTCPCP1, WMO header WTPA31 PHFO, and on the web at http://www.prh.noaa.gov/cphc.

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 (System Name or Number), 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 include this information in nautical miles and knots as well. NHC and CPHC 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). The NHC-issued TCP for the Atlantic and eastern Pacific basins and the CPHC-issued TCP for the central north Pacific basin are prepared in mixed-case text.

```
WTaaii cccc ddhhmm
TCPxxx

BULLETIN
System_Type Name_or_Number Advisory Number XX
Issuing_Office City STATE BBCCYYYY
Time AM/PM TIME_ZONE Day_of_week Mon DD YYYY

...HEADLINE...

Text

DISCUSSION AND OUTLOOOK
----------------------

Text

NEXT ADVISORY
-------------

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 the system types listed in Section 1.1.3.2 within their areas of responsibility, under the criteria outlined in Section 1.1.2.2.

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 or AWIPS text editor.

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: "(SYSTEM 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, 36, and 48 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

SYSTEM_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 the analysis and forecast of cyclones designated by the system types defined in Section 1.1.3.2, as required by Section 1.1.2.2.

1.3.1 Mission Connection. The TCD is the primary product explaining the forecaster's reasoning behind the analysis and forecast for the system types listed in Section 1.1.3.2, issued under the criteria outlined in Section 1.1.2.2. The TCD also provides 12-, 24-, 36-, 48-, 72-, 96-, and 120-hour 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 or AWIPS text editor.

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: "(System 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". Maximum sustained wind speed forecasts for each forecast point, other meteorological decisions, plans for watches and warnings, and when appropriate, key messages to users are also provided.

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

System_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 for the system types listed in Section 1.1.3.2, during the period advisories are being issued under the criteria outlined in Section 1.1.2.2.

1.4.2 Issuance Guidelines

1.4.2.1 Creation Software. ATCF system or AWIPS text editor.

1.4.2.2 Issuance Criteria. TCUs are issued to inform users of significant changes in a system 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 that provide updated center position information, when watches/warnings are in effect and when the center is easily tracked with land-based radar, are issued in between scheduled three-hourly TCPs near the beginning of each 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: ”(System 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 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 HST 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. The TCU is prepared in mixed case.

```
WTaa6i cccc ddhhmm
TCUxxx

System_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 produced by NHC, CPHC, and WFO Guam for the Atlantic and North Pacific basins 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. tc_graphics/NCL.

1.5.2.2 Issuance Criteria. In the Atlantic and North Pacific basins, this product will be issued for the system types listed in Section 1.1.3.2, under the criteria outlined in Section 1.1.2.2.

1.5.2.3 Issuance Times. The static graphic will be issued at approximately 0300, 0900, 1500, and 2100 UTC and for special advisories. The animated display will be available no earlier than 15 minutes following the issuance deadlines for routine advisories (0300, 0900, 1500, and 2100 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 forecast centers.

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. The product is also generated for the western North Pacific using 5-year error distributions from JTWC. New probability values are computed for each new official forecast issued.

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 from NHC and CPHC 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 or AWIPS text editor.

1.6.2.2 Issuance Criteria. The product will be issued for all named or numbered systems in the Atlantic, East Pacific, and Central Pacific basins for the system types defined in Section 1.1.3.2, under the criteria outlined in Section 1.1.2.2.

1.6.2.3 Issuance Times. These products will be issued at 0300, 0900, 1500, and 2100 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

SYSTEM_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, issued by NHC, provides Valid Time Event Code (VTEC) data for tropical cyclone watches and warnings. This product is distinct from the local Tropical Cyclone Local Watch/Warning Product, or WFO TCV, described in NWSI 10-601 section 1.1. The specific content, methods of preparation, and formats of the National TCV vary by basin:

The National TCV issued by NHC for the Atlantic basin summarizes all inland and coastal U.S. tropical cyclone wind and storm surge watches and warnings associated with the system types defined in Section 1.1.3.2., and represents a compilation of the land-based tropical cyclone watch/warning VTEC information provided in the applicable WFO TCV products.
The Atlantic National TCV is prepared in AWIPS GFE, as described in section 1.7.2., with the storm surge watches/warnings collaborated between NHC and the WFOs using procedures described in Section 7.1. The representation of watches/warnings in the Atlantic basin TCV is provided only in terms of zones; as a result, the National TCV can only convey an approximate description of the watch/warning areas. The precise lateral extent of tropical cyclone wind watches and warnings along the coastline is specified by breakpoints in the Tropical Cyclone Public Advisory. The precise extent of storm surge watches/warnings is specified in gridded form through the NDFD. The Atlantic National TCV will contain a disclaimer indicating where the precise extent of tropical cyclone watches and warnings can be found.

The National TCV issued by NHC for the eastern Pacific basin lists coastal tropical cyclone wind watches/warnings for southern California, but does not include inland watches/warnings issued by WFOs. The precise extent of the coastal wind watch/warnings are conveyed in the eastern Pacific National TCV by providing the latitudes and longitudes of the warning breakpoints.

CPHC does not issue a national TCV product. All VTEC for land-based tropical cyclone wind watches and warnings in their area of responsibility can be found in the local TCV product from WFO Honolulu (TCVHFO).

VTEC is only issued for U.S. watches and warnings. It is not issued for international watches and warnings.

1.7.1 Mission Connection. In the Atlantic, the National TCV provides users with a listing of all land-based tropical cyclone watches and warnings associated with an Atlantic cyclone described by the system types defined in Section 1.1.3.2. In the eastern North Pacific, the National TCV provides a listing of coastal tropical cyclone wind watches and warnings only.

1.7.2 Issuance Guidelines

1.7.2.1 Creation Software. N-AWIPS and AWIPS GFE.

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 and eastern North Pacific Ocean basin cyclones for the system types defined in Section 1.1.3.2, under the criteria given in Section 1.1.2.2.

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 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 Atlantic TCV MND header product type line is: "(Name or Number) Watch/Warning Advisory Number XX". The eastern North Pacific TCV MND header product type line is: "(NAME or NUMBER) WATCH/WARNING BREAKPOINTS/ADVISORY NUMBER XX".

1.7.3.3 Content. The Atlantic basin National TCV will contain the full complement of VTEC actions as described in NWSI 10-1703. The eastern North Pacific basin National TCVs will use following three action codes:

- **NEW** is used when a watch or warning is first issued for a given geographic area. The geographic areas include the southern California coast. 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).

For tropical cyclone wind watches/warnings in the eastern North Pacific basin, 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. In the Atlantic basin, the product will use official NWS zones to identify the approximate areas under a tropical cyclone watch/warning.

The VTEC event tracking number (ETN) will take the form of XNNN where X is the basin of origin:
1 – Atlantic
2 – East 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
TCVATi

Name_or_Number Watch/Warning Advisory Number XX
NWS National Hurricane Center Miami FL BBCCYYYY
Time AM/PM TIME_ZONE Day_of_Week Mon DD YYYY

.System_Type Name_or_Number

Caution...This product only approximately conveys the extent of
tropical cyclone wind and surge watches and warnings.  Please see
the latest public advisory from the National Hurricane Center for
the precise lateral extent of wind watches and warnings along the
coast...as well as the approximate lateral extent of surge watches
and warnings. The precise extent of surge watches and warnings can
be found in the NWS National Digital Forecast Database hazard grids.

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

$$

ATTN...WFO...(AFFECTED WFO(S))
```

Figure 6a National Tropical Cyclone Watch/Warning Product – Atlantic Basin

```
WPTZ8i KNHC ddhhmm
TCVEPi

NAME_OR_NUMBER WATCH/WARNING BREAKPOINTS/ADVISORY NUMBER XX
NWS NATIONAL HURRICANE CENTER MIAMI FL BBCCYYYY
TIME AM/PM TIME_ZONE DAY_OF_WEEK MON DD YYYY

.SYSTEM_TYPE NAME_or_NUMBER

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 6b National Tropical Cyclone Watch/Warning Product – Eastern Pacific Basin

See complete examples 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).
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 or AWIPS text editor.

1.8.2.2 Issuance Criteria. Prepared by NHC and CPHC for all ongoing tropical, subtropical,

and post-tropical 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: "(SYSTEM 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

SYSTEM_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 system types defined in Section 1.1.3.2 and tropical cyclone wind watches/warnings.

1.9.2 Issuance Guidelines

1.9.2.1 Creation Software. tc_graphics/NCL except Personal Computer (PC) and HURREVAC software 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. WFO Guam produces the forecast track and the uncertainty graphics within an hour after the issuance of a TCP.

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 system's forecast track, a cone surrounding the forecast track intended to convey forecast uncertainty, the current size of the system's wind field, and the coastal wind watches/warnings.

The current location of the system is denoted by an "X", with the current extent of hurricane-force and tropical-storm-force winds (if any) surrounding the X. Forecast positions are indicated by small circles surrounding a letter (M, H, or D) that indicates the system's intensity. The cone, displayed in solid white (for the first three days of the forecast) and hatched white (for days four and five), represents the probable track of the center of the system. The cone is formed by enclosing the area swept out by a set of circles along the forecast track (at 12, 24, 36 hours, etc.), with the size of each circle set so that two-thirds of historical official forecast errors over a 5-year sample fall within the circle. The circle radii defining the cones are updated in the spring prior to each season; updated circle radii for the Atlantic and eastern North Pacific basins are published in the annual NHC Verification Report (http://www.nhc.noaa.gov/verification/verify3.shtml) Coastal tropical storm and hurricane wind watches and warnings are displayed as colored strips along the appropriate coastlines. This graphic does not display either the inland (WFO) tropical cyclone wind watches/warnings or the storm/surge watches/warnings. The web interface for the NHC and CPHC graphic allows a user some control over the elements of the graphic. For example, the forecast track line can be toggled on or off (the default is off), and the current wind field can also be toggled (the default is

on).

WFO Guam issues two types of graphics; one provides the forecast track, intensity and radius of 34, 50 and 64 knot winds, while 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 affected by the past track of the storm.

1.10.2 Issuance Guidelines

1.10.2.1 Creation Software. tc_graphics/NCL.

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 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. This graphic does not display either the inland (WFO) tropical cyclone wind watches/warnings or the storm surge watches/warnings.

1.11.2 Issuance Guidelines

1.11.2.1 Creation Software. tc_graphics/NCL.

1.11.2.2 Issuance Criteria. Created for each cyclone in the Atlantic, Eastern Pacific, and Central Pacific basins for the system types defined in Section 1.1.3.2, as required by Section 1.1.2.2.

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

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). This graphic does not display either the inland (WFO) tropical cyclone wind watches/warnings or the storm/surge watches/warnings. The white dot indicates the current estimated position of the system center, and the dashed black line shows the history of the center position.

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, or, in some cases, a tropical storm watch or warning, for any portion of the Gulf or Atlantic coast of the United States is in effect.

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); and, 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); and, 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.

1.13 Tropical Cyclone Storm Surge Watch/Warning Graphic

1.13.1 Mission Connection. The storm surge watch/warning graphic from NHC highlights areas along the Gulf and Atlantic coasts of the conterminous United States that have a significant risk of life-threatening storm surge inundation from the system types defined in Section 1.1.3.2.

1.13.2 Issuance Guidelines

1.13.2.1 Creation Software. AWIPS GFE.

1.13.2.2 Issuance Criteria. Created when tropical cyclone storm surge watches/warnings are issued.

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

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

1.13.2.5 Product Expiration Time. Generally 6 hours after the issuance time and should

coincide with the next expected update or when the event is forecast to end.

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

1.13.3.1 UGC Type. Not applicable.

1.13.3.2 MND Header. Not applicable. Internet product.

1.13.3.3 Content. The storm surge watch/warning graphic illustrates areas under a storm surge watch (light purple) or warning (purple-red).

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

1.14 Potential Storm Surge Flooding Map

1.14.1 Mission Connection. The Potential Storm Surge Flooding Map depicts the risk associated with coastal flooding from storm surge associated with cyclones described by any of the tropical cyclone types defined in Section 1.1.3.2. This map shows the geographical areas where there is a reasonable chance that inundation from storm surge could occur and the heights, above ground, that water could reach in those areas.

1.14.2 Issuance Guidelines

1.14.2.1 Creation Software. ArcGIS (10.4) for Server.

1.14.2.2 Issuance Criteria. NHC will release the initial map with the first issuance of a hurricane or storm surge watch or warning for any portion of the Gulf or East Coast of the United States, or at other times as appropriate, including for some tropical storm watches or warnings.

1.14.2.3 Issuance Times. Once issued, the map will change every six hours in association with every new NHC full advisory package. The map will be available approximately 25 to 30 minutes following the availability of P-Surge, or about 60 to 90 minutes following the release of a full advisory. In general, maps will continue to be issued as long as hurricane or storm surge watches or warnings are in effect, but may continue at other times as appropriate, including for some tropical storm watches or warnings. The issuance of maps may be discontinued at any time if the storm structure precludes an accurate quantitative description of the hazard.

1.14.2.4 Valid Times. Valid from the time of issuance until replaced by the next issuance.

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

1.14.3 Technical Description. The map will follow the format and content described in this

section.

1.14.3.1 UGC Type. Not applicable.

1.14.3.2 MND Header. Not applicable. Internet product.

1.14.3.3 Content. The Potential Storm Surge Flooding Map is based on the NWS Sea, Lake, and Overland Surges from Hurricanes (SLOSH) model and takes into account forecast uncertainty in the tropical cyclone track, intensity, and wind field. The map is based on probabilistic storm surge guidance, called Probabilistic Hurricane Storm Surge (P-Surge), developed by the NWS Meteorological Development Laboratory (MDL), in cooperation with NHC.

P-Surge derives storm surge probabilities by statistically evaluating a large set of SLOSH model simulations based on the current NHC official forecast, and takes into account historical errors in the official NHC track and intensity forecasts. P-Surge combines the results of hundreds of individual SLOSH simulations to calculate the statistical distribution, or probabilities of possible storm surge heights at locations along the coast. All major factors that influence the amount of storm surge generated by a storm at a given location are accounted for, including the hurricane's landfall location, forward speed, and angle of approach to the coast; the storm intensity and wind field; the shape of the coastline; the slope of the ocean bottom; and local features such as barrier islands, bays, and rivers. The Potential Storm Surge Flooding Map is created by processing the resulting 10 percent exceedance levels from P-Surge, or storm surge values that have a 1-in-10 chance of being exceeded at each location.

The Potential Storm Surge Flooding Map takes into account:

- Flooding due to storm surge from the ocean, including adjoining tidal rivers, sounds, and bays
- Normal astronomical tides
- Land elevation
- Uncertainties in the landfall location, forward speed, angle of approach to the coast, intensity, and wind field of the cyclone

The Potential Storm Surge Flooding Map does not take into account:

- Wave action
- Freshwater flooding from rainfall
- Riverine discharge
- Flooding resulting from levee failures
- For mapped leveed areas – flooding inside levees, overtopping of levees

Potential storm surge flooding is not depicted within certain levee areas, such as the Hurricane & Storm Damage Risk Reduction System in Louisiana. These areas are highly complex and water levels resulting from overtopping are difficult to predict. Users are urged to consult local officials for flood risk inside these leveed areas. If applicable to the region displayed by the map, these leveed areas will be depicted with a black and white diagonal hatch pattern.

The intertidal zone (generally speaking, the area that is above water at low tide and under water at high tide) will be displayed with a user selectable mask layer on the Potential Storm Surge Flooding Map. Locations of estuarine wetlands, or lands that are saturated with water, either permanently or seasonally, are also used to help define this mask layer. This mask layer will allow users to differentiate between areas that could experience consequential flooding of normally dry ground and areas that routinely flood during typical high tides. The intertidal mask will be depicted as gray on the Potential Storm Surge Flooding Map.

The Potential Storm Surge Flooding Map represents the storm surge heights that a person may wish to prepare for before a storm, given the uncertainties in the meteorological forecast. The map shows a reasonable worst–case scenario (i.e., a reasonable upper bound) of the flooding of normally dry land at particular locations due to storm surge. There is approximately a 1-in-10 chance that storm surge flooding at any particular location could be higher than the values shown on the map. Roadways are included in the base-map layer for aiding in geographical referencing only. The map will not indicate which roadways may flood from fresh or salt water in a hurricane situation.

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

1.15 Tropical-Storm-Force-Winds Arrival Timing Graphics

1.15.1 Mission Connection. These graphics provide tropical-storm-force wind arrival time information for individual locations to help users understand when preparations should be complete when a tropical storm or hurricane threatens.

1.15.2 Issuance Guidelines

1.15.2.1 Creation Software. ArcGIS (10.4) for Server.

1.15.2.2 Issuance Criteria. These graphics are issued when tropical cyclone advisory packages are issued.

1.15.2.3 Issuance Times. These graphics are available on the internet at 0300, 0900, 1500, and 2100 UTC. They are also produced for special advisories.

1.15.2.4 Valid Times. These graphics are valid from the time of issuance until the next routine issuance or by a special advisory.

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

1.15.3 Technical Description. The graphics will follow the format and content described in this section.

1.15.3.1 UGC Type. Not applicable.

1.15.3.2 MND Header. Not applicable. Internet products.

1.15.3.3 Content. The graphics are created using the same Monte Carlo wind speed probability model that is used to determine the risk of tropical-storm- and hurricane-force winds at individual locations – a model in which 1000 plausible scenarios are constructed using the official NHC tropical cyclone forecast and its historical errors.

There are two versions of the graphic:

1. Earliest Reasonable Arrival Time – This is the primary arrival timing graphic. It identifies the time window that users at individual locations can safely assume will be free from tropical-storm-force winds. Specifically, this is the time before which there is no more than a 1-in-10 (10 percent) chance of seeing the onset of sustained tropical-storm-force winds. This is the period during which preparations should ideally be completed for those with a low tolerance for risk.

2. Most Likely Arrival Time – This graphic identifies the time before or after which the onset of tropical-storm-force winds is equally likely. This graphic is more appropriate for users who are willing to risk not having completed all their preparations before the arrival of tropical-storm-force winds.

Timing information is only available for locations that have at least a 5% chance of experiencing sustained tropical-storm-force winds during the next 5 days.

Each of these graphics is also available overlaid on top of the cumulative 5-day probability of tropical-storm-force winds, providing a single combined depiction of the likelihood of tropical-storm-force winds at individual locations, along with their possible or likely arrival times.

Arrival times are depicted with higher temporal resolution (i.e., in 6-hour intervals) during the first day of the 5-day forecast, increasing to lower temporal resolution (i.e., in 12-hour intervals) after the first day of the 5-day forecast period. Arrival times are referenced to 8 AM and 8 PM local time, using a constant time zone that corresponds to where the cyclone is located at the time of the advisory. For example, if a cyclone is located in the Eastern Time Zone at the time of an advisory but is forecast to move into the Central Time Zone during the 5-day forecast period, all times on the graphic will be referenced to the Eastern Time Zone.

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

2 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 wind products, and an International Civil Aviation Organization (ICAO)/WMO tropical cyclone advisory.

The MND Header block is "(SYSTEM 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.

3 Numbering and Naming Conventions

3.1 Depressions and Potential Tropical Cyclones. All depressions (whether tropical or subtropical) forming within a basin in a given year, as well as any potential tropical cyclones requiring the issuance of advisories, will be numbered in order for that basin. These numerical designations are always fully spelled out in advisory products (e.g., "One", "Two", "Three", …, "Twenty-Three", etc.). The numerical designations will be assigned such that they match the total number of systems having formed within that basin during the season. For example, if three systems requiring advisories have already formed within a basin, the next potential tropical cyclone or depression of the season will be designated "Four".

When advisories are initiated directly on a named tropical or subtropical storm (that is, the system never had advisories issued as a tropical depression or potential tropical cyclone), the corresponding numerical designation is skipped for that year. For example, if the first system of the season forms directly as Tropical Storm Ana without the issuance of depression or potential tropical cyclone advisories, then the designation "One" is skipped for that season in that basin.

When a potential tropical cyclone becomes a tropical depression, its numerical designation remains the same (i.e., Potential Tropical Cyclone Two becomes Tropical Depression Two).

For ease in differentiation, tropical depression and potential tropical cyclone designations assigned by NHC or CPHC will include the suffix "-E" for formations in the eastern North Pacific (east of 140°W) and "-C," for formations in the central North Pacific (180° to 140°W) (e.g., "Tropical Depression Three-E").

3.2 Tropical Storms, Subtropical Storms, and Hurricanes/Typhoons. Tropical or subtropical cyclones receive a name on the first advisory after intensifying to 34 knots (39 mph) or greater.

In the Atlantic as well as in the eastern and central North Pacific, once a system becomes a tropical storm, NHC/CPHC will replace the numerical designation and give the system a name. The numerical designation will not be used again until the following year. 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.

If NHC uses all of the names for a given year and additional names are required, the Greek alphabet will be used (Alpha, Beta, etc.).

3.3 Post-Tropical Cyclones. Post-Tropical cyclones will retain the name or number they were designated while a tropical cyclone. A post-tropical cyclone that regains tropical cyclone status also retains its original number or name. A numbered post-tropical cyclone that intensifies to 34 kt or higher as a post-tropical cyclone will not be given a name, but instead will retain its number.

3.4 Systems Passing between Basins and Regenerations. If a tropical cyclone passes from one basin into another basin as a tropical cyclone, i.e., advisories are continuous, then the name of the cyclone is retained. 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.

A potential tropical cyclone that crosses from one basin to another will be given the appropriate potential tropical cyclone number in the new basin. If a post-tropical cyclone regenerates in a new basin, the regenerated tropical cyclone will be given a new designation in the new basin. 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 the remnants of a tropical cyclone threaten to regenerate and require watches or warnings, the system in advisory products would be referred to as either "Remnants of (System Name/Number)" or "Post-Tropical Cyclone (System Name/Number)", as appropriate. Such a system would not be designated as a Potential Tropical Cyclone.

4 Numbering Advisories

Number scheduled and special advisories and TCDs consecutively, beginning with the number 1 (not spelled out), for each new tropical, subtropical cyclone, or potential tropical cyclone, and continue through the duration of the cyclone. In both the Atlantic and the Pacific, intermediate advisory products 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").

5 Other Tropical Cyclone Forecast Center and National Centers for Environmental Prediction (NCEP) Products

5.1 Satellite Interpretation Message (SIM)

5.1.1 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.

5.1.2 Issuance Guidelines

5.1.2.1 Creation Software. AWIPS text editor.

5.1.2.2 Issuance Criteria. Issued by WFO Guam twice daily, with updates as necessary.

5.1.2.3 Issuance Times. 0300 and 1500 UTC.

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

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

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

5.1.3.1 UGC Type. Not applicable.

5.1.3.2 MND Header. The SIM MND header block product type line is: "SATELLITE INTERPRETATION MESSAGE".

5.1.3.3 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 Guam prepares the SIM for the area from 130°E to 180° between the equator and 25°N. WFOs Guam can include a description of more distant features if these features relate to significant weather affecting or will soon affect their AOR. WFOs Guam determines the criteria for significant cloud features based on user inputs.

5.1.3.4 Format

```
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

5.2 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.

5.2.1 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.

5.2.2 Issuance Guidelines

5.2.2.1 Creation Software. AWIPS text editor.

5.2.2.2 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.

5.2.2.3 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.

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

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

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

5.2.3.1 UGC Type. Not applicable.

5.2.3.2 MND Header. The TWD MND header block product type line is: "TROPICAL WEATHER DISCUSSION".

5.2.3.3 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.

5.2.3.4 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.

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

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

5.3.2 Issuance Guidelines

5.3.2.1 Creation Software. ATCF system.

5.3.2.2 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 tropical cyclone season.

5.3.2.3 Issuance Times. In the Atlantic, eastern North Pacific, and central North Pacific, transmission times are 0000, 0600, 1200, and 1800 UTC.

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

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

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

5.3.3.1 UGC Type. Not applicable.

5.3.3.2 MND Header. The TWO MND header block product type line is: "Tropical Weather

Outlook" or "Special Tropical Weather Outlook".

5.3.3.3 Content. The TWO 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. 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	Range
Low	0-30%
Medium	40-60%
High	70-100%

In addition to the discussion of areas of disturbed weather, the outlook will mention all systems on which advisories are being issued by the respective tropical cyclone forecast center, including the system's location (in either general terms or map coordinates), status, and change in status. When advisories are being issued on potential tropical cyclones, also include the probabilistic genesis forecast in the same bulleted format that it's provided for disturbances:

```
The National Hurricane Center is issuing advisories on Tropical Storm Alex,
located over the central Gulf of Mexico, and on Tropical Depression Two,
located over the far eastern tropical Atlantic.

The National Hurricane Center is issuing advisories on Potential Tropical
Cyclone Three, located about 100 miles south of San Juan, Puerto Rico.
* Formation chance through 48 hours...high...70 percent
* Formation chance through 5 days...high...90 percent
```

If advisories are being issued by WPC or NHC on a post-tropical cyclone, and the post-tropical cyclone poses a threat to regenerate into a tropical cyclone, provide genesis probabilities in the same format as shown above for potential tropical cyclones.

For the first 24 hours after advisories are initiated, the outlook will include a statement identifying the NWS product header and WMO headers for the advisory (see Appendix B).

5.3.3.4 Format. This product is available in industry standard encoding and languages, and may include, but not limited to, ASCII, XML, WML and HTML. The TWO will be issued in mixed case.

```
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.

5.4 Tropical Cyclone Summary - Fixes (TCS)

5.4.1 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.

5.4.2 Issuance Guidelines

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

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

5.4.2.3 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.

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

5.4.2.5 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.

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

5.4.3.1 UGC Type. Not applicable.

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

5.4.3.3 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 Pacific or central 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. For the TCS , 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.

5.4.3.4 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

See Appendix B for more details on the product headers used to distinguish Central Pacific Tropical Cyclone Summary – Fixes products from South Pacific Tropical Cyclone Summary – Fixes products.

5.5 Tropical Cyclone Danger Area Graphic

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

5.5.2 Issuance Guidelines

5.5.2.1 Creation Software. N-AWIPS.

5.5.2.2 Issuance Criteria. Routinely prepared by NHC/TAFB and CPHC during the tropical cyclone season for all ongoing tropical cyclone activity in their respective AORs.

5.5.2.3 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.

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

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

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

5.5.3.1 UGC Type. Not applicable.

5.5.3.2 MND Header. Not applicable.

5.5.3.3 Content. The Tropical Cyclone Danger Area graphic is a 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 in the Atlantic, the eastern North Pacific, and the central north Pacific basins. The product is prepared by the NHC/TAFB for 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 while CPHC prepares a separate chart for the Pacific from 140°W to 180° and north of the equator.

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

5.6 WPC Public Advisory (TCP)

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

5.6.2 Issuance Guidelines

5.6.2.1 Creation Software. ATCF system.

5.6.2.2 Issuance Criteria. The WPC will issue public advisories after NHC discontinues its advisories on any system that has moved inland in the conterminous U.S., but still poses a threat of heavy rain and flash floods in the conterminous U.S. The last NHC advisory will normally be issued when winds in an inland system drop below tropical storm strength, and the system is not forecast to regain tropical storm intensity or re-emerge over water. Therefore, WPC will only handle former potential tropical cyclones, tropical depressions, remnants, or weak post-tropical cyclones. WPC advisories will terminate when the threat of flash flooding has ended.

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

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

5.6.2.5 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.

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

5.6.3.1 UGC Type. Not applicable.

5.6.3.2 MND Header. The TCP MND header block product type line is: "(System Type) (Name or Number) Advisory Number XX".

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

5.6.3.3 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 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. The WPC TCP should refer to Storm Summary products when applicable. Policy and procedures for the issuance of Storm Summary products are found in NWSI 10-502 – *National Statements, Summaries, Tables Products Specification*.

5.6.3.4 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
TCPATi


System 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

...HEADLINE...

Text

DISCUSSION AND OUTLOOOK
----------------------

Text

NEXT ADVISORY
-------------

Text
 (Forecaster Name)

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.

5.7 Tropical Weather Summary (TWS)

5.7.1 Mission Connection. These products are used for 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.

5.7.2 Issuance Guidelines

5.7.2.1 Creation Software. ATCF system.

5.7.2.2 Issuance Criteria. Monthly.

5.7.2.3 Issuance Times. Summaries are issued on the first day of each month from June through December for the eastern North Pacific and from July through December for the Atlantic and central North 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.

5.7.2.4 Valid Time. Not applicable.

5.7.2.5 Product Expiration Time. Not applicable.

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

5.7.3.1 UGC Type. Not applicable.

5.7.3.2 MND Header. The TWS MND header block product type line is: "Tropical Weather Summary".

5.7.3.3 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.

5.7.3.4 Format. NHC and CPHC will prepare the TWS in mixed case text.

```
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

5.8 Tropical Cyclone Report (TCR)

5.8.1 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.

5.8.2 Issuance Guidelines

5.8.2.1 Creation Software. Word Processor.

5.8.2.2 Issuance Criteria. Not applicable.

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

5.8.2.4 Valid Times. Not applicable.

5.8.2.5 Product Expiration Time. Not applicable.

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

5.8.3.1 UGC Type. Not applicable.

5.8.3.2 MND Header. Not applicable. Internet product.

5.8.3.3 Content. The TCR is a post-event overview of a tropical or subtropical cyclone comprising a narrative of the storm's history and a detailed listing of 6-hourly location and intensity data in both text and graphic format. NHC issues TCRs for tropical/subtropical 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 North 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.

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

6 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.

7 Procedures for Populating NHC-Generated Hazard Grids for Tropical Cyclone Events.

Updates to this directive will take place as better methods for populating NHC-generated storm surge forecasts and NHC-compiled tropical cyclone hazard grids are integrated into the National Gridded Forecast Database. These general instructions are solely for NHC and their service backup centers, WPC and OPC.

7.1 Storm Surge Watch/Warning Collaboration Process. NHC will collaborate with affected East and Gulf Coast WFOs on the grid-based storm surge watch/warning. NHC will initiate collaboration by contacting the offices that will be affected by a potential storm surge watch/warning. NHC will use the available data and model guidance to create a ProposedSS grid in AWIPS GFE. They will send a ProposedSS grid to those WFOs who will then return the grid with suggested edits. Another round of collaboration can occur if needed. The final storm surge watch/warning collaboration grid is due by advisory time. In the event of disagreement, NHC will determine the areas under a watch and/or warning.

7.2 National TCV Compilation. NHC will compile all Atlantic basin WFO tropical cyclone watches/warnings into a single National TCV product. All WFO tropical cyclone wind and storm surge hazard grids are due at advisory time. Once all of the WFO tropical hazards are available, NHC will run the tool in AWIPS GFE that finalizes the hazard grid (i.e.,

FinalizeHazards) and create the TCV text product using an AWIPS GFE text formatter.

APPENDIX A: Examples of Tropical Cyclone Forecast Center Products

Table of Contents **Page**

1 Tropical Weather Outlook (TWO)

```
ABNT20 KNHC 141731
TWOAT

Tropical Weather Outlook
NWS National Hurricane Center Miami FL
200 PM EDT Mon Oct 14 2016

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, and on Post-
Tropical Cyclone Julia, located just offshore of Cape Cod, Massachusetts.

The National Hurricane Center is issuing advisories on Potential Tropical
Cyclone Twelve, located about 100 miles south of San Juan, Puerto Rico.
* Formation chance through 48 hours...high...70 percent
* Formation chance through 5 days...high...90 percent

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
```

2 Special Tropical Weather Outlook

```
ABNT20 KNHC 011550
TWOAT

Special Tropical Weather Outlook
NWS National Hurricane Center Miami FL
400 PM EDT Mon Oct 14 2017

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
```

3 Product Type Lines in MND Headers for TCP Products

```
Potential Tropical Cyclone Three Advisory Number 2
Tropical Depression Twenty-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
```

4 Tropical Cyclone Public Advisory (TCP) issued by NHC

```
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
--------------------
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:

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

A Storm Surge Warning is in effect for...
* Intracoastal City to Morgan City Louisiana

A storm surge warning means there is a danger of life-threatening inundation
during the next 36 hours in the indicated locations.  For a depiction of
areas at risk, please see the National Weather Service Storm Surge
Watch/Warning Graphic, available at hurricanes.gov.  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. 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 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
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.

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

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

$$
Forecaster Brown

5 Tropical Cyclone Public Advisory (TCP) issued by CPHC

```
WTPA35 PHFO 010600
TCPCP5

BULLETIN
Tropical Storm Madeline Intermediate Advisory Number  23A
NWS Central Pacific Hurricane Center Honolulu HI   EP142016
800 PM HST Wed Aug 31 2016

...WEAKENING TROPICAL STORM MADELINE PASSING SOUTH OF THE
BIG ISLAND...


SUMMARY OF 800 PM HST...0600 UTC...INFORMATION
-----------------------------------------------
LOCATION...17.3N 155.9W
ABOUT 175 MI...280 KM S OF HILO HAWAII
ABOUT 305 MI...490 KM SE OF HONOLULU HAWAII
MAXIMUM SUSTAINED WINDS...60 MPH...95 KM/H
PRESENT MOVEMENT...SW OR 240 DEGREES AT 15 MPH...24 KM/H
MINIMUM CENTRAL PRESSURE...1000 MB...29.53 INCHES


WATCHES AND WARNINGS
--------------------
CHANGES WITH THIS ADVISORY:

None.

SUMMARY OF WATCHES AND WARNINGS IN EFFECT:

A Tropical Storm Warning is in effect for...
* Hawaii County
* Maui County including the islands of Maui, Molokai, Lanai and
Kahoolawe

A Tropical Storm Warning means that tropical storm conditions are
expected somewhere within the watch area, in this case over the next
12 hours. Preparations to protect life and property should
be complete.

For storm information specific to your area, please monitor
products issued by the National Weather Service office in
Honolulu Hawaii.


DISCUSSION AND OUTLOOK
----------------------
At 800 PM HST (0600 UTC), the center of Tropical Storm Madeline was
located near latitude 17.3 North, longitude 155.9 West. Madeline is
moving toward the southwest near 15 mph (24 km/h). This general
motion is expected to continue tonight with a gradual turn toward
the west on Thursday and Friday.
```

Maximum sustained winds are near 65 mph (100 km/h) with higher gusts. Steady weakening is expected over the next couple of days.

Tropical-storm-force winds extend outward up to 105 miles (165 km) from the center. Wind gusts as high as 60 mph (97 km/h) have been reported in North Kohala in Hawaii County earlier today.

The estimated minimum central pressure is 1000 mb (29.53 inches).

HAZARDS AFFECTING LAND

WIND: Tropical storm conditions are expected to continue over Hawaii County and isolated portions of Maui County tonight. Winds will be strongest over mountains and where winds blow downslope from higher terrain.

SURF: Swells generated by Madeline will peak in Hawaiian waters tonight, and could be damaging along east facing shores of Hawaii County, especially in the Puna and Kau Districts.

RAIN: Madeline is expected to produce total rain accumulations of 5 to 10 inches, with isolated maximum amounts near 15 inches, across Hawaii County, especially over windward areas and the Kau District. Total rainfall accumulations of 1 to 3 inches, with isolated maximum amounts up to 4 inches, can be expected in the islands of Maui County, mainly over windward terrain. This rainfall may lead to dangerous flash floods and mudslides.

NEXT ADVISORY

Next complete advisory at 1100 PM HST.

$$
Forecaster Birchard

6 Tropical Cyclone Public Advisory (TCP) issued by WFO Guam

```
WTPQ31 PGUM 120352
TCPPQ1

BULLETIN
Typhoon Talim (20W) Advisory Number 14
National Weather Service Tiyan GU WP202017
200 PM ChST Tue Sep 12 2017

...TALIM UPGRADED TO A TYPHOON AS IT MOVES THROUGH THE OPEN OCEAN...

CHANGES WITH THIS ADVISORY
--------------------------
None.

WATCHES AND WARNINGS
--------------------
None.

SUMMARY OF 100 PM CHST...00300 UTC...INFORMATION
-----------------------------------------------
Location...21.8N 129.9E

About 1010 miles north-northwest of Yap
About 1135 miles west-northwest of Guam and Rota
About 1130 miles west-northwest of Tinian
About 1135 miles west-northwest of Saipan

Maximum sustained winds...75 mph
Present movement...northwest...310 degrees at 18 mph

DISCUSSION AND OUTLOOK
----------------------
At 100 PM CHST...0300 UTC...the center of Typhoon Talim was located
near Latitude 21.8 North and Longitude 129.9 East. Typhoon Talim is
moving toward the northwest at 18 mph. After a slight turn to the
west-northwest Talim is expected to resume its northwest track with
a decrease in forward speed for the next two days.

Maximum sustained winds have increased to 75 mph. Typhoon Talim is
forecast to further intensify over the next couple of days, and may
become a major typhoon Wednesday night.

Typhoon force winds extend outward up to 15 miles from the center.
Tropical storm force winds extend out up to 160 miles in the eastern
semicircle and 120 miles in the western semicircle.

NEXT ADVISORY
-------------
This will be the last advisory issued by the National Weather Service
on Typhoon Talim.

$$
```

Stanko

7 Potential Tropical Cyclone Public Advisory (TCP)

```
WTNT32 KNHC 190240
TCPAT2

BULLETIN
Potential Tropical Cyclone Two Advisory Number   2
NWS National Hurricane Center Miami FL       AL022017
1100 PM AST Sun Jun 18 2017

...TROPICAL STORM CONDITIONS EXPECTED TO REACH THE SOUTHERN WINDWARD
ISLANDS BY MONDAY NIGHT...


SUMMARY OF 1100 PM AST...0300 UTC...INFORMATION
-----------------------------------------------
LOCATION...7.9N 52.4W
ABOUT 630 MI...1015 KM ESE OF TRINIDAD
ABOUT 695 MI...1120 KM ESE OF GRENADA
MAXIMUM SUSTAINED WINDS...40 MPH...65 KM/H
PRESENT MOVEMENT...W OR 280 DEGREES AT 23 MPH...37 KM/H
MINIMUM CENTRAL PRESSURE...1005 MB...29.68 INCHES


WATCHES AND WARNINGS
--------------------
CHANGES WITH THIS ADVISORY:

None.

SUMMARY OF WATCHES AND WARNINGS IN EFFECT:

A Tropical Storm Warning is in effect for...
* Barbados
* St. Vincent and the Grenadines
* Trinidad
* Tobago
* Grenada

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

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


DISCUSSION AND OUTLOOK
----------------------
At 1100 PM AST (0300 UTC), the disturbance was centered near
latitude 7.9 North, longitude 52.4 West. A fast motion toward the
west-northwest is expected for the next 48 hours.  On the forecast
```

track, the disturbance is expected to move through the Windward Islands Monday night and Tuesday.

Maximum sustained winds have increased to near 40 mph (65 km/h) with higher gusts. Some additional strengthening is expected during the next 48 hours, and the disturbance is forecast to be a tropical storm when it moves through the Windward Islands Monday night and Tuesday.

Thunderstorm activity associated with the disturbance continues to become better organized, and additional development is likely during the next day or two.
* Formation chance through 48 hours...high...90 percent
* Formation chance through 5 days...high...90 percent

Tropical-storm-force winds extend outward up to 60 miles (95 km), mainly northwest through northeast of the center.

The estimated minimum central pressure is 1005 mb (29.68 inches).

HAZARDS AFFECTING LAND

WIND: Tropical storm conditions are expected to first reach the warning area overnight Monday and Tuesday morning, making outside preparations difficult or dangerous.

RAINFALL: The disturbance is expected to produce total rain accumulations of 2 to 4 inches over the Windward Islands Monday night and Tuesday.

NEXT ADVISORY

Next intermediate advisory at 200 AM AST.
Next complete advisory at 500 AM AST.

$$
Forecaster Stewart

8 Post-Tropical Cyclone Public Advisory (TCP)

```
WTNT34 KNHC 091754
TCPAT4

BULLETIN
Post-Tropical Cyclone Matthew Intermediate Advisory Number  46A
NWS National Hurricane Center Miami FL       AL142016
200 PM EDT Sun Oct 09 2016

...STORM SURGE AND INLAND FLOODING CONTINUES OVER EASTERN NORTH
CAROLINA...


SUMMARY OF 200 PM EDT...1800 UTC...INFORMATION
-----------------------------------------------
LOCATION...35.2N 72.9W
ABOUT 150 MI...240 KM E OF CAPE HATTERAS NORTH CAROLINA
MAXIMUM SUSTAINED WINDS...75 MPH...120 KM/H
PRESENT MOVEMENT...E OR 80 DEGREES AT 15 MPH...24 KM/H
MINIMUM CENTRAL PRESSURE...988 MB...29.18 INCHES


WATCHES AND WARNINGS
--------------------
CHANGES WITH THIS ADVISORY:

The Tropical Storm Warning has been discontinued south of Surf City.

SUMMARY OF WATCHES AND WARNINGS IN EFFECT:

A Tropical Storm Warning is in effect for...
* Surf City to Duck
* Pamlico and Albemarle Sounds

A Storm Surge Warning is in effect for...
* Cape Lookout to Duck

A storm surge warning means there is a danger of life-threatening inundation
during the next 36 hours in the indicated locations.  For a depiction of
areas at risk, please see the National Weather Service Storm Surge
Watch/Warning Graphic, available at hurricanes.gov.  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. 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.

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 OUTLOOK
```

At 200 PM EDT (1800 UTC), the center of Post-Tropical Cyclone Matthew was located near latitude 35.2 North, longitude 72.9 West. The post-tropical cyclone is moving toward the east near 15 mph (24 km/h), and this general motion is expected to continue during the next day or so. On the forecast track, the center of Matthew will move farther offshore of the coast of the North Carolina Outer Banks this afternoon and tonight.

Maximum sustained winds are near 75 mph (120 km/h) with higher gusts. Gradual weakening is forecast during the next day or so, and the low is expected to be absorbed within a frontal boundary Monday night.

Hurricane-force winds extend outward up to 70 miles (110 km), mainly to the southwest of the center, and tropical-storm-force winds extend outward up to 240 miles (390 km).

The estimated minimum central pressure is 988 mb (29.18 inches).

HAZARDS AFFECTING LAND

WIND: Tropical storm conditions are expected to continue over the warning area this afternoon, and then gradually diminish by this evening.

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...

Cape Lookout to Duck...4 to 6 ft

RAINFALL: Life-threatening flooding will continue over portions of eastern North Carolina that have received record rains from Matthew. Consult products issued by your local National Weather Service forecast office for additional information and warnings.

SURF: Swells generated by Matthew will continue to affect much of the southeastern and Mid-Atlantic coasts of the United States during the next couple of days. These swells will likely cause life-threatening surf and rip current conditions. Please consult products from your local weather office.

NEXT ADVISORY

Next complete advisory at 500 PM EDT.

$$

9 Intermediate Public Advisory

```
WTNT31 KNHC 140551
TCPAT1

BULLETIN
Tropical Storm Julia Intermediate Advisory Number   1A
NWS National Hurricane Center Miami FL       AL112016
200 AM EDT Sep 2016

...RAINS FROM JULIA CONTINUE TO SPREAD ONSHORE ALONG THE NORTHEAST
FLORIDA AND GEORGIA COASTS...


SUMMARY OF 200 AM EDT...0600 UTC...INFORMATION
-----------------------------------------------
LOCATION...30.5N 81.8W
ABOUT 15 MI...25 KM NNW OF JACKSONVILLE FLORIDA
ABOUT 50 MI...85 KM SSW OF BRUNSWICK GEORGIA
MAXIMUM SUSTAINED WINDS...40 MPH...65 KM/H
PRESENT MOVEMENT...NNW OR 340 DEGREES AT 8 MPH...13 KM/H
MINIMUM CENTRAL PRESSURE...1011 MB...29.85 INCHES


WATCHES AND WARNINGS
--------------------
CHANGES WITH THIS ADVISORY:

None.

SUMMARY OF WATCHES AND WARNINGS IN EFFECT:

A Tropical Storm Warning is in effect for...
* Ponte Vedra Beach to Altamaha Sound

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 OUTLOOK
----------------------
At 200 AM EDT (0600 UTC), the center of Tropical Storm Julia was
located near latitude 30.5 North, longitude 81.8 West. Julia is
moving toward the north-northwest near 8 mph (13 km/h) and this
motion is expected to continue overnight with a reduction in
forward speed later today.

Maximum sustained winds are near 40 mph (65 km/h) with higher
gusts.  Little change in strength is expected overnight. Julia is
forecast to weaken to a tropical depression by late Wednesday.

Tropical-storm-force winds extend outward up to 45 miles (75 km),
mainly over water to the northeast of the center.
```

The estimated minimum central pressure is 1011 mb (29.85 inches).

HAZARDS AFFECTING LAND

WIND: Tropical-storm-force winds are already occurring within portions of the tropical storm warning area.

RAINFALL: Julia is expected to produce 3 to 6 inches of rain near the northeast Florida, Georgia, and South Carolina coastlines through Friday afternoon. Isolated totals of 10 inches are possible. This rainfall could lead to flash flooding. Flooding may be further compounded with persistent strong onshore flow reducing river and stream discharges.

TORNADOES: An isolated tornado or two will be possible through this morning across parts of northeastern Florida and southeastern Georgia.

NEXT ADVISORY

Next complete advisory at 500 AM EDT.

$$
Forecaster Brown/Cangialosi

10 Special Public Advisory

```
WTNT35 KNHC 190002
TCPAT5

BULLETIN
Hurricane Maria Special Advisory Number  11
NWS National Hurricane Center Miami FL       AL152017
800 PM AST Mon Sep 18 2017

...MARIA BECOMES A POTENTIALLY CATASTROPHIC CATEGORY 5 HURRICANE...
...THE EYE AND THE INTENSE INNER CORE IS NEARING DOMINICA...


SUMMARY OF 800 PM AST...0000 UTC...INFORMATION
-----------------------------------------------
LOCATION...15.3N 61.1W
ABOUT 15 MI...25 KM ESE OF DOMINICA
ABOUT 40 MI...70 KM N OF MARTINIQUE
MAXIMUM SUSTAINED WINDS...160 MPH...260 KM/H
PRESENT MOVEMENT...WNW OR 300 DEGREES AT 9 MPH...15 KM/H
MINIMUM CENTRAL PRESSURE...925 MB...27.32 INCHES


WATCHES AND WARNINGS
--------------------
CHANGES WITH THIS ADVISORY:

The government of France has changed the Hurricane Warning to a
Tropical Storm Warning for Martique.

SUMMARY OF WATCHES AND WARNINGS IN EFFECT:

A Hurricane Warning is in effect for...
* Guadeloupe
* Dominica
* St. Kitts, Nevis, and Montserrat
* U.S. Virgin Islands
* British Virgin Islands
* Puerto Rico, Culebra, and Vieques

A Tropical Storm Warning is in effect for...
* Antigua and Barbuda
* Saba and St. Eustatius
* St. Maarten
* Anguilla
* St. Lucia
* Martinique

A Hurricane Watch is in effect for...
* Saba and St. Eustatius
* St. Maarten
* St. Martin and St. Barthelemy
* Anguilla
* Isla Saona to Puerto Plata
```

A Tropical Storm Watch is in effect for...
* St. Vincent and the Grenadines
* West of Puerto Plata to the northern Dominican Republic-Haiti border

A Hurricane Warning means that hurricane conditions are expected somewhere within the warning area. Preparations to protect life and property should be rushed to completion.

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

A Hurricane Watch means that hurricane conditions are possible within the watch area. A watch is typically issued 48 hours before the anticipated first occurrence of tropical-storm-force winds, conditions that make outside preparations difficult or dangerous.

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

Interests elsewhere in Hispaniola should monitor the progress of this system. Additional watches and warnings may be required later tonight or on Tuesday.

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. For storm information specific to your area outside the United States, please monitor products issued by your national meteorological service.

DISCUSSION AND OUTLOOK

At 800 PM AST (0000 UTC), the eye of Hurricane Maria was located near latitude 15.3 North, longitude 61.1 West. Maria is moving toward the west-northwest near 9 mph (15 km/h), and this general motion is expected to continue through Wednesday. On the forecast track, the core of Maria will move near Dominica and the adjacent Leeward Islands during the next few hours, over the extreme northeastern Caribbean Sea the remainder of tonight and Tuesday, and approach Puerto Rico and the Virgin Islands Tuesday night and Wednesday.

Maximum sustained winds are near 160 mph (260 km/h) with higher gusts. Maria is a category 5 hurricane on the Saffir-Simpson Hurricane Wind Scale. Some additional strengthening is possible tonight, but some fluctuations in intensity are likely during the next day or two.

Hurricane-force winds extend outward up to 25 miles (35 km) from the center and tropical-storm-force winds extend outward up to 125 miles (205 km).

The estimated minimum central pressure based on Air Force Hurricane Hunter data is 925 mb (27.32 inches).

HAZARDS AFFECTING LAND

WIND: Hurricane conditions should be spreading across Dominica, Guadeloupe, and Martinique during the next few hours, with tropical storm conditions already occurring over portions of the Leeward Islands. Hurricane conditions should spread through the remainder of the hurricane warning area tonight through Wednesday. Hurricane conditions are possible within the hurricane watch area Tuesday through Wednesday, with tropical storm conditions possible tonight. Tropical storm conditions are possible in the tropical storm watch area in St. Vincent and the Grenadines through tonight, and are possible in the tropical storm watch area in the Dominican Republic on Wednesday.

Wind speeds atop and on the windward sides of hills and mountains are often up to 30 percent stronger than the near-surface winds indicated in this advisory, and in some elevated locations could be even greater.

STORM SURGE: A dangerous storm surge accompanied by large and destructive waves will raise water levels by as much as 6 to 9 feet above normal tide levels in the hurricane warning area near where the center of Maria moves across the Leeward Islands and the British Virgin Islands.

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. The water is expected to reach the following heights above ground if the peak surge occurs at the time of high tide...

Puerto Rico and the U.S. Virgin Islands...6 to 9 ft

The deepest water will occur along the immediate coast near and to the north and east 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.

RAINFALL: Maria is expected to produce the following rain accumulations through Thursday:

Central and southern Leeward Islands...10 to 15 inches, isolated 20 inches.
U.S. and British Virgin Islands...10 to 15 inches, isolated 20 inches.
Puerto Rico...12 to 18 inches, isolated 25 inches.
Northern Leeward Islands from Barbuda to Anguilla...4 to 8 inches, isolated 10 inches.
Windward Islands and Barbados...2 to 4 inches, isolated 6 inches.
Eastern Dominican Republic...4 to 8 inches, isolated 12 inches.

Rainfall on all of these islands could cause life-threatening flash

floods and mudslides.

SURF: Swells generated by Maria are affecting the Lesser Antilles.
These swells are likely to cause life-threatening surf and rip
current conditions. Please consult products from your local
weather office.

NEXT ADVISORY

Next intermediate advisory at 800 PM AST.
Next complete advisory at 1100 PM AST.

$$
Forecaster Brown

11 Public Advisory Correction

```
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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12 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
--------------------
CHANGES WITH THIS ADVISORY:

None.

Summary of Watches and Warnings in effect...

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

13 WPC Public Advisory

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WTNT34 KWNH 310905
TCPAT4

BULLETIN
Tropical Depression Harvey Advisory Number  44
NWS Weather Prediction Center College Park MD       AL092017
400 AM CDT Thu Aug 31 2017

...FLOODING RAINS CONTINUE ACROSS FAR EASTERN TEXAS AND WESTERN
LOUISIANA WITH HEAVY RAINFALL EXPECTED TO SPREAD NORTHEASTWARD
THROUGH THE LOWER MISSISSIPPI VALLEY AND INTO THE TENNESSEE VALLEY
OVER THE NEXT DAY OR TWO...


SUMMARY OF 400 AM CDT...0900 UTC...INFORMATION
-----------------------------------------------
LOCATION...32.3N 92.0W
ABOUT 5 MI...10 KM S OF MONROE LOUISIANA
ABOUT 65 MI...105 KM NNE OF ALEXANDRIA LOUISIANA
MAXIMUM SUSTAINED WINDS...30 MPH...45 KM/H
PRESENT MOVEMENT...NNE OR 25 DEGREES AT 10 MPH...17 KM/H
MINIMUM CENTRAL PRESSURE...998 MB...29.47 INCHES


WATCHES AND WARNINGS
--------------------
Flood and flash flood warnings and watches are in effect from
eastern Texas through parts of the lower Mississippi Valley and
into western portions of the Tennessee Valley and the lower Ohio
Valley.

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 OUTLOOK
----------------------
At 400 AM CDT (0900 UTC), the center of Tropical Depression Harvey
was located near latitude 32.3 North, longitude 92.0 West. The
depression is moving toward the north-northeast near 10 mph (17
km/h) and is expected to continue this motion over the next 48
hours. This forecast track would take Harvey into northwestern
Mississippi by Thursday afternoon, the western Tennessee Valley
region on Friday, and into the lower Ohio Valley early Saturday
before anticipated dissipation by Saturday afternoon.

Maximum sustained winds are near 30 mph (45 km/h) with higher gusts.
Little change in strength is forecast during the next 48 hours.

The estimated minimum central pressure is 998 mb (29.47 inches).
```

HAZARDS AFFECTING LAND

RAINFALL: Harvey is expected to produce 3 to 5 inches of rain from far eastern Arkansas, northern Mississippi, northeastward across western to central Tennessee, western to central Kentucky and into southern Ohio. Locally higher totals of 6 to 10 inches possible across far northern Mississippi, western Tennessee into southwest Kentucky. These rains will enhance the flash flooding risk across these areas, especially from far northern Mississippi, western Tennessee and into far southwest Kentucky.

Catastrophic and life-threatening flooding will continue in and around Houston, Beaumont/Port Arthur, and eastward into southwest Louisiana for the rest of the week. the expected heavy rains spreading northeastward from Louisiana into western Kentucky may also lead to flash flooding and increased river and small stream flooding. Do not attempt to travel in the affected area if you are in a safe place. Do not drive into flooded roadways.

For more information on rainfall totals, please see the Storm Summary available at www.wpc.ncep.noaa.gov/discussions/nfdscc1.html

NEXT ADVISORY

Next complete advisory at 1000 AM CDT.

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Forecaster Santorelli

FORECAST POSITIONS AND MAX WINDS

INIT	31/0900Z	32.3N	92.0W	25 KT	30 MPH...INLAND
12H	31/1800Z	33.5N	90.8W	25 KT	30 MPH...INLAND
24H	01/0600Z	35.1N	88.6W	25 KT	30 MPH...INLAND
36H	01/1800Z	36.3N	86.4W	25 KT	30 MPH...INLAND
48H	02/0600Z	37.5N	85.0W	20 KT	25 MPH...INLAND
72H	03/0600Z...DISSIPATED				

NNNN

14 National Tropical Cyclone Watch Warning Product (National TCV) – Atlantic basin

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WTNT84 KNHC 252110
TCVAT4

Isaac Watch/Warning Advisory Number 19
NWS National Hurricane Center Miami FL     AL042012
510 PM EDT Sat Aug 25 2012

.Tropical Storm Isaac

Caution...this product only approximately conveys the extent of
tropical cyclone wind and surge watches and warnings. Please see
the latest public advisory from the National Hurricane Center for
the precise lateral extent of wind watches and warnings along the
coast...as well as the approximate lateral extent of surge watches
and warnings. The precise extent of surge watches and warnings
can be found in the NWS National Digital Forecast Database Hazard
grids.

FLZ050-134-139-142-148-149-151-155-260515-
/O.UPG.KNHC.SS.A.1004.000000T0000Z-000000T0000Z/
/O.EXA.KNHC.SS.W.1004.000000T0000Z-000000T0000Z/
510 PM EDT Sat Aug 25 2012

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FLZ069-070-075-160-162-165-265-260515-
/O.CON.KNHC.SS.W.1004.000000T0000Z-000000T0000Z/
510 PM EDT Sat Aug 25 2012

$$

FLZ014-015-027-028-108-112-114-115-118-127-260515-
/O.EXA.KNHC.SS.A.1004.000000T0000Z-000000T0000Z/
510 PM EDT Sat Aug 25 2012 /410 PM CDT Sat Aug 25 2012/

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FLZ128-260515-
/O.CON.KNHC.SS.A.1004.000000T0000Z-000000T0000Z/
510 PM EDT Sat Aug 25 2012

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ATTN...WFO...MFL...TAE...TBW...
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15 National Tropical Cyclone Watch Warning Product (National TCV) – East Pacific basin

```
WTPZ85 KNHC 202100
TCVEP5

TEST WATCH/WARNING BREAKPOINTS/ADVISORY NUMBER 1
NWS NATIONAL HURRICANE CENTER MIAMI FL     EP802016
200 PM PDT WED JUL 20 2016

.TROPICAL STORM TEST

CAZ043-210300-
/O.NEW.KNHC.TR.W.2080.160720T2100Z-000000T0000Z/
200 PM PDT WED JUL 20 2016

SAN-ONOFRE-STATE-BEACH-CA           33.39N 117.59W
MOUTH-OF-TIJUANA-RIVER-CA           32.53N 117.12W

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CAZ041-087-552-210300-
/O.NEW.KNHC.TR.A.2080.160720T2100Z-000000T0000Z/
200 PM PDT WED JUL 20 2016

POINT-MUGU-CA                       34.11N 119.12W
SAN-ONOFRE-STATE-BEACH-CA           33.39N 117.59W

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ATTN...WFO...LOX...SGX...
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16 Tropical Cyclone Forecast / Advisory (TCM)

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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

A STORM SURGE WARNING IS IN EFFECT FOR...
* MORGAN CITY 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.
64 KT... 75NE  75SE  30SW  45NW.
50 KT...120NE 125SE  75SW  90NW.
34 KT...180NE 240SE 120SW 120NW.

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

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

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

OUTLOOK VALID 16/1200Z...ABSORBED

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

NEXT ADVISORY AT 11/2100Z

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FORECASTER FRANKLIN
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17 Tropical Cyclone Forecast Discussion (TCD)

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WTNT41 KNHC 120232
TCDAT1

Tropical Depression Irma Discussion Number  52
NWS National Hurricane Center Miami FL       AL112017
1100 PM EDT Mon Sep 11 2017

Irma continues to move farther inland and is approaching the
Georgia-Alabama border, with a large rain shield spread across much
of the southeastern United States.  There have been no surface
reports of sustained tropical-storm-force winds from within the
tropical storm warning areas, so it is assumed that Irma has
weakened to a tropical depression with maximum winds of 30 kt.
Winds should continue to decrease over the next day or so while
Irma remains over land and is hammered by 40 kt of shear.  These
conditions should also cause the deep convection to die off, and
Irma is likely to become a remnant low in about 24 hours.  The
global models are then in agreement that the remnant low will
dissipate by 48 hours.

Irma has turned northwestward with an initial motion of 325/14 kt.
The depression is embedded within a larger cyclonic gyre, which is
expected to move northwestward through Monday, and then turn
north-northwestward over western Tennessee or western Kentucky
before it dissipates.

Water levels have fallen below the storm surge warning criteria
along the southeastern United States coast and the Florida west
coast.  The Storm Surge Warnings in those areas have therefore been
discontinued.

Future information on this system can be found in Public
Advisories issued by the Weather Prediction Center beginning at
5 AM EDT, under AWIPS header TCPAT1, WMO header WTNT31 KWNH, and on
the web at http://www.wpc.ncep.noaa.gov.

KEY MESSAGES:

1. Irma continues to produce very heavy rain across the
southeastern United States. Intense rainfall rates are leading to
flash flooding and rapid rises on creeks, streams, and rivers.
Significant river flooding will persist over the Florida peninsula
in the wake of Irma and across Georgia, South Carolina and
north-central Alabama where additional heavy rains are expected.
Portions of these states within the southern Appalachians will be
especially vulnerable to flash flooding. Irma is also expected to
produce heavy rains in northern Mississippi and southern portions of
Tennessee and North Carolina, where local flooding may occur.

2. Storm surge flooding is subsiding along portions of the coasts of
western Florida, Georgia, and South Carolina.

FORECAST POSITIONS AND MAX WINDS
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```
INIT  12/0300Z 32.4N  84.9W   30 KT  35 MPH...INLAND
 12H  12/1200Z 33.8N  86.4W   25 KT  30 MPH...INLAND
 24H  13/0000Z 35.2N  88.2W   25 KT  30 MPH...POST-TROP/INLAND
 36H  13/1200Z 36.4N  88.6W   20 KT  25 MPH...POST-TROP/INLAND
 48H  14/0000Z...DISSIPATED

$$
Forecaster Berg
```

18 Tropical Cyclone Update (TCU)

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

```
WTNT63 KNHC 052135
TCUAT3

Tropical Storm Colin Tropical Cyclone Update
NWS National Hurricane Center Miami FL       AL032016
430 PM CDT Sun Jun 05 2016

...DEPRESSION STRENGTHENS TO A TROPICAL STORM...

Reports from an Air Force Reserve Unit Hurricane Hunter aircraft
indicate that Tropical Depression Three is now a tropical storm
with maximum sustained winds of 40 mph (65 km/h).

SUMMARY OF 430 PM CDT...2130 UTC...INFORMATION
-----------------------------------------------
LOCATION...23.3N 87.9W
ABOUT 465 MI...750 KM SW OF TAMPA FLORIDA
ABOUT 475 MI...765 KM SSW OF APALACHICOLA FLORIDA
MAXIMUM SUSTAINED WINDS...40 MPH...65 KM/H
PRESENT MOVEMENT...N OR 360 DEGREES AT 12 MPH...19 KM/H
MINIMUM CENTRAL PRESSURE...1005 MB...29.68 INCHES

$$
Forecaster Pasch
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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

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
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19 Wind Speed Probabilities Text Product (PWS)

```
FONT14 KNHC 262041
PWSAT4
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 - - - -

               FROM    FROM    FROM    FROM    FROM    FROM    FROM
  TIME       18Z SUN 06Z MON 18Z MON 06Z TUE 18Z TUE 18Z WED 18Z THU
PERIODS          TO      TO      TO      TO      TO      TO      TO
            06Z MON 18Z MON 06Z TUE 18Z TUE 18Z WED 18Z THU 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)

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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)

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FORECASTER PASCH
NNNN
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20 Graphical Wind Speed Probabilities

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

21 Graphical Storm Surge Probabilities

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

22 Storm Surge Watch/Warning Graphic

An example of this graphic can be found on the Internet at:
http://www.nhc.noaa.gov/pdf/surgeWatchWarningPDD.pdf

23 Potential Storm Surge Flooding Map

An example of this graphic can be found on the Internet at:
http://www.nhc.noaa.gov/pdf/PDD-PotentialStormSurgeFloodingMap.pdf

24 Tropical Cyclone Summary – Fixes (TCS)

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TXPN41 PHFO 301758
TCSNP1

CENTRAL PACIFIC TROPICAL CYCLONE SUMMARY - FIXES
NWS CENTRAL PACIFIC HURRICANE CENTER HONOLULU HI
1755 UTC TUE AUG 30 2016

A. HURRICANE MADELINE

B. 30/1730Z

C. 19.3N

D. 148.7W

E. GOES-15

F. T5.0/6.0/W0.5/24 HRS

G. VIS/IR/EIR

H. REMARKS...A MG EYE WITH A SUFFICIENTLY LARGE LG SHIELD YIELDS
AN EYE NUMBER OF 5.0. THE MG EYE WITH A SURROUNDING W RING DOES
NOT PROVIDE AND ADDITIONAL EYE ADJUSTMENT...THEREFORE THE DT IS
5.0. PAT AGREES AND THE MET IS 4.5. FT IS BASE ON DT.

I. ADDL POSITIONS
NONE.

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EATON
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25 Satellite Interpretation Message (SIM)

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ATPQ40 PGUM 261459
SIMGUM

SATELLITE INTERPRETATION MESSAGE
NATIONAL WEATHER SERVICE TIYAN GU
100 AM CHST TUE DEC 27 2016

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

A SHEAR LINE EXTENDS WEST-SOUTHWESTWARD THROUGH 25N172E TO 22N168E
TO 22N140E TO BEYOND 130E AT 16N. CLOUDINESS AND PATCHY SHOWERS ARE
FOUND ALONG AND UP TO 400 MILES NORTH OF THIS BOUNDARY.

A WEAK SURFACE TROUGH EAST OF PALAU EXTENDS FROM 1N136E TO 7N138E.
LOW-LEVEL CONVERGENCE NEAR AND EAST OF THE TROUGH IS GENERATING
SCATTERED SHOWERS AND ISOLATED THUNDERSTORMS WITHIN 150 MILES EITHER
SIDE OF A LINE FROM 5N133E TO 3N137E TO 6N140E TO 3N152E...SOUTH OF
KOROR...YAP AND CHUUK.

TRADE-WIND CONVERGENCE IS PRODUCING SCATTERED SHOWERS AND ISOLATED
THUNDERSTORMS WITHIN 75 MILES EITHER SIDE OF A LINE FROM NORTHEAST
OF POHNPEI AT 8N159E TO 9N164E TO 7N173E TO 10N178E...INCLUDING
KWAJALEIN AND MAJURO.

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MGM
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26 Tropical Weather Discussion (TWD)

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AXNT20 KNHC 152337
TWDAT

Tropical Weather Discussion
NWS National Hurricane Center Miami FL
637 PM EST Fri Dec 15 2017

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, weather observations, radar and meteorological analysis.

Based on 1800 UTC surface analysis and satellite imagery through
2330 UTC.

...SPECIAL FEATURES...

...Gulf of Mexico Gale Warning...
A cold front extends across the northern Gulf of Mexico from 30N84W to 27N90W
to 21N97W. Gale-force northwesterly winds are occurring mainly south of 25N
and west of the front, with seas ranging from 8 to 12 ft. These conditions
are expected through at least the next 12 hours as the front progresses
across the basin. The pressure gradient will relax with gradually diminishing
winds and seas thereafter. Please refer to the latest NHC High Seas Forecast
under AWIPS/WMO headers MIAHSFAT2/FZNT02 KNHC for more details.

...Caribbean Sea Gale Warning...

Strong high pressure building across the Atlantic to the north of the
Caribbean Sea has helped tighten the pressure gradient over the south central
Caribbean, supporting fresh to strong trades. Winds will pulse to gale force
off the northwest coast of Colombia coast each night starting tonight through
Monday night as the high center remains due N of the area. Sea heights will
build to 10-13 feet during the time of peak winds across this area. Please
refer to the latest NHC High Seas Forecast under AWIPS/WMO headers
MIAHSFAT2/FZNT02 KNHC for more details.

...ITCZ/MONSOON TROUGH...

The monsoon trough extends from 07N12W to 06N15W. The ITCZ continues from
06N15W to 04N40W. Scattered moderate convection is noted from 04N-10N between
13W-36W.

...DISCUSSION...

GULF OF MEXICO...

A cold front extends from the Florida Big Bend near 30N84W to 27N90W to the
northeast Mexico coast near 21N97W. Gale-force northerly winds are noted west
of the front and mainly south of 25N, with fresh to near-gale force north
winds occurring west of the front north of 25N. Please refer to the Special
Features section above for details. Scattered showers are observed northwest
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of the front north of 26N and west of 90W. Fair weather prevails elsewhere with light to gentle easterly winds, as noted in the most recent scatterometer data. The front is forecast to continue moving southeast across the basin through Saturday, before stalling from near Tampa to 26N92W to the Bay of Campeche. The boundary will then lift northward as a warm front through Sunday night as southerly return flow becomes established across most of the basin. High pressure will build over the area Sunday evening through Monday. The area of high pressure will shift eastward into the eastern gulf waters by late Tuesday, enabling a weak cold front to move across the NW and N central waters.
CARIBBEAN SEA...

Scattered showers and a few thunderstorms were occurring along and just ahead of an inverted trough along about 85W moving westward toward the Yucatan Peninsula, while fair weather prevails across the remainder of the basin. The trough and associated weather are expected to move inland tonight. Latest surface observations indicate fresh to strong tradewinds prevail over the central Caribbean, extending from Hispaniola to South America. Seas are in the 6-9 ft range across the north central Caribbean and in the 8-10 ft range over the south central Caribbean, except 11-12 ft off the coast of Colombia. Gale-force winds are expected to develop over the south-central Caribbean tonight. Please refer to the Special Features section above for more details. Strong NE to E winds will develop in the lee of Cuba and across the Windward Passage late Saturday night before diminishing on Tuesday. Elsewhere, moderate tradewinds prevail across the eastern Caribbean, with seas in the 4-6 ft range. Gentle to moderate E to NE winds are found across the western Caribbean, with seas in the 3-5 ft range. These conditions are expected to prevail the next several days.

ATLANTIC OCEAN...

Fair weather prevails across the western Atlantic ahead of a frontal boundary currently located along the Georgia/South Carolina coast lines. To the east, a frontal trough extends from 23N65W SW across the SE Bahamas to eastern Cuba. Another trough is located from 25N46W to 20N47W. The remainder of the area is under the influence of a surface ridge, anchored by a 1034 mb high centered near 36N30W, and a 1022 mb high located near 28N61W. The frontal trough will dissipate by early Saturday. The cold front moving off the NE Florida coast will reach from Bermuda to central Florida Saturday, then stall and slowly dissipate along 25N through early next week. High pressure will build in the wake of the front with moderate winds across the area veering from N to NE late Saturday to easterly on Sunday.

For additional information please visit
http://www.hurricanes.gov/marine

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AL

27 Aviation Tropical Cyclone Advisory (TCA)

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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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28 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.

29 Cumulative Wind Distribution Graphic

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

30 Tropical Cyclone Wind Field Graphic

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

31 Tropical-Storm-Force Winds Arrival Timing Graphics

Example of these graphics can be found on the Internet at:
https://www.nhc.noaa.gov/experimental/arrivaltimes/.

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/
National Tropical Cyclone Watch/Warning Product		
Atlantic Basin	WTNT/81-85/ KNHC	TCVAT/1-5/
East Pacific Basin	WTPZ/81-85/ KNHC	TCVEP/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		
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)
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.