

UNITED STATES STATUS of IMPLEMENTATION of the GMDSS

The goals of the Global Maritime Distress and Safety System (GMDSS) are to provide effective and efficient emergency and safety communications and disseminate Maritime Safety Information (MSI) to all ships on the world's oceans regardless of location or atmospheric conditions. MSI includes navigational warnings, meteorological warnings and forecasts, and other urgent safety related information. GMDSS goals are defined in the International Convention for *The Safety Of Life At Sea* (SOLAS), and affects vessels over 300 gross tons and passenger vessels of any size.

The U.S. National Weather Service participates directly in the GMDSS by preparing meteorological forecasts and warnings; and tsunami watches, warnings and advisories for broadcast via SafetyNET and NAVTEX. The National Weather Service also prepares charts for broadcast via radio-facsimile, which is recognized under SOLAS, but not as part of the GMDSS.

Information on the GMDSS, SafetyNET, NAVTEX, radio-facsimile and other broadcasts of National Weather Service marine products may be found at:

www.nws.noaa.gov/om/marine/home.htm

Broadcast of Marine Forecasts via SafetyNET

The National Weather Service prepares high seas forecasts and warnings for broadcast via SafetyNET for each of three different ocean areas four times daily. These broadcasts are prepared cooperatively by the Ocean Prediction Center, Tropical Prediction Center and Honolulu Forecast Office. See table below for broadcast schedule, and attached example in the Annex.

<u>SATELLITE</u>	<u>METAREA</u>	<u>WMO ID</u>	<u>BROADCAST TIMES (UTC)</u>
AOR-W ¹	IV (NW Atlantic)	FZNT01KWBC	0430, 1030, 1630, 2230
AOR-W, POR ¹	XII (NE Pacific)	FZPN02KWBC	0545, 1145, 1745, 2345
AOR-W ^{1,2}	XVI (Peru Area)	FZPN04KNHC	0515, 1115, 1715, 2315

¹ High Seas forecasts containing tropical storm warnings also broadcast over AOR-E

² High Seas forecasts containing tropical storm warnings also broadcast over POR

Short-term forecasts for precipitation and aviation interests use the Rapid Update Cycle (RUC) for hourly predictions over the U.S. out to 12 hours. The North American Mesoscale Model (based on the Weather Research Forecast (WRF) Model) is run four times daily at 00, 06, 12, and 18 UTC, and is used for prediction of sensible weather, precipitation to 84 hours. The NCEP Global Forecast System (GFS) is run 4 times daily also based on 00, 06, 12, and 18 UTC, and provides forecasts to 15 days. As part of the Global Forecast System, a 14 member ensemble is run at each forecast time to help determine the predictability of specific weather features. The NCEP GFS and GFS Ensemble near surface winds are used to drive the NOAA Wave Watch III ocean wave model. A wide variety of observational data are used in the assimilation process including: multiple satellite based remotely sensed parameters, radiosonde data, aircraft observations, land, ship and buoy observations. The number of ship and buoy obs has greatly increased primarily due to the increased number of ARGOS floats.

Beginning 21 May 2002, the period of the high seas forecasts were extended from the required 36 hours to 48 hours, and generally also contain detailed 24 hour forecast information.

Beginning in the 2001 hurricane season the forecasted track of hurricanes contained with the high seas forecasts was extended from 48 to 72 hours.

Beginning in the 2002 hurricane season, the National Weather Service began broadcasting Hurricane Forecast/Advisories ("TCM's") prepared by the National Hurricane Center and Central Pacific Hurricane Center via SafetyNET. The forecast/advisories contain more detailed information on the forecasted track of tropical storms than contained in the high seas forecasts. The products

are transmitted up to four times daily for each tropical storm, with updates as necessary. These are sent with SafetyNET code C1=1 (SAFETY) as they supplementary to the high seas forecasts and further alarms would be repetitive. Negative feedback was received from mariners when they were initially transmitted as URGENT. See table below for broadcast information, and example in the Annex.

SATELLITE	METAREA	WMO ID's	TIMES (UTC)
AOR-W	IV (NW Atlantic)	WTNT21KNHC - WTNT25KNHC	As available
AOR-W,POR	XII (NE Pacific)	WTPZ21KNHC - WTPZ25KNHC	As available
POR	XII (NE Pacific)	WTPA21PHFO - WTPA25PHFO	As available

As agreed by the Commission to a U.S. proposal, on an interim basis, all storms with winds in excess of 63 knots receive a special identifier (Pan Pan). The existing practice of the use of this identifier had been reserved to only those storms that are tropical in nature. This arrangement is temporary until formally examined by the Expert Team on Maritime Safety Services. In addition to using the words "Pan Pan" as the identifier in the headline, the current U.S. practice is to use the words "hurricane force winds" rather than "storm" for winds in excess of 63 knots. This and other recent U.S. changes implemented 21 May 2002, may require reconciliation with existing WMO guidance.

TELENOR serves as the INMARSAT-C SafetyNET service provider for the National Weather Service. The Southbury, CT Land Earth Station (LES) serves the AORW and AORE satellites and the Santa Paula, CA LES serves the POR satellite. Internal distribution of the weather products is accomplished over a series of dedicated circuits within the National Weather Service. The primary network hub is in Silver Spring, MD. The connection to TELENOR is via an automated Internet connection. Manual intervention is available as a backup to the automated process.

An independent PC-based monitoring system, located in Silver Spring, MD, is used for backup and quality control. The AORW receiver resides at this site while a remote receiver for the POR satellite is located at the forecast office in San Diego, CA. There are no current plans to monitor the AORE satellite. The monitoring system provides a graphic display and log as means of monitoring overall system performance and reliability.

If the monitoring systems detects that a bulletin has been received with errors, is 15 minutes outside the scheduled transmit time or has not been received, the bulletin is retransmitted. One inherent disadvantage with the approach, is that from a users' perspective, bulletins are often repeated as a result of being outside the scheduled window or there are minor errors in the received text. Many of these errors may be the result of poor local reception and not an actual error in the transmitted text.

In cooperation with Argentina, high seas bulletins for METAREA VI are received via the GTS and forwarded to TELENOR. The transmission of these bulletins are not monitored by the National Weather Service.

Broadcast of Marine Forecasts via NAVTEX

The U.S. National Weather Service prepares forecasts and warnings for broadcast via NAVTEX for each of 12 different transmitters operated by the U.S. Coast Guard. These broadcasts are prepared cooperatively by the Ocean Prediction Center, Tropical Prediction Center, Honolulu Forecast Office, and Anchorage Forecast Office. See table below for broadcast information, and example in the Annex.

Station	Identifier	WX Broadcast Schedule (UTC)
Adak	X	(Broadcast terminated Dec '96)
Kodiak ²	J	0300, 0700, 1100 ¹ , 1500, 1900, 2300 ¹
	X	0340, 0740, 1140 ¹ , 1540, 1940, 2340 ¹
Astoria	W	0130, 0530, 0930 ¹ , 1330, 1730, 2130 ¹
San Francisco	C	0000, 0400 ¹ , 0800, 1200, 1600 ¹ , 2000
Cambria	Q	0045, 0445 ¹ , 0845, 1245, 1645 ¹ , 2045

Marianas	V	0100, 0500, 0900, 1300, 1700, 2100
Honolulu	O	0040, 0440, 0840 ¹ , 1240, 1640, 2040 ¹
Boston	F	0045, 0445, 0845 ¹ , 1245, 1645, 2045 ¹
Portsmouth	N	0130, 0530, 0930 ¹ , 1330, 1730, 2130 ¹
Savannah	E	0040, 0440, 0840 ¹ , 1240, 1640, 2040 ¹
Miami	A	0000, 0400, 0800 ¹ , 1200, 1600, 2000 ¹
San Juan	R	0200 ¹ , 0600, 1000, 1400 ¹ , 1800, 2200
New Orleans	G	0300 ¹ , 0700, 1100, 1500 ¹ , 1900, 2300

1. 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. (Beginning in October 2006, weather forecasts are not rebroadcast)

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

Products for broadcast via NAVTEX are prepared four times daily (two times daily for Alaska) with updates as required. These are currently 48 hour forecasts in the NE Atlantic, NW Pacific and Alaska; and 120 hours in Gulf and Tropical Atlantic and Central Pacific. In the future, the frequency of all forecasts may be reduced to two times daily (with updates as required) and extended to 120 hours.

The format of forecasts, broadcast via NAVTEX vary. Forecasts prepared by Ocean Prediction Center and Tropical Prediction Center are a condensed, combined version of coastal and offshore forecasts, to limit length, as only a very limited amount of broadcast time is available to prevent mutual interference. From Honolulu and Kodiak, the amount of broadcast time is not presently an issue, and the full coastal and offshore forecasts are broadcast.

Several potential gaps exist in U.S. NAVTEX coverage (www.navcen.uscg.gov/marcomms/gmdss/navtex.htm). Meteorological warnings for those areas not covered are not issued by SafetyNET, as required in Annex VI of the WMO manual on Marine Meteorological Services. However, forecast and warning data for these areas is available via a variety of other means including radio-facsimile, NOAA Weather Radio, U.S. Coast Guard HF/MF/VHF voice broadcasts, U.S. Coast Guard HF SITOP, commercial maritime stations, and the Internet (<http>, <ftp>, and [e-mail](mailto)).

Currently the capability to broadcast warnings at unscheduled times is not fully implemented, however, the Coast Guard is in the process of updating broadcast scheduling software which should make this more practicable. It is also seldom that new, unexpected, forecast information is available between broadcast cycles.

Broadcast of Tsunami Products via SafetyNET and NAVTEX

Broadcast of tsunami warnings, watches and advisories via U.S. NAVTEX have been implemented since 1999. As of December 2006, final arrangements by the U.S. are being to broadcast these via SafetyNET as follows:

SATELLITE	METAREA WARNING AREA	WMO ID's
None	None Indian Ocean ²	WEIO21PHEB WEIO23PHEB
AOR-W,AOE,POR XII	Pacific, South China Sea ²	WEPA40PHEB
POR	XII Hawaii	WEHW40PHEB WEHW50PHEB ¹
AOR-W,AOE	IV Puerto Rico & VI	WECA42PHEB
AOR-W,POR	XII AK, Canada, WA, OR, CA	WEPA41PAAQ WEAK51PAAQ ¹
AOR-W,AOE	IV Canada, East Coast and Gulf	WEXX20PAAQ WEXX30PAAQ ¹
AOR-W,AOE	IV Caribbean	(Planned)

1. These products are intended for the general public and also contain action statements and general information on the potential impacts of a tsunami. Further public products are in development.
2. Interim service, advisories only

For links to examples and current products see:

Pacific Tsunami Warning Center (PTWC)

<http://www.prh.noaa.gov/pr/ptwc/>

West Coast & Alaska Tsunami Warning Center (WC/ATWC)

<http://wcatwc.arh.noaa.gov>

Broadcast of Marine Forecasts via Radiofacsimile

The National Weather Service generates a broad suite of radio-facsimile charts, which are broadcast from five locations: Boston, New Orleans, Pt. Reyes, Kodiak and Honolulu, in cooperation with the Coast Guard and NAVY who operate the transmitters. The Honolulu broadcast was recently expanded to include an enhanced suite products and eliminate model products.

In addition, the National Weather Service publishes a document entitled "Worldwide Marine Radiofacsimile Broadcast Schedules" which it distributes to the ships of the VOS program, and also makes available to others via the Internet.

In 2007, the U.S. Coast Guard will be soliciting feedback from mariners to determine if continuation and recapitalization of HF broadcast services including radio-fax is warranted.

Other Means by Which Forecasts and Warnings Are Disseminated

The National Weather Service has active programs to distribute marine forecasts, warning and products by a variety of other means beyond those which are part of the GMDSS, these include: radio-facsimile, NOAA Weather Radio, U.S. Coast Guard HF/MF/VHF voice broadcasts, U.S. Coast Guard HF SITOR, commercial maritime stations, and the Internet (http, ftp, and e-mail). Products are available and in further development to make marine forecasts available using hand-held computers and wireless devices such as cellular phones, which are experiencing explosive growth.

Voluntary Observing Ship (VOS) Program

There are currently ~900 ships in the U.S. Voluntary Observing Ship Program. The new Windows version of the AMVER/SEAS program (<http://seas.amverseas.noaa.gov/seas/>), for the collection of observations is proving to be popular and successful. Effort is underway to increase the number VOS observations by developing an automated, low cost, autonomous observation system for carriage by volunteer vessels.

To improve the quality of coastal U.S. forecasts, effort is also underway to develop means to collect observations from smaller commercial vessels and recreational mariners who not normally commit to being a part of the international VOS program. The widening availability of low cost, digital communications systems including Iridium, Inmarsat, Globalstar and cellular phones, and the explosive growth of e-mail open up a broad range of possibilities. The National Weather Service has signed cooperative arrangements with several large boating organizations to provide such volunteer observations.

Plans to Produce Gridded and Vector Forecasts

At present, the National Weather Service makes available to the public, the computer generated model guidance products used by marine forecasters popularly known as "GRIB Files". These data are used for display on electronic chart navigation systems and other value-added software such as routing systems, provided by commercial vendors. However, this direct model guidance is not validated by marine forecasters and may be misleading. Mariners are urged to use these data in conjunction with forecaster generated forecasts.

High seas marine forecasts in graphic form are prepared by forecasters for broadcast via radio-facsimile and made available via the Internet. However, these charts are presently only made available in raster format, which cannot be readily integrated with value-added software, limiting the value of these forecasts to mariners.

U.S. local forecast offices with marine responsibility began to operationally forecast gridded weather elements of interest to the maritime community such as: wind speed/gusts, wind direction, and weather beginning in December 2005. Wave height grids are being forecast on an experimental basis and are expected to become operational in the future.

Beginning October 2006, on an experimental basis, 0, 24, and 48-hour 25 km wave height grids for are being prepared by forecasters for the high seas waters of the Eastern Pacific, Tropical East Pacific and Atlantic by the Ocean Prediction Center (OPC), and the Tropical Prediction Center (TPC). Other elements, time periods and areas are expected to follow in subsequent years.

The forecast grids generated from each local forecast office are collected centrally at a server and mosaiced into national scale grids. Gridded forecasts from the TPC and OPC are made available from this central server. A database system, the National Digital Forecast Database is the dissemination system for these grids. Web-based services provide customers and partners access to the grids and graphical imagery.

A suitable file format for vector data such as the location of weather fronts is under study.

User Feedback

The National Weather Service also offers a "Feedback" button" and a "vote" feature on its marine webpage <http://www.nws.noaa.gov/om/marine/home.htm>, which has proven a highly effective means to solicit feedback from a variety of different marine customers and respond to their needs. The most common comments with respect to the GMDSS relate to a desire to obtain more forecast data via NAVTEX and complaints about multiple copies of U.S. high seas forecasts being received via SafetyNET. Comments about the quality of forecasts are generally very high.

ANNEX

EXAMPLE U.S. HIGH SEAS FORECAST BROADCAST VIA SafetyNET

FZNT01 KWBC 070947
HSFAT1

CCODE/1:31:04:01:00/AOW/NWS/CCODE
HIGH SEAS FORECAST FOR METAREA IV
1030 UTC DEC 07 2006
SUPERSEDED BY NEXT ISSUANCE IN 6 HOURS

PAN PAN
NORTH ATLANTIC NORTH OF 31N TO 67N AND WEST OF 35W.

SYNOPSIS VALID 0600 UTC DEC 07.
24 HOUR FORECAST VALID 0600 UTC DEC 08.
48 HOUR FORECAST VALID 0600 UTC DEC 09.

WARNINGS.

...HURRICANE FORCE WIND WARNING...
.24 HOUR FORECAST NEW LOW 43N 63W 1001 MB...RAPIDLY
INTENSIFYING. FORECAST FRONT EXTENDS FROM LOW CENTER TO 31N 69W.
FORECAST WINDS 40 TO 50 KT SEAS 11 TO 17 FT WITHIN 180 NM E OF
FRONT S OF 38N. ELSEWHERE FORECAST WINDS 25 TO 40 KT SEAS 9 TO
15 FT WITHIN 480 NM E OF FRONT.
.48 HOUR FORECAST LOW 56N 46W 954 MB. FORECAST WINDS 50 TO 65 KT
SEAS 22 TO 32 FT WITHIN 540 NM SE QUADRANT. ELSEWHERE FORECAST
WINDS 50 TO 60 KT SEAS 15 TO 20 FT WITHIN 180 NM N QUADRANT.
ALSO FORECAST WINDS 40 TO 50 KT SEAS 16 TO 22 FT E OF FORECAST
FRONT FROM LOW CENTER TO 45N 49W TO 31N 57W...S OF 58N...AND NW
OF A LINE FROM 31N 56W TO 43N 35W. ALSO FORECAST WINDS 25 TO 40
KT SEAS 12 TO 16 FT E OF FORECAST FRONT...S OF 59N...AND NW OF A
LINE FROM 31N 54W TO 38N 35W....AND N OF 56N W OF 52W.

...GALE WARNING...
.AREA OF SW WINDS 25 TO 40 KT SEAS 8 TO 12 FT FROM 46N TO 50N
BETWEEN 58W AND 64W. ELSEWHERE AREA OF SW WINDS 20 TO 30 KT SEAS
8 TO 14 FT WITHIN 120 NM OF THE COAST FROM 38N TO 46N.
.24 HOUR FORECAST LOW 55N 60W 995 MB JUST INLAND. OVER FORECAST
WATERS...FORECAST WINDS 35 TO 45 KT SEAS 13 TO 18 FT WITHIN 240
NM SE OF A LINE FROM 57N 44W TO 42N 56W. ELSEWHERE FORECAST
WINDS 25 TO 35 KT SEAS 9 TO 15 FT E OF 54W...S OF A LINE FROM
62N 36W TO 54N 54W...AND N OF A LINE FROM 37N 53W TO 50N 35W.
.48 HOUR FORECAST CONDITIONS DESCRIBED ABOVE IN ASSOCIATION WITH
FORECAST LOW 56N 46W.

...GALE WARNING...
.LOW 63N 40W 994 MB NEARLY STATIONARY. WINDS 25 TO 35 KT SEAS 9
TO 14 FT WITHIN 360 NM S QUADRANT...AND N OF 64N W OF GREENLAND.
.24 HOUR FORECAST LOW 63N 40W 997 MB. FORECAST WINDS 20 TO 30 KT
SEAS 9 TO 15 FT BETWEEN 120 NM AND 300 NM S QUADRANT...AND N OF
65N E OF THE E GREENLAND COAST.
.48 HOUR FORECAST CONDITIONS DIMINISHED.

...GALE WARNING...
.AREA OF NW WINDS 25 TO 35 KT SEAS 15 TO 20 FT FROM 39N TO 50N E
OF 41W.
.24 HOUR FORECAST CONDITIONS WELL E OF AREA.

...GALE WARNING...
.24 HOUR FORECAST AREA OF NW WINDS 25 TO 35 KT SEAS 8 TO 13 FT
FROM 31N TO 41N W OF 69W.
.48 HOUR FORECAST AREA OF NW TO W WINDS 35 TO 45 KT SEAS 16 TO
23 FT FROM 38N TO 47N BETWEEN 51W AND 62W. ELSEWHERE FORECAST
WINDS 25 TO 35 KT SEAS 10 TO 16 FT FROM 36N TO 48N BETWEEN 51W
AND 66W.

...HEAVY FREEZING SPRAY WARNING...

.AREA OF MODERATE TO HEAVY FREEZING SPRAY W OF A LINE FROM 67N 57W TO 60N 63W.

.24 HOUR FORECAST AREA OF LIGHT TO MODERATE FREEZING SPRAY NW OF A LINE FROM 63N 51W TO 58N 61W.

.48 HOUR FORECAST AREA OF MODERATE TO HEAVY FREEZING SPRAY NW OF A LINE FROM 65N 52W TO 62N 64W...AND FROM 50N TO 57N W OF 53W.

.SYNOPSIS AND FORECAST.

.AREA OF W WINDS 20 TO 30 KT SEAS 11 TO 16 FT FROM 51N TO 57N E OF 52W.

.24 HOUR FORECAST CONDITIONS MOVED E OF AREA.

.24 HOUR FORECAST AREA OF PATCHY DENSE FOG OCCASIONALLY REDUCING VSBY TO 1 NM OR LESS FROM 43N TO 54N BETWEEN 50W AND 61W.

.48 HOUR FORECAST AREA OF PATCHY DENSE FOG OCCASIONALLY REDUCING VSBY TO 1 NM OR LESS FROM 53N TO 57W BETWEEN 39W AND 46W...AND FROM 42N TO 48N BETWEEN 44W AND 50W.

.HIGH 43N 50W 1038 MB MOVING E NE 25 KT.

.24 HOUR FORECAST HIGH 43N 36W 1038 MB.

.48 HOUR FORECAST HIGH E OF AREA.

.FORECASTER BELL. OCEAN FORECAST BRANCH.

ATLANTIC FROM 7N TO 31N W OF 35W INCLUDING CARIBBEAN SEA AND GULF OF MEXICO

SYNOPSIS VALID 0600 UTC THU DEC 7

24 HOUR FORECAST VALID 0600 UTC FRI DEC 8

48 HOUR FORECAST VALID 0600 UTC SAT DEC 9

.WARNINGS.

...GULF OF MEXICO GALE WARNING...

.18 HOUR FORECAST COLD FRONT 27N83W 21N90W. W OF 85W N OF 23N NE WINDS 30 TO 35 KT SEAS INCREASING 8 TO 12 FT.

.24 HOUR FORECAST COLD FRONT SE OF AREA. W OF 95W AND N OF 25N W OF 85W NE WINDS 30 TO 35 KT SEAS 9 TO 14 FT.

.36 HOUR FORECAST WINDS BELOW GALE FORCE.

.SYNOPSIS AND FORECAST.

.ATLC N OF 19N FROM 55W TO 78W E WINDS 20 TO 25 KT SEAS 8 TO 11 FT.

.24 HOUR FORECAST COLD FRONT 31N70W 24N80W. NW OF FRONT NW TO N WINDS 20 TO 25 KT SEAS TO 8 FT. WITHIN 300 NM E OF FRONT N OF 25N S WINDS 20 TO 25 KT SEAS TO 8 FT. ELSEWHERE BETWEEN FRONT AND 60W SE WINDS TO 20 KT SEAS LESS THAN 8 FT.

.48 HOUR FORECAST COLD FRONT 31N60W 22N75W W OF FRONT NW TO N WINDS 20 TO 30 KT SEAS 8 TO 14 FT. N OF 26N BETWEEN 52W AND FRONT S WINDS 20 TO 25 KT SEAS TO 8 FT.

.ATLC S OF 19N E OF 60W E WINDS 20 TO 25 KT SEAS 8 TO 11 FT IN E SWELL.

.24 HOUR FORECAST LITTLE CHANGE.

.48 HOUR FORECAST S OF 28N E OF 45W NE TO E WINDS 20 TO 25 KT SEAS 9 TO 11 FT. S OF 22N BETWEEN 45W AND 60W E WINDS 20 KT SEAS 8 TO 10 FT.

.CARIBBEAN S OF 17N E OF 80W NE TO E WINDS 20 TO 25 KT SEAS 8 TO 10 FT.

.24 HOUR FORECAST S OF 17N E OF 78W E WINDS 20 TO 25 KT SEAS 8 TO 9 FT. COLD FRONT 22N81W TO 16N84W NE WINDS 20 TO 25 KT SEAS BUILDING TO 8 FT.

.48 HOUR FORECAST WEAKENING COLD FRONT 21N76W TO 15N83W. W OF FRONT NE WINDS 20 TO 25 KT SEAS 8 TO 12 FT. ELSEWHERE S OF 17N E OF 80W E WINDS TO 20 KT SEAS TO 8 FT.

.GULF OF MEXICO 6 HOUR FORECAST N OF 25N W OF 90W N TO NE WINDS TO 20 KT SEAS LESS THAN 8 FT.

.18 HOUR FORECAST EXCEPT AS NOTED IN WARNINGS NW OF FRONT N TO NE WINDS 20 TO 30 KT SEAS 8 TO 10 FT.

.24 HOUR FORECAST EXCEPT AS NOTED IN WARNINGS NE WINDS 20 TO 30 KT SEAS 8 TO 12 FT.

.36 HOUR FORECAST ENTIRE GULF EXCEPT N OF 28N W OF 90W NE WINDS 20 TO 30 KT SEAS 9 TO 16 FT. N OF 28N W OF 90W NE WINDS TO 20 KT SEAS TO 9 FT.

.48 HOUR FORECAST ENTIRE GULF EXCEPT N OF 28N W OF 90W NE WINDS 20 TO 25 KT SEAS 9 TO 14 FT. N OF 28N W OF 90W NE TO E WINDS TO 20 KT SEAS TO 9 FT.

.REMAINDER OF AREA WINDS LESS THAN 20 KT SEAS LESS THAN 8 FT.

\$\$

FORECASTER RRG
TROPICAL ANALYSIS AND FORECAST BRANCH
TROPICAL PREDICTION CENTER

**EXAMPLE U.S. HURRICANE FORECAST/ADVISORY
BROADCAST via SafetyNET**

WTNT21 KNHC 122035
TCMAT1
HURRICANE FLORENCE FORECAST/ADVISORY NUMBER 37
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL062006
2100 UTC TUE SEP 12 2006

HURRICANE CENTER LOCATED NEAR 39.3N 59.3W AT 12/2100Z
POSITION ACCURATE WITHIN 30 NM

PRESENT MOVEMENT TOWARD THE NORTHEAST OR 45 DEGREES AT 17 KT

ESTIMATED MINIMUM CENTRAL PRESSURE 980 MB
MAX SUSTAINED WINDS 65 KT WITH GUSTS TO 80 KT.
64 KT..... 90NE 90SE 30SW 30NW.
50 KT.....180NE 180SE 120SW 120NW.
34 KT.....360NE 300SE 240SW 300NW.
12 FT SEAS..475NE 375SE 450SW 450NW.
WINDS AND SEAS VARY GREATLY IN EACH QUADRANT. RADII IN NAUTICAL
MILES ARE THE LARGEST RADII EXPECTED ANYWHERE IN THAT QUADRANT.

REPEAT...CENTER LOCATED NEAR 39.3N 59.3W AT 12/2100Z
AT 12/1800Z CENTER WAS LOCATED NEAR 38.5N 60.2W

FORECAST VALID 13/0600Z 41.8N 56.3W...EXTRATROPICAL
MAX WIND 65 KT...GUSTS 80 KT.
64 KT... 90NE 90SE 30SW 30NW.
50 KT...180NE 180SE 120SW 120NW.
34 KT...360NE 300SE 240SW 300NW.

FORECAST VALID 13/1800Z 45.0N 52.0W...EXTRATROPICAL
MAX WIND 65 KT...GUSTS 80 KT.
64 KT... 0NE 120SE 120SW 0NW.
50 KT...150NE 210SE 210SW 150NW.
34 KT...300NE 360SE 300SW 300NW.

FORECAST VALID 14/0600Z 47.2N 46.4W...EXTRATROPICAL
MAX WIND 60 KT...GUSTS 75 KT.
50 KT... 0NE 180SE 180SW 0NW.
34 KT...240NE 360SE 360SW 240NW.

FORECAST VALID 14/1800Z 48.0N 40.0W...EXTRATROPICAL
MAX WIND 55 KT...GUSTS 65 KT.
50 KT... 0NE 180SE 180SW 0NW.
34 KT...240NE 360SE 360SW 240NW.

FORECAST VALID 15/1800Z 49.5N 24.0W...EXTRATROPICAL
MAX WIND 45 KT...GUSTS 55 KT.
34 KT...150NE 420SE 360SW 240NW.

EXTENDED OUTLOOK. NOTE...ERRORS FOR TRACK HAVE AVERAGED NEAR 250 NM
ON DAY 4 AND 325 NM ON DAY 5...AND FOR INTENSITY NEAR 20 KT EACH DAY

OUTLOOK VALID 16/1800Z...ABSORBED

REQUEST FOR 3 HOURLY SHIP REPORTS WITHIN 300 MILES OF 39.3N 59.3W

THIS IS THE LAST FORECAST/ADVISORY ISSUED BY THE NATIONAL HURRICANE
CENTER ON FLORENCE. ADDITIONAL INFORMATION ON THIS SYSTEM CAN BE
FOUND IN HIGH SEAS FORECASTS ISSUED BY THE NATIONAL WEATHER
SERVICE...UNDER AWIPS HEADER NFDHSFAT1 AND WMO HEADER FZNT01 KWBC.

\$\$
FORECASTER BROWN/PASCH

EXAMPLE U.S. FORECAST BROADCAST VIA NAVTEX

FZNT23 KWNM 071448
OFFN01
NORTHEASTERN US NAVTEX MARINE FORECAST
NWS OCEAN PREDICTION CENTER WASHINGTON DC
947 AM EST THU DEC 7 2006

COASTAL AND OFFSHORE WATERS
FROM EASTPORT MAINE TO SANDY HOOK NEW JERSEY

...PLEASE REFER TO COASTAL WATERS FORECASTS (CWF) AVAILABLE
THROUGH NOAA WEATHER RADIO AND OTHER MEANS FOR DETAILED
COASTAL WATERS FORECASTS...

.SYNOPSIS FOR NEW ENGLAND WATERS...HIGH PRES E OF THE WATERS
WILL CONTINUE TO MOVE AWAY FROM THE AREA THIS AFTERNOON...AS A
COLD FRONT MOVES INTO THE REGION. LOW PRES WILL FORM ON THE
FRONT IN THE N WATERS BY THIS EVENING...INTENSIFY AND MOVE NE
TONIGHT AND FRI...AS THE FRONT MOVES E OF THE AREA. STRONG HIGH
PRES WILL BUILD IN FROM THE W FRI...THEN DEVELOP A RIDGE S OF
THE WATERS SAT INTO SUN. A WEAK COLD FRONT WILL MOVE S ACROSS
THE AREA MON.

EASTPORT MAINE TO CAPE COD...EAST TO THE HAGUE LINE

...GALE FORCE WINDS EXPECTED FRI INTO FRI NIGHT...

.THIS AFTERNOON...SW TO W WINDS 15 TO 20 KT SHIFTING TO NW 10 TO
15 KT LATE IN THE DAY. SEAS 6 TO 10 FT SUBSIDING TO 4 TO 8 FT
LATE...HIGHEST FAR NE. SCATTERED SHOWERS.
.TONIGHT...NW TO N WINDS 20 TO 30 KT. SEAS 4 TO 7 FT...HIGHEST
SE. SHOWERS ENDING.
.FRI...NW WINDS 30 TO 35 KT. SEAS 8 TO 15 FT...HIGHEST SE. A
CHANCE OF SNOW SHOWERS.
.FRI NIGHT...NW TO W WINDS DIMINISHING TO 15 TO 20 KT. SEAS 5 TO
9 FT...HIGHEST SE.
.SAT AND SUN...WINDS W 15 TO 20 KT SAT. SEAS 4 TO 7 FT LATE SAT.
.MON...NW WINDS 15 TO 20 KT. SEAS 4 TO 6 FT.

CAPE COD TO NANTUCKET SHOALS AND GEORGES BANK...EAST TO THE
HAGUE LINE

...GALE FORCE WINDS EXPECTED FRI INTO FRI NIGHT...

.THIS AFTERNOON...SW WINDS 15 TO 20 KT. SEAS 6 TO 10 FT.
SCATTERED SHOWERS.
.TONIGHT...WINDS W TO NW 20 TO 30 KT. SEAS 7 TO 10 FT. SHOWERS
ENDING EARLY.
.FRI...NW WINDS 30 TO 40 KT. SEAS 11 TO 17 FT...HIGHEST SE. A
CHANCE OF RAIN OR SNOW SHOWERS.
.FRI NIGHT...NW WINDS 30 TO 35 KT EARLY...DIMINISHING TO 20 KT
LATE. SEAS 8 TO 11 FT LATE...HIGHEST SE.
.SAT AND SUN...NW WINDS 20 KT EARLY...BECOMING W 15 TO 20 KT
LATE SAT. SEAS 5 TO 7 FT SAT.
.MON...NW WINDS 15 TO 20 KT. SEAS 5 TO 7 FT.

SOUTH OF NEW ENGLAND...OUT TO 1000 FMS

...GALE WARNING...

.THIS AFTERNOON...SW WINDS 15 TO 20 KT BECOMING W TO NW 20 TO 25
KT. SEAS 6 TO 10 FT SUBSIDING TO 5 TO 8 FT...HIGHEST N AND E.
SCATTERED SHOWERS.
.TONIGHT...W TO NW WINDS 30 TO 35 KT LATE. SEAS 7 TO 11 FT
LATE...HIGHEST SE. SHOWERS EARLY.
.FRI...NW WINDS 30 TO 35 KT EARLY...DIMINISHING TO 20 TO 30 KT
LATE. SEAS 8 TO 14 FT...HIGHEST SE...EXCEPT SUBSIDING TO 5 TO 8
FT OVER FAR W PORTION LATE.
.FRI NIGHT...NW TO W WINDS DIMINISHING TO 15 TO 20 KT. SEAS 5 TO

9 FT THROUGHOUT...HIGHEST SE.

.SAT AND SUN...W WINDS 15 TO 25 KT. SEAS 4 TO 8 FT...HIGHEST E.

.MON...NW WINDS 15 TO 20 KT. SEAS 4 TO 7 FT.