Future Tropical Analysis and Forecast Branch Products and Services – Your Feedback Requested

Chris Landsea
Chief, TAFB
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WFO Workshop
April 29th, 2019
Future Tropical Analysis and Forecast Branch
Products and Services –
Your Feedback Requested

- East Pacific Offshore Zones
- Redesigned Graphics (Sea State, Wind/Waves, Surface Progs, Wave Period/Direction)
- Elimination of Marine Weather Discussion
- Surface Progs beyond Day 3
- Marine Composite Page beyond Day 3
- Spanish Language Offshore Zones
- Weekly Weather Briefings
- Polygon Warnings
- Severe Marine Thunderstorm Warning
- Spot marine forecasts
- NAVTEX use and availability?
- Easterly Wave analyses
- Other possibilities
<table>
<thead>
<tr>
<th>Category</th>
<th>Product</th>
<th>Update Frequency</th>
<th>Warning/Forecast Period</th>
<th>Broadcast</th>
<th>Transmission</th>
<th>Coverage</th>
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</thead>
<tbody>
<tr>
<td>Text</td>
<td>High Seas Forecast</td>
<td>6 hourly / as needed</td>
<td>2 days</td>
<td>GMDSS Safetynet</td>
<td>Satellite, Inmarsat-C</td>
<td>METAREAs IV and XI</td>
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<tr>
<td>Text</td>
<td>NAVTEX</td>
<td>6 hourly / as needed</td>
<td>5 days</td>
<td>NAVTEX</td>
<td>USCG MF</td>
<td>Coastal and Offshore to the Exclusive Economic Zone</td>
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<tr>
<td>Text</td>
<td>Tropical Cyclone Forecast/Advisory</td>
<td>6 hourly / as needed</td>
<td>5 days</td>
<td>GMDSS Safetynet</td>
<td>Satellite, Inmarsat-C</td>
<td>North Atlantic Eastern/ Central Pacific</td>
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<tr>
<td>Graphical</td>
<td>Surface Analyses Surface Forecasts</td>
<td>6 hourly / 12 hourly</td>
<td>00 hour 24/48/72°/96° Hour</td>
<td>HF Radiofacsimile</td>
<td>USCG HF</td>
<td>North Atlantic North Pacific</td>
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<tr>
<td>Graphical</td>
<td>Wind/Wave Forecasts</td>
<td>12 hourly</td>
<td>24/48/72°/96° Hour</td>
<td>HF Radiofacsimile</td>
<td>USCG HF</td>
<td>North Atlantic North Pacific</td>
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<tr>
<td>Gridded</td>
<td>Wind speed/direction Wave heights</td>
<td>6 hourly / as needed</td>
<td>7 days 3 hourly (through 72 hours) 6 hourly beyond 72 hours</td>
<td>Available via internet access or email request</td>
<td>N/A</td>
<td>North Atlantic ¹ North Pacific ²</td>
</tr>
</tbody>
</table>

* - 72 hour forecast by NHC and NWS Honolulu
* ⁴ - 96 hour forecast by OPC, once per day
¹ - western North Atlantic from OPC, full Atlantic for NHC portion
TAFB Offshore Zones

Become official new National Weather Service product on April 16th, 2019

Central America, Colombia, Ecuador - https://www.nhc.noaa.gov/text/MIAOFFPZ8.shtml
Graphical Product Revisions –
Removing the South Pacific,
Providing more detail in Northeast Pacific

Legacy
Wind/Wave
Forecasts

NWS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)
Graphical Product Revisions – Removing the South Pacific, Providing more detail in Northeast Pacific

To be removed from graphics….
Graphical Product Revisions –
Removing the South Pacific,
Providing more detail in Northeast Pacific

Revised
Wind/Wave Forecasts

48HR WIND(KT)/WAVE(FT) FORECAST
ISSUED: 22:33 UTC JAN 10 2019
VALID: 12 UTC JAN 11 2019
FCSTR: MAS

NWS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)
Graphical Product Revisions –
Removing the South Pacific,
Providing more detail in Northeast Pacific

To be Transitioned in the Spring

NWS/NHC/TROPICAL ANALYSIS AND FORECAST BRANCH
SIG WAVE HT IS SHOWN (THE AVG HT OF THE HIGHEST 1/3 OF THE WAVES)
Marine Weather Discussion

AGXX40 KNHC 181014 AAA
MIMATS Marine Weather Discussion
NWS National Hurricane Center Miami FL
514 AM EDT Mon Mar 18 2019

Marine Weather Discussion for the Gulf of Mexico,
Caribbean Sea, and Tropical North Atlantic from 07N to
19N between 55W and 64W and the Southwest North
Atlantic including the Bahamas

...GULF OF MEXICO...The cold front of the previous
days has become stationary from just north of the
northwestern coast of Cuba to 23N88W to a weak 1016
mb low at 22N94W and southeast from there to just
inland the coast of Mexico at 19N91W. Strong high
pressure is present to the northwest and north of the
front/low. A recent Ascat pass revealed strong to near
gale force northwest winds over the far SW Gulf where
the gradient is the tightest between the front/low and
the aforementioned high pressure that is ridging
southward along eastern Mexico. Winds elsewhere
across the Gulf are in the strong range and northeast in
direction. Per latest buoy reports, seas across the Gulf
are in the 4-6 ft range, except for much higher seas of
8-11 ft in the SW Gulf with the strong to near gale force
northwester winds. Seas are low, in the 2-4 ft range in
the far northwest, north-central and northeast sections
of the Gulf...

https://www.nhc.noaa.gov/text/MIAMIMATS.shtml
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https://www.nhc.noaa.gov/text/MIAMIMATS.shtml

Tropical Weather Discussion

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 1200 UTC surface analysis and satellite imagery through 1715 UTC.

...SPECIAL FEATURES... ...Caribbean Sea Gale Warning... NE gale-force winds are expected again tonight near the coast of Colombia from 19/0000 UTC to 19/1500 UTC. Thereafter, a low developing near the Bahamas will weaken the ridge over the western Atlantic and allow the nocturnal gale winds to diminish. Please read the latest High Seas Forecast issued by the National Hurricane Center under the AWIPS/WMO header MIAHSFAT2/FZNT02 KNHC or the website https://www.nhc.noaa.gov/text/MIAHSFAT2.shtml, for more details.

...MONSOON TROUGH/ITCZ... The monsoon trough extends SW from the coast of Sierra Leone near 07N12W to 02N17W. The ITCZ continues from 02N17W to 03S30W to the coast of Brazil near 03S43W...

https://www.nhc.noaa.gov/text/MIATWDEP.shtml
Marine Weather Discussion

AGXX40 KNHC 181014 AAA
MIMATS Marine Weather Discussion
NWS National Hurricane Center Miami FL
514 AM EDT Mon Mar 18 2019

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Tropical Weather Discussion

AXNT20 KNHC 181733
TWDAT Tropical Weather Discussion
NWS National Hurricane Center Miami FL
133 PM EDT Mon Mar 18 2019

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https://www.nhc.noaa.gov/text/MIAMIMATS.shtml
https://www.nhc.noaa.gov/text/MIATWDAT.shtml
https://www.nhc.noaa.gov/text/MIATWDEP.shtml

To be Transitioned in the Summer
Surface Prog Graphics

- Fronts, troughs, tropical cyclones, tropical waves, ridges
- 24, 48, and 72 hr Forecasts
- W. Atlantic, Caribbean, Gulf of Mexico, and E. Pacific
- Issued twice daily

https://www.nhc.noaa.gov/tafb_latest/atlsfc72_latestB_W.gif
Surface Prog Graphics

- Fronts, troughs, tropical cyclones, tropical waves, ridges
- 24, 48, and 72 hr Forecasts
- W. Atlantic, Caribbean, Gulf of Mexico, and E. Pacific
- Issued twice daily

Is there interest/use in going to 5 days? To 7 days?

https://www.nhc.noaa.gov/tafb_latest/atlsfc72_latestB_W.gif
Marine Composite Page – Winds, Waves, and Features

https://www.nhc.noaa.gov/marine/forecast/enhanced_atlcfull.php
Is there interest/use in going to 5 days? To 7 days?
Spanish Language Version of Offshore Zones

Marine Forecasts | Gridded Marine | Resources | Radiofax | About Marine | Outreach

Eastern Pacific High Seas Forecast

En español

AVISO DE GALERNA...

DURANTE LA NOCHE... VIENTOS DEL NORESTE A ESTE 25 A 35 NUDOS. OLEAJE DE 12 A 14 PIES EN MAREJADA DEL ESTE.

MIÉRCOLES... VIENTOS DEL NORESTE A ESTE 25 A 35 NUDOS. DISMINUYENDO A 20 A 25 NUDOS EN LA TARDE. OLEAJE DE 11 A 13 PIES EN MAREJADA DEL ESTE.

MARTES... VIENTOS DEL NORESTE A ESTE 25 A 35 NUDOS. DISMINUYENDO A 20 A 25 NUDOS EN LA TARDE. OLEAJE DE 11 A 13 PIES EN MAREJADA DEL ESTE.

LUNES... VIENTOS DEL NORESTE A ESTE 25 A 35 NUDOS. DISMINUYENDO A 20 A 25 NUDOS EN LA TARDE. OLEAJE DE 11 A 13 PIES EN MAREJADA DEL ESTE.

MIÉRCOLES... VIENTOS DEL NORESTE A ESTE 25 A 35 NUDOS. DISMINUYENDO A 20 A 25 NUDOS EN LA TARDE. OLEAJE DE 11 A 13 PIES EN MAREJADA DEL ESTE.

JUEVES... VIENTOS DEL NORESTE A ESTE 15 A 20 NUDOS. OLEAJE DE 3 A 6 PIES.

JUEVES POR LA NOCHE... VIENTOS DEL NORESTE 15 A 20 NUDOS. OLEAJE DE 3 A 6 PIES.

VIERNES... VIENTOS DEL NORESTE 15 A 20 NUDOS. DISMINUYENDO A 10 A 15 NUDOS EN LA TARDE. OLEAJE DE 3 A 5 PIES.

VIERNES POR LA NOCHE... VIENTOS DEL NORESTE 10 A 15 NUDOS. AUMENTANDO A 15 A 20 NUDOS TARDE. OLEAJE DE 3 A 5 PIES.

SABADO... VIENTOS DEL NORESTE A ESTE 15 A 20 NUDOS. OLEAJE DE 3 A 6 PIES.

SABADO POR LA NOCHE... VIENTOS DEL NORESTE A ESTE 15 A 20 NUDOS. OLEAJE DE 3 A 6 PIES.
Existing Wave Products for Tropical Cyclones

High Seas and Offshores

Text Forecasts

HIGH SEAS FORECAST
NWS NATIONAL HURRICANE CENTER
1030 UTC FRI OCT 02 2015

SUPERSEDED BY NEXT ISSUANCE IN 6 HOURS

SEAS GIVEN AS SIGNIFICANT WAVE HEIGHT...WHICH IS THE AVERAGE HEIGHT OF THE HIGHEST 1/3 OF THE WAVES. INDIVIDUAL WAVES MAY BE MORE THAN TWICE THE SIGNIFICANT WAVE HEIGHT.

PAN PAN

ATLANTIC FROM 07N TO 31N W OF 35W INCLUDING CARIBBEAN SEA AND GULF OF MEXICO.

SYNOPSIS VALID 0600 UTC FRI OCT 02.
24 HOUR FORECAST VALID 0600 UTC SAT OCT 03.
48 HOUR FORECAST VALID 0600 UTC SUN OCT 04.

WARNINGS.

...HURRICANE WARNING...

HURRICANE JOAQUIN NEAR 23.3N 74.7W 935 MB AT 0900 UTC OCT 02 MOVING NW OR 315 DEG AT 3 KT. MAXIMUM SUSTAINED WINDS 115 KT GUSTS 140 KT. TROPICAL STORM FORCE WINDS WITHIN 160 NM W SEMICIRCLE...140 NM NE QUADRANT AND 180 NM SE QUADRANT. SEAS 12 FT OR GREATER WITHIN 400 NM NE QUADRANT...150 NM SE QUADRANT...120 NM SW QUADRANT...AND 300 NM NW QUADRANT WITH SEAS TO 39 FT. ELSEWHERE S OF 28N BETWEEN 70W AND 78W WINDS 20 TO 33 KT. SEAS 9 TO 12 FT. N OF 28N BETWEEN 70W AND 75W E WINDS 20 TO 25 KT SEAS 8 TO 10 FT. REMAINDER OF AREA N OF 21N BETWEEN 65W AND 78W AND OUTSIDE OF THE BAHAMAS WINDS 20 KT OR LESS. SEAS 8 TO 11 FT IN MIXED SWELL.
Existing Wave Products for Tropical Cyclones

**High Seas and Offshores Text Forecasts**

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NWS NATIONAL HURRICANE CENTER
1030 UTC FRI OCT 02 2015

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**All Wave Forecasts are Deterministic (Exact)**
Prototype Graphic

Probability of 24-ft Significant Wave Height (the average height of the highest 1/3 of the waves) from all tropical cyclones

Indicates HURRICANE JOAQUIN center location at 8 PM EDT Thu Oct 1 2015 (Forecast/Advisory #17)
24-ft Wave Height Probabilities

Prototype Graphic

50% - Most Likely Location of High Seas Through Five Days

Probability of 24-ft Significant Wave Height (the average height of the highest 1/3 of the waves) from all tropical cyclones

◊ indicates HURRICANE JOAQUIN center location at 8 PM EDT Thu Oct 1 2015 (Forecast/Advisory #17)
Prototype Graphic

10% - Reasonable Worst Case Scenario for Location of High Seas Through Five Days

Probability of 24-ft Significant Wave Height (the average height of the highest 1/3 of the waves) from all tropical cyclones

○ indicates HURRICANE JOAQUIN center location at 8 PM EDT Thu Oct 1 2015 (Forecast/Advisory #17)
The Ocean Prediction Center has taken the lead on weekly briefings provided to the US Coast Guard District 5 for the Western Atlantic. These are then made available to the marine community. Should a similar service be made available for Gulf of Mexico? Eastern North Pacific?
Severe Marine Thunderstorm Warning

- Use of GOES lightning data and other met sources to produce Severe Marine Thunderstorm Warning with polygons
## Spot Marine Forecasts

- **Point-n-click** available for all WFO land and coastal locations
- **Not available yet** for NHC/Tropical Analysis and Forecast Branch, Ocean Prediction Center, or Honolulu Forecast Office

### 21NM ESE Miami Beach FL

**Marine Point Forecast [NOTICE]**

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<th>Tonight</th>
<th>Thursday</th>
<th>Thursday Night</th>
<th>Friday</th>
<th>Friday Night</th>
<th>Saturday</th>
<th>Saturday Night</th>
<th>Sunday</th>
<th>Sunday Night</th>
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<tbody>
<tr>
<td>NE 12kt 5ft</td>
<td>N 12kt 5ft</td>
<td>NW 15kt 4-5ft</td>
<td>Light Wind 3kt</td>
<td>NE 7kt 3ft</td>
<td>E 13kt 2-3ft</td>
<td>E 13kt 3ft</td>
<td>E 14kt 3ft</td>
<td></td>
</tr>
</tbody>
</table>

**ABOUT THIS FORECAST**

- **Point Forecast:** 25.72°N 79.78°W
- **Last Update:** 8:46 pm EDT Mar 20, 2019
- **Forecast Valid:** 10pm EDT Mar 20, 2019-6pm EDT Mar 27, 2019
- **Forecast Discussion**
NAVTEX is an internationally required broadcast of coastal urgent marine safety information to ships.

In the United States there are 12 U.S. Coast Guard transmitter locations. TAFB products are transmitted from Miami, San Juan, and New Orleans, and contribute to the Charleston broadcast.

https://www.nhc.noaa.gov/text/MIAOFFN04.shtml
Navigational Telex (NAVTEX)

NAVTEX is an internationally required broadcast of coastal urgent marine safety information to ships.

In the United States, there are 12 U.S. Coast Guard transmitter locations. TAFB products are transmitted from Miami, San Juan, and New Orleans, and contribute to the Charleston broadcast.

https://www.nhc.noaa.gov/text/MIAOFFN04.shtml

U.S. Coast Guard is Proposing to Discontinue Medium Frequency (MF) Broadcasts of NAVTEX
Easterly Wave Analyses

Tropical Waves - September 17, 2017
#1 - 102W, #2 - 83W, #3 - 55W, #4 - 36W, #5 - 20W, #6 - 4W (new)
Easterly Wave Analyses

Tropical Waves - September 18, 2017
#1 - Absorbed, #2 - 90W, #3 - 59W, #4 - 40W, #5 - 23W, #6 - 13W
Easterly Wave Analyses

Tropical Waves - September 19, 2017
#2 - 94W, #3 - 63W, #4 - 44W, #5 - Absorbed, #6 - 23W
Other Possibilities...

- Provide ocean winds higher than 10 m above the surface (30 m? 50 m?)
- Provide all “blue water” Sea State and Forecast Seas in meters?
- Bring back GovDelivery-type service (email list serve for products)
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