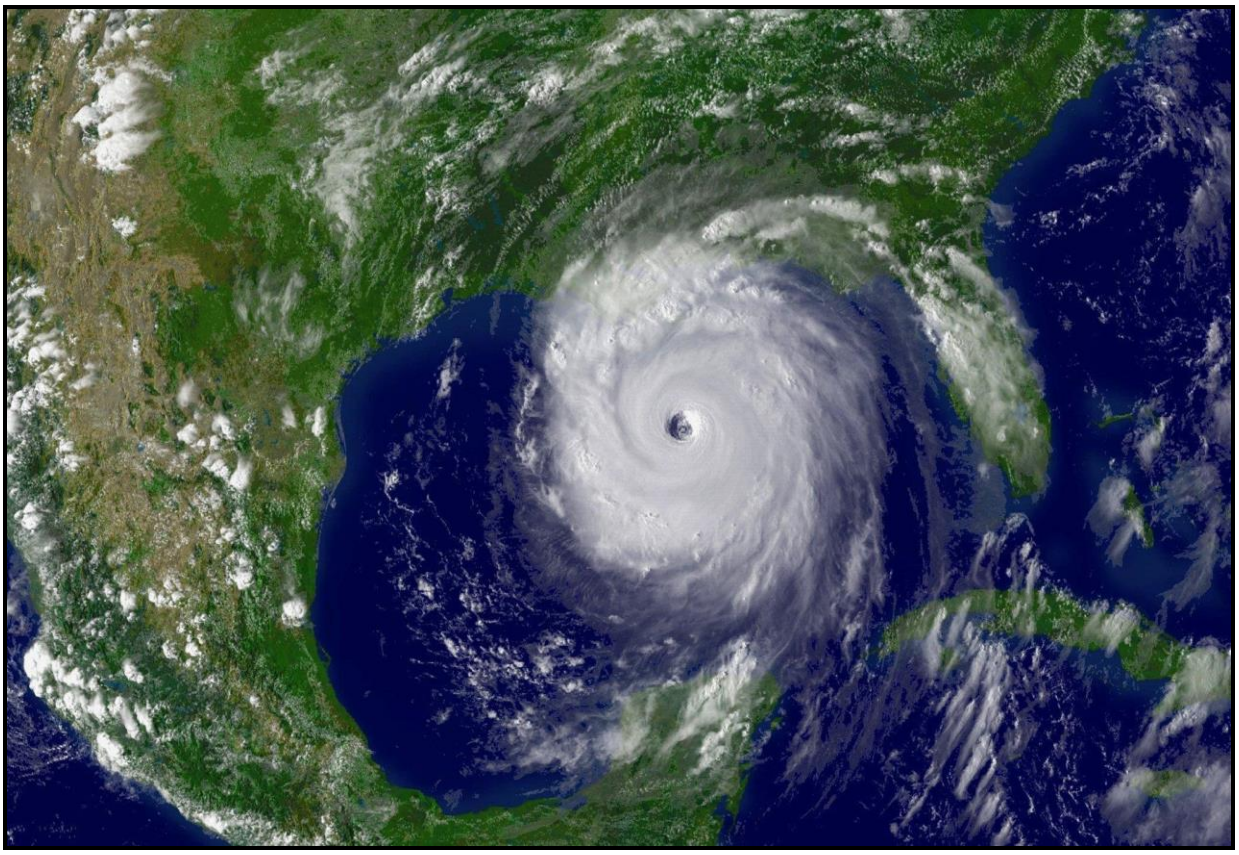
July 2017

Voluntary Observing Ship Program

www.vos.noaa.gov

MARINE WEATHER INFORMATION GUIDE



Katrina Aug 2005

Contents

OCEAN AREA WARNINGS

Wind Warnings:

- **Gale** extratropical low or an area with winds ranging from 34 to 47 kts.
- **Storm** extratropical low or an area with winds of 48 kts or greater.
- **Hurricane Force** an extratropical low or an area of winds in excess of 64 knots.

Tropical Cyclone Warnings:

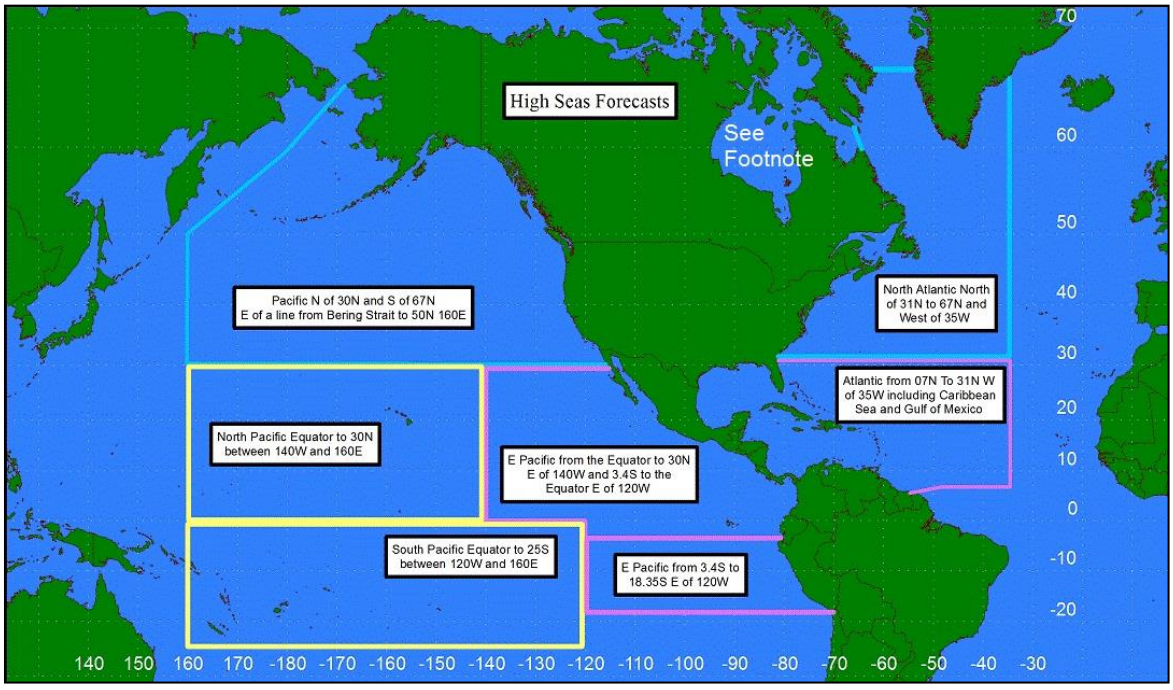
- **Tropical Depression** winds of less than 34 kts
- **Tropical Storm** winds of 34 to 63 kts
- **Hurricane** winds of 64 kts or greater

HIGH SEAS FORECAST

The 48 hour text forecasts are prepared every 6 hours for both the Pacific, Atlantic and Tropical areas as depicted on the chart below. The initial conditions, based on the surface analysis, satellite interpretation, and SSM/I describes winds and seas associated with significant extratropical and tropical cyclones across the warning area.

The first part of the High Seas Forecast describes WARNINGS in affect for systems with sustained winds of 34 kts or greater. The expected trends, movement and 24 hour, 48 hour forecast position and conditions are described. The forecast has less detailed information than the Offshore Waters Forecast.

The second part consists of the SYNOPSIS AND FORECAST section, which describes weather systems which don't meet the warning criteria. Highlighted in this section are weather systems producing winds of at least 25 kts and seas of 8 feet. The message describes the initial, 24 hour and 48 hour forecast positions along with associated conditions if appropriate. In addition it may describe areas of dense fog reducing visibility below 1 NM, areas of significant structural icing.



Ocean Prediction Center (OPC): Pacific N of 30N and Atlantic North of 31N
Tropical Prediction Center (TPC) East Pacific E of 140W and 3.4S to the Equator E of 120W
East Pacific from 3.4S to 18.35 E of 120W
Honolulu Weather Forecast Office: North Pacific Equator to 30N between 140W and 160E

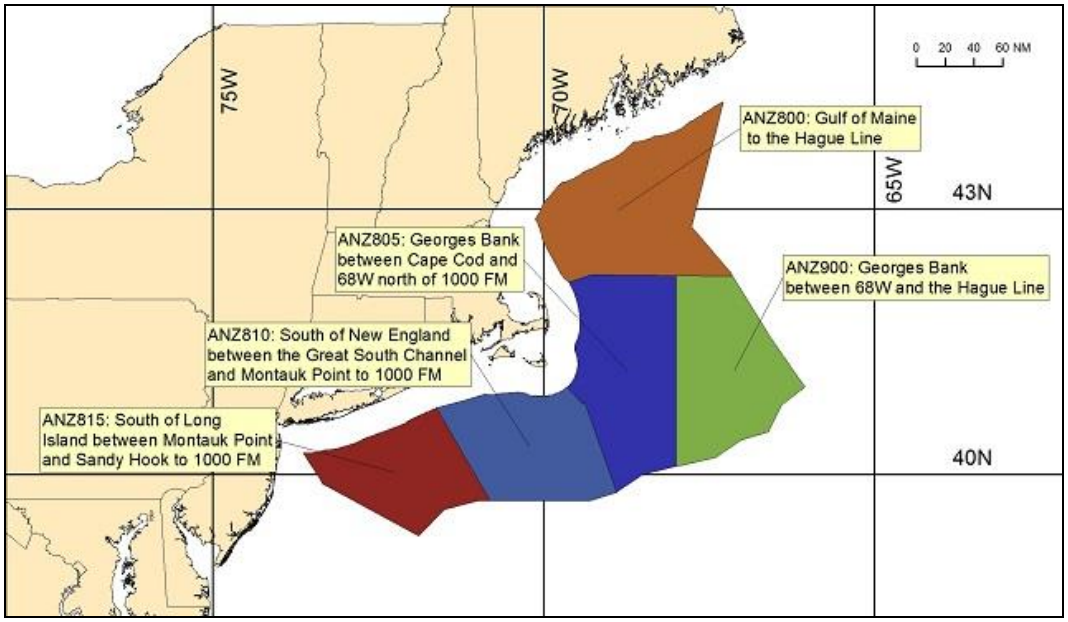
OFFSHORE WATERS FORECAST

The forecast includes a synopsis for the next 5 days. The synopsis and outlook has a brief description of significant weather features and forecast over the offshore waters through the forecast period. Emphasis is placed on the forecast movement of low pressure, high pressure, fronts, and tropical systems. It covers a smaller area and contains more detailed information than the High Seas Forecast.

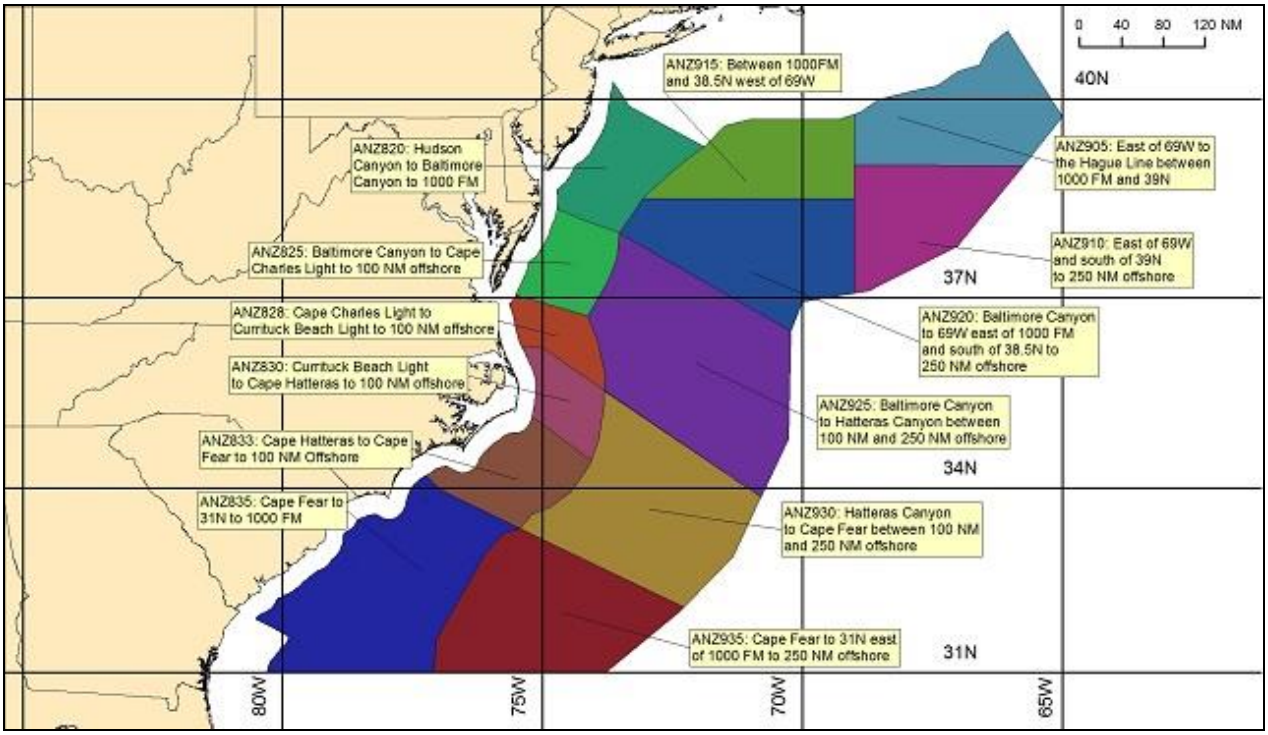
The forecast includes expected winds, seas, reduced visibility, and any precipitation. Emphasis in the forecast is for systems with maximum sustained winds (over a ten minute period) in excess of 34 kts and areas with reduced visibility of less than 1 NM. A warning is issued when wind conditions are expected to exceed 34 kts within a 24 hour period.

The offshore forecast is issued every 6 hours for the Western North Atlantic and Eastern North Pacific Oceans. It may be issued sooner when current or expected conditions differ significantly from the forecast.

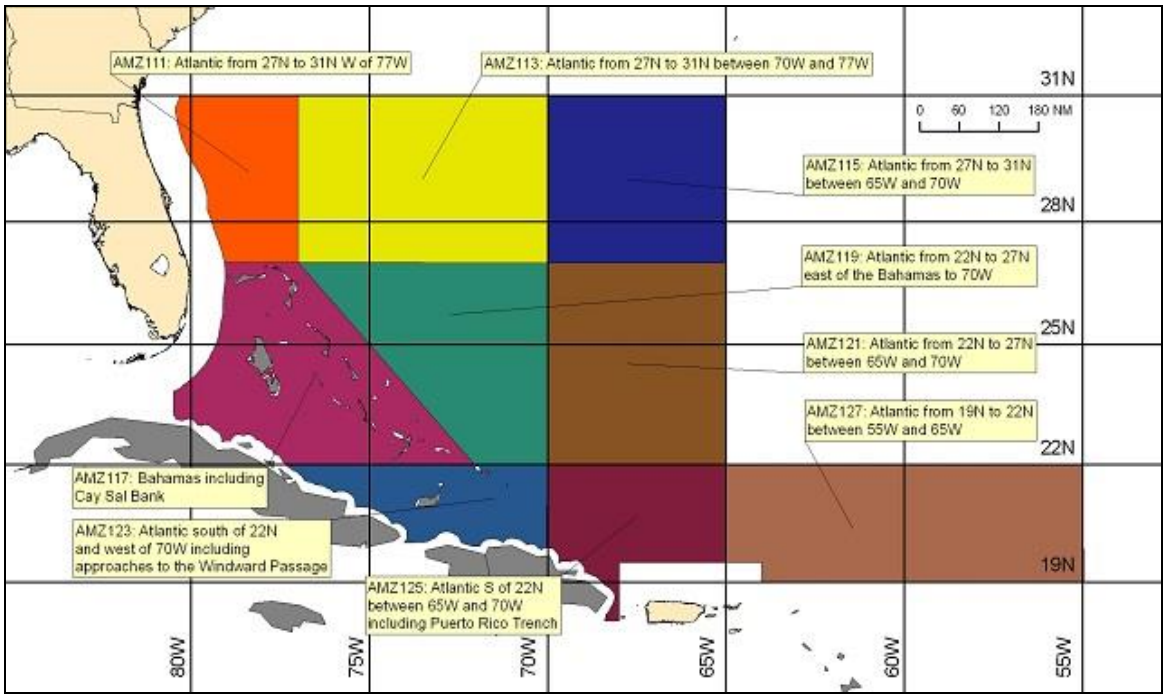
OFFSHORE MARINE ZONE FORECASTS - New England Waters	**Issued: 0230Z 0800Z 1430Z 2000Z**
Synopsis for New England Waters	ANZ898
Gulf of Maine to the Hague Line	ANZ800
Georges Bank between Cape Cod and 68W north of 1000 fathoms	ANZ805
South of New England between the Great South Channel and Montauk Point to 1000 fathoms	ANZ810
South of Long Island between Montauk Point and Sandy Hook to 1000 fathoms	ANZ815
Georges Bank between 68W and the Hague Line	ANZ900



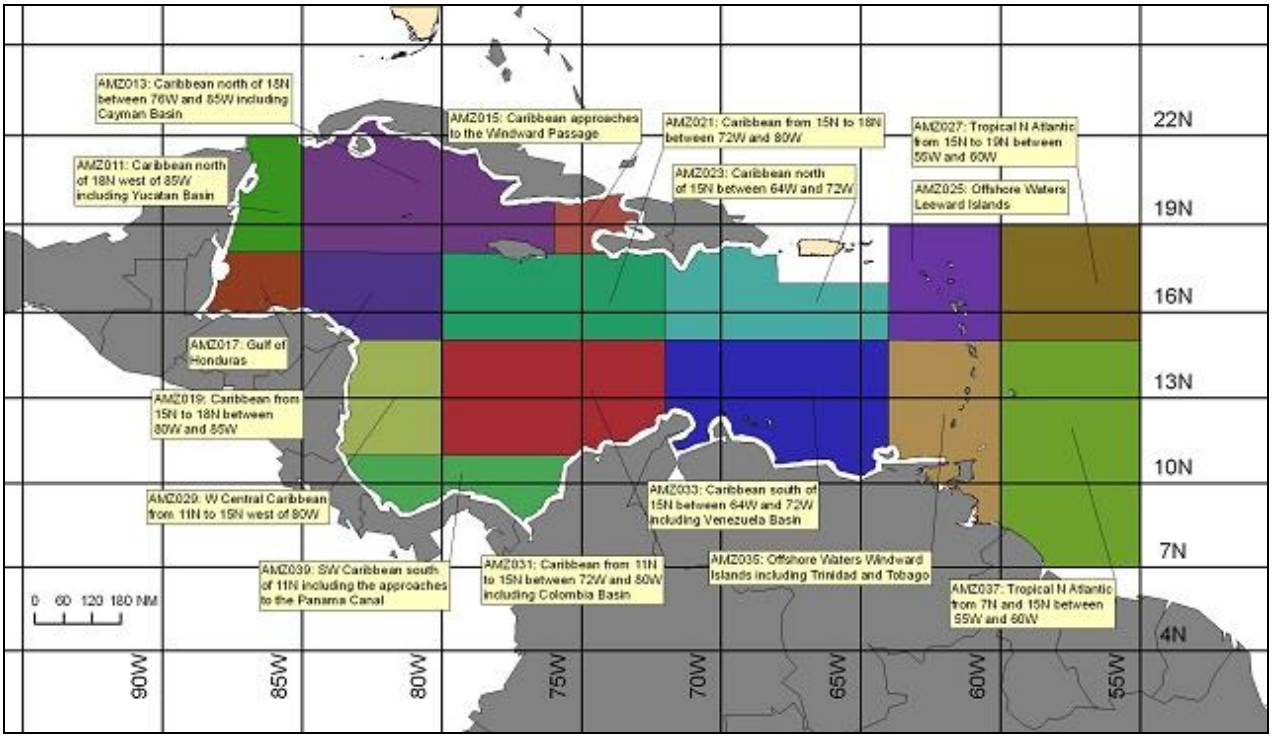
OFFSHORE MARINE ZONE FORECASTS - Mid Atlantic Waters Issued: 0300Z 0900Z 1500Z 2100Z	
Synopsis for Mid Atlantic Waters	ANZ899
Hudson Canyon to Baltimore Canyon to 1000 fathoms	ANZ820
Baltimore Canyon to Cape Charles Light to 100 NM offshore	ANZ825
Cape Charles Light to Currituck Beach Light to 100 NM offshore	ANZ828
Currituck Beach Light to Cape Hatteras to 100 NM offshore	ANZ830
Cape Hatteras to Cape Fear to 100 NM offshore	ANZ833
Cape Fear to 31N to 1000 FM	ANZ835
East of 69W to the Hague Line between 1000 fathoms and 39N	ANZ905
East of 69W and south of 39N to 250 NM offshore	ANZ910
Between 1000 fathoms and 38.5N west of 69W	ANZ915
Baltimore Canyon to 69W east of 1000 fathoms and south of 38.5N to 250 NM offshore	ANZ920
Baltimore Canyon to Hatteras Canyon between 100 NM and 250 NM offshore	ANZ925
Hatteras Canyon to Cape Fear 100 NM and 250 NM offshore	ANZ930
Cape Fear to 31N east of 1000 fathoms to 250 NM offshore	ANZ935



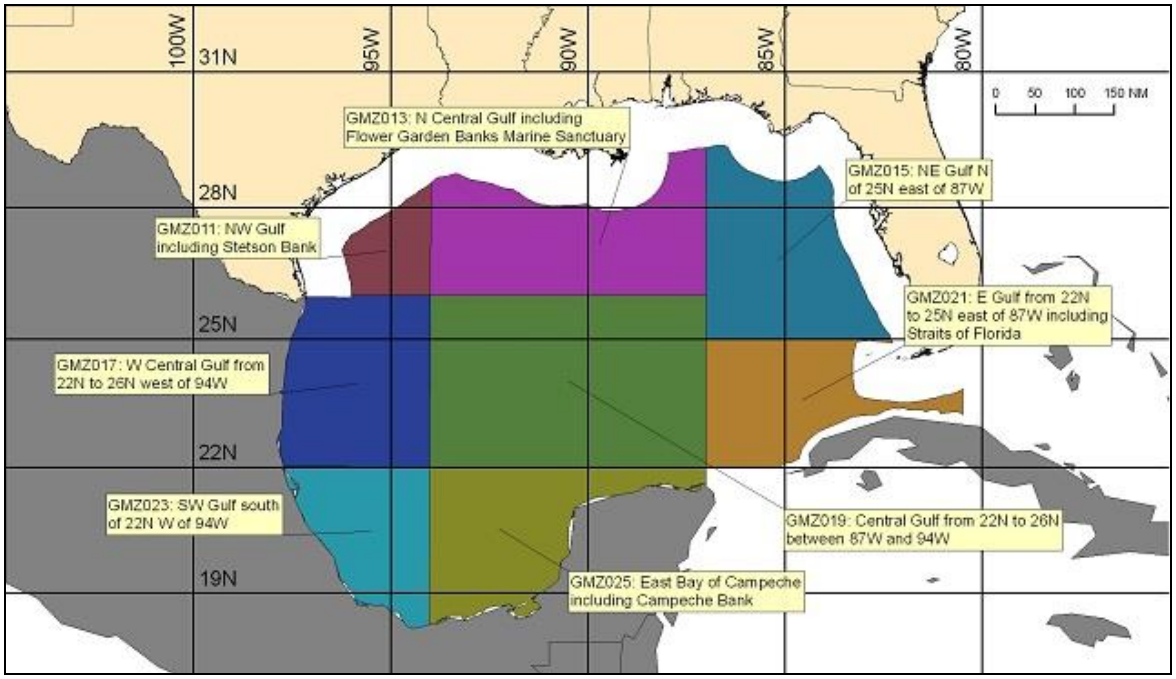
OFFSHORE MARINE ZONE FORECASTS - TROPICAL ATLANTIC Issued: 0330Z 0930Z 1530Z 2130Z	
Synopsis for the SW N Atlantic including the Bahamas	AMZ101
Atlantic from 27N to 31N W of 77W	AMZ111
Atlantic from 27N to 31N between 70W and 77W	AMZ113
Atlantic from 27N to 31N between 65W and 70W	AMZ115
Bahamas including Cay Sal Bank	AMZ117
Atlantic from 22N to 27N E of Bahamas to 70W	AMZ119
Atlantic from 22N to 27N between 65W and 70W	AMZ121
Atlantic S of 22N W of 70W including Approaches to the Windward Passage	AMZ123
Atlantic S of 22N between 65W and 70W including Puerto Rico Trench	AMZ125
Atlantic from 19N to 22N between 55W and 65W	AMZ127



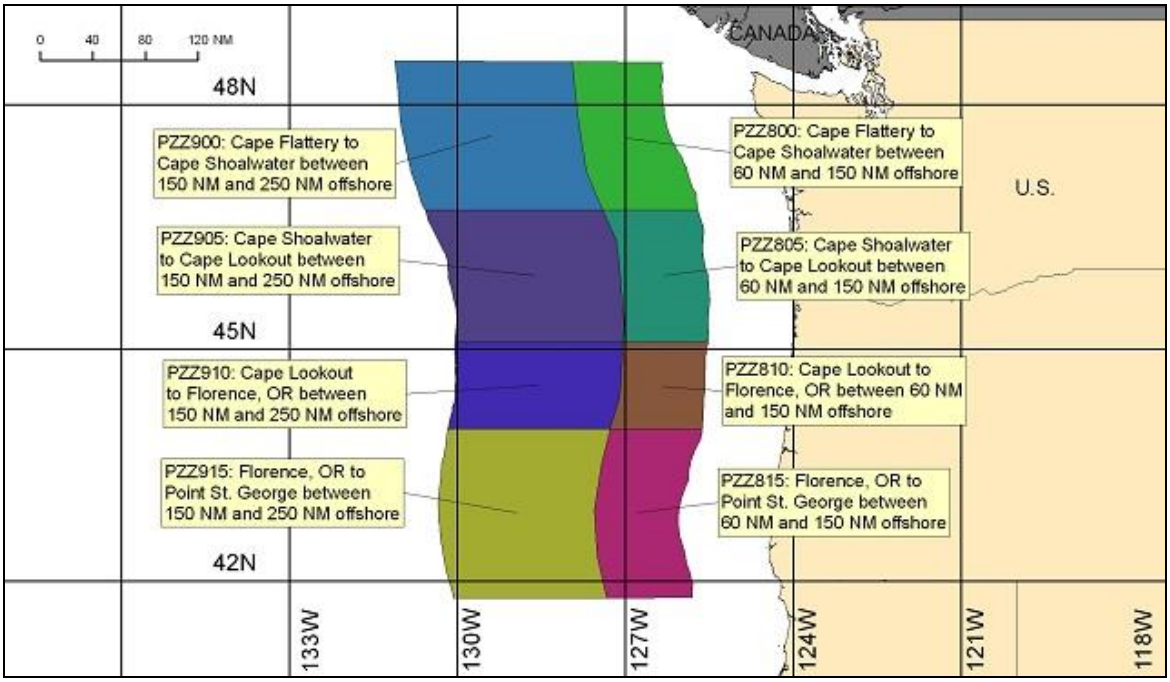
OFFSHORE MARINE ZONE FORECASTS - CARIBBEAN Issued: 0330Z 0930Z 1530Z 2130Z	
Synopsis for Caribbean Sea	AMZ001
Caribbean N of 18N W of 85W including Yucatan Basin	AMZ011
Caribbean N of 18N between 76W and 85W including Cayman Basin	AMZ013
Caribbean approaches to the Windward Passage	AMZ015
Gulf of Honduras	AMZ017
Caribbean from 15N to 18N between 80W and 85W	AMZ019
Caribbean from 15N to 18N between 72W and 80W	AMZ021
Caribbean N of 15N between 64W and 72W	AMZ023
Offshore Waters Leeward Islands	AMZ025
Tropical N Atlantic from 15N to 19N between 55W and 60W	AMZ027
W Central Caribbean from 11N to 15N W of 80W	AMZ029
Caribbean from 11N to 15N between 72W and 80W including Colombia Basin	AMZ031
Caribbean S of 15N between 64W and 72W including Venezuela Basin	AMZ033
Offshore Waters Windward Islands including Trinidad and Tobago	AMZ035
Tropical N Atlantic from 07N to 15N between 55W and 60W	AMZ037
Southwest Caribbean S of 11N including Approaches to the Panama Canal	AMZ039



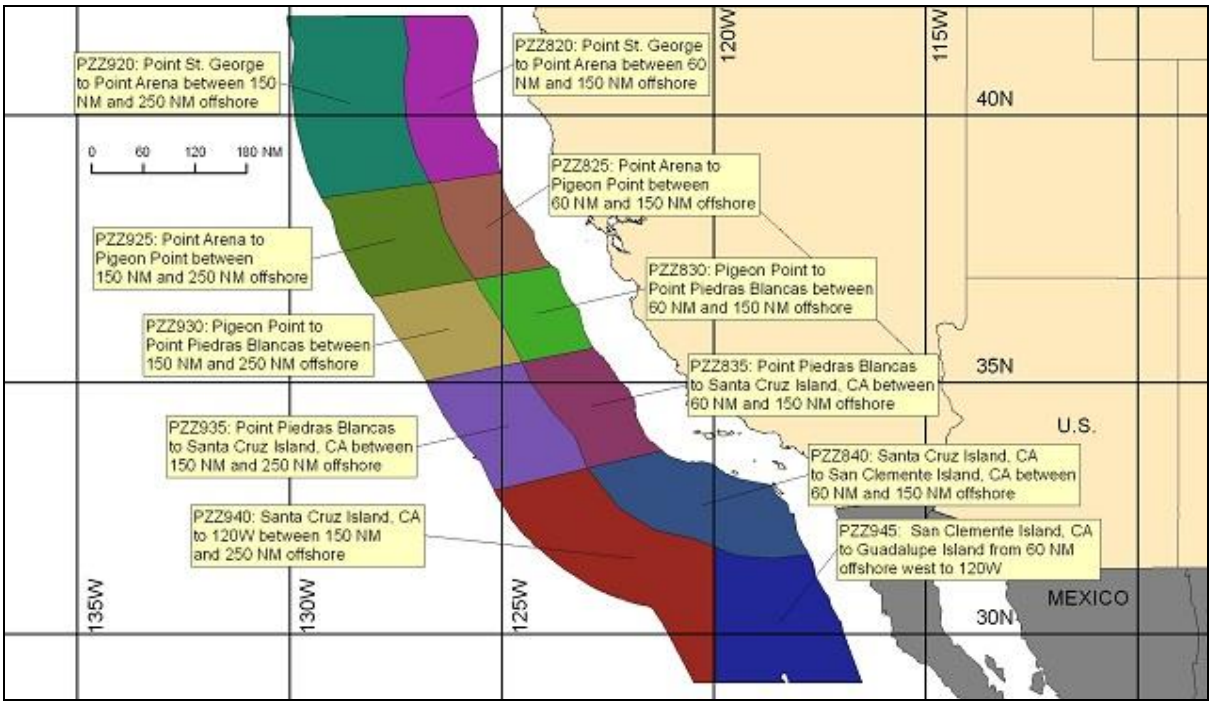
OFFSHORE MARINE ZONE FORECASTS - GULF OF MEXICO Issued: 0330Z 0930Z 1530Z 2130Z	
Synopsis for Gulf of Mexico	GMZ001
NW Gulf including Stetson Bank	GMZ011
N Central Gulf including Flower Garden Banks Marine Sanctuary	GMZ013
NE Gulf N of 25N E of 87W	GMZ015
W Central Gulf from 22N to 26N W of 94W	GMZ017
Central Gulf from 22N to 26N between 87W and 94W	GMZ019
Gulf from 22N to 25N E of 87W including Straits of Florida	GMZ021
SW Gulf S of 22N W of 94W	GMZ023
E Bay of Campeche including Campeche Bank	GMZ025



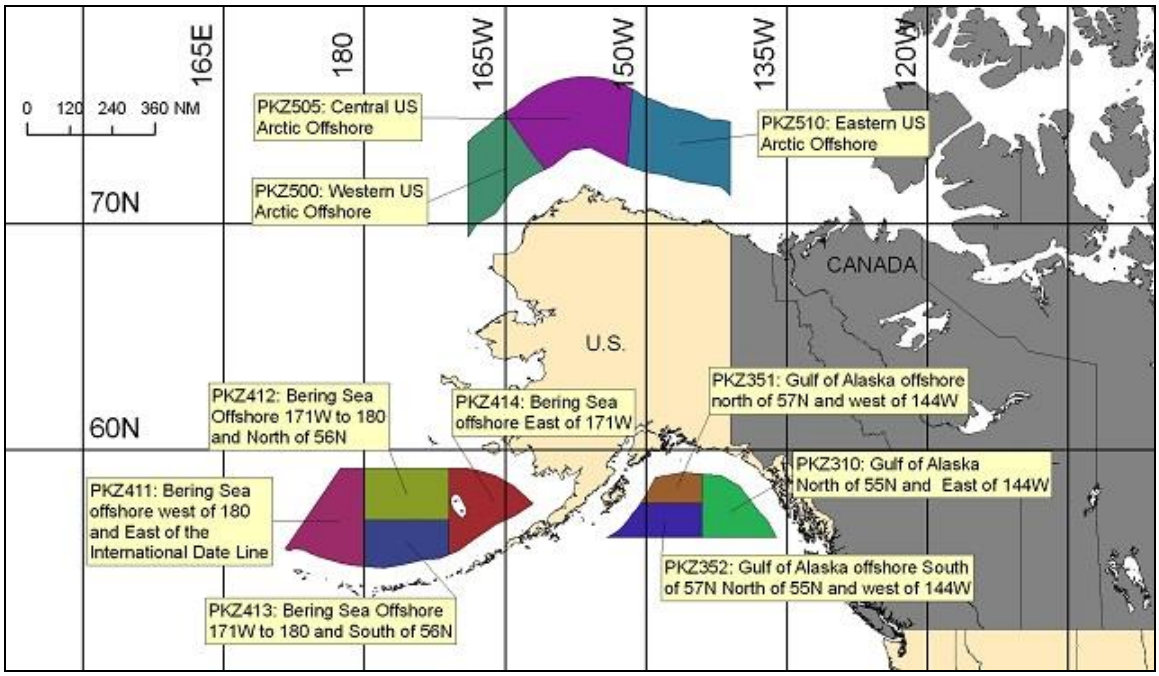
OFFSHORE MARINE ZONE FORECASTS - WASHINGTON & OREGON WATERS Issued: 0430Z 1030Z 1630Z 2230Z	
Synopsis for Washington and Oregon waters [from 60 to 250 NM offshore]	**PZZ898**
Cape Flattery to Cape Shoal water between 60 NM and 150 NM offshore	PZZ800
Cape Shoal water to Cape Lookout between 60 NM and 150 NM offshore	PZZ805
Cape Lookout to Florence, OR between 60 NM and 150 NM offshore	PZZ810
Florence, OR to Point St. George between 60 NM and 150 NM offshore	PZZ815
Cape Flattery to Cape Shoal water between 150 NM and 250 NM offshore	PZZ900
Cape Shoal water to Cape Lookout between 150 NM and 250 NM offshore	PZZ905
Cape Lookout to Florence, OR between 150 NM and 250 NM offshore	PZZ910
Florence, OR to Point St. George between 150 NM and 250 NM offshore	PZZ915



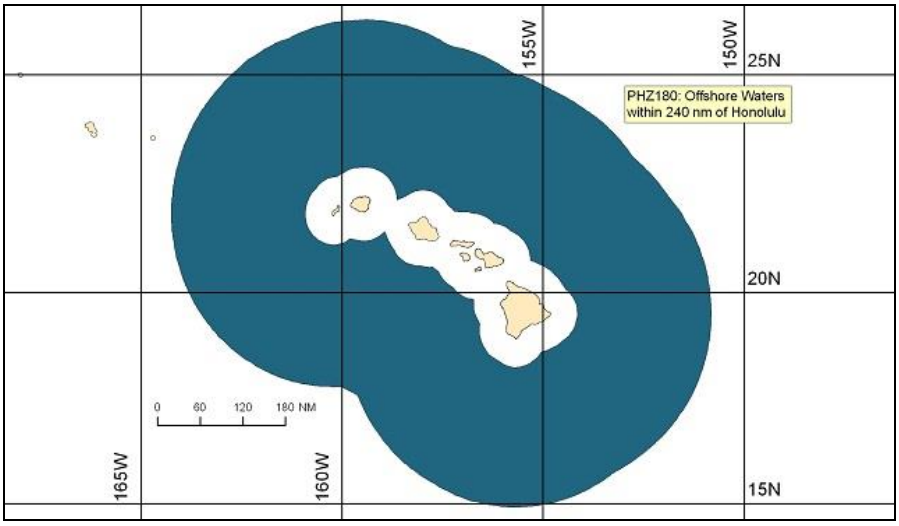
OFFSHORE MARINE ZONE FORECASTS - CALIFORNIA WATERS Issued: 0430Z 1030Z 1630Z 2230Z	
Synopsis for California waters [from 60 to 250 NM offshore]	**PZZ899**
Point St. George to Point Arena between 60 NM and 150 NM offshore	PZZ820
Point Arena to Pigeon Point between 60 NM and 150 NM offshore	PZZ825
Pigeon Point to Point Piedras Blancas between 60 NM and 150 NM offshore	PZZ830
Point Piedras Blancas to Santa Cruz Island, CA between 60 NM and 150 NM offshore	PZZ835
Santa Cruz Island, CA to San Clemente Island, CA between 60 NM and 150 NM offshore	PZZ840
Point St. George to Point Arena between 150 NM and 250 N M offshore	PZZ920
Point Arena to Pigeon Point between 150 NM and 250 NM offshore	PZZ925
Pigeon Point to Point Piedras Blancas between 150 NM and 250 NM offshore	PZZ930
Point Piedras Blancas to Santa Cruz Island, CA between 150 NM and 250 NM offshore	PZZ935
Santa Cruz Island, CA to 120W between 150 NM and 250 NM offshore	PZZ940
San Clemente Island, CA to Guadalupe Island from 60 NM offshore west to 120W	PZZ945



OFFSHORE MARINE ZONE FORECASTS - ALASKAN WATERS Issued: 1300Z 0100Z	
Synopsis for the Eastern Gulf of Alaska	**PKZ398**
Eastern Gulf of Alaska	PKZ310
Synopsis for the Western Gulf of Alaska	**PKZ399**
Gulf of Alaska offshore north of 57 degrees North and west of 144W	PKZ351
Gulf of Alaska offshore south of 57 degrees and west of 144W	PKZ352
Synopsis for Bering Sea	**PKZ499**
Bering Sea offshore west of 180 degrees and east of the International Date Line	PKZ411
Bering Sea offshore 171 degrees West to 180 degrees and north of 56 degrees North	PKZ412
Bering Sea offshore 171 degrees West to 180 degrees and south of 56 degrees North	PKZ413
Bering Sea offshore east of 171W	PKZ414
Synopsis US ARCTIC	**PKZ599**
WESTERN US ARCTIC	PKZ500
CENTRAL US ARCTIC	PKZ505
EASTERN US ARCTIC	PKZ510



OFFSHORE MARINE ZONE FORECASTS - HAWAIAN WATERS	Issued: 0400Z 1000Z 1600Z 2200Z
Synopsis for Non-Coastal Waters within 240 nm of Honolulu	**PHZ105**
Offshore waters within 240 nm of Honolulu	PHZ180



COASTAL & OFFSHORE WATERS FORECAST (NAVTEX)

This forecast includes both the area of the coastal and offshore waters. The forecast includes expected winds, seas, reduced visibility, and any precipitation. For more specific information refer to either the offshore or coastal forecasts.

The synopsis has a brief description of significant weather features and forecasts over the coastal & offshore waters through the forecast period. Emphasis is on the movement of low pressure, high pressure, fronts, and tropical systems. It covers a smaller area and contains more detailed information than the High Seas Forecast.

With respect to wind warnings the maximum sustained winds over a ten minute period (momentary gusts may be higher) is used in the offshore and sustained or frequent gusts to warning criteria is used in the coastal areas within a 24 hour period.

Station	Identifier	WX Broadcast Schedule (UTC) Effective August 14, 2012 at 0000 UTC					
Boston, MA	**F**	0050	0450	0850	1250	1650	2050
Portsmouth, VA	**N**	0210	0610	1010	1410	1810	2210
Savannah, SC	**E**	0040	0440	0840	1240	1640	2040
Miami, FL	**A**	0000	0400	0800	1200	1600	2000
New Orleans, LA	**G**	0100	0500	0900	1300	1700	2100
San Juan, PR	**R**	0250	0650	1050	1450	1850	2250
Astoria, CA	**W**	0340	0740	1140	1540	1940	2340
San Francisco, CA	**C**	0020	0420	0820	1220	1620	2020
Cambria, CA	**Q**	0240	0640	1040	1440	1840	2240
Honolulu, HI	**O**	0220	0620	1020	1420	1820	2220
Adak, AK	**X**	*(Broadcast terminated Dec '96)*					
Kodiak, AK	**J**	0130	0530	0930	1330	1730	2130
	X	0350	0750	1150	1550	1950	2350
Marianas, Guam	**V**	0330	0730	1130	1530	1930	2330

1. Kodiak also broadcasts weather forecasts during time slots initially allocated to Adak.

2. Routine weather forecasts are broadcast four times per day with these being the normal times when repeats of Notices to Mariners are broadcast in lieu of weather. Weather warnings may be broadcast at any time.

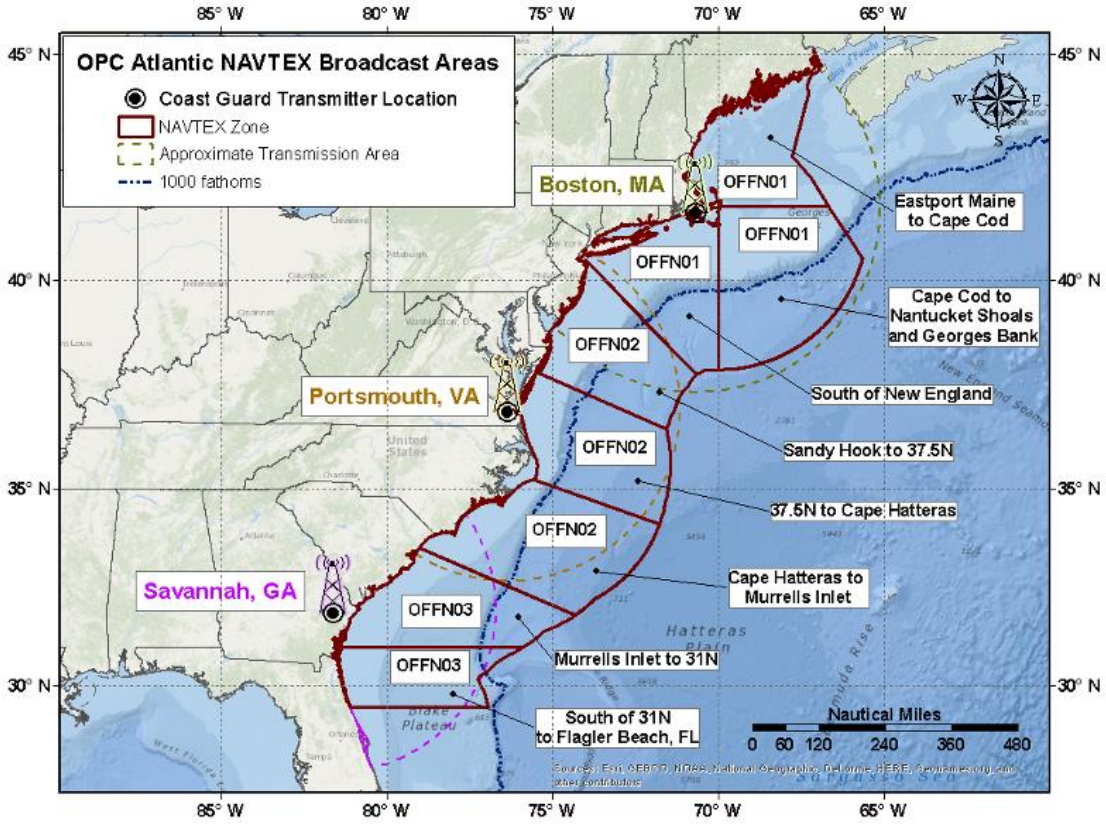
The U.S. Coast Guard may on occasion have to defer or shorten the broadcast of a scheduled weather forecast via NAVTEX to ensure delivery of more urgent navigational and safety warnings.

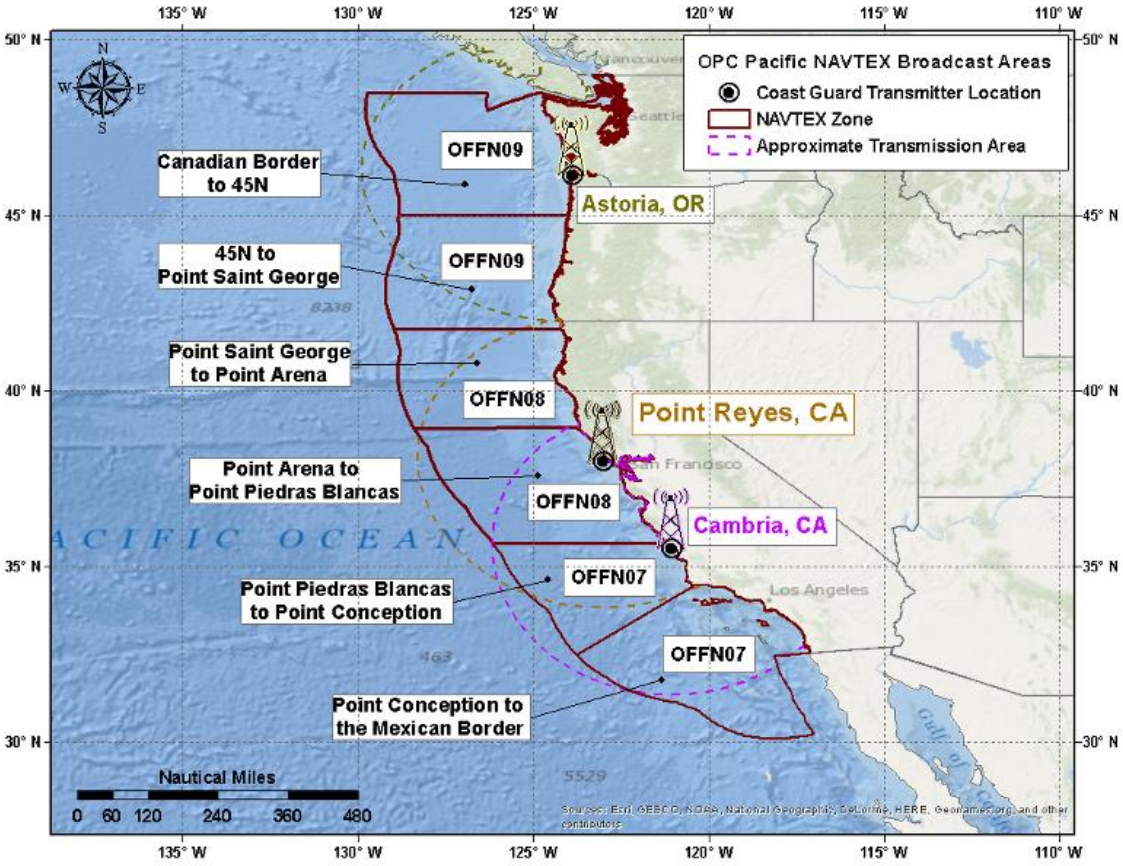
NAVTEX receivers must be programmed with proper NAVTEX station and subject identifiers in order to receive weather broadcasts. Effective April 22, 2008 U.S. NAVTEX broadcasts of weather forecasts containing a warning or a Dense Fog Advisory will be broadcast with a Subject Indicator of "B" vs. "E", such that receipt cannot be suppressed on the user's equipment. Mariners are encouraged to include subject indicator "E" in programming their NAVTEX in order to receive routine weather forecasts as well as weather warnings via NAVTEX.

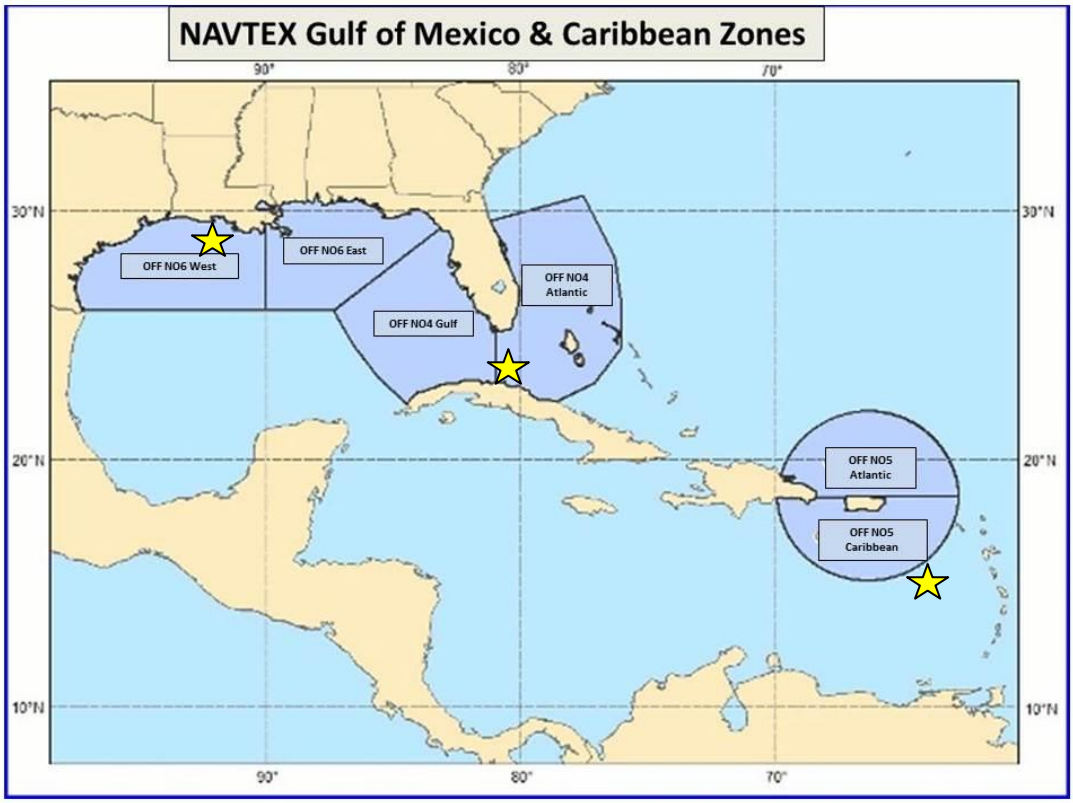
NAVTEX system uses two broadcast frequencies:

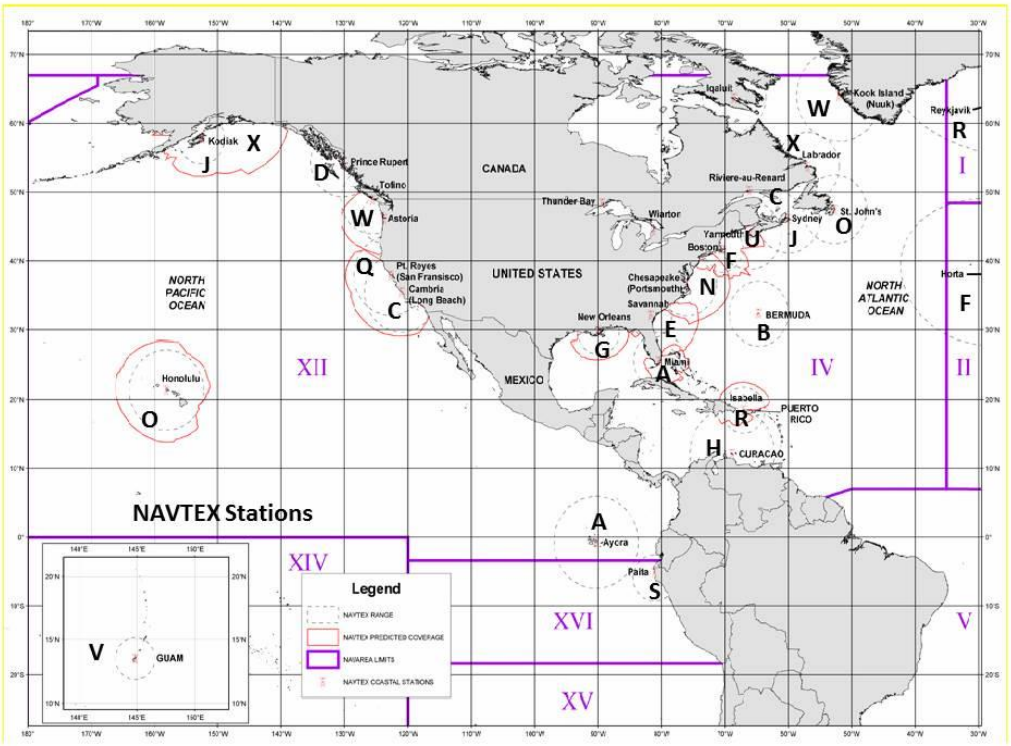
518 kHz - main NAVTEX channel
490 kHz - used for broadcasts in local languages (non-English)

NAVTEX Offshore Forecast Areas (out to 200 NM)		WMO Header	NAVTEX Transmitter
OFFN01	Eastport, ME to Sandy Hook, NJ	FZNT23 KWNM	Boston, MA
OFFN02	Sandy Hook, NJ to Murrells Inlet, SC	FZNT24 KWNM	Chesapeake, VA
OFFN03	Murrrels Inlet, SC to Flagler Beach, FL	FZNT25 KWNM	Savannah, GA
OFFN04	SW N Atlantic S of 31N and W of 65W	FZNT25 KNHC	Miami, FL
OFFN05	Caribbean Sea and SW N Atlantic	FZNT26 KNHC	San Juan, PR
OFFN06	Gulf of Mexico	FZNT27 KNHC	New Orleans, LA
OFFN07	Pt. Piedras, CA to Mexican Border	FZPN22 KWNM	Cambria, CA
OFFN08	Pt. St George, CA to Pt. Piedras, CA	FZPN23 KWNM	Pt Reyes, CA
OFFN09	U.S. / Canadian Border to Pt. St George, CA	FZPN24 KWNM	Astoria, OR
OFFN10	Honolulu, HI	FZHW61 PHFO	Honolulu, HI
OFFHFO	Hawaiian Waters 40 NM out to 240 NM	FZHW60 PHFO	Honolulu, HI
OFFN11	Southeast, AK	FZAK61 PAJK	Kodiak, AK
OFFN12	North Gulf Coast, AK	FZAK63 PAFC	Kodiak, AK
OFFN13	Western AK	FZAK64 PAFC	Kodiak, AK
OFFN14	NW Alaska	FZAK62 PAFG	Kodiak, AK
OFFN15	Arctic Alaska	FZAK61 PAFG	Kodiak, AK
OFFAJK	Eastern Gulf of Alaska	FZAK67 PAJK	Kodiak, AK
OFFAER	Western Gulf of Alaska	FZAK61 PAFC	Kodiak, AK
OFFALU	Bering Sea	FZAK62 PAFC	Kodiak, AK
CWFMY	Guam and the Northern Mariana Islands	FZMY50 PGUM	Marianas, Guam




OPC Pacific NAVTEX Broadcast Areas
Coast Guard Transmitter Location
NAVTEX Zone
Approximate Transmission Area
Canadian Border to 45N
OFFN09
Astoria, OR
45N to Point Saint George
OFFN09
Point Saint George to Point Arena
OFFN08
Point Reyes, CA
Point Arena to Point Piedras Blancas
OFFN08
Cambria, CA
Point Piedras Blancas to Point Conception
OFFN07
OFFN07
Point Conception to the Mexican Border
Nautical Miles
0 60 120 240 360 480
135° W
130° W
125° W
120° W
115° W
110° W
50° N
45° N
40° N
35° N
30° N


NAVTEX Gulf of Mexico & Caribbean Zones
OFF NO6 West
OFF NO6 East
OFF NO4 Atlantic
OFF NO4 Gulf
OFF NO5 Atlantic
OFF NO5 Caribbean
30°N
20°N
10°N
90°
80°
70°



NAVTEX METAREA IV

ID	Frequency	Station Name	Country	Range
B	518 kHz	Bermuda Radio	Bermuda (UK)	280 NM
F	518 kHz	Boston	United States (Atlantic)	200 NM
H	518 kHz	Curaçao	Curaçao	400 NM
V	490 kHz	Fundy (Yarmouth)	Canada (Atlantic)	300 NM
U	518 kHz	Fundy (Yarmouth)	Canada (Atlantic)	300 NM
S	490 kHz	Iqaluit	Canada (Atlantic)	300 NM
T	518 kHz	Iqaluit	Canada (Atlantic)	300 NM
W	518 kHz	Kook Islands	Greenland	400 NM
X	518 kHz	Labrador	Canada (Atlantic)	200 NM
A	518 kHz	Miami	United States (Atlantic)	240 NM
G	518 kHz	New Orleans	United States (Gulf of Mexico)	200 NM
N	518 kHz	Portsmouth	United States (Atlantic)	280 NM
H	518 kHz	Prescott (Wiarton)	Canada (Great Lakes)	300 NM
D	490 kHz	Rivière-au-Renard	Canada (St. Lawrence River)	300 NM
C	518 kHz	Rivière-au-Renard	Canada (St. Lawrence River)	300 NM
R	518 kHz	San Juan (Isabella)	Puerto Rico	200 NM
E	518 kHz	Savannah (Charleston)	United States (Atlantic)	200 NM
M	518 kHz	Simiutaq	Greenland	300 NM
O	518 kHz	St. John's	Canada (Atlantic)	300 NM
J	490 kHz	Sydney Nova Scotia	Canada (Atlantic)	300 NM
Q	518 kHz	Sydney Nova Scotia	Canada (Atlantic)	300 NM
P	518 kHz	Thunder Bay	Canada (Great Lakes)	300 NM

NAVTEX METAREA XII

ID	Frequency	Station Name	Country	Range
W	518 kHz	Astoria	United States (Pacific)	216 NM
A	490 kHz	Ayora (Galapagos)	Ecuador	400 NM
L	518 kHz	Ayora (Galapagos)	Ecuador	400 NM
C	518 kHz	Pt Reyes	United States (Pacific)	350 NM
O	518 kHz	Honolulu	Hawaii (USA)	350 NM
J	518 kHz	Kodiak	Alaska (USA)	200 NM
X	518 kHz	Kodiak	Alaska (USA)	200 NM
Q	518 kHz	Cambria	United States (Pacific)	350 NM
D	518 kHz	Prince Rupert	Canada (Pacific)	300 NM
H	518 kHz	Tofino	Canada (Pacific)	300 NM

NAVTEX Abbreviations

BACK	Backing		**NOSIG**	No significant change
BECMG	Becoming		**NW**	Northwest/Northwesterly
BLDN	Building		**NXT**	Next
C-FRONT	Cold Front		**OCNL**	Occasionally
DECR	Decreasing		**O-FRONT**	Occlusion Front
DPN	Deepening		**POSS**	Possible
E	East/Easterly		**PROB**	Probability/Probable
EXP	Expected		**QCKY**	Quickly
FCST	Forecast		**QSTNR**	Quasi-Stationary
FLN	Filling		**QUAD**	Quadrant
FLW	Following		**RPDY**	Rapidly
FM	From		**S**	South/Southerly
FRQ	Frequent		**SCT**	Scattered
HPA	Hectopascal		**SE**	Southeast/Southeasterly
HVY	Heavy		**SEV**	Severe
IMPR	Improving/Improve		**SHWRS**	Showers
INCR	Increasing		**SIG**	Significant
INTSF	Intensifying/Intensify		**SLGT**	Slight
ISOL	Isolated		**SLWY**	Slowly
KMH	km/h		**STNR**	Stationary
KT	Knots		**STRG**	Strong
LAT/LONG	Latitude/Longitude		**SW**	Southwest/Southwesterly
LOC	Locally		**TEMPO**	Temporarily/Temporary
M	Meters		**TEND**	Further outlooks
MET	Meteo…		**VEER**	Veering
MOD	Moderate		**VIS**	Visibility
MOV	Moving/Move		**VRB**	Variable
N	North/Northerly		**W**	West/Westerly
NC	No change		**W-FRONT**	Warm Front
NE	Northeast/Northeasterly		**WKN**	Weakening
NM	Nautical miles			

HIGH FREQUENCY VOICE BROADCAST FOR OFFSHORE WATERS (VOBRA)

VOBRA (High Frequency Voice Broadcast) marine forecast transmitted by the United States Coast Guard provides mariners with a general overview of large scale environmental marine conditions for the next 5 days. The synopsis has a brief description of significant weather features and forecast over the offshore waters through the forecast period. Emphasis is placed on the forecast movement of low pressure, high pressure, fronts, and tropical systems. It covers a smaller area and contains more detailed information than the High Seas Forecast.

The forecast includes expected winds, seas, reduced visibility, and any precipitation. Emphasis in the forecast is for systems with maximum sustained winds (over a ten minute period) in excess of 34 kts and areas with reduced visibility of less than 1 NM. A warning is issued when wind conditions are expected to exceed 34 kts within a 24 hour period.

The VOBRA is issued every 6 hours for the Western North Atlantic and Eastern North Pacific Oceans. It may be issued sooner when current or expected conditions differ significantly from the forecast. HF voice broadcasts may be terminated if longer than the available broadcast period. This will most likely occur during the hurricane season when supplementary advisories are broadcast in addition to the routine forecasts.

Chesapeake (NMN) HF Voice Broadcast Schedule						
4426, 6501, 8764 kHz (USB)	0330Z[1]	0515Z[2]	0930Z[1]			
6501, 8764, 13089 kHz (USB)			1115Z[2]	1530Z[1]	2130Z[1]	2315Z[2]
8764, 13089, 17314 kHz (USB)				1715Z[2]		

[1] Offshore Forecasts, hurricane information
[2] Highseas Forecast, hurricane information
Broadcast of hurricane and other weather broadcasts from this station may on occasion be preempted, as the frequencies are shared with other USCG stations.

New Orleans (NMG) HF Voice Broadcast Schedule								
4316, 8502, 12788 kHz (USB)	0330Z[1]	0515Z[2]	0930Z[1]	1115Z[2]	1530Z[1]	1715Z[2]	2130Z[1]	2315Z[2]

[1] Offshore Forecasts, hurricane information
[2] Highseas Forecast, hurricane information
Broadcast of hurricane and other weather broadcasts from this station may on occasion be preempted, as the transmitters are shared with the radiofax broadcast.

Pt. Reyes (NMC) HF Voice Broadcast Schedule				
4426, 8764, 13089 kHz (USB)	0430Z	1030Z		
8764, 13089, 17314 kHz (USB)			1630Z	2230Z

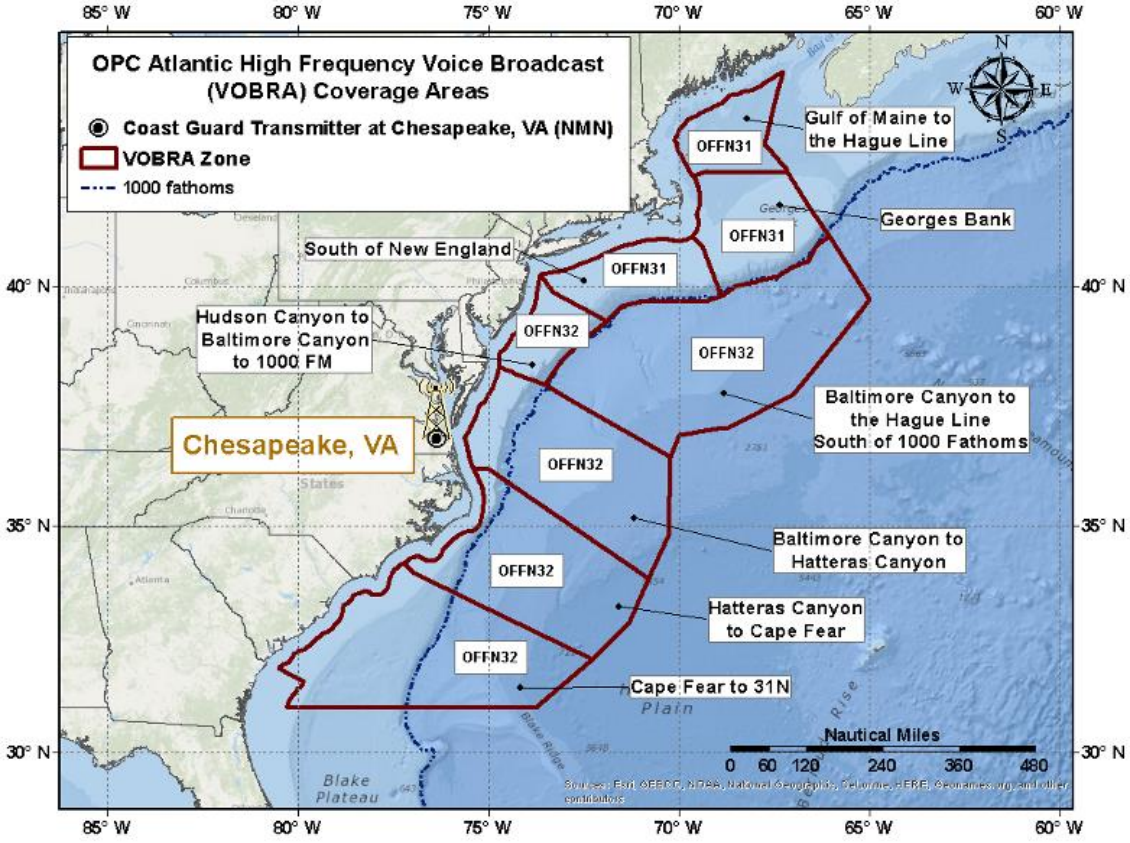
Broadcast of hurricane and other weather broadcasts from this station may on occasion be preempted, as the frequencies are shared with other USCG stations, and the transmitters are shared with the radiofax broadcast.

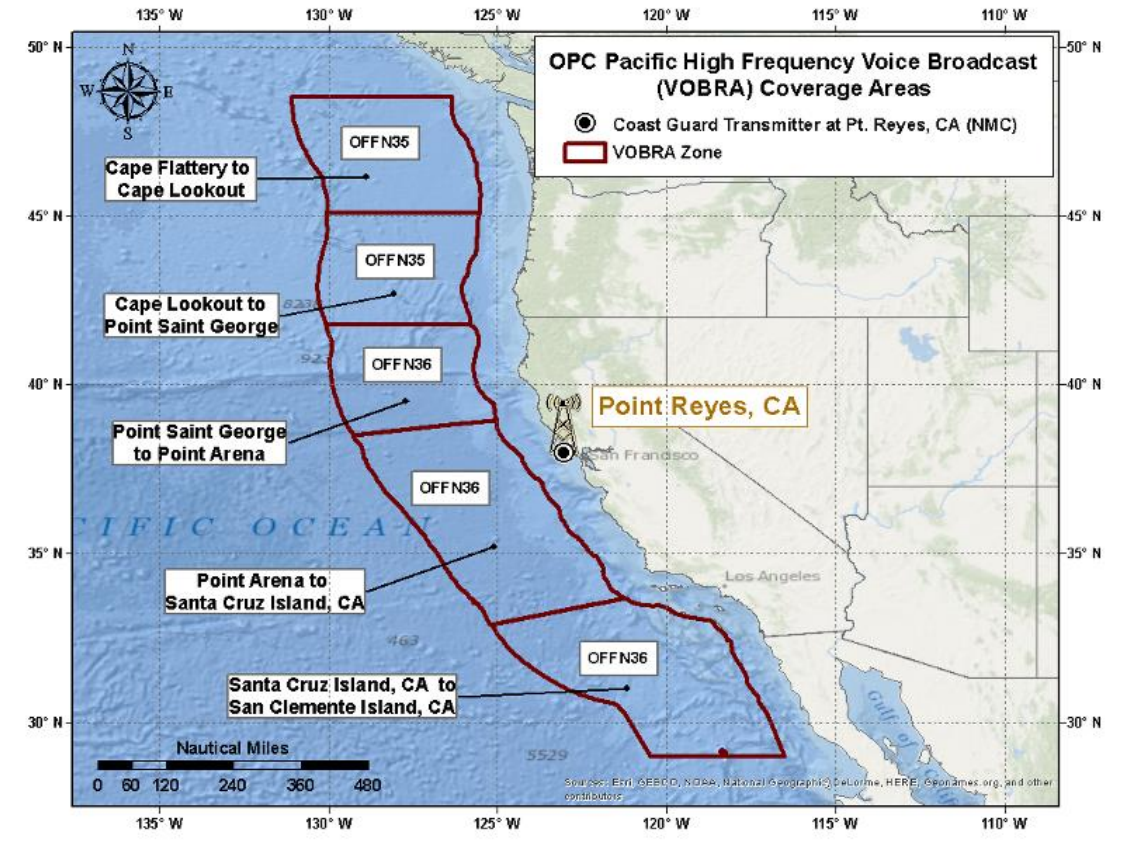
Kodiak (NOJ) HF Voice Broadcast Schedule			
6501 kHz (USB)	0203Z		1645Z

Honolulu (NMO) HF Voice Broadcast Schedule				
6501, 8764 kHz (USB)		0600Z	1200Z	
8764, 13089 kHz (USB)	0005Z			1800Z

Guam (NRV) HF Voice Broadcast Schedule				
6501 kHz (USB)		0930Z	1530Z	
13089 kHz (USB)	0330Z			2130Z

ITU channel numbers as follows: 4426 (#424), 6501 (#601), 8764 (#816), 13089 (#1205), 17314 (#1625)


OPC Atlantic High Frequency Voice Broadcast (VOBRA) Coverage Areas
Coast Guard Transmitter at Chesapeake, VA (NMN)
VOBRA Zone
1000 fathoms
Gulf of Maine to the Hague Line
OFFN31
Georges Bank
OFFN31
South of New England
OFFN31
Hudson Canyon to Baltimore Canyon to 1000 FM
OFFN32
OFFN32
Baltimore Canyon to the Hague Line South of 1000 Fathoms
Chesapeake, VA
OFFN32
Baltimore Canyon to Hatteras Canyon
OFFN32
Hatteras Canyon to Cape Fear
OFFN32
Cape Fear to 31N
Nautical Miles
0 60 120 240 360 480
85° W
80° W
75° W
70° W
65° W
60° W
40° N
35° N
30° N


OPC Pacific High Frequency Voice Broadcast (VOBRA) Coverage Areas
Coast Guard Transmitter at Pt. Reyes, CA (NMC)
VOBRA Zone
OFFN35
Cape Flattery to Cape Lookout
OFFN35
Cape Lookout to Point Saint George
OFFN36
Point Reyes, CA
Point Saint George to Point Arena
OFFN36
Point Arena to Santa Cruz Island, CA
OFFN36
Santa Cruz Island, CA to San Clemente Island, CA
Nautical Miles
0 60 120 240 360 480
135° W
130° W
125° W
120° W
115° W
110° W
50° N
45° N
40° N
35° N
30° N

WMO header FZNT23 KNHC covers the Caribbean Sea and portions of the Atlantic Ocean south of 31° North and west of 55° West. WMO header FZNT24 KNHC encompasses the Gulf of Mexico.

Area	Location
1	Gulf of Mexico N of 26N W of 87W
2	Gulf of Mexico from 22N to 26N W of 87W
3	Gulf of Mexico S of 22N W of 87W
4	Gulf of Mexico E of 87W
5	NW Caribbean W of 85W
6	Caribbean N of 15N between 72W and 85W
7	Caribbean from 11N to 15N W of 70W
8	SW Caribbean S of 11N
9	Caribbean between 64W and 72W
10	Offshore Leeward Islands and adjacent Atlantic waters from 15N to 19N W of 55W
11	Offshore Windward Islands and adjacent Atlantic waters from 07N to 15N W of 55W
12	Atlantic waters from 27N to 31N W of 77W
13	Atlantic waters from 27N to 31N between 65W and 77W
14	Bahamas N of 22N
15	Atlantic waters from 22N to 27N between 65W and the Bahamas
16	Atlantic waters S of 22N W of 65W
17	Atlantic waters from 19N to 22N between 55W and 65W

Global Maritime Distress and Safety System

GMDSS SAFETYNET SERVICES WORLDWIDE TRANSMISSION SCHEDULES

METAREA	Issuing Met Service	Satellite Ocean Region	Broadcast Schedule (UTC)				
I	United Kingdom	AOR (E) AOR (W)-warnings only		0930			2130
II	France	AOR (E) AOR (W)		0900			2100
III	Greece[1]	AOR (E)		1000			2200
IV	USA	AOR (W)	0430	1030		1630	2230
V	Brazil	AOR (E)	0730			1930	
VI	Argentina	AOR (W)	0230			1730	
VII West of 20E	South Africa	AOR (E)		0940		1940	
VII East of 20E	South Africa[2]	IOR		0940		1940	
VIII (N) (N of Eq)	India	IOR		0900		1800	
VIII (S) (S of Eq)	Mauritius / La Réunion	IOR	0130 S of Eq		1330 S of Eq		
IX	Pakistan	IOR	0700				
X IOR	Australia	IOR		1030			2330
X POR	Australia	POR		1100			2300
XI IOR	China (for IOR)	IOR	0330	1015	1530		2215
XI POR	Japan (for POR)	North of Eq South of Eq	0230	0830 0815	1430		2030 2015
XII	USA	POR AOR (W)	0545	1145		1745	2345
XIII	Russian Federation	POR		0930			2130
XIV	New Zealand	POR	0330	0930 (warnings only)	1530		2130 (warnings only)
XV	Chile	AOR (W)	0100, 1330 for Areas 1-8	1440 for Area 9		1845 for Area 10	
XVI	USA	AOR (W)	0515	1115		1715	2315
XVII	Canada	POR		1130			2300
XVIII	Canada	AOR (W)		1100			2300
XIX	Norway	AOR (E)	0630			1830	2300
XX	Russian Federation	IOR	0530			1730	
XXI	Russian Federation	POR	0630			1830	

Tropical Cyclone Reference Guide 2017

National Weather Service http://www.weather.gov/
National Weather Service Mobile http://cell.weather.gov/
National Hurricane Center http://www.nhc.noaa.gov/
National Hurricane Center Mobile http://www.nhc.noaa.gov/mobile

Atlantic Tropical Cyclone Season: 01 June – 30 November

East Pacific Tropical Cyclone Season: 15 May – 30 November

United States Coast Guard
Tropical Cyclone Conditions of Readiness (COR)

(time to onset of gale force winds, 34 kts or greater)

Whiskey	72 Hours	Alert – Prepare to implement the Severe Weather Plan.
X-Ray	48 Hours	Implement the Severe Weather Plan.
Yankee	24 Hours	Commerce stops, all operations are to prepare the port for severe weather.
Zulu	12 Hours	Maximum Preparedness – Final preparation and verification that all requirements are met.

2017 Atlantic
Tropical Cyclone Names

Arlene	Harvey	Ophelia
Bret	Irma	Rina
Cindy	Jose	Philippe
Don	Katia	Sean
Emily	Lee	Tammy
Franklin	Maria	Vince
Gert	Nate	Whitney

Saffir-Simpson Scale

Category	Sustained Wind Speed (knots)	(mph)	Damage
1	64 – 82	74 – 95	Minimal
2	83 – 95	96 – 110	Moderate
3	96 – 113	111 – 129	Extensive
4	114 – 135	131 – 156	Extreme
5	> 135	> 157	Catastrophic

Category 3, 4 & 5 are considered MAJOR Hurricanes

Tropical Cyclone Development Areas and Movement

Tropical Cyclone Reference Guide 2017

National Weather Service http://www.weather.gov/
National Weather Service Mobile http://cell.weather.gov/
National Hurricane Center http://www.nhc.noaa.gov/
National Hurricane Center Mobile http://www.nhc.noaa.gov/mobile

Once a Tropical Depression is formed, the National Hurricane Center will begin Issuing warnings every 6 hours at 0300 – 0900 – 1500 – 2100 UTC. Warning updates are issued every 3 hours as necessary at 0000 – 0600 – 1200 – 1800 UTC.

Map Symbols

Tropical Wave
Tropical Storm
Low Pressure Center
Tropical Depression
Hurricane

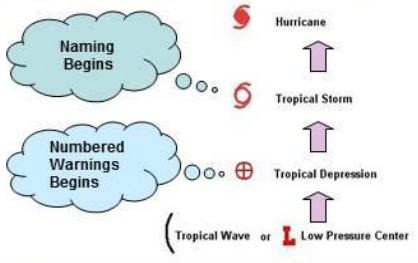
Tropical Cyclone Forecast Cone

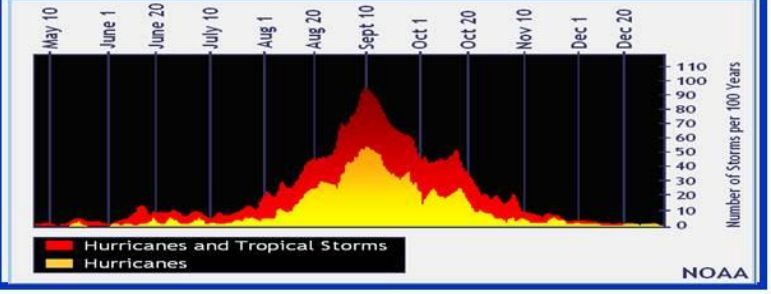
The tropical cyclone forecast cone represents the probable track of the center of a tropical cyclone, and is formed by enclosing the area swept out by a set of imaginary circles placed along the forecast track (at 12, 24, 36 hours, etc.). The size of each circle is set so that 2/3 of historical official forecast errors fall within the circle

ATLANTIC BASIN

Forecast Period (Hrs)	Circle Radius (N.M.)
12	32
24	52
36	71
48	90
72	122
96	170
120	225

Stages of Tropical Cyclone Development



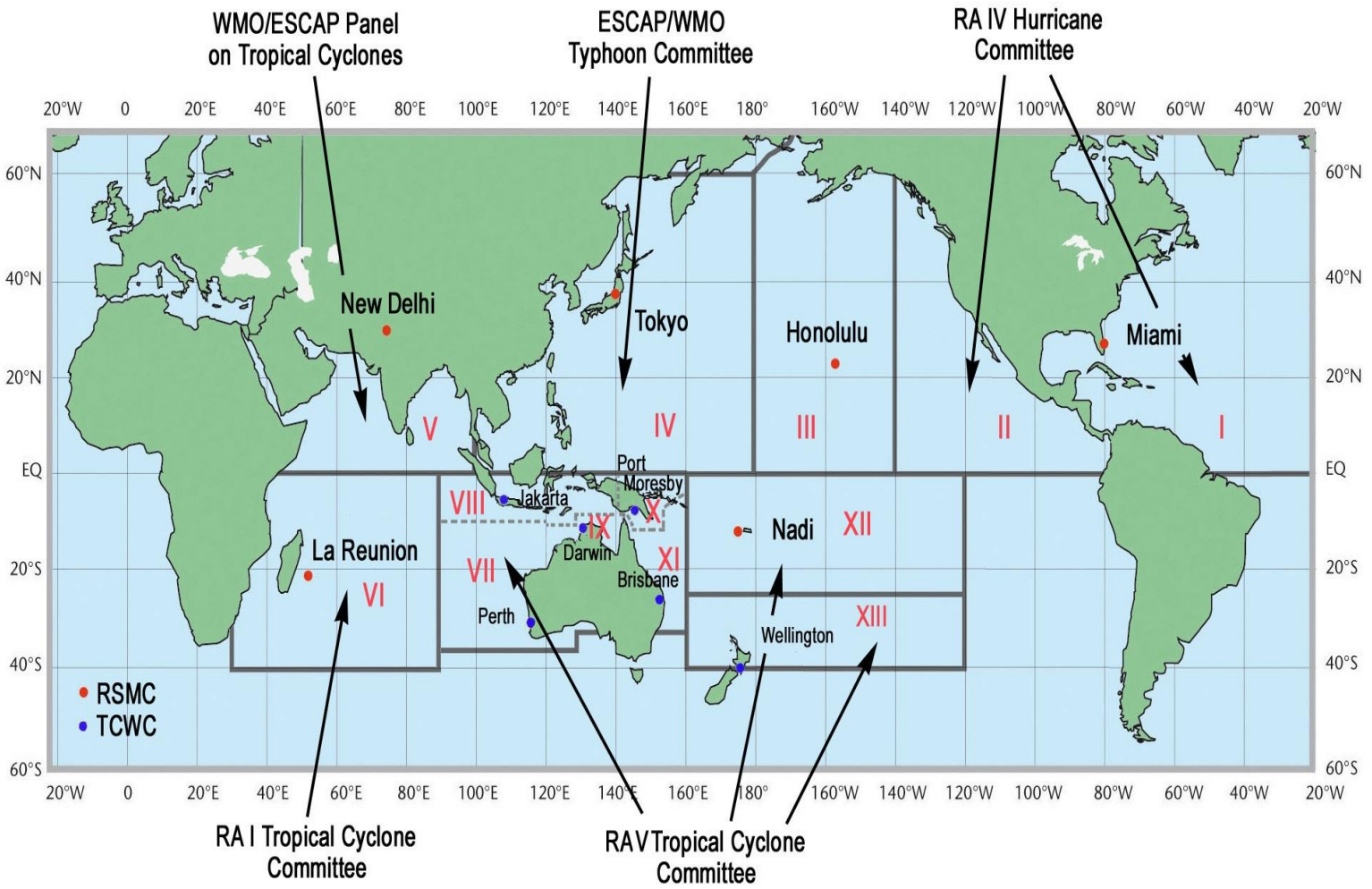


Tropical Cyclone Centers and their Regions

The World Meteorological Organization Tropical Cyclone Programme is tasked to establish national and regionally coordinated systems to ensure that the loss of life and damage caused by tropical cyclones are reduced to a minimum.

The following table is a list of the Regional Specialized Meteorology Centers (RSMC) and Tropical Cyclone Warning Centers (TCWC) participating in the WMO Tropical Cyclone Programme.

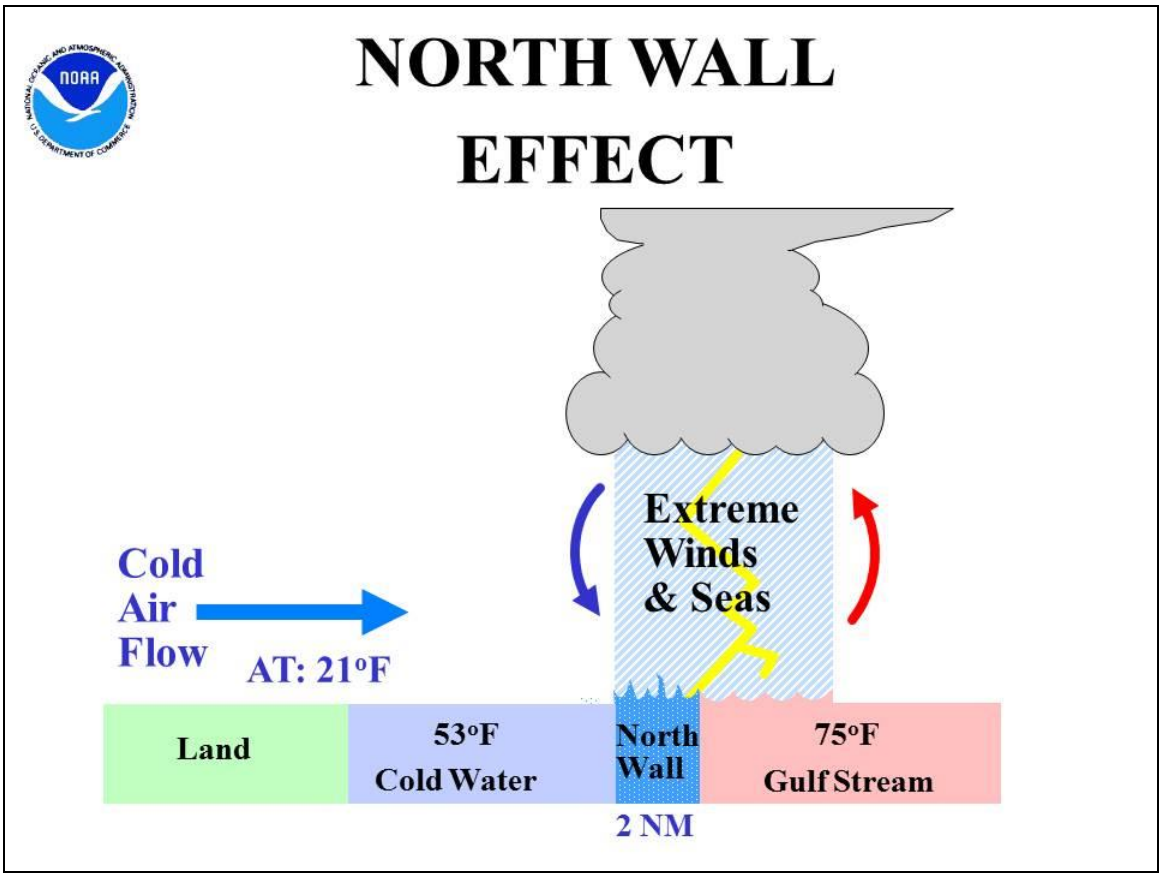
Region	Description	Links to Centers (RSMC and TCWC)
I-II	Atlantic and Eastern Pacific	U.S. National Hurricane Center (RSMC Miami) http://www.nhc.noaa.gov
III	Central Pacific	U.S. Central Pacific Hurricane Center (RSMC Honolulu) http://www.prh.noaa.gov/cphc
IV	Northwest Pacific	Japan Meteorological Agency (RSMC Tokyo) http://www.jma.go.jp/en/typh
V	North Indian Ocean	India Meteorological Department (RSMC New Delhi) http://www.imd.gov.in
VI	Southwest Indian Ocean	Météo France (RSMC La Réunion) http://www.meteo.fr
VII-XI	Southwest Pacific and Southeast Indian Ocean	VII: Australian Bureau of Meteorology (TCWC Perth) http://www.bom.gov.au/weather/cyclone/ VIII: Indonesian Agency for Meteorology (TCWC Jakarta) http://www.bmkg.go.id IX: Australian Bureau of Meteorology (TCWC Darwin) http://www.bom.gov.au/weather/cyclone/ X: Papua New Guinea (TCWC Port Moresby) XI: Australian Bureau of Meteorology (TCWC Brisbane) http://www.bom.gov.au/weather/cyclone/
XII-XIII	South Pacific	XII: Fiji Meteorological Service (RSMC Nadi) http://www.met.gov.fj XIII: Meteorological Service of New Zealand, Ltd. (TCWC Wellington) http://www.metservice.co.nz


WMO/ESCAP Panel
on Tropical Cyclones
ESCAP/WMO
Typhoon Committee
RA IV Hurricane
Committee
20°W 0 20°E 40°E 60°E 80°E 100°E 120°E 140°E 160°E 180° 160°W 140°W 120°W 100°W 80°W 60°W 40°W 20°W
60°N
40°N
20°N
EQ
20°S
40°S
60°S
New Delhi
Tokyo
Honolulu
Miami
V
IV
III
II
I
Port
Moresby
Jakarta
VIII
IX
X
Darwin
Nadi
XII
La Reunion
VII
XI
Brisbane
VI
Perth
XIII
Wellington
RSMC
TCWC
RA I Tropical Cyclone
Committee
RA V Tropical Cyclone
Committee

NORTHWALL EFFECT
U.S. East Coast vicinity Gulfstream

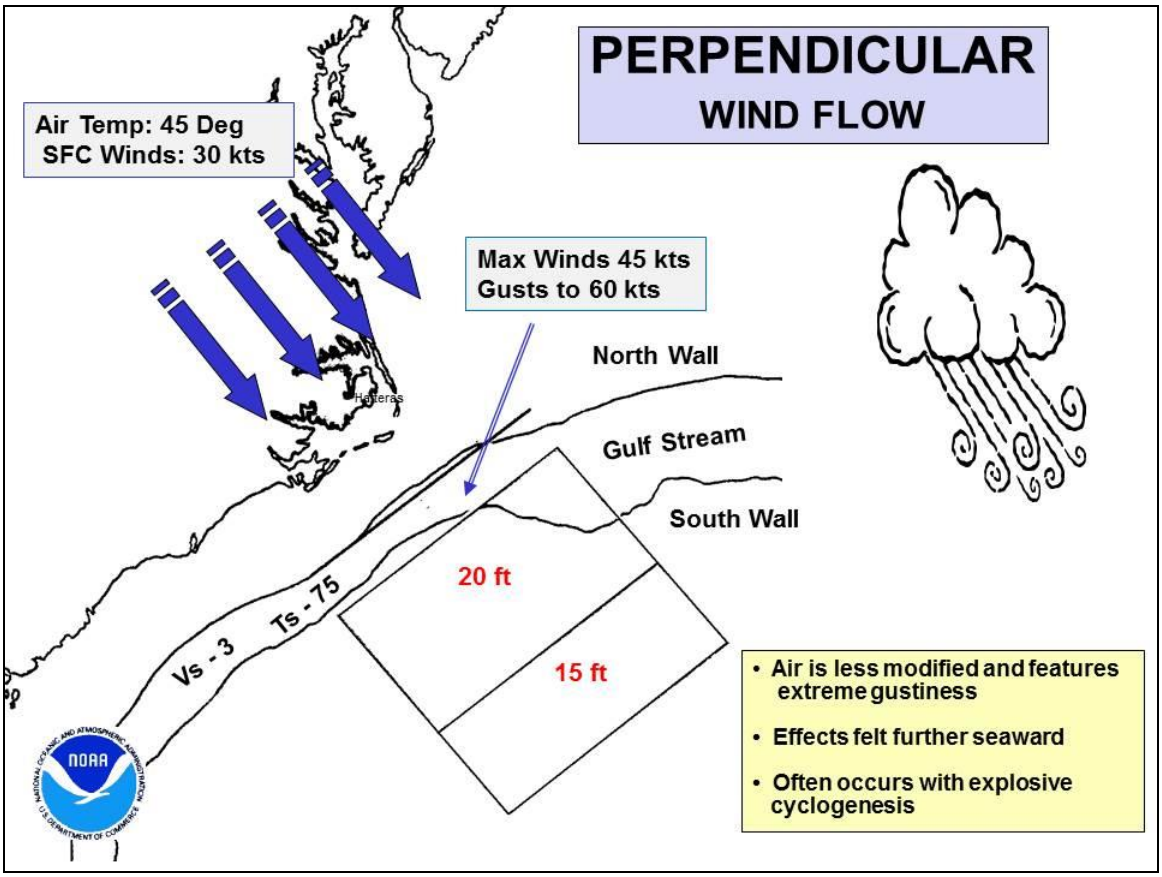
TYPICALLY A WINTER / EARLY SPRING EVENT

- Creates high, steep seas, in and near the Gulf Stream
- Effects usually confined to a small area, majority over warmer waters
- Quick to develop - Explosive
- Two types: Perpendicular Flow (NW winds across Gulfstream)
  Opposing Flow (NE winds over Gulfstream)
- Best way to avoid Northwall Effect is to stay in the cooler water



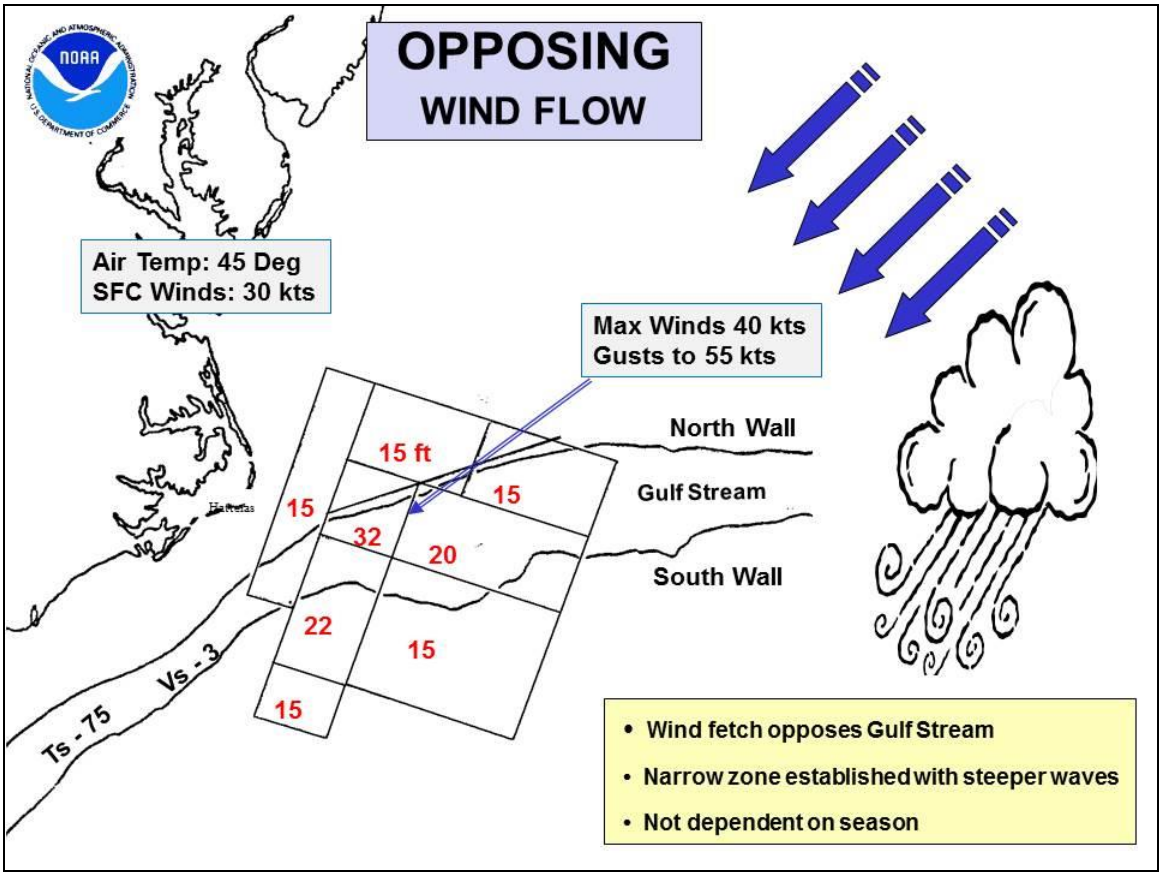
PERPENDICULAR FLOW

- Cold Air Flowing Over Warm Water
  - minimum of 20^0 F temperature difference between Air Temp and Gulfstream Water Temp
- Common with Artic cold air outbreaks over central Atlantic coast
- Dramatic temperature gradient in the vicinity of the Gulf Stream results in higher winds speeds on and near the surface
- Higher Surface Winds = Higher Waves
- Highest seas where Gulf Stream is closest to land (i.e. Cape Hatteras).



OPPOSING WIND FLOW

- Northeast winds flowing over a northeastward moving current
- Generates very high and steep waves over a fairly narrow zone
- Temperate contrast not as important
- Typically occurs with a stalled front off the mid-Atlantic coast, or nearly stationary Newfoundland Low
- More common with a developing “Hatteras Storm Force Low”
- High seas with a very short period. *Extremely dangerous*.



BOSTON, MASSACHUSETTS, U.S.A. **U.S. Marine Radio Facsimile Broadcast**

CALL SIGN	FREQUENCIES	TIMES (UTC)	EMISSION	POWER
NMF	4235 kHz	0230z-1039	F3C	4 KW
	6340.5 kHz	ALL BROADCAST TIMES	F3C	4 KW
	9110 kHz	ALL BROADCAST TIMES	F3C	4 KW
	12750 kHz	1400z-2239	F3C	4 KW

TRANS TIME	CONTENTS OF TRANSMISSION	RPM/IOC	VALID TIME	MAP AREA
0230/1400	TEST PATTERN	120/576		
0233/----	PRELIMINARY SURFACE ANALYSIS	120/576	0000	1
0243/1405	BROADCAST SCHEDULE (PART 1)	120/576		
0254/1420	BROADCAST SCHEDULE (PART 2)	120/576		
0305/1433	REQUEST FOR COMMENTS	120/576		
----/1443	PRODUCT NOTICE BULLETIN	120/576		
----/1453	PRELIMINARY SURFACE ANALYSIS	120/576	1200	1
----/1503	SATELLITE IMAGE	120/576	1200	5
0315/1515	WIND/WAVE ANALYSIS	120/576	00/12	8
0325/1525	SURFACE ANALYSIS (PART 1 NE ATLANTIC)	120/576	00/12	2
0338/1538	SURFACE ANALYSIS (PART 2 NW ATLANTIC)	120/576	00/12	3
0351/----	SATELLITE IMAGE	120/576	0000	5
----/1600	ICE CHART (REBROADCAST)	120/576	2100	
----/1720	TEST PATTERN	120/576		
0402/1723	(REBROADCAST OF 0325/1525 NE ATLANTIC)	120/576	00/12	2
0415/1736	(REBROADCAST OF 0338/1538 NW ATLANTIC)	120/576	00/12	3
0428/1749	500MB ANALYSIS	120/576	00/12	4
----/1759	SEA STATE ANALYSIS	120/576	1200	4
0438/----	ICE CHART (REBROADCAST)	120/576	2100	
----/1810	SPARE OR EXPERIMENTAL	120/576		
0452/1824	CYCLONE DANGER AREA* or HIGH WIND/WAVES	120/576	03/15	7
0745/1900	TEST PATTERN	120/576		
0755/----	PRELIMINARY SURFACE ANALYSIS	120/576	0600	1
0805/1905	24HR SURFACE FORECAST	120/576	00/12	8
0815/1915	24HR WIND/WAVE FORECAST	120/576	00/12	8
0825/1925	24HR 500MB FORECAST	120/576	00/12	4
0835/1935	36HR 500MB FORECAST	120/576	12/00	4
0845/1945	48HR 500MB FORECAST	120/576	00/12	4
0855/1955	48HR SURFACE FORECAST	120/576	00/12	4
0905/2005	48HR WIND/WAVE FORECAST	120/576	00/12	4
0915/2015	48HR WAVE PERIOD FORECAST	120/576	00/12	4
----/2025	PRELIMINARY SURFACE ANALYSIS	120/576	1800	1
----/2035	96 HR 500MB FORECAST	120/576	1200	4
----/2045	96 HR SURFACE FORECAST	120/576	1200	4
----/2055	96 HR WIND/WAVE FORECAST	120/576	1200	4
----/2105	96 HR WAVE PERIOD FORECAST	120/576	1200	4
----/2115	(REBROADCAST OF 2045 96 HR SURFACE)	120/576	1200	4
0925/2125	SURFACE ANALYSIS (PART 1 NE ATLANTIC)	120/576	06/18	2
0938/2138	SURFACE ANALYSIS (PART 2 NW ATLANTIC)	120/576	06/18	3
0951/2151	SATELLITE IMAGE	120/576	06/18	6
1002/2202	(REBROADCAST OF 0925/2125 NE ATLANTIC)	120/576	06/18	2
1015/2215	(REBROADCAST OF 0938/2138 NW ATLANTIC)	120/576	06/18	3
1028/2228	CYCLONE DANGER AREA* or HIGH WIND/WAVES	120/576	09/21	7
1039/2239	REBROADCAST/N American Ice Service Chart	120/576	21/21	

* Tropical Cyclone Danger Area chart replaced by 48HR High Wind/Wave Warning chart Dec 01 - May 14 Valid times 00z,06z,12z and 18z, Map area 05N-40N, 35W-100W

MAP AREAS
1. 28N-52N, 45W-85W
2. 18N-65N, 10E-45W
3. 18N-65N, 40W-95W
4. 18N-65N, 10E-95W
5. 20N-55N, 55W-95W
6. EQ-60N, 40W-130W
7. 05N-60N, 0W-100W
8. 22N-51N, 40W-98W

NOTES: 1. CARRIER FREQUENCY IS 1.9 kHz BELOW THE ASSIGNED FREQUENCY

Please send comments regarding the quality of these charts to:

NATIONAL WEATHER SERVICE/NOAA
MARINE FORECAST BRANCH W/NP41
5830 UNIVERSITY RESEARCH CT
COLLEGE PARK, MD 20740
PHONE: (301) 683-1497
FAX: (301) 683-1545
EMAIL: ncep.list.opc_web@noaa.gov

Please send comments regarding the quality of this broadcast to:

COMMANDING OFFICER
USCG CAMSLANT
4720 DOUGLAS A. MUNRO RD.
CHESAPEAKE, VA 23322-2598
(800) 742-8519 (757)421-6240
camslantcwo@uscg.mil

Tropical cyclone charts also broadcast from New Orleans, LA

(Schedule effective Feb 01, 2012 Information dated Mar 02, 2015)

NEW ORLEANS, LOUISIANA, U.S.A. **U.S. Marine Radio Facsimile Broadcast**

CALL SIGN	FREQUENCIES	TIMES (UTC)	EMISSION	POWER
NMG	4317.9 kHz	ALL BROADCAST TIMES	F3C	4 KW
	8503.9 kHz	ALL BROADCAST TIMES	F3C	4 KW
	12789.9 kHz	ALL BROADCAST TIMES	F3C	4 KW
	17146.4 kHz	1200-2045	F3C	4 KW

TRANS TIME	CONTENTS OF TRANSMISSION	RPM/IOC	VALID TIME	MAP AREA
0000/1200	TEST PATTERN	120/576		
0005/1205	U.S./TROPICAL SURFACE ANALYSIS (W HALF)	120/576	18/06	1
0020/1220	TROPICAL SURFACE ANALYSIS (E HALF)	120/576	18/06	2
0035/1235	REBROADCAST OF 1925/0725 (24 HR WIND/WAVE)	120/576	12/00	3
0045/1245	REBROADCAST OF 1950/0750 (48 HR WIND/WAVE)	120/576	12/00	3
0055/1255	REBROADCAST OF 2015/0815 (72 HR WIND/WAVE)	120/576	12/00	3
0105/1305	REBROADCAST OF 1855/0655 (24 HR SURFACE)	120/576	12/00	3
0115/1315	REBROADCAST OF 1905/0705 (48 HR SURFACE)	120/576	12/00	3
0125/1325	REBROADCAST OF 1915/0715 (72 HR SURFACE)	120/576	12/00	3
0135/1335	CYCLONE DANGER AREA* or HIGH WIND/WAVES	120/576	21/09	6
0150/----	REBROADCAST OF 0825 (72 HR WAVE PD/SWELL)	120/576	0000	3
----/1350	36 HR WIND/WAVE FORECAST	120/576	1200	3
0200/1400	GOES IR TROPICAL SATELLITE IMAGE	120/576	00/12	4
0215/1415	SEA STATE ANALYSIS	120/576	00/12	3
0225/1425	REQUEST FOR COMMENTS/PRODUCT NOTICE	120/576		
0245/1445	HIGH SEAS FORECAST (IN ENGLISH)	120/576	22/10	5
0600/1800	TEST PATTERN	120/576		
0605/1805	U.S./TROPICAL SURFACE ANALYSIS (W HALF)	120/576	00/12	1
0620/1820	TROPICAL SURFACE ANALYSIS (E HALF)	120/576	00/12	2
0635/1835	48 HR WAVE PERIOD/SWELL DIRECTION	120/576	00/12	3
0645/1845	REBROADCAST OF 0215/1415 (SEA STATE ANAL)	120/576	00/12	3
0655/1855	24 HR SURFACE FORECAST	120/576	00/12	3
0705/1905	48 HR SURFACE FORECAST	120/576	00/12	3
0715/1915	72 HR SURFACE FORECAST	120/576	00/12	3
0725/1925	24 HR WIND/WAVE FORECAST	120/576	00/12	3
0735/1935	CYCLONE DANGER AREA* or HIGH WIND/WAVES	120/576	03/15	6
0750/1950	48 HR WIND/WAVE FORECAST	120/576	00/12	3
0800/2000	GOES IR TROPICAL SATELLITE IMAGE	120/576	07/18	4
0815/2015	72 HR WIND/WAVE FORECAST	120/576	00/12	3
0825/----	72 HR WAVE PERIOD/SWELL DIRECTION	120/576	0000	3
0835/----	REBROADCAST OF 0215 (SEA STATE ANALYSIS)	120/576	0000	3
----/2025	BROADCAST SCHEDULE	120/576		
0845/2045	HIGH SEAS FORECAST (IN ENGLISH)	120/576	04/16	5

*** Tropical Cyclone Danger Area chart replaced by 48HR High Wind/Wave Warning chart Dec 01 - May 14 Valid times 00z,06z,12z and 18z, Map area 05N-40N, 35W-100W**

MAP AREAS:

1. 5S - 50N, 55W - 125W
2. 5S - 50N, 0W - 70W
3. 0N - 31N, 35W - 100W
4. 12S - 44N, 28W - 112W
5. 7N - 31N, 35W - 98W (AREA COVERED BY TEXT FORECAST)
6. 05N - 60N, 0W - 100W

NOTES: 1. CARRIER FREQUENCY IS 1.9 kHz BELOW THE ASSIGNED FREQUENCY

Please send comments regarding the quality of these charts to:

NATIONAL HURRICANE CENTER
ATTN: CHIEF TAFB
11691 SOUTHWEST 17TH STREET
MIAMI, FL 33165-2149
PHONE: (305) 229-4454
FAX: (305) 553-1264
EMAIL: Hugh.Cobb@noaa.gov

Please send comments regarding the quality of this broadcast to:

COMMANDING OFFICER
USCG CAMSLANT
4720 DOUGLAS A. MUNRO RD.
CHESAPEAKE, VA 23322-2598
(800) 742-8519 (757)421-6240
camslantcwo@uscg.mil

Tropical cyclone charts also broadcast from Boston, MA

(Schedule effective Apr 03, 2012 Information dated Feb 15, 2013)

PT. REYES, CALIFORNIA, U.S.A. **U.S. Marine Radio Facsimile Broadcast**

CALL SIGN	FREQUENCIES	TIMES (UTC)	EMISSION	POWER
NMC	4346 kHz	0140-1608	F3C	4 KW
	8682 kHz	ALL BROADCAST TIMES	F3C	4 KW
	12786 kHz	ALL BROADCAST TIMES	F3C	4 KW
	17151.2 kHz	ALL BROADCAST TIMES	F3C	4 KW
	22527 kHz	1840-2356	F3C	4 KW

TRANS TIME	CONTENTS OF TRANSMISSION	RPM/IOC	VALID TIME	MAP AREA
0140/1400	TEST PATTERN	120/576		
0143/1403	NE PACIFIC GOES IR SATELLITE IMAGE	120/576	00/12	6
0154/1414	PACIFIC GOES IR SATELLITE IMAGE	120/576	00/12	5
0205/1425	TROPICAL SEA STATE ANALYSIS	120/576	00/12	4
0215/1435	TROPICAL 48HR SURFACE FORECAST	120/576	12/00	4
0225/----	TROPICAL 48HR WIND/WAVE FORECAST	120/576	1200	4
0235/----	TROPICAL 72HR WIND/WAVE FORECAST	120/576	1200	4
0245/1445	500MB ANALYSIS	120/576	00/12	1
0255/1455	SEA STATE ANALYSIS, WIND/WAVE ANALYSIS	120/576	00/12	1/8
0305/1505	PRELIM SURFACE ANALYSIS(PART 1 NE PAC)	120/576	00/12	2
0318/1518	PRELIM SURFACE ANALYSIS(PART 2 NW PAC)	120/576	00/12	3
0331/1531	FINAL SURFACE ANALYSIS(PART 1 NE PAC)	120/576	00/12	2
0344/1544	FINAL SURFACE ANALYSIS(PART 2 NW PAC)	120/576	00/12	3
0357/1557	CYCLONE DANGER AREA* or HIGH WIND/WAVES	120/576	03/15	10
0408/1608	TROPICAL SURFACE ANALYSIS	120/576	00/12	4
0655/1840	TEST PATTERN			
0657/----	2033Z REBROADCAST (96HR 500MB)	120/576	1200	1
0707/----	2043Z REBROADCAST (96HR SURFACE)	120/576	1200	1
0717/----	2053Z REBROADCAST (96HR WIND/WAVE)	120/576	1200	1
0727/----	2103Z REBROADCAST (96HR WAVE PERIOD)	120/576	1200	1
----/1842	SST ANALYSIS	120/576	LATEST	9
----/1852	SST ANALYSIS	120/576	LATEST	6
0737/1902	TROPICAL GOES IR SATELLITE IMAGE	120/576	06/18	7
0748/1913	WIND/WAVE ANALYSIS	120/576	06/18	8
0758/1923	24HR 500MB FORECAST	120/576	00/12	1
0808/1933	24HR SURFACE FORECAST	120/576	00/12	8
0818/1943	24HR WIND/WAVE FORECAST	120/576	00/12	8
0828/1953	48HR 500MB FORECAST	120/576	00/12	1
0838/2003	48HR SURFACE FORECAST	120/576	00/12	1
0848/2013	48HR WIND/WAVE FORECAST	120/576	00/12	1
0858/2023	48HR WAVE PERIOD/SWELL DIRECTION	120/576	00/12	1
----/2033	96HR 500MB FORECAST	120/576	1200	1
----/2043	96HR SURFACE FORECAST	120/576	1200	1
----/2053	96HR WIND/WAVE FORECAST	120/576	1200	1
----/2103	96HR WAVE PERIOD/SWELL DIRECTION	120/576	1200	1
0908/2113	PACIFIC GOES IR SATELLITE IMAGE	120/576	06/18	5
0919/2124	SURFACE ANALYSIS (PART 1 NE PACIFIC)	120/576	06/18	2
0932/2137	SURFACE ANALYSIS (PART 2 NW PACIFIC)	120/576	06/18	3
0945/2150	TROPICAL SURFACE ANALYSIS	120/576	06/18	4
0959/2204	TROPICAL 24HR WIND/WAVE FORECAST	120/576	00/12	4
1009/2214	CYCLONE DANGER AREA* or HIGH WIND/WAVES	120/576	09/21	10
1120/2320	TEST PATTERN	120/576		
1124/2324	BROADCAST SCHEDULE (PART 1)	120/576		
1135/2335	BROADCAST SCHEDULE (PART 2)	120/576		
1146/----	REQUEST FOR COMMENTS	120/576		
1157/----	PRODUCT NOTICE BULLETIN	120/576		
1208/----	TROPICAL 48HR WIND/WAVE FORECAST	120/576	0000	4
1218/----	TROPICAL 72HR WIND/WAVE FORECAST	120/576	0000	4
1228/2346	TROPICAL 48HR WAVE PERIOD/SWELL DIR	120/576	00/12	4
----/2356	TROPICAL 72HR WAVE PERIOD/SWELL DIR	120/576	0000	4

* Tropical Cyclone Danger Area chart replaced by 48HR High Wind/Wave Warning chart Dec 01 - May 14 Valid times 00z,06z,12z and 18z

MAP AREAS:	1. 20N - 70N, 115W - 135E	2. 20N - 70N, 115W - 175W
	3. 20N - 70N, 175W - 135E	4. 20S - 30N, EAST OF 145W
	5. 05N - 55N, EAST OF 180W	6. 23N - 42N, EAST OF 150W
	7. 05N - 32N, EAST OF 125W	8. 18N - 62N, EAST OF 157W
	9. 40N - 53N, EAST OF 136W	10. 0N - 40N, 80W - 180W

NOTES: 1. CARRIER FREQUENCY IS 1.9 kHz BELOW THE ASSIGNED FREQUENCY

Please send comments regarding the quality of these charts to:

NATIONAL WEATHER SERVICE/NOAA
MARINE FORECAST BRANCH W/NP41
5830 UNIVERSITY RESEARCH CT
COLLEGE PARK, MD 20740
PHONE: (301) 683-1497
FAX: (301) 683-1545

Please send comments regarding the quality of this broadcast to:

COMMANDING OFFICER
USCG CAMSPAC
17000 SIR FRANCIS DRAKE BLVD.
P.O. Box 560
PT. REYES STATION, CA 94956-0560
(877) 662-4636 (415)669-2047

(Schedule effective Nov 03, 2008 Information dated Mar 02, 2015)

KODIAK, ALASKA, U.S.A.

U.S. Marine Radio Facsimile Broadcast

CALL SIGN	FREQUENCIES	TIMES	EMISSION	POWER
NOJ	2054 kHz	ALL BROADCAST TIMES	F3C	4KW
	4298 kHz	ALL BROADCAST TIMES	F3C	4KW
	8459 kHz	ALL BROADCAST TIMES	F3C	4KW
	12412.5 kHz	ALL BROADCAST TIMES	F3C	4KW

TRANS TIME (UTC)	CONTENTS OF TRANSMISSION	RPM/IOC	VALID TIME	MAP AREA
0340/1540	TEST PATTERN	120/576		
0343/1543	SEA ICE ANALYSIS/REBROADCAST 1057	120/576	LATEST	6
0403/1603	SURFACE ANALYSIS	120/576	00/12	2
0427/1627	REBROADCAST 24HR SURFACE F'CAST 2227/1027	120/576	12/00	3
0437/1637	REBROADCAST 48HR SURFACE F'CAST 2237/1037	120/576	12/00	1
0447/1647	REBROADCAST 96HR SURFACE F'CAST 2348	120/576	12/12	1
0456/1656	SEA STATE ANALYSIS/REBROADCAST	120/576	00/00	1
0506/1706	GOES IR SATELLITE IMAGE	120/576	00/12	5
0517/1717	500 MB ANALYSIS	120/576	00/12	1
0527/1727	SYMBOLS AND CONTRACTIONS/SCHEDULE	120/576		
0548/1748	REQUEST FOR COMMENTS/PRODUCT NOTICE	120/576		
0558/1758	24HR 500 MB FORECAST	120/576	00/12	1
0950/2150	TEST PATTERN	120/576		
0953/2153	SURFACE ANALYSIS	120/576	06/18	2
1017/2217	24HR WIND/WAVE FORECAST	120/576	00/12	3
1027/2227	24HR SURFACE FORECAST	120/576	00/12	3
1037/2237	48HR SURFACE FORECAST	120/576	00/12	1
1047/2247	48HR WIND/WAVE FORECAST	120/576	00/12	1
1057/2257	5-DAY SEA ICE FORECAST/REBROADCAST 0343	120/576	LATEST	6
1117/2317	GOES IR SATELLITE IMAGE	120/576	06/18	5
1128/2328	48HR WAVE PERIOD, SWELL DIRECTION	120/576	00/12	1
1138/2338	48HR 500 MB FORECAST	120/576	00/12	1
1148/----	SEA SURFACE TEMPERATURE ANALYSIS	120/576	LATEST	4
1159/----	COOK INLET SEA ICE FORECAST	120/576	LATEST	7
----/2348	96HR SURFACE FORECAST	120/576	1200	1
----/2358	96HR WIND/WAVE FORECAST	120/576	1200	1
----/0008	96HR WAVE PERIOD, SWELL DIRECTION	120/576	1200	1
----/0018	96HR 500 MB FORECAST	120/576	1200	1

MAP AREAS:
1. 20N - 70N, 115W - 135E
2. 40N - 70N, 125W - 150E
3. 40N - 70N, 115W - 170E
4. 40N - 60N, 125W - 160E
5. 05N - 60N, 110W - 160W
6. ICE COVERED AK WATERS
7. COOK INLET

NOTES: 1. CARRIER FREQUENCY IS 1.9 kHz BELOW THE ASSIGNED FREQUENCY

Send comments regarding the contents of these charts to:
Marine Services Program Manager
National Weather Service Alaska Region
222 West 7th Avenue
Anchorage, AK 99513-7575
907-271-5088 /FAX: 907-271-3711
nws.ar.arh.webauthors@noaa.gov

Send comments regarding the quality of this broadcast to:
U.S. Coast Guard
Commander COMMSTA Kodiak
P.O. Box 190017
Kodiak, AK 99619-0017
907-487-5426 /FAX: 907-487-5517
907-487-5778 (24Hr)

Many of these charts also broadcast from Pt. Reyes, CA and Honolulu, HI

(Schedule effective Mar 16, 2011 Information dated Mar 11, 2011)

HONOLULU, HAWAII, U.S.A.

U.S. Marine Radio Facsimile Broadcast

CALL SIGN	FREQUENCIES	TIMES(UTC)	EMISSION	POWER
KVM70	9982.5 kHz	0519-1556	F3C	4 KW
	11090 kHz	ALL BROADCAST TIMES	F3C	4 KW
	16135 kHz	1719-0356	F3C	4 KW

TRANS TIME	CONTENTS OF TRANSMISSION	RPM/IOC	VALID TIME	MAP AREA
0519/1719	TEST PATTERN	120/576		
0524/1724	SIGNIFICANT CLOUD FEATURES	120/576	03/15	D
0535/1735	CYCLONE DANGER AREA	120/576	03/15	E
0555/1755	STREAMLINE ANALYSIS	120/576	00/12	B
0615/1815	SURFACE ANALYSIS	120/570	00/12	C
0635/1835	EAST PACIFIC GOES IR SATELLITE IMAGE	120/576	06/18	G
0649/1849	SW PACIFIC GOES IR SATELLITE IMAGE	120/576	06/18	H
0701/1901	24HR SURFACE FORECAST	120/576	00/12	A
0714/1914	48HR SURFACE FORECAST	120/576	00/12	A
0727/1927	72HR SURFACE FORECAST	120/576	00/12	A
0740/1940	WIND/WAVE ANALYSIS	120/576	00/12	B
0753/1953	24HR WIND/WAVE FORECAST	120/576	00/12	B
0806/2006	24HR WIND/WAVE FORECAST	120/576	00/12	4
0816/2016	48HR SURFACE FORECAST	120/576	00/12	1
0826/2026	48HR WIND/WAVE FORECAST	120/576	00/12	1
0836/2036	48/96HR WAVE PERIOD,SWELL DIRECTION	120/576	00/12	1
0846/2046	rebroadcast/ 96HR SURFACE FORECAST	120/576	12/12	1
0856/2056	rebroadcast/ 96HR WIND/WAVE FORECAST	120/576	12/12	1
0906/2106	PACIFIC GOES IR SATELLITE IMAGE	120/576	06/18	5
0917/2117	SURFACE ANALYSIS (PART 1 NE PACIFIC)	120/576	06/18	2
0930/2130	SURFACE ANALYSIS (PART 2 NW PACIFIC)	120/576	06/18	3
0943/2143	TROPICAL GOES IR SATELLITE IMAGE	120/576	06/18	Y
0954/2154	TROPICAL SURFACE ANALYSIS	120/576	06/18	Z
1008/2208	24HR TROPICAL WIND/WAVE FORECAST	120/576	00/12	Z
1042/2242	CYCLONE DANGER AREA	120/570	09/21	E
1102/2302	48HR WIND/WAVE FORECAST	120/576	00/12	B
1115/2315	72HR WIND/WAVE FORECAST	120/576	00/12	B
1128/2328	SEA SURFACE TEMPS	120/576	LATEST	F
1141/2341	rebroadcast 24HR WIND/WAVE FORECASTS	120/576	00/12	B
1154/2354	STREAMLINE ANALYSIS	120/576	06/18	B
1214/0014	SURFACE ANALYSIS	120/576	06/18	C
1234/0034	EAST PACIFIC GOES IR SATELLITE IMAGE	120/576	12/00	G
1248/0048	SW PACIFIC GOES IR SATELLITE IMAGE	120/576	12/00	H
1300/0100	SCHEDULE PART I	120/576		
1320/0120	SCHEDULE PART II	120/576		
1340/0140	SYMBOLS OR PRODUCT NOTICE BULLETIN	120/576		
1400/0200	24HR TROPICAL SURFACE FORECAST	120/576	00/12	Z
1410/0210	48HR TROPICAL SURFACE FORECAST	120/576	00/12	Z
1420/0220	72HR TROPICAL SURFACE FORECAST	120/576	00/12	Z
1430/0230	48/72HR TROPICAL WAVE PERIOD,SWELL DIR	120/576	00/00	Z
1440/0240	TROPICAL SEA STATE ANALYSIS	120/576	12/00	Z
1450/0250	rebroadcast 24HR WIND/WAVE FORECASTS	120/576	00/12	Z
1500/0300	48HR TROPICAL WIND/WAVE FORECAST	120/576	00/12	Z
1510/0310	72HR TROPICAL WIND/WAVE FORECAST	120/576	00/12	Z
1520/0320	rebroadcast/SEA STATE ANALYSIS	120/576	00/00	1
1530/0330	SURFACE ANALYSIS(PART 1 NE PAC)	120/576	12/00	2
1543/0343	SURFACE ANALYSIS(PART 2 NW PAC)	120/576	12/00	3
1556/0356	TROPICAL SURFACE ANALYSIS	120/576	12/00	Z

MAP AREAS:

A. 30S - 50N, 110W - 130E	B. 30S - 30N, 110W - 130E	HFO
C. EQ - 50N, 110W - 130E	D. 30S - 50N, 110W - 160E	HFO
E. EQ - 40N, 80W - 170E	F. EQ - 55N, 110W - 160E	HFO
G. 05S - 55N, 110W - 155E	H. 40S - 05N, 130W - 165E	HFO
1. 20N - 70N, 115W - 135E	2. 20N - 70N, 115W - 175W	OPC
3. 20N - 70N, 175W - 135E	4. 18N - 62N, EAST OF 157W	OPC
5. 05N - 55N, EAST OF 180W		OPC
Y. 05N - 32N, EAST OF 125W	Z. 20S - 30N, EAST OF 145W	NHC

HFO = Honolulu Forecast Office OPC = Ocean Prediction Center NHC = National Hurricane Center

NOTES: 1. CARRIER FREQUENCY IS 1.9 kHz BELOW THE ASSIGNED FREQUENCY

You may address comments about this broadcast to:

Meteorologist In Charge
National Weather Service
2525 Correa Rd.
Honolulu, HI 96822
PHONE: (808) 973-5270 FAX: (808) 973-5281
E-Mail W-HFO.operations@noaa.gov

(Schedule effective Nov 03, 2008 Information dated Mar 02, 2015)

NATIONAL WEATHER SERVICE
RADIOFACSIMILE WEATHER CHARTS

National Weather Service Radiofacsimile weather charts are available through a simple e-mail request. Users with e-mail capability can request Weather Charts from NWS and have them automatically e-mailed back. For ships at sea, it is primarily intended as a backup source for marine weather information. This service is free and no signup is required.

Weather charts are sent back as an attachment to the e-mail address of the requestor. You will receive an e-mail for each individual chart you request. Turnaround time is generally under 5 minutes, but performance may vary depending on your e-mail provider, and receipt cannot be guaranteed.

This is an automated system - ***Correct capitalization for commands, directory and file names are critical.*** The system is case sensitive. Commands are lower case, while most (not all) Chart Id's are upper case.

You can request a single chart, or request multiple charts within a single e-mail request. File size for most weather charts average 35KB but can be as much as 110KB. Satellite imagery is much larger, usually between 150KB to over 250KB. Charts are in a compressed TIFF format, which can be viewed, by a number of software programs including Microsoft Internet Explorer.

To request charts, send a small script file via e-mail to NWS requesting the desired file(s).

Send an e-mail to: **NWS.FTPMail.OPS@noaa.gov**

Put anything you like on the subject line

Enter a script in the body of the message

open
cd fax
get (Map ID)
quit

Example: To obtain the 96HR Wind/Wave Forecast VT00Z 10E-95W (Map ID PJAM98.TIF), the e-mail script would contain the following:

open
cd fax
get PJAM98.TIF
quit

Several charts can be requested within a single e-mail. Each map requested will be sent back as an individual e-mail. Example:

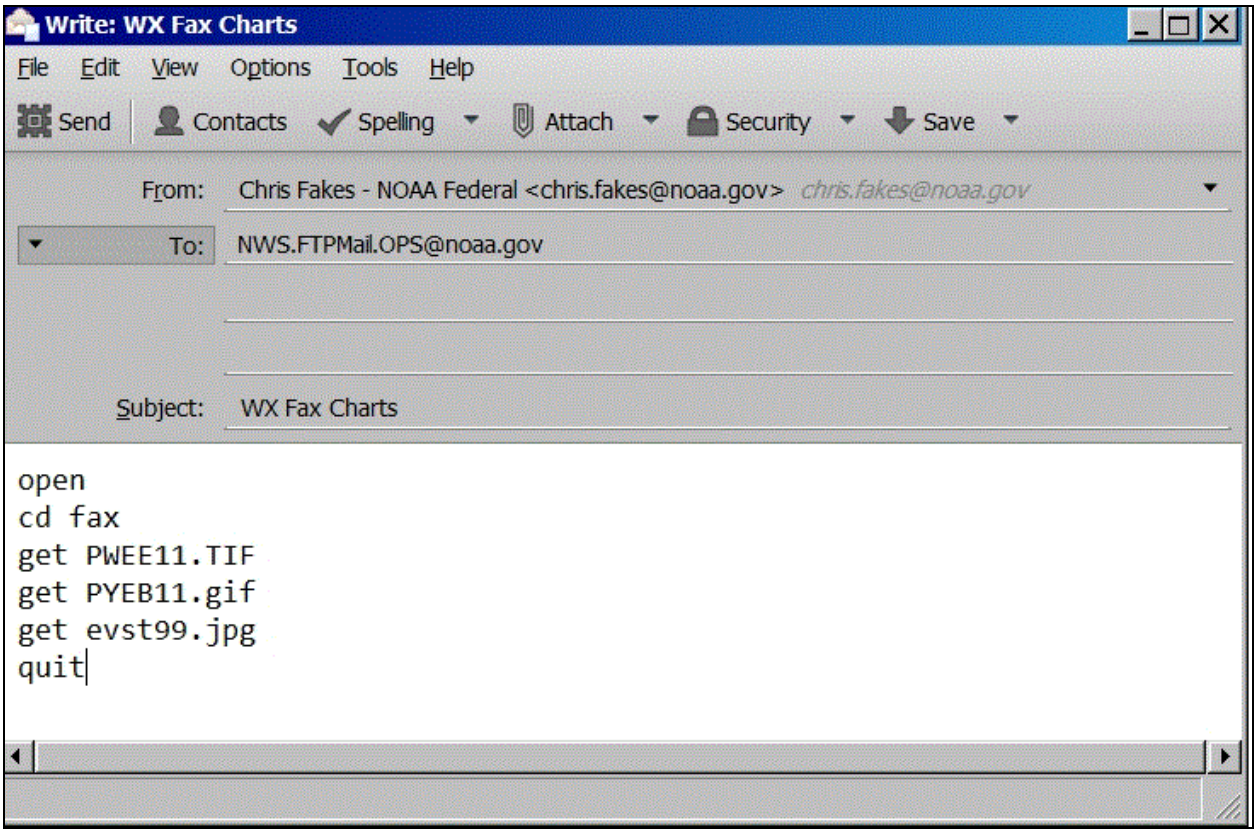
open
cd fax
get PYEB86.TIF
get PYEA86.TIF
get PWEK11.TIF
get evst99.jpg
quit

Some e-mail systems used by ships do not allow e-mail to be sent directly back to the ship (reply to) unless the sender has an account with the e-mail provider. In addition many ships are set up so they can only receive or download e-mail from a single controlled point, usually at the company or agents office. To have the weather charts sent back to a different e-mail address, in the first line of the script put **reply-to (e-mail address)** where you want the charts to be sent).

Example: To obtain the 96HR Wind/Wave Forecast VT00Z 10E-95W (Map ID PJAM98.TIF), and have it sent to another e-mail address (xyzcompany@marine.com), the script file would contain the following:

reply-to xyzcompany@marine.com
open
cd fax
get PJAM98.TIF
quit

Example E-mail



ATLANTIC

PRODUCT/CHART	CHART ID
WIND/SEAS	
12Z Sea State Anal 15N-65N 10E-95W	PJAA99.TIF
Wind/Wave Anal 22N-51N 40W-98W (Most Current)	PWAA90.TIF
24HR Wind/Wave Forecast 22N-51N 40W-98W (Most Current)	PWAE10.TIF
48HR Wind/Wave Forecast 15N-65N 10E-95W (Most Current)	PJAI10.TIF
48HR Wave Period Forecast 15N-65N 10E-95W (Most Current)	PJAI20.TIF
96HR Wind/Wave Forecast VT12Z 15N-65N 10E-95W	PJAM98.TIF
96HR Wave Period Forecast VT12Z 15N-65N 10E-95W	PJAM88.TIF
WIND/SEAS (United Kingdom Met Office) (Most Current)	
Sea/Swell/Wind Dir Anal North Atlantic	PJGA93.TIF
24HR Sea/Swell/Wind Dir North Atlantic	PJGE93.TIF
36HR Sea/Swell/Wind Dir North Atlantic	PJLG98.TIF
48HR Sea/Swell/Wind Dir North Atlantic	PJGI93.TIF
SURFACE	
00Z Preliminary Surface Anal 28N-52N 45W-85W	PYAD10.TIF
06Z Preliminary Surface Anal 28N-52N 45W-85W	PYAB01.TIF
12Z Preliminary Surface Anal 28N-52N 45W-85W	PYAC01.TIF
18Z Preliminary Surface Anal 28N-52N 45W-85W	PYAD01.TIF
Surface Anal (Part 1) 15N-65N 10E-45W (Most Current)	PYAA11.TIF
Surface Anal (Part 2) 15N-65N 40W-95W (Most Current)	PYAA12.TIF
24HR Surface Forecast 22N-51N 40W-98W (Most Current)	PPAE10.TIF
48HR Surface Forecast 15N-65N 10E-95W (Most Current)	QDTM10.TIF
96HR Surface Forecast VT12Z 10E-95W	PWAM99.TIF
SURFACE (United Kingdom Met Office) (Most Current)	
Sea Swell/Wind Direction Analysis (North Atlantic)	PJGA93.TIF
24HR Sea Swell/Wind Direction Forecast (North Atlantic)	PJGE93.TIF
36HR Sea Swell/Wind Direction Forecast (North Atlantic &Carib)	PJLG98.TIF
48HR Sea Swell/Wind Direction Forecast (North Atlantic)	PJGI93.TIF
Surface Analysis (North Atlantic)	PPVA89.TIF
24HR Surface Forecast (North Atlantic)	PPVE89.TIF
36HR Surface Forecast (North Atlantic)	PPVG89.TIF
48HR Surface Forecast (North Atlantic)	PPVI89.TIF
60HR Surface Forecast (North Atlantic)	PPVJ89.TIF
72HR Surface Forecast (North Atlantic)	PPVK89.TIF
96HR Surface Forecast (North Atlantic)	PPVM89.TIF
120HR Surface Forecast (North Atlantic)	PPVO89.TIF
132HR Surface Forecast (North Atlantic)	PPVP89.TIF
Mean Sea Isotherm Chart 5 Day Analysis, NE Atlantic & North Sea	PTUK21.TIF
UPPER AIR CHARTS	
500MB Surface Anal 15N-65N 10E-95W (Most Current)	PPAA10.TIF
24HR 500MB Forecast 15N-65N 10E-95W (Most Current)	PPAE11.TIF
36HR 500MB Forecast 15N-65N 10E-95W (Most Current)	PPAG11.TIF
48HR 500MB Forecast 15N-65N 10E-95W (Most Current)	PPAI10.TIF
96HR 500MB Forecast VT12Z 15N-65N 10E-95W	PPAM50.TIF
TROPICAL CYCLONE CHARTS*	
Tropical Cyclone Danger Area 05N-40N 35W-100W (Most Current)	PWEK11.TIF

***** Replaced by High Wind/Wave Warning chart Dec 01 - May 31

SATELLITE IMAGERY	
GOES IR Satellite North Atlantic 20N-55N 55W-95W (Most Current)	evnt99.jpg
GOES IR Satellite North Atlantic 00N-60N 40W-130W	evnt00.jpg
GOES IR Satellite Image Tropical Atlantic (Most Current)	evst99.jpg

ATLANTIC

PRODUCT/CHART	CHART ID
ICE CHARTS	
Ice Anal NW Atlantic (When Available)	PIEA88.TIF
SCHEDULE INFORMATION	
Radiofax Schedule Boston MA (Part 1)	PLAZ01.TIF
Radiofax Schedule Boston MA (Part 2)	PLAZ02.TIF
Product Notice Bulletin Boston MA	PLAZ04.TIF

GULF OF MEXICO, CARIBBEAN, TROPICAL ATLANTIC & EASTERN PACIFIC

PRODUCT/CHART	CHART ID
WIND/SEAS CHARTS NAME	
Sea State Anal (E Half) 0N-31N 35W-100W	PJEA11.TIF
Sea State Anal (W Half) 5S-50N 55W-125W	PJEB11.TIF
24HR Wind/Wave Forecast 0N-31N 35W-100W	PWEE11.TIF
36HR Wind/Wave Forecast 0N-31N 35W-100W	PWED98.TIF
48HR Wind/Wave Forecast 0N-31N 35W-100W	PWEI11.TIF
48HR Wave Period/Swell Dir Forecast 0N-31N 35W-100W	PJEI11.TIF
72HR Wind/Wave Forecast 0N-31N 35W-100W	PJEK11.TIF
72HR Wave Period/Swell Dir Forecast VT00Z 0N-31N 35W-100W	PKEK88.TIF
SURFACE CHARTS	
Tropical Surface Anal (E Half) 5S-50N 0W-070W	PYEA11.TIF
Tropical Surface Anal (W Half) 5S-50N 55W-125W	PYEB11.TIF
24HR Tropical Surface Forecast (E Half) 0N-31N 35W-100W	PYEE10.TIF
24HR Tropical Surface Forecast (W Half) 20S-31N 75W-145W	PYFE10.TIF
48HR Tropical Surface Forecast (E Half) 0N-31N 35W-100W	PYEI10.TIF
48HR Tropical Surface Forecast (W Half) 20S-31N 75W-145W	PYFI10.TIF
72HR Tropical Surface Forecast (E Half) 0N-31N 35W-100W	PYEK10.TIF
72HR Tropical Surface Forecast (W Half) 20S-31N 75W-145W	PYFK10.TIF
TROPICAL CYCLONE CHART*	
Tropical Cyclone Danger Area 05N-60N 00W-100W	PWEK11.TIF
* Replaced by High Wind/Wave Warning chart Dec 01 - May 31	
HIGH SEAS FORECASTS	
High Seas Forecast Tropical Atlantic 7N-31N 35W-98W	PLEA10.TIF
SATELLITE IMAGERY	
GOES IR Satellite Image Tropical Atlantic (Most Current)	evst99.jpg
GOES IR Satellite Image Tropical East Pacific	evpn10.jpg
SCHEDULE INFORMATION	
Radiofax Schedule New Orleans LA	PLEZ01.TIF
Product Notice Bulletin New Orleans LA	PLEZ03.TIF
Radiofax Schedule New Orleans LA (Text Version)	hfgulf.txt

CENTRAL PACIFIC - SOUTH EAST - NORTH PACIFIC

PRODUCT/CHART	CHART ID
WIND/WAVE CHARTS - NORTH PACIFIC	
00Z Sea State Anal 20N-70N 115W-135E	PJBA99.TIF
Wind/Wave Anal 18N-62N E OF 157W (Most Current)	PWBA90.TIF
24HR Wind/Wave Forecast 18N-62N E OF 157W (Most Current)	PWBE10.TIF
48HR Wind Wave Forecast 20N-70N 115W-135E (Most Current)	PJBI10.TIF
48HR Wave Period/Swell Dir 20N-70N 115W-135E (Most Current)	PJBI20.TIF
96HR Wind/Wave Forecast VT12Z 20N-70N 115W-135E	PJBM98.TIF
96HR Wave Period/Swell Dir VT12Z 20N-70N 115W-135E	PJBM88.TIF
WIND/WAVE CHARTS - SOUTHEAST PACIFIC	
Tropical Sea State Anal 20S-30N E of 145W (Most Current)	PKFA10.TIF
24HR Wind/Wave Forecast 20S-30N E of 145W (Most Current)	PWFE10.TIF
48HR Wind/Wave Forecast 20S-30N E of 145W (Most Current)	PWFI10.TIF
48HR Wave Period/Swell Dir 20S-30N E of 145W (Most Current)	PJFI11.TIF
72HR Wind/Wave Forecast 20S-30N E of 145W (Most Current)	PWFK10.TIF
72HR Wave Period/Swell Dir VT00Z 20S-30N E of 145W	PJFK93.TIF
WIND/WAVE CHARTS - CENTRAL	
Pacific Wind/Wave Anal 30S-30N 110W-130E (Most Current)	PJFB10.TIF
24HR Pac Wind/Wave Forecast 30S-30N 110W-130E (Most Current)	PWFE11.TIF
48HR Pac Wind/Wave Forecast 30S-30N 110W-130E (Most Current)	PJFI10.TIF
72HR Pac Sea State Forecast 30S-30N 110W-130E (Most Current)	PJFK10.TIF
SURFACE CHARTS - NORTH PACIFIC	
Surface Anal Part 1 20N-70W 115W-175W (Most Current)	PYBA90.TIF
Surface Anal Part 2 20N-70W 175W-135E (Most Current)	PYBA91.TIF
24HR Surface Forecast 18N-62W E of 157W (Most Current)	PPBE10.TIF
48HR Surface Forecast 20N-70W 115W-135E (Most Current)	PWBI10.TIF
96HR Surface Forecast VT12Z 20N-70W 115W-135E	PWBM99.TIF
SURFACE CHARTS - SOUTHEAST PACIFIC	
East Pacific Surface Anal 20S-30N E of 145W (Most Current)	PYFA90.TIF
Tropical Surface Anal 5S-50N 55W-125W (Most Current)	PYEB11.TIF
24HR Tropical Surface Forecast 20S-30N E of 145W (Most Current)	PYFE10.TIF
48HR Tropical Surface Forecast 20S-30N E of 145W (Most Current)	PYFI10.TIF
72HR Tropical Surface Forecast 20S-30N E of 145W (Most Current)	PYFK10.TIF
SURFACE CHARTS - CENTRAL PACIFIC	
North Pacific Pre Anal 20N-80N 110W-110E (Most Current)	PYPA00.TIF
Pacific Surface Anal EQ-50N 110W-130E (Most Current)	PPBA11.TIF
Pacific Streamline Anal 30S-30N 110W-130E (Most Current)	PWFA11.TIF
Tropical Surface Anal 40S-40N 100W-120E (Most Current)	QYFA99.TIF
Significant Cloud Features 30S-50N 110W-160E (Most Current)	PBFA11.TIF
24HR Pacific Surface Forecast 30S-50N 110W-130E (Most Current)	PYFE11.TIF
24HR Wind/Stream Forecast VT00Z 30S-50N 100W-120E	QWFI99.TIF
48HR Wind/Stream Forecast VT00Z 30S-50N 100W-120E	QWFQ99.TIF
48HR Pacific Surface Forecast 30S-50N 110W-130E (Most Current)	PYFI11.TIF
72HR Pacific Surface Forecast 30S-50N 110W-130E (Most Current)	PYFK11.TIF
UPPER AIR CHARTS	
500 MB Anal 20N-70N 115W-135E (Most Current)	PPBA10.TIF
24HR 500 MB Forecast 20N-70N 115W-135E (Most Current)	PPBE11.TIF
48HR 500 MB Forecast 20N-70N 115W-135E (Most Current)	PPBI10.TIF
96HR 500 MB VT12Z 20N-70N 115W-135E	PPBM50.TIF

CENTRAL PACIFIC - SOUTH EAST - NORTH PACIFIC

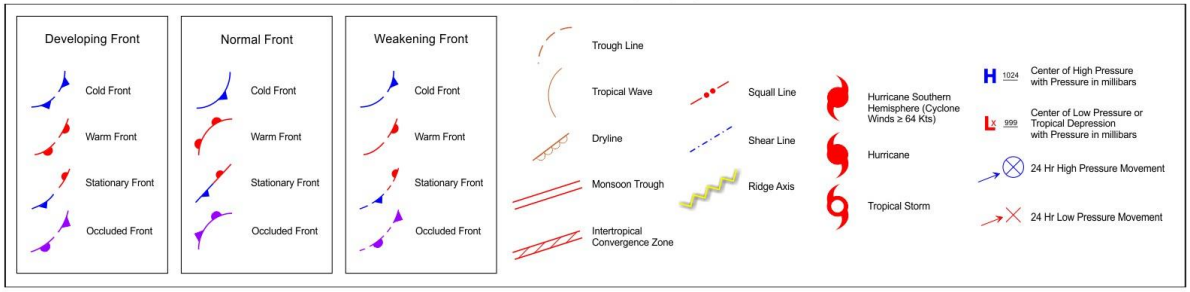
PRODUCT/CHART	CHART ID
TROPICAL CYCLONE CHARTS - PACIFIC	
72 HR Tropical Cyclone Danger 0N-40N 80W-170E (Most Current)	PWFK12.TIF
SEA SURFACE TEMPERATURE CHARTS	
Pacific SST Chart 55N-EQ 110W-160E	PTFA88.TIF
SATELLITE IMAGERY (IR) (Most Current)	
Eastern Pacific Satellite Image 05S-55N 110W-155E	evpz11.jpg
Southwest Pacific Satellite Image 40S-05N 130W-165E	evps11.jpg
Tropical East Pacific Satellite Image 20S-40N E of 145W	evpn10.jpg
Pacific Satellite Image 05N-55N E of 180W	evpn99.jpg

ALASKA - NORTH EAST & EASTERN PACIFIC

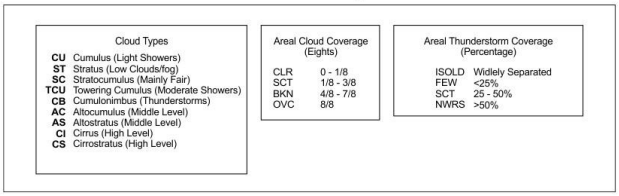
PRODUCT/CHART	CHART ID
WIND/WAVE CHARTS	
00Z Sea State Anal 20N-70N 115W-135E	PJBA99.TIF
24HR Wind Wave Forecast 40N-70N 115W-170E (Most Current)	PJBE10.TIF
48HR Wind Wave Forecast 20N-70N 115W-135E (Most Current)	PJBI10.TIF
48HR Wave Period/Swell Dir 20N-70N 115W-135E (Most Current)	PJBI20.TIF
96HR Wave Period/Swell Dir VT12Z 20N-70N 115W-135E	PJBM88.TIF
96HR Wind/Wave Forecast VT12Z 20N-70N 115W-135E	PJBM98.TIF
SURFACE CHARTS	
Surface Anal 40N-70N 125W-150E (Most Current)	PYCA10.TIF
24HR Surface Forecast 40N-70N 115W-170E (Most Current)	PYBE10.TIF
48HR Surface Forecast 20N-70N 115W-135E (Most Current)	PWBI10.TIF
96HR Surface Forecast VT12Z	PWBM99.TIF
UPPER AIR CHARTS	
500 MB Anal 20N-70N 115W-135E (Most Current)	PPBA10.TIF
24HR 500 MB Forecast 20N-70N 115W-135E (Most Current)	PPBE11.TIF
48HR 500 MB Forecast 20N-70N 115W-135E (Most Current)	PPBI10.TIF
96HR 500 MB VT12Z 20N-70N 115W-135E	PPBM50.TIF
SEA SURFACE TEMPERATURES	
Sea Surface Temperature Anal 40N-60N 125W-160E	PTCA88.TIF
SATELLITE IMAGERY	
GOES IR Satellite Image Pacific (Most Current)	evpn99.jpg
ICE CHARTS	
Sea Ice Anal	PTCA89.TIF
5 Day Sea Ice Forecast	PTCO89.TIF
Cook Inlet Sea Ice Anal	PTCA87.TIF

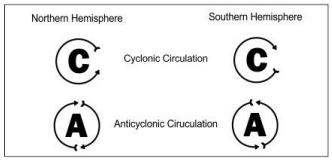
NOAA/NWS Chart Terminology & Weather Symbols

Unified Graphical Product (UGP) Legend

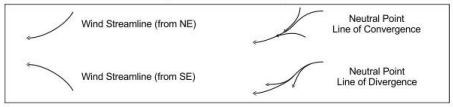


Cloud Products Legend

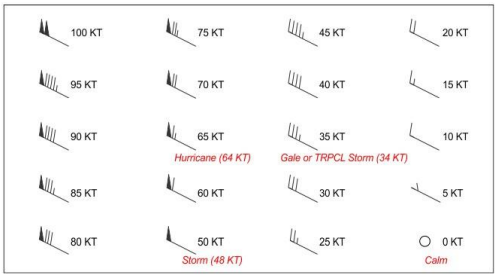




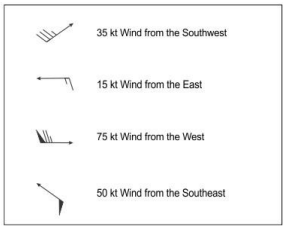
Graphical Products Legend



Windbarbs



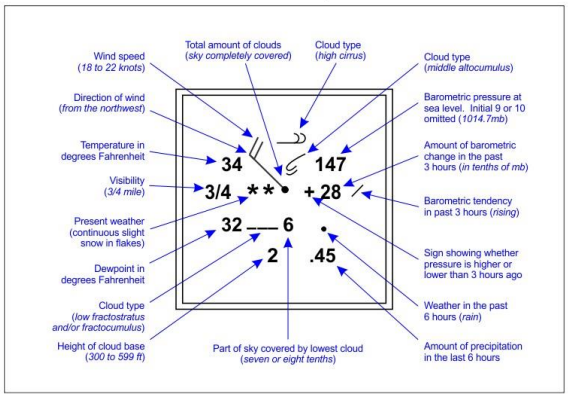
Directional Windbarbs



Text Abbrevations

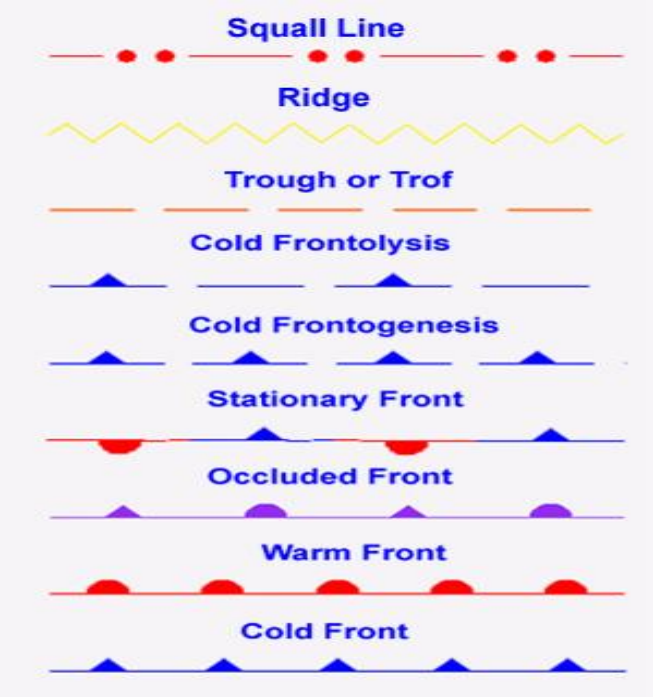
KT	Knots	MOVG	Moving
FT	Feet	STNRY	Stationary
NM	Nautical Miles	DSIPT	Dissipated
MB	Millibar	INLD	Inland
G	Gusts	DVLPG	Developing
TRPCL	Tropical	INTSFYG	Intensifying
TC	Tropical Cyclone	WKNG	Weakening
TD	Tropical Depression	COMB	Combined
TS	Tropical Storm	RPDLY	Rapidly
TYPH	Typhoon	FRMG	Forming
HURCN	Hurricane	DCR	Decreasing
PRES	Pressure	INCR	Increasing
LN	Line	VT	Valid Time
TROF	Trough	PROG	Prognosis
ITCZ	Intertropical Convergence Zone		

Station Model Legend



Joan David 2011

FRONTS



Cold Front The leading edge of a relatively colder air mass which separates two air masses in which the gradients of temperature and moisture are maximized. In the northern hemisphere winds ahead of the front will be southwest and shift into the northwest with frontal passage.

Frontogenesis The formation of a front occurs when two adjacent air masses with different densities and temperatures meet and strengthen the discontinuity between the air masses. It occurs most frequently over continental land areas such as over the Eastern US when the air mass moves out over the ocean. It is the opposite of frontolysis.

Frontolysis The weakening or dissipation of a front occurs when two adjacent air masses lose contrasting properties such as the density and temperature. It is the opposite of frontogenesis.

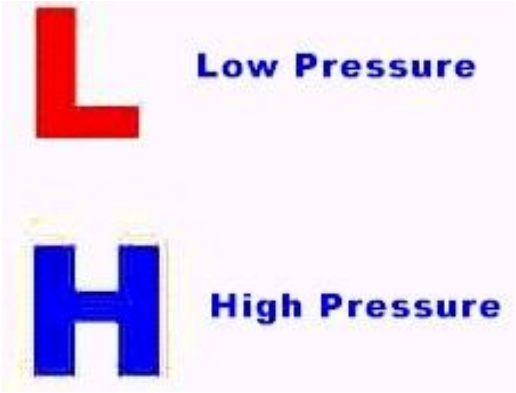
Occluded Front The union of two fronts, formed as a cold front overtakes a warm front or quasi-stationary front refers to a cold front occlusion. When a warm front overtakes a cold front or quasi-stationary front the process is termed a warm front occlusion. These processes lead to the dissipation of the front in which there is no gradient in temperature and moisture.

Ridge An elongated area of relatively high pressure that is typically associated with an anti-cyclonic wind shift.

Stationary Front A front that has not moved appreciably from its previous analyzed position.

Trough (Trof) An elongated area of relatively low pressure that is typically associated with a cyclonic wind shift.

Warm Front The leading edge of a relatively warmer surface air mass which separates two distinctly different air masses. The gradients of temperature and moisture are maximized in the frontal zone. Ahead of a typical warm front in the northern hemisphere, winds are from the southeast and behind the front winds will shift to the southwest.



LOW & HIGH PRESSURE SYSTEMS & MISCELLANEOUS KEY TERMS USED

Low pressure with a number such as 99 means 999 mb and with 03 means 1003 mb.

High pressure with a number such as 25 means 1025 mb.

Extratropical Low A low pressure center which refers to a migratory frontal cyclone of center and higher latitudes. Tropical cyclones occasionally evolve into extratropical lows losing tropical characteristics and become associated with frontal discontinuity.

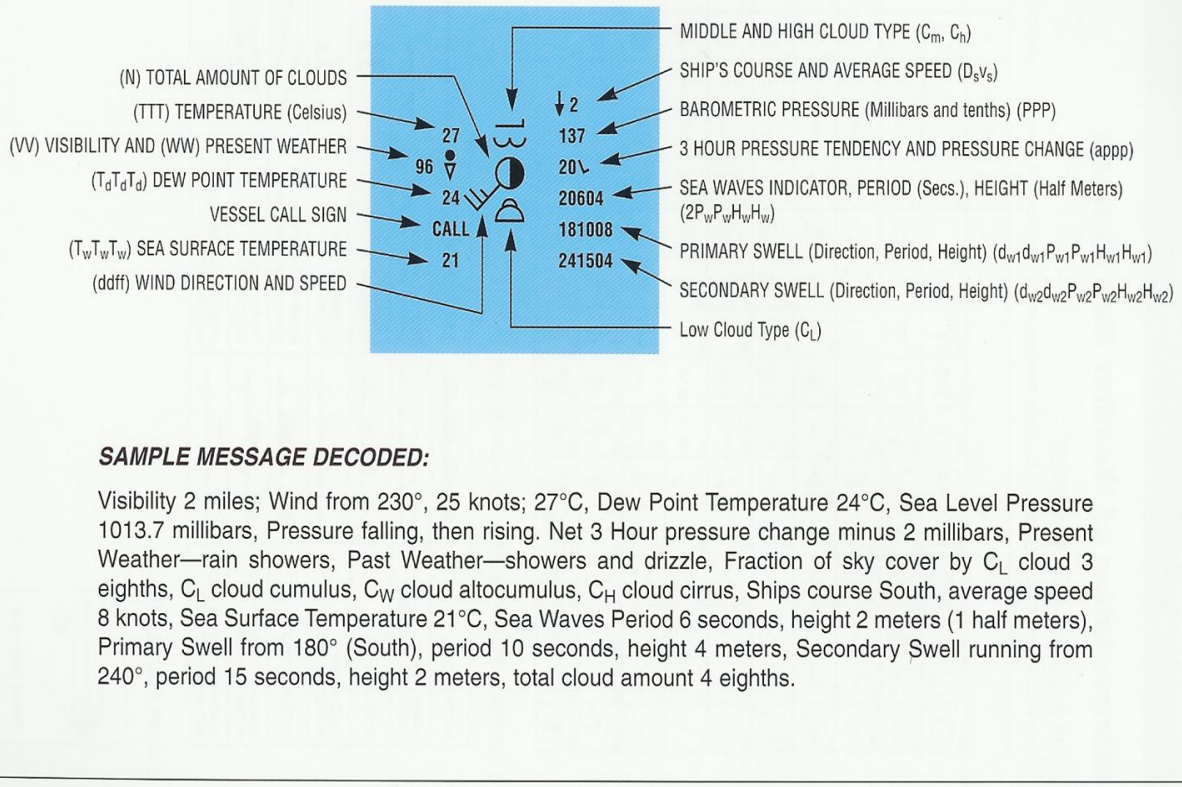
Low Pressure An area of low pressure identified with counterclockwise circulation in the northern hemisphere and clockwise in the southern hemisphere. Also, defined as a cyclone.

High Pressure An area of higher pressure identified with a clockwise circulation in the northern hemisphere and a counterclockwise circulation in the southern hemisphere. Also, defined as an anticyclone.

New The term "NEW" may be used in lieu of a forecast track position of a high or low pressure center when the center is expected to form by a specific time. For example, a surface analysis may depict a 24-hour position of a new low pressure center with an "X" at the 24-hour position followed by the term "NEW", the date and time in UTC which indicates the low is expected to form by 24 hours.

Rapidly intensifying Indicates an expected rapid intensification of a cyclone with surface pressure expected to fall by at least 24 millibars (mb) within 24 hours.

STATION PLOT



SAMPLE MESSAGE DECODED:

Visibility 2 miles; Wind from 230°, 25 knots; 27°C, Dew Point Temperature 24°C, Sea Level Pressure 1013.7 millibars, Pressure falling, then rising. Net 3 Hour pressure change minus 2 millibars, Present Weather—rain showers, Past Weather—showers and drizzle, Fraction of sky cover by C_L cloud 3 eighths, C_L cloud cumulus, C_W cloud altocumulus, C_H cloud cirrus, Ships course South, average speed 8 knots, Sea Surface Temperature 21°C, Sea Waves Period 6 seconds, height 2 meters (1 half meters), Primary Swell from 180° (South), period 10 seconds, height 4 meters, Secondary Swell running from 240°, period 15 seconds, height 2 meters, total cloud amount 4 eighths.

WIND SPEED & DIRECTION

Beaufort Wind Scale

Force	Wind (kts)	Condition
0	<1	Calm
1	1-3	Light Air
2	4-6	Light Breeze
3	7-10	Gentle Breeze
4	11-16	Moderate Breeze
5	17-21	Fresh Breeze
6	22-27	Strong Breeze
7	28-33	Near Gale
8	34-40	Gale
9	41-47	Strong Gale
10	48-55	Storm
11	56-63	Violent Storm
12	<63	Hurricane

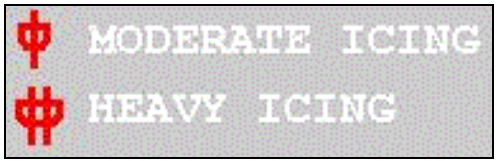
FOG

Fog Over the marine environment the term fog refers to visibility greater than or equal to 1/2 NM and less than 3 NM. Fog is the visible aggregate of minute water droplets suspended in the atmosphere near the surface.

Dense Fog Over the marine environment the term dense fog refers to visibility less than 1/2 NM. Fog is the visible aggregate of minute water droplets suspended in the atmosphere near the surface. Usually dense fog occurs when air that is lying over a warmer surface such as the Gulf Stream is advected across a colder water surface and the lower layer of the air mass is cooled below its dew point.

Sea Fog Common advection fog caused by transport of moist air over a cold body of water.

FREEZING SPRAY



Freezing spray Spray in which supercooled water droplets freeze upon contact with exposed objects below the freezing point of water. It usually develops in areas with winds of at least 25 knots.

CATEGORY	FREEZING SPRAY	ICING
Light	Less than 0.7 cm/hr	Less than 0.3 ins/hr
Moderate	0.7 cm/hr to less than or equal to 2.0 cm/hr	0.3 ins/hr to less than or equal to 0.8 ins/hr
Heavy	Greater than 2.0 cm/hr	Greater than 0.8 ins/hr

CONVENTIONS USED WITH WARNINGS FOR EXTRATROPICAL SYSTEMS

Complex Gale/Storm An area in which gale/storm force winds are forecast or are occurring, but in which more than one center is the generating these winds.

Developing Gale Refers to an extratropical low or an area in which gale force winds of 34 knots (39 mph) to 47 knots (54 mph) are "expected" by a certain time period. On surface analysis charts, a "DEVELOPING GALE" label indicates gale force winds within the next 24 hours. When the label is used on the 48 hour surface forecast and 96 hour surface forecast charts, gale force winds are expected to develop by 72 hours and 120 hours, respectively.

Developing Storm Refers to an extratropical low or an area in which storm force winds of 48 knots (55 mph) to 63 knots (73 mph) are "expected" by a certain time period. On surface analysis charts, a "DEVELOPING STORM" label indicates storm force winds forecast within the next 24 hours. When the label is used on the 48 hour surface and 96 hour surface charts, storm force winds are expected to develop by 72 hours and 120 hours, respectively.

Developing Hurricane Force Refers to an extratropical low or an area in which hurricane force winds of 64 knots (74 mph) or higher are "expected" by a certain time period. On surface analysis charts, a "DEVELOPING HURRICANE FORCE" label indicates hurricane force winds forecast within the next 24 hours. When the label is used on the 48 hour surface and 96 hour surface charts, hurricane force winds are expected to develop by 72 hours and 120 hours, respectively.

Gale Refers to an extratropical low or an area of sustained surface winds (averaged over a ten minute period, momentary gusts may be higher) of 34 knots (39 mph) to 47 knots (54 mph).

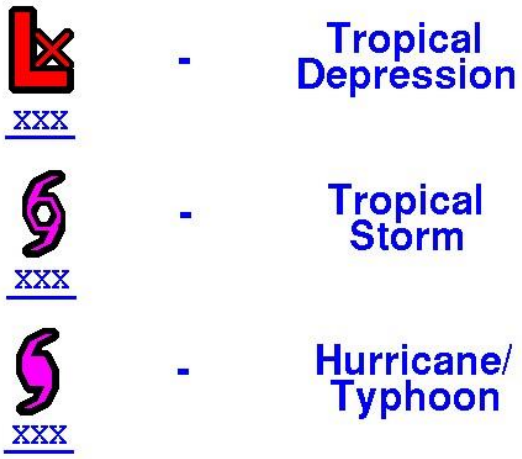
Storm Refers to a extratropical low or an area of sustained winds (averaged over a ten minute period, momentary gusts may be higher) of 48 knots (55 mph) to 63 knots (73 mph).

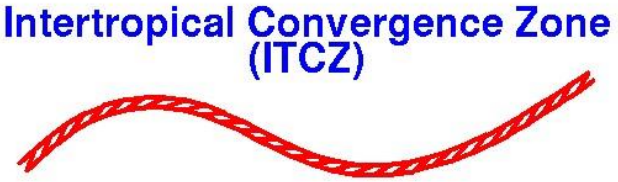
Hurricane Force Refers to a extratropical low or an area of sustained winds (averaged over a ten minute period, momentary gusts may be higher) in excess of 64 knots or higher(74 mph).

Small Craft Advisory Refers to areas within the coastal waters with sustained winds of 18 knots (21 mph) to 33 knots (38 mph).

Heavy Freezing Spray Spray in which supercooled water droplets freeze upon contact with exposed objects below the freezing point of water at the rate of greater than 2 cm/hr. It usually develops in areas with winds of at least 25knots.

CONVENTIONS USED WITH WARNINGS FOR TROPICAL SYSTEMS





Hurricane A tropical cyclone with closed contours, a strong and very pronounced circulation, and one minute maximum sustained surface winds 64 knots (74 mph) or greater. A system is called a hurricane over the North Atlantic, Gulf of Mexico, North Pacific E of the dateline, and the South Pacific E of 160E.

Intertropical Convergence Zone (ITCZ) The region where the northeasterly and southeasterly trade winds converge, forming an often continuous band of clouds or thunderstorms near the equator.

Post-Tropical A cyclone that no longer possesses sufficient tropical characteristics to be considered a tropical cyclone. Post-tropical cyclones can continue carrying intense rainfalls and high winds. [Note that former tropical cyclones that have become fully extra-tropical, as well as remnant lows, are two classes of post-tropical cyclones. The term "post-tropical" is predominantly a convenient communications term--to permit the ongoing use of the storm name.]

Tropical Cyclone A non-frontal, warm-core, low pressure system of synoptic scale, developing over tropical or subtropical waters with definite organized convection (thunderstorms) and a well-defined surface wind circulation.

Tropical Depression A tropical cyclone with one or more closed isobars and a one minute max sustained surface wind of less than 34 knots (39 mph).

Tropical Storm A tropical cyclone with closed isobars and a one minute max sustained surface wind of 34 knots (39 mph) to 63 knots (73 mph).

Typhoon Same as a hurricane with exception of geographical area. A tropical cyclone with closed contours, a strong and very pronounced circulation, and one minute maximum sustained surface winds of 64 knots (74 mph) or greater. A system is defined as a typhoon over the North Pacific W of the dateline.

NOTE: It can be difficult to determine the central pressures of tropical depressions, tropical storms, and hurricanes/typhoons and at times no estimates or measurements are provided by a hurricane or typhoon specialist. An estimate of central pressure may be provided over the Atlantic. Otherwise an XXX is used in place of actual or estimated pressures associated with these systems and an XX is used for forecast central pressure.

SEAS

Combined Seas The combination of both wind waves and swell which is generally referred to as "seas".

Primary Swell Direction Prevailing direction of swell propagation.

Significant Wave Height The average height (trough to crest) of the highest 1/3rd waves.

Generation of waves from wind and currents results not in a single wave height but in a spectrum of waves heights distributed from smallest to larger waves. Within this spectrum there is a finite possibility of each of the wave heights to occur, with the largest waves being the least likely.

The random nature of waves implies that individual waves can be substantially higher than the significant wave height which is commonly refered to as a Rouge Waves. These are waves that are twice the height of the observed or forecasted significant wave, and often come unexpectedly from directions other than prevailing wind and waves.

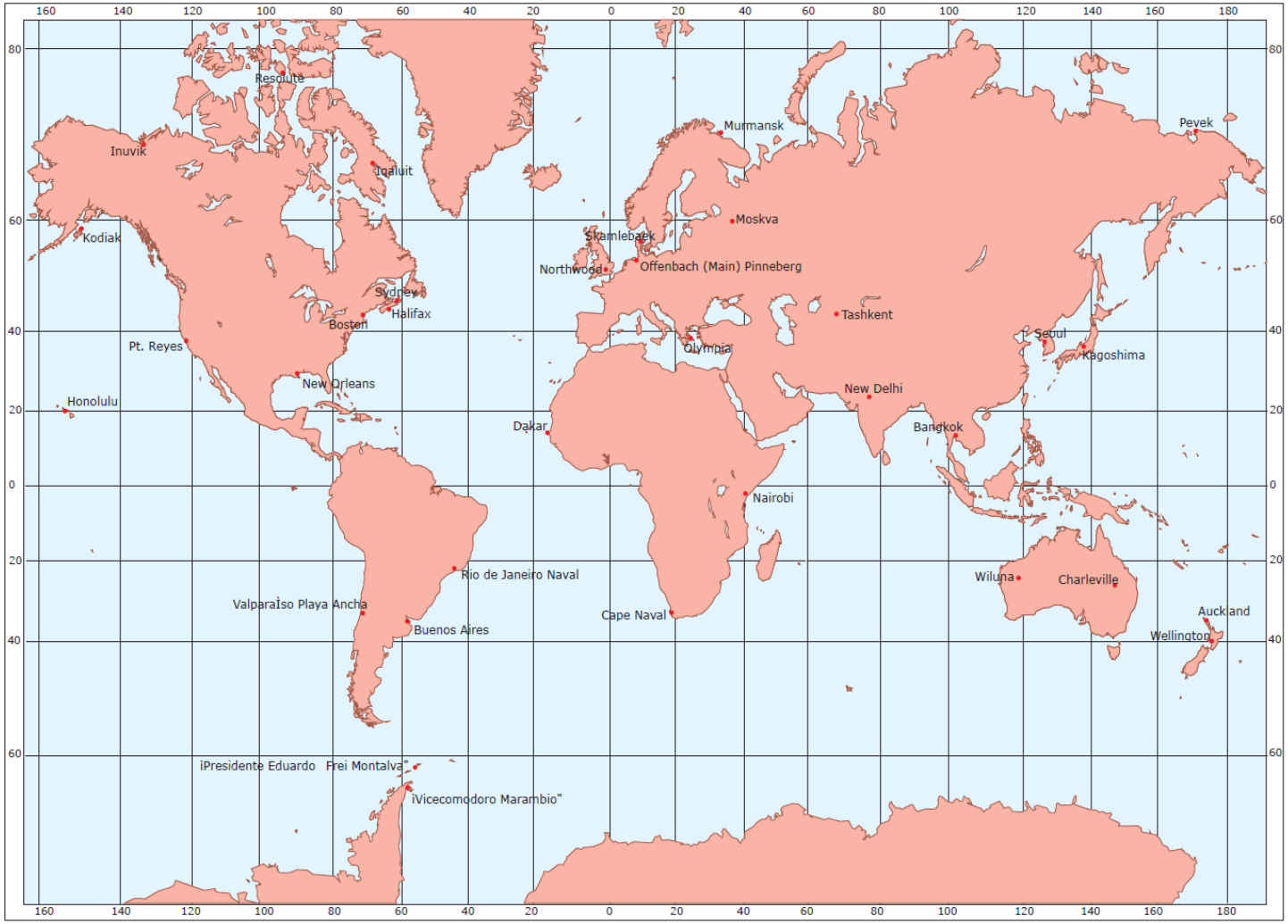
As a general rule, the largest individual wave you may encounter could be approximately twice as high as the Significant Wave Height.

Swell Wind waves that have moved out of their fetch or wind generation area. Waves generated by swell exhibit a regular and longer period than wind waves.

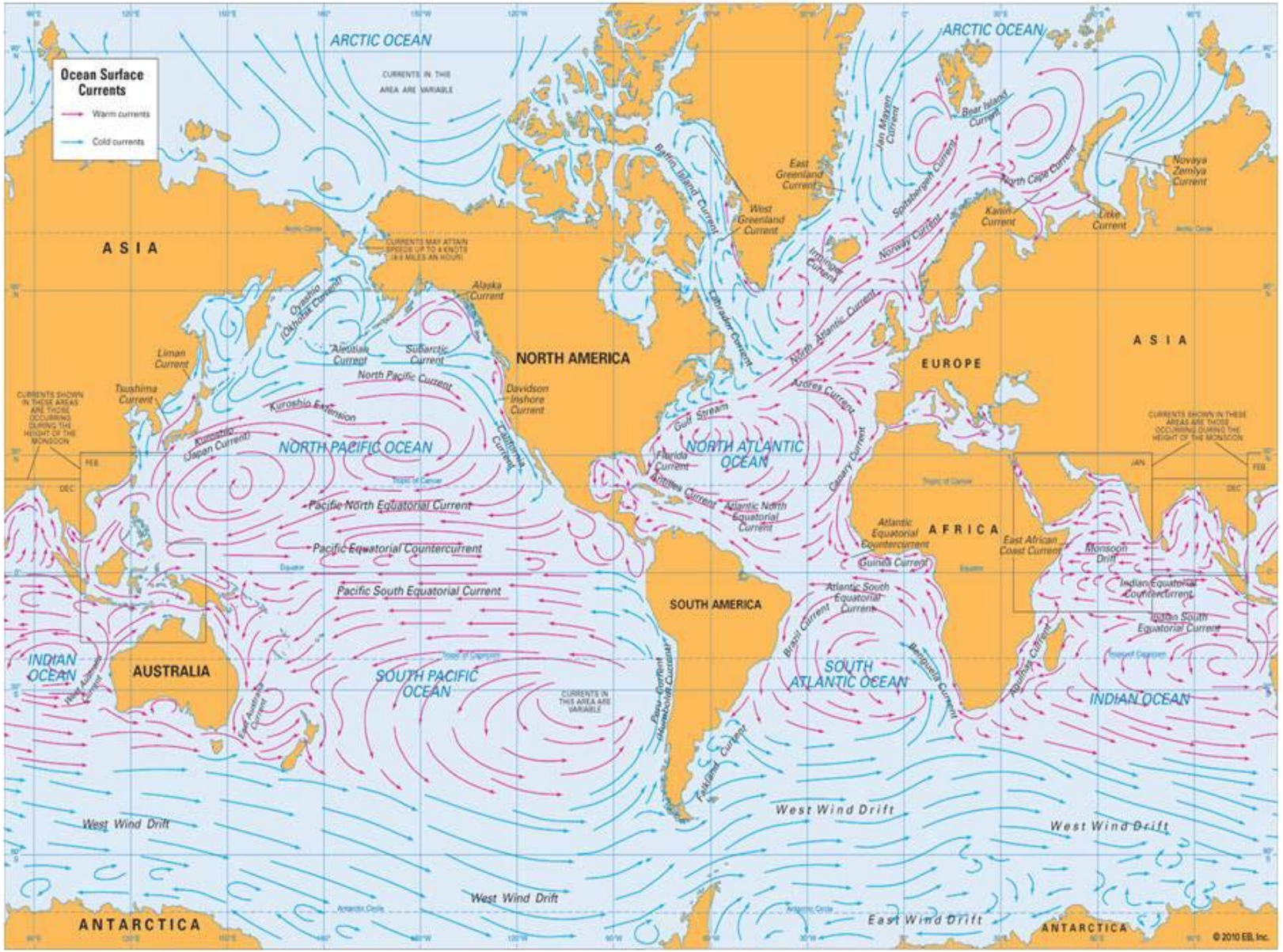
Beaufort Sea State

Force	Speed		Marine Conditions
	KTS	MPH	
1	<1	< 1	Calm, sea like a mirror.
2	1-3	1-3	Light air, ripples only.
3	4-6	4-7	Light breeze, small wavelets (0.2m). Crests have a glassy appearance.
4	7-10	8-12	Gentle breeze, large wavelets (0.6m), crests begin to breal.
5	11-16	13-18	Moderate breeze, small waves (1m), some white horses.
6	17-21	19-24	Fresh breeze, moderate waves (1.8m), many white horses.
7	22-27	25-31	Strong breeze, large waves (3m), probably some spray.
8	28-33	32-38	Near gale, mounting sea (4m) with foam blown in streaks downwind.
9	34-40	39-46	Gale, moderately high waves (5.5m), crests break into spindrift.
10	41-47	47-54	Strong gale, high waves (7m), dense foam, visibility affected.
11	48-55	55-63	Storm, very high waves (9m), heavy sea roll, visibility impaired. Surface generally white.
12	56-63	64-73	Violent storm, exceptionally high waves (11m), visibility poor
13	64	>74	Hurricane, 14m waves, air filled with foam and spray, visibility bad.

RADIO-FACSIMILE STATIONS TRANSMITTING WEATHER PRODUCTS



LIMITS OF METAREAS

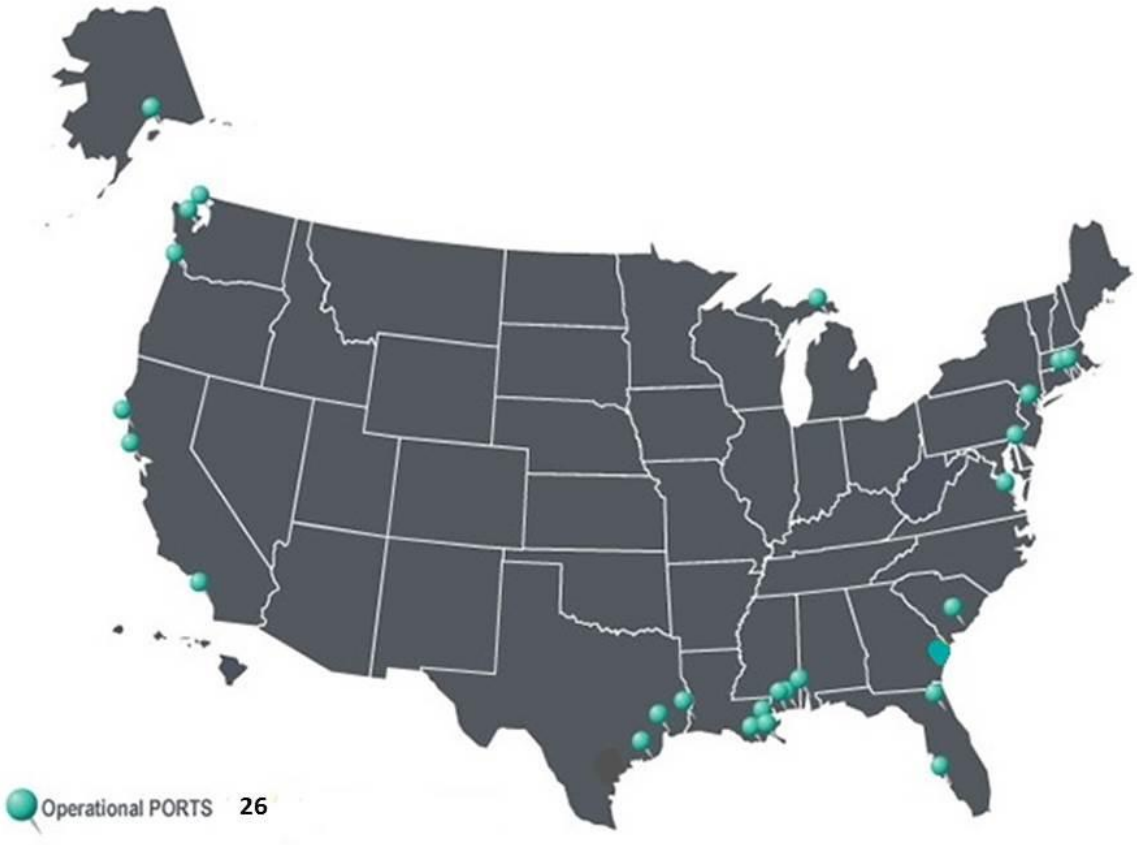

Ocean Surface Currents
Warm currents
Cold currents
ARCTIC OCEAN
ARCTIC OCEAN
CURRENTS IN THIS AREA ARE VARIABLE
ASIA
NORTH AMERICA
EUROPE
ASIA
AFRICA
SOUTH AMERICA
AUSTRALIA
INDIAN OCEAN
NORTH PACIFIC OCEAN
NORTH ATLANTIC OCEAN
SOUTH PACIFIC OCEAN
SOUTH ATLANTIC OCEAN
INDIAN OCEAN
ANTARCTICA
ANTARCTICA
Oyashio (Oyashio Current)
Alaska Current
Aleutian Current
Subarctic Current
Liman Current
Tsushima Current
North Pacific Current
Kuroshio Extension
Kuroshio (Japan Current)
California Current
Davidson Inshore Current
Pacific North Equatorial Current
Pacific Equatorial Countercurrent
Pacific South Equatorial Current
Peru Current (Humboldt Current)
East Australia Current
West Australia Current
Baffin Island Current
West Greenland Current
East Greenland Current
Labrador Current
Irminger Current
North Atlantic Current
Gulf Stream
Florida Current
Antilles Current
Atlantic North Equatorial Current
Azores Current
Canary Current
Atlantic Equatorial Countercurrent
Guinea Current
Atlantic South Equatorial Current
Brazil Current
Benguela Current
Falkland Current
Jan Mayen Current
Bear Island Current
Norway Current
Spitsbergen Current
North Cape Current
Novaya Zemlya Current
Kanin Current
Liko Current
East African Coast Current
Monsoon Drift
Indian Equatorial Countercurrent
Indian South Equatorial Current
Agulhas Current
West Wind Drift
West Wind Drift
West Wind Drift
West Wind Drift
East Wind Drift
CURRENTS MAY ATTAIN SPEEDS UP TO 4 KNOTS (4.6 MILES AN HOUR)
CURRENTS SHOWN IN THESE AREAS ARE THOSE OCCURRING DURING THE HEIGHT OF THE MONSOON
CURRENTS IN THIS AREA ARE VARIABLE
© 2010 EB, Inc.

PORTS® (Physical Oceanographic Real-Time System)

(http://tidesandcurrents.noaa.gov/ports.html)

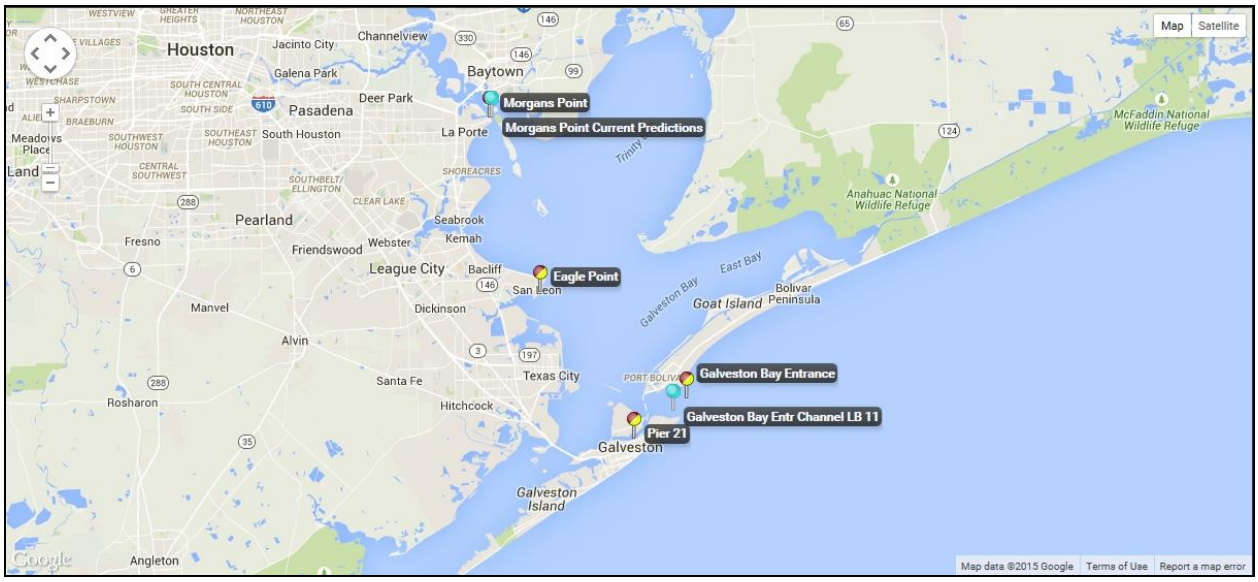
The Physical Oceanographic and Real-Time Measurement System measures and disseminates observations and predictions of water levels, currents, salinity, and meteorological parameters (e.g., winds, atmospheric pressure, air and water temperatures) that mariners need to navigate safely in restricted waters. The objectives of the PORTS® program are to promote navigation safety, improve the efficiency of U.S. ports and harbors, and ensure the protection of coastal marine resources.

PORTS® information is also available on the AIS System



PORTS® Locations

Charleston Harbor
Cherry Point
Chesapeake Bay North
Chesapeake Bay South
Delaware River and Bay
Houston/Galveston
Humboldt Bay
Jacksonville
Lake Charles
L.A./Long Beach
Lower Columbia River
Lower Mississippi River
Mobile Bay
Morgan City
Narragansett Bay
New Haven
New London
NY/NJ Harbor
Pascagoula
Port Fourchon
Port of Anchorage
Sabine Neches
San Francisco Bay
Savannah
Soo Locks
Tacoma
Tampa Bay



HOUSTON / GALVESTON PORTS

Although PORTS® is primarily web based, ships within cell phone range can get PORTS® information in a simplified format readable on any smart phone. Below is the Text Based version for Houston/Galveston

TEXT Based PORTS®

Houston/Galveston Bay PORTS, NOAA/NOS 2015-05-12 10:12 CDT

```
----------------------------Water Levels (above MLLW)---------------------------
Morgans Point            1.1 ft, Steady  Eagle Point              1.6 ft, Rising
Galveston Bay Entra..    1.7 ft, Falling Pier 21                  1.5 ft, Steady
-------------------------------------Winds-------------------------------------
                          Spd Dir Gusts                            Spd Dir Gusts
Morgans Point           12 kn   E    16  Eagle Point             19 kn ESE    23
Galveston Bay Entra..   20 kn ESE    22
---------------------------Air and Water Temperature---------------------------
                            Air   Water                              Air   Water
Morgans Point            73 °F   78 °F   Eagle Point              75 °F   71 °F
Galveston Bay Entra..    76 °F   77 °F   Pier 21                  76 °F   78 °F
-------------------------------Barometric Pressure-------------------------------
Morgans Point          1020 mb Rising    Eagle Point            1020 mb Falling
Galveston Bay Entra..  1019 mb Rising    Pier 21                1020 mb Rising
----------------------------Salinity/Specific Gravity---------------------------
Station                  Salin.   S.G.   Station                  Salin.   S.G.
Morgans Point           3.8 psu    1.0   Eagle Point             9.1 psu   1.01
------------------Currents (F)lood, (S)lack, (E)bb, towards °T------------------
                          Spd          Dir                             Spd          Dir
Morgans Point (pred)   0.3 kn (E), 177.0°T Bay Entr Ch LB 11      0.4 kn (E),  69.0°T


*** Data not displayed as a result of quality control monitoring. For information on
missing data, go to https://corms.nos.noaa.gov/instrument_status.html or call (301) 713-2540.
```

(http://tidesandcurrents.noaa.gov/ports/textscreen.shtml?port=hg)

Below is the Mobile Device PORTS® based version for Houston/Galveston

(http://tidesandcurrents.noaa.gov/ports.html)

NOAA/NOS/CO-OPS
Houston/Galveston Bay PORTS, NOAA/NOS 2015-05-12 10:20 CDT®

Water Levels (above MLLW)	
Morgans Point	**1.1 ft Rising**
Eagle Point	**1.5 ft Rising**
Galveston Bay Entra..	**1.8 ft Falling**
Pier 21	**1.5 ft Falling**

Winds		
Name	**Wind from**	**Gusts to**
Morgans Point	**14 kn E**	**18**
Eagle Point	**20 kn ESE**	**24**
Galveston Bay Entra..	**21 kn SE**	**23**

Air/Water Temp		
Name	**Air Temp**	**Water Temp**
Morgans Point	**74 °F**	**78 °F**
Eagle Point	**76 °F**	**71 °F**
Galveston Bay Entra..	**76 °F**	**77 °F**
Pier 21	**76 °F**	**78 °F**

Barometric Pressure	
Morgans Point	**1020 mb Rising**
Eagle Point	**1020 mb Falling**
Galveston Bay Entra..	**1019 mb Rising**
Pier 21	**1020 mb Rising**

Salinity/Specific Gravity		
Station	**Salin.**	**S.G.**
Morgans Point	**3.8 psu**	**1.0**
Eagle Point	**9.1 psu**	**1.01**

Currents (F)lood, (S)lack, (E)bb, towards °T		
Station	**Spd**	**Dir**
Morgans Point (pred)	**0.2 kn E**	**177.0**
Bay Entr Ch LB 11	**0.4 kn E**	**58.0**

Real-Time Text Summary

Observations for Houston/Galveston Bay PORTS 2015-05-12 10:20:56 CDT

- Water levels are steady at all four reporting stations, with readings between 1.1 and 1.8 feet. Levels are above predictions by up to 1 foot at Eagle P and Morgans P.
- Currents at Bay Entr Ch LB 11 are ebbing at 0.4 knots.
- Reported winds are generally breezy from the east, between 14 and 21 knots with gusts to 24 knots.
- Reported air temperatures are in the mid 70s °F, and reported water temperatures range from the low 70s to the high 70s °F.
- Barometric pressure is falling at Eagle P, and rising at the other three reporting stations. Readings are between 1018.7 and 1019.8 mb.

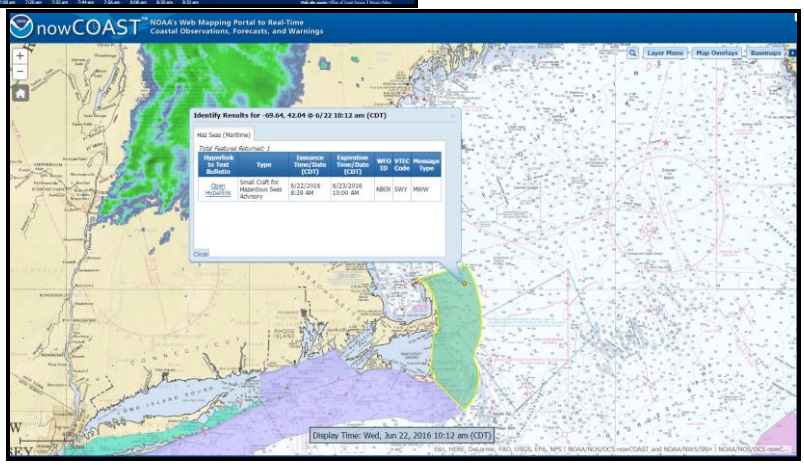
nowCOAST™

http://new.nowcoast.noaa.gov/mariner.html

NOAA/NOS nowCOAST™ is a GIS-based web mapping portal displaying near real-time observations, analyses, tide predictions, model guidance, watches/warnings, and forecasts for the coastal United States.

nowCOAST™ provides situational awareness on present and future environmental conditions for coastal and marine users by integrating data and information from across NOAA, other federal agencies and regional ocean and weather observing systems. For example, users can assess present conditions by creating maps of the latest in-situ weather/marine weather observations, weather radar reflectivity mosaics, cloud images from satellites, surface wind and sea-surface temperature analyses, and precipitation amounts for the last few hours. In terms of future conditions, users can obtain maps of critical weather and marine weather advisories, watches, and warnings, weather forecasts, tropical cyclone track and intensity forecasts, and forecast guidance of water levels, temperature, salinity, and currents from oceanographic forecast models.

In addition, nowCOAST™ provides users with thousands of geo-referenced hyperlinks to observations, forecasts, forecast guidance, and forecast discussions located on web pages operated by NOAA and other federal agencies to obtain more detailed data and information. For example, users can obtain weather observations from buoys operated by NWS or regional ocean observing systems, NOS tide predictions at specific stations, river discharge observations at USGS gauges, river stage forecasts at NWS forecast locations, and NOS Harmful Algae Bloom forecasts for coastal waters.



NOAA Weather Radio (NWR)

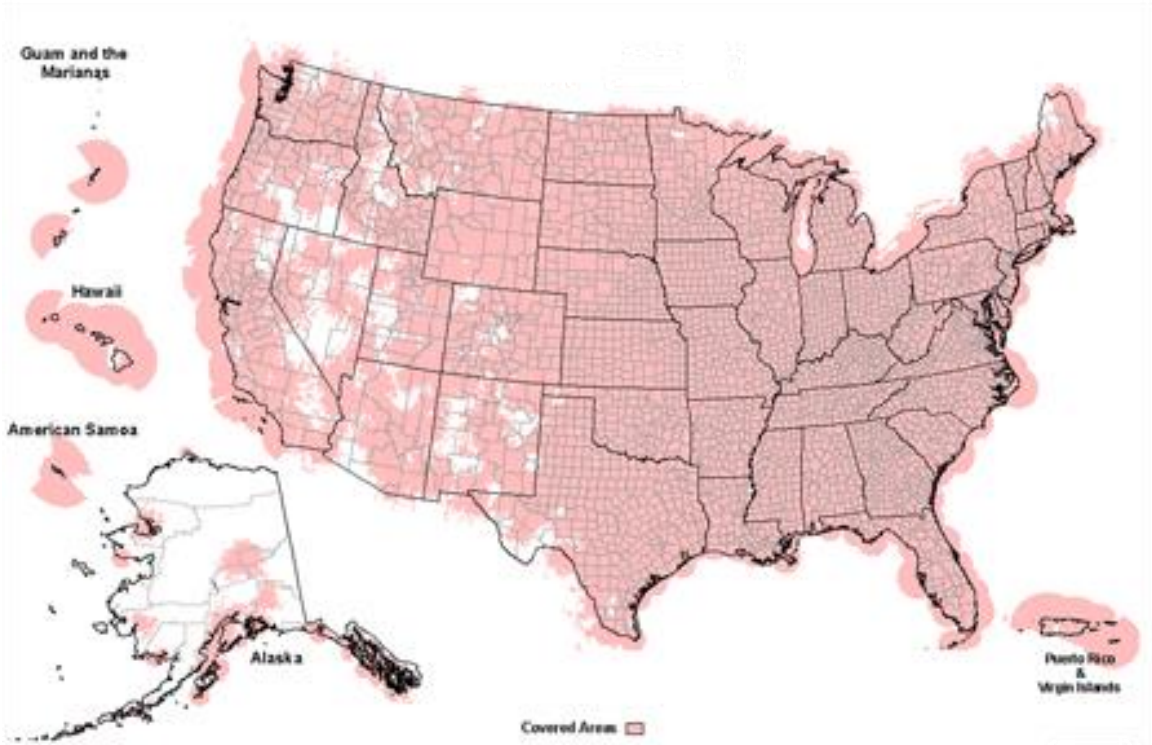
NOAA Weather Radio All Hazards (NWR) is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest National Weather Service office. NWR broadcasts official Weather Service warnings, watches, forecasts and other hazard information 24 hours a day, 7 days a week.

An Emergency Alert System, NWR is an "All Hazards" radio network for comprehensive weather and emergency information in a specified locations. In conjunction with Federal, State, and Local Emergency Managers and other public officials, NWR also broadcasts warning and post-event information for all types of hazards – including natural hazards such as earthquakes, and environmental such as chemical releases or oil spills.

Known as the "Voice of NOAA's National Weather Service," NWR includes 1025 transmitters covering all 50 states, adjacent coastal waters, Puerto Rico, the U.S. Virgin Islands, and the U.S. Pacific Territories. This service covers most of the anchorage areas within U.S. waters, including Puerto Rico, the U.S. Virgin Islands, and the U.S. Pacific Territories.

NWR requires a special radio receiver or scanner capable of picking up the signal. Broadcasts are found in the VHF public service band at these seven frequencies (MHz):

162.400	**162.425**	**162.450**	**162.475**	**162.500**	**162.525**	**162.550**



World Meteorological Organization
Weather • Climate • Water

WMO No. 9 - WEATHER REPORTING

VOLUME D - INFORMATION FOR SHIPPING

This Publication contains worldwide Marine meteorology and other related geophysical information necessary for safe and economic conduct of shipping operations, as well as for fishing and other marine activities, is made available to the user by the various Meteorological Services of maritime countries. The provision of this information is coordinated by WMO.

Volume D - Edition 2014 (*with amendments made on **30 March 2017**)*

This publication is kept up-to-date by amendments.

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Publication available for download in PDF format at:

http://www.wmo.int/pages/prog/www/ois/Operational_Information/VolD_en.html

NOAA / NWS
MARINE INTERNET WEATHER LINKS

Ocean Prediction Center (OPC)
http://www.opc.ncep.noaa.gov/
http://www.opc.ncep.noaa.gov/mobile.php

National Hurricane Center (NHC)
http://www.nhc.noaa.gov/
http://www.nhc.noaa.gov/mobile/
http://www.nhc.noaa.gov/?text

Tropical Cyclone Guidance (NCAR)
http://www.ral.ucar.edu/hurricanes/realtime/current/

NHC Marine Product Description
http://www.nhc.noaa.gov/abouttafbprod.shtml

Tropical Prediction Center (TPC)
http://www.nhc.noaa.gov/marine/
http://www.nhc.noaa.gov/marine/?text

TPC Meteorological Links
http://www.pozo.com/nhclinks.htm

Central Pacific Hurricane Center
http://www.prh.noaa.gov/cphc/

National Data Buoy Center (NDBC)
http://ndbc.noaa.gov/
http://www.ndbc.noaa.gov/mobile/

NOAA Wave Watcher III
http://polar.ncep.noaa.gov/waves/index2.shtml

Ocean wave forecasts of NOAA/NWS/NCEP use the wave model WAVEWATCH III. This model is run four times a day at 00Z, 06Z, 12Z, and 18Z. Each run starts with 9-, 6- and 3-hour hindcasts and produces forecasts of every 3 hours from the initial time out to 180 hours

Wave Watcher III - Gulf of Mexico
http://polar.ncep.noaa.gov/waves/viewer.shtml?-multi_1-gmex-

Wave Watcher III - North Atlantic
http://polar.ncep.noaa.gov/waves/viewer.shtml?-multi_1-latest-hs-N_atlantic-

Wave Watcher III - U.S. East Coast
http://polar.ncep.noaa.gov/waves/viewer.shtml?-multi_1-US_eastcoast-

NCOM Model Ocean Currents Areas
http://www.opc.ncep.noaa.gov/newNCOM/NCOM_currents.shtml

Gulf Stream Analysis North Atlantic
http://ecowatch.ncddc.noaa.gov/JAG/Navy/data/satellite_analysis/gsnofa.gif?id=1054
http://ecowatch.ncddc.noaa.gov/JAG/Navy/data/satellite_analysis/gsncofa.gif?id=77020

Gulf Stream Analysis Gulf of Mexico/Lower North Atlantic
http://ecowatch.ncddc.noaa.gov/JAG/Navy/data/satellite_analysis/gssofa.gif?id=51631
http://ecowatch.ncddc.noaa.gov/JAG/Navy/data/satellite_analysis/gsscofa.gif?id=27608

NOAA Tides & Currents
http://tidesandcurrents.noaa.gov/
http://tidesandcurrents.noaa.gov/noaacurrents/Regions

NOAA PORTS (Physical Oceanographic Real-Time System)
http://tidesandcurrents.noaa.gov/ports.html

PORTS measures and disseminates observations and predictions of water levels, currents, salinity, and meteorological parameters (e.g., winds, atmospheric pressure, air and water temperatures) for the follwing locations:Cape Cod

- Charleston Harbor
- Cherry Point
- Chesapeake Bay North
- Chesapeake Bay South
- Delaware River and Bay
- Houston/Galveston
- Humboldt Bay
- Jacksonville
- Lake Charles
- L.A./Long Beach
- Lower Columbia River
- Lower Mississippi River
- Mobile Bay
- Morgan City
- Narragansett Bay
- New Haven
- New London
- NY/NJ Harbor
- Pascagoula
- Port Fourchon
- Port of Anchorage
- Sabine Neches
- San Francisco Bay
- Soo Locks
- Tacoma
- Tampa Bay

nowCOAST – NOAA'S Web Mapping Portal to Real-Time Coastal Observations, Forecasts & Warnings
http://nowcoast.noaa.gov/

Atlantic Radiofacsimile Charts
http://www.opc.ncep.noaa.gov/shtml/atlsch.shtml

Pacific Radiofacsimile Charts
http://www.opc.ncep.noaa.gov/shtml/pacsch.shtml

Alaska Pacific Radiofacsimile Charts
http://www.opc.ncep.noaa.gov/shtml/AKpacsch.shtml

North Atlantic Ice Service (NAIS) Products
http://www.navcen.uscg.gov/?pageName=iipProducts

UK Meteorological Office Charts
http://www.weathercharts.org/ukmomslp.htm

GMDSS Worldwide Metareas (Warnings & Forecasts)
http://weather.gmdss.org/index.html

Worldwide Marine Radiofacsimile Broadcast Schedules (PDF)
http://www.nws.noaa.gov/om/marine/rfax.pdf

NWS Marine Information
http://www.nws.noaa.gov/om/marine/marine.shtml
http://www.nws.noaa.gov/om/marine/home.htm#graphic
http://www.nws.noaa.gov/om/marine/mlinks.htm

United States Voluntary Observing Ship (VOS) Program
http://www.vos.noaa.gov/

National Center for Environmental Information (NCEI) – Observation Counts for VOS Ships
http://www1.ncdc.noaa.gov/pub/download/pmorpts/pmorpta.txt

Quality Monitoring – Ship Observations
http://www.meteo2.shom.fr/vos-monitoring/info.htm

National Weather Service JetStream - Online School for Weather
http://www.srh.weather.gov/srh/jetstream/matrix.htm

Canada Ice Service
https://www.ec.gc.ca/glaces-ice/

Canada Ice Bulletins (and Warnings) and Iceberg Bulletins
https://www.ec.gc.ca/glaces-ice/default.asp?lang=En&n=E568E9D7-1

International Ice Patrol
https://www.navcen.uscg.gov/?pageName=IIPHome

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