

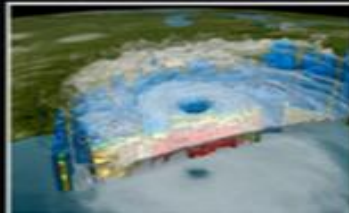
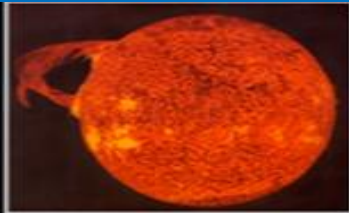
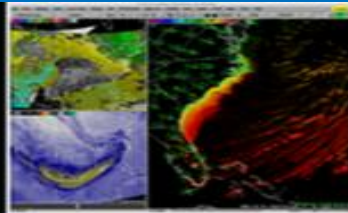


**NOAA**

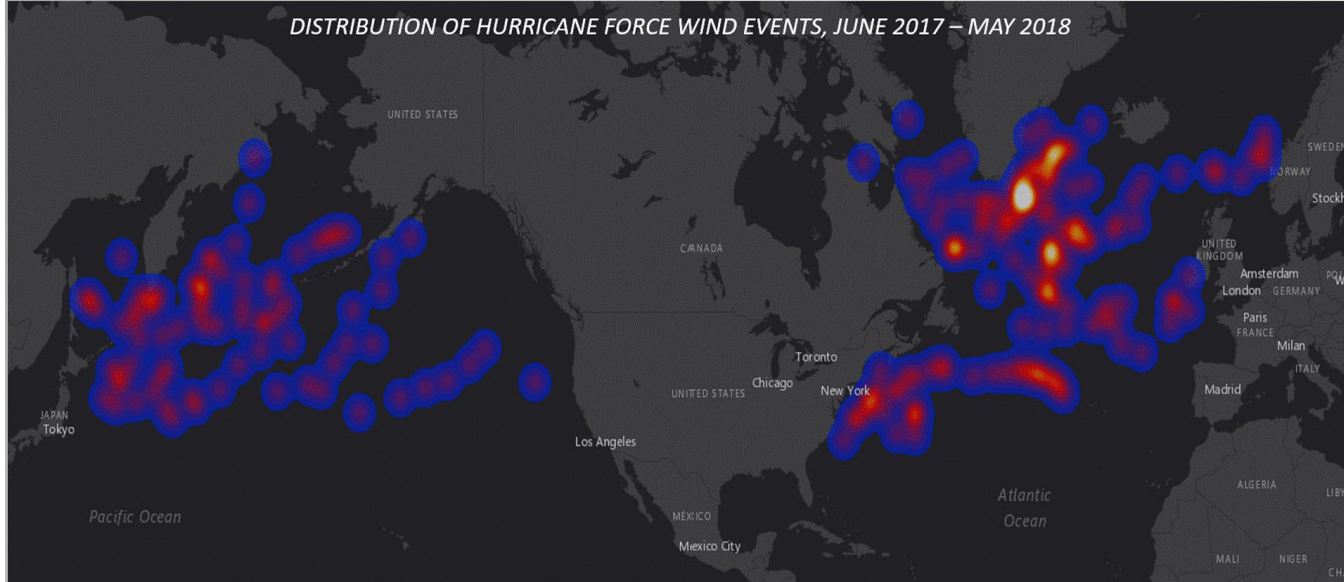
National  
Weather  
Service

# Ocean Prediction Center

Darin J. Figurskey  
Operations Branch Chief

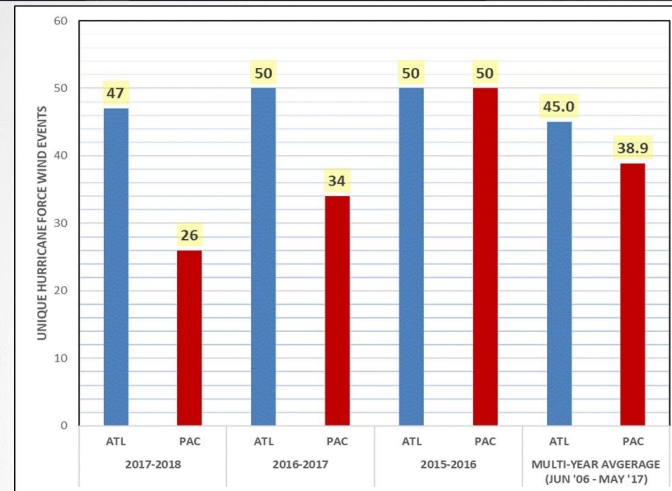


# DISTRIBUTION OF HURRICANE FORCE WIND EVENTS, JUNE 2017 – MAY 2018



**TOP:** heat map, total distribution of hurricane force low pressure centers and hurricane force wind events (i.e., Greenland tip jets with no associated low center) for the OPC winter season June 2017 through May 2018.

**RIGHT:** a more in depth look at recent OPC winter seasons and hurricane force winds events in each ocean basin. While the Atlantic basin has seen slightly above the 10-year running average of hurricane force wind events, the Pacific has seen a marked decrease in the number of extreme wind events during the past two winter seasons.



NOAA NWS Ocean Prediction Center  
ocean.weather.gov

twitter.com/NWSOPC  
facebook.com/NWSOPC



# Extreme Weather Impacts Pacific

051018Z MAR 19

HYDROPAC 735/19(71).  
NORTHERN INDIAN OCEAN.  
INDONESIA.  
DNC 03.

F/V FORMOSA, 20 PERSONS ON BOARD, SINKING IN 00-19.13N 098-27.87E. VESSELS IN VICINITY REQUESTED TO KEEP A SHARP LOOKOUT, ASSIST IF POSSIBLE.

050407Z MAR 19

HYDROPAC 733/19(93).  
GULF OF TONKIN.  
VIETNAM.  
DNC 23.

1. SEARCH AND RESCUE OPERATIONS 070001Z TO 071000Z MAR IN AREA BOUND BY 20-41.1N 107-01.9E, 20-38.3N 107-05.9E, 20-35.5N 107-01.7E, 20-38.3N 106-58.7E. CAUTION ADVISED.

040949Z MAR 19

HYDROPAC 724/19(97).  
PHILIPPINE SEA.  
EAST CHINA SEA.  
JAPAN.  
DNC 23.

1. DISTRESS SIGNAL RECEIVED ON 406 MHZ IN 28-21-35N 129-59-43E AT 040836Z MAR. VESSELS IN VICINITY REQUESTED TO KEEP A SHARP LOOKOUT, ASSIST IF POSSIBLE. REPORTS TO JAPAN COAST GUARD, PHONE: 812

031559Z MAR 19

HYDROPAC 718/19(74).  
CORAL SEA.  
AUSTRALIA-NORTHEAST COAST.  
DNC 05.

DISTRESS SIGNAL RECEIVED ON 121.5 AND 406 MHZ FROM 38 FOOT VESSEL IN VICINITY 24-52.20S 153-16.13E AT 031503Z MAR. VESSELS IN VICINITY REQUESTED TO

051414Z MAR 19

HYDROPAC 738/19(93).  
SOUTH CHINA SEA.  
DNC 11.

F/V PY 91379 TS, TEN PERSONS ON BOARD, DISABLED AND ADRIFT IN 09-30N 111-50E AT 051015Z MAR. VESSELS IN VICINITY REQUESTED TO KEEP A SHARP LOOKOUT, ASSIST IF POSSIBLE. REPORTS TO MRCC VIETNAM, FAX: 8422 5398 1615, E-MAIL: [HPLES-GMDSS@HPLES.COM.VN](mailto:HPLES-GMDSS@HPLES.COM.VN).

041545Z MAR 19

HYDROPAC 728/19(63).  
ARABIAN SEA.  
INDIA.  
DNC 03.  
CHART 63120.  
DANGEROUS WRECK IN 12-05N 075-00E.

040914Z MAR 19

NAVAREA IV 159/19(26).  
WESTERN CARIBBEAN SEA.  
COLOMBIA.  
VESSEL ARTISAN, TWO PERSONS ON BOARD, UNREPORTED. LAST KNOWN POSITION IN 12-25-53N 081-46-23W. VESSELS IN VICINITY REQUESTED TO KEEP A SHARP LOOKOUT, ASSIST IF POSSIBLE. REPORTS TO ANY COASTAL RADIO STATION

040838Z MAR 19

HYDROPAC 723/19(97).  
WESTERN NORTH PACIFIC.  
PHILIPPINE SEA.  
JAPAN.  
DNC 12, DNC 23.  
DISTRESS SIGNALS RECEIVED ON 406 MHZ AT 040655Z MAR IN:  
A. 28-21-17N 129-59-27E.  
B. 32-56-34N 151-16-37E.  
VESSELS IN VICINITY REQUESTED TO KEEP A SHARP

eb

Force Storm  
TX and IL

storm

AK and CA

(bulk)  
Hawaii

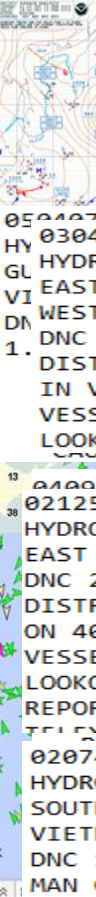
ys in advance

Anchorage and





# Weather Impacts Pacific



031321Z MAR 19  
 0 HYDROPAC 717/19(93).  
 HGULF OF TONKIN.  
 NVIETNAM.  
 IDNC 23.  
 DF/V TH 90513 TS, TEN PERSONS ON BOARD, DISABLED  
 FAND ADRIFT DUE TO BROKEN PROPELLER SHAFT IN  
 018-28N 106-47E AT 031130Z MAR. VESSELS IN  
 RVICINITY REQUESTED TO KEEP A SHARP LOOKOUT  
 PASSIST IF POSSIBLE

051414Z MAR 19  
 030912Z MAR 19  
 HYDROLANT 686/19(24).  
 WESTERN SOUTH ATLANTIC.  
 BRAZIL-SOUTH COAST.  
 DNC 01.  
 M/V ODELMAR II SANK IN 24-33.51S 046-38.78W  
 15 OF 22 PERSONS ON BOARD ARE MISSING.  
 REQUESTED TO KEEP A SHARP  
 POSSIBLE.  
[OPS@HPLES.COM.VN](mailto:OPS@HPLES.COM.VN).

021253Z MAR 19  
 HYDROPAC 710/19(94,95,97).  
 EAST CHINA SEA.  
 DNC 23.  
 DISTRESS SIGNAL RECEIVED FROM M/V NORD PYXIS  
 ON 406 MHZ IN 32-40.5N 124-03.8E AT 021104Z MAR 19.  
 VESSELS IN VICINITY REQUESTED TO KEEP A SHARP  
 LOOKOUT, ASSIST IF POSSIBLE.  
 REPORTS TO SINGAPORE PORT OPERATIONS CONTROL CENTER,  
 TELEPHONE: 65-633311 TO JAPAN COAST GUARD

0409  
 NAVA VESSELS IN VICINITY REQUESTED TO KEEP A SHARP  
 LOOKOUT, ASSIST IF POSSIBLE.  
 WESTERN CARIBBEAN SEA.  
 COLOMBIA  
 VESSEL 021240Z MAR 19  
 LAST KNOWN POSITION IN VICINITY 08-28N 108-32E  
 AT 250400Z FEB. VESSELS IN VICINITY REQUESTED  
 TO KEEP A SHARP LOOKOUT, ASSIST IF POSSIBLE.  
 DNC 03.  
 F/V KG 94682 TS, GAS EXPLOSION IN 10-09N 103-55E  
 AT 011600Z MAR. FIVE PERSONS ONBOARD, THREE INJURED  
 AND RECOVERED. TWO PERSONS REMAIN MISSING.  
 VESSELS IN VICINITY REQUESTED TO KEEP A SHARP  
 LOOKOUT, ASSIST IF POSSIBLE.  
 WESTERN CARIBBEAN SEA.  
 VITIAZ STRAIT.  
 PAPANUA NEW GUINEA.  
 DNC 05.  
 REPORT 23 FOOT VESSEL REQUESTING ASSISTANCE  
 ALONG TRACKLINE JOINING  
 05-17.7S 145-46.8E, 05-00.0S 146-00.0E.  
 VESSELS IN VICINITY REQUESTED TO KEEP A SHARP  
 LOOKOUT, ASSIST IF POSSIBLE.  
 020429Z MAR 19  
 HYDROPAC 704/19(93).  
 GULF OF TONKIN.  
 VIETNAM.  
 DNC 23.  
 3-16.13E F/V, TWO PERSONS ON BOARD, UNREPORTED.  
 LAST KNOWN POSITION IN 21-06.47N 108-30.95E

## 18 Events Known – 5 Days

020747Z MAR 19  
 HYDROPAC 707/19(93).  
 SOUTH CHINA SEA.  
 VIETNAM.  
 DNC 11.  
 MAN OVERBOARD FROM F/V BTH 89954 TS AT 011400Z MAR  
 IN VICINITY 09-59N 109-02E.  
 VESSELS IN VICINITY REQUESTED TO KEEP A SHARP  
 LOOKOUT, ASSIST IF POSSIBLE.

eb

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nce

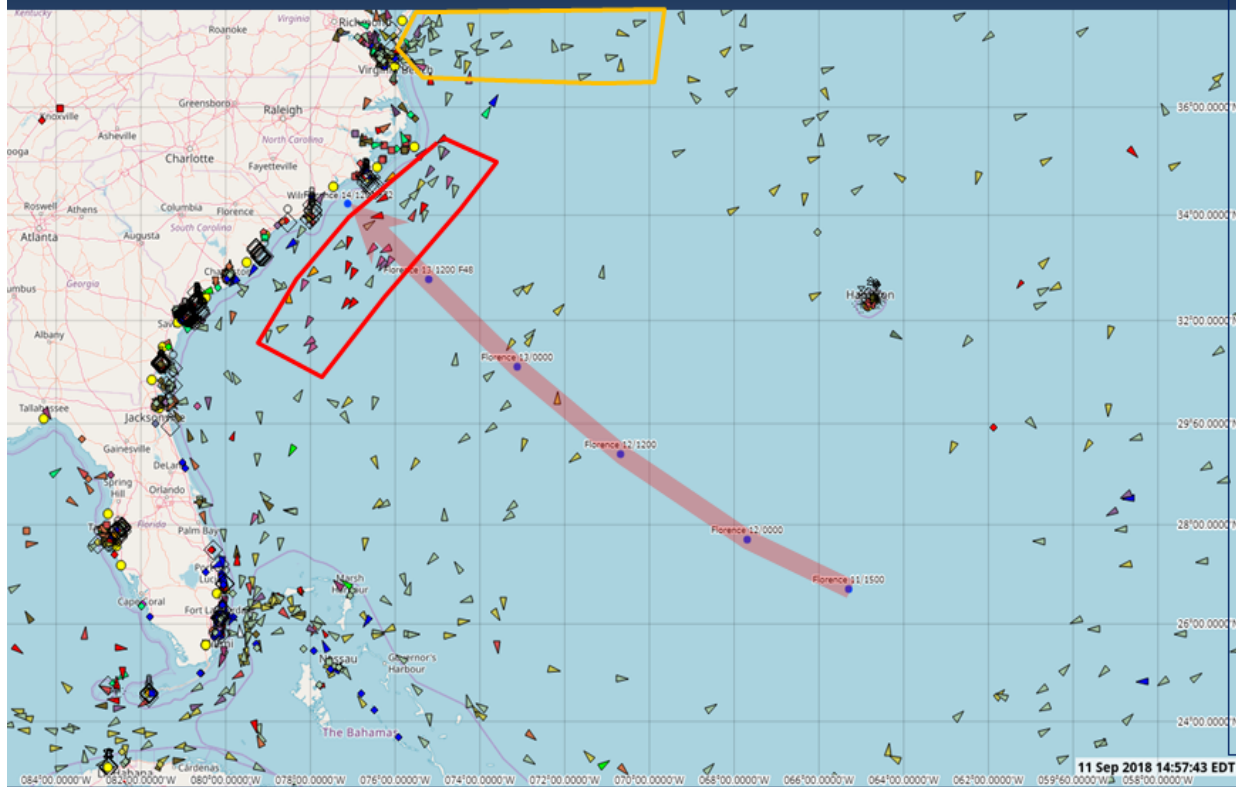
and

HARP

HARP

# Hurricane Florence – Extreme Weather Avoidance

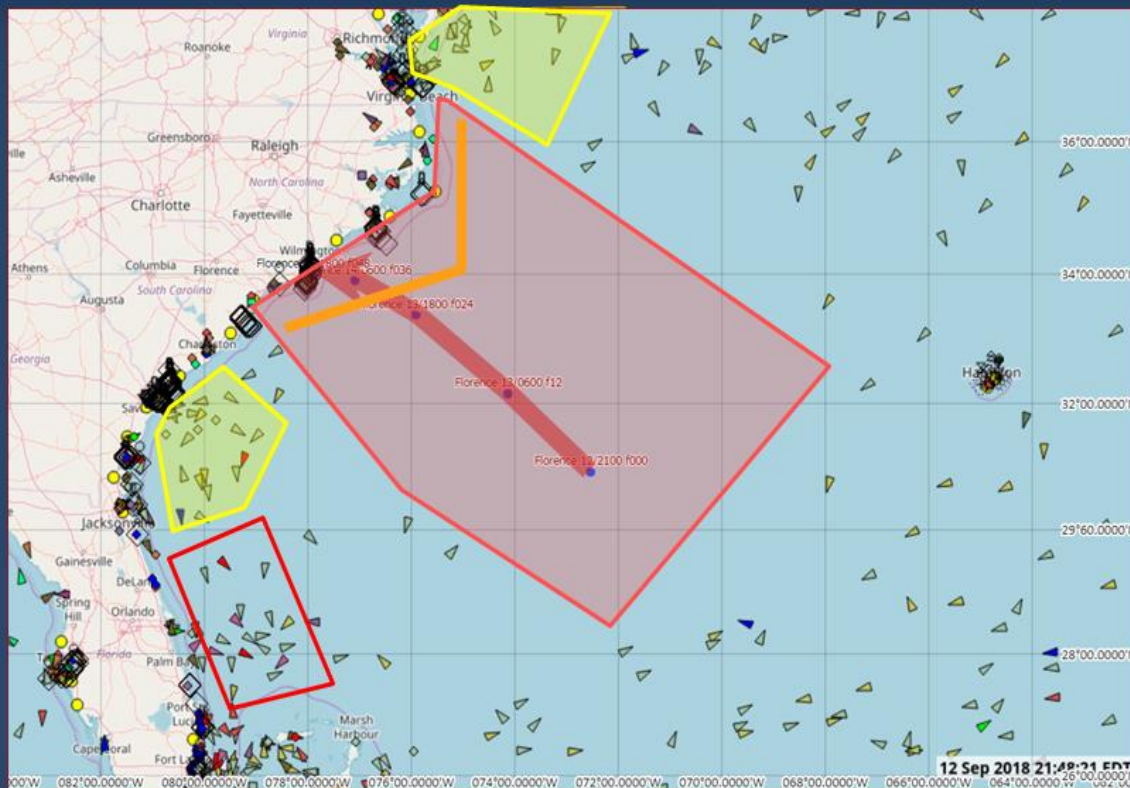
1900 UTC - 11 Sep 2018



- Avoidance
  - ~ 200 nm radius
  - ~ 350 nm along track
- Traffic thinning further down track
- Sorted ship (USN)
- Ships vacating the Port
  - some anchoring offshore
- 1500 NHC 09/11 Advisory

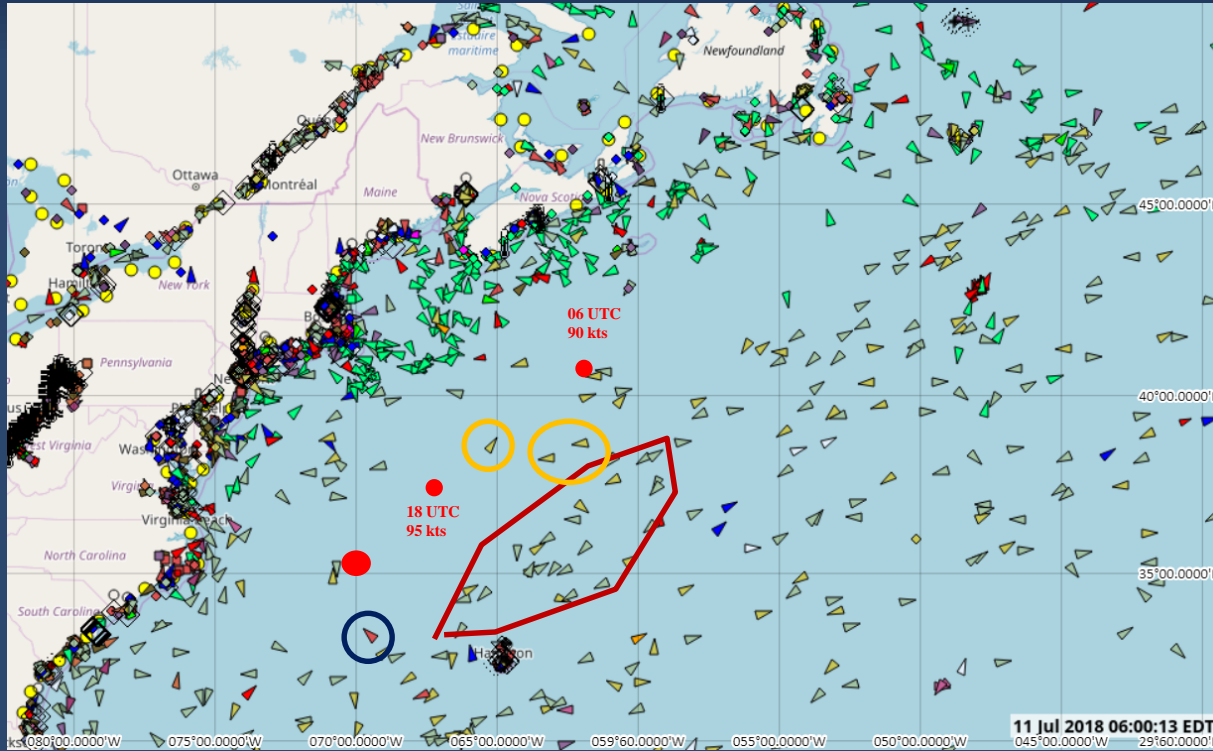
# Hurricane Florence – Extreme Weather Avoidance

0145 UTC - 13 Sep 2018

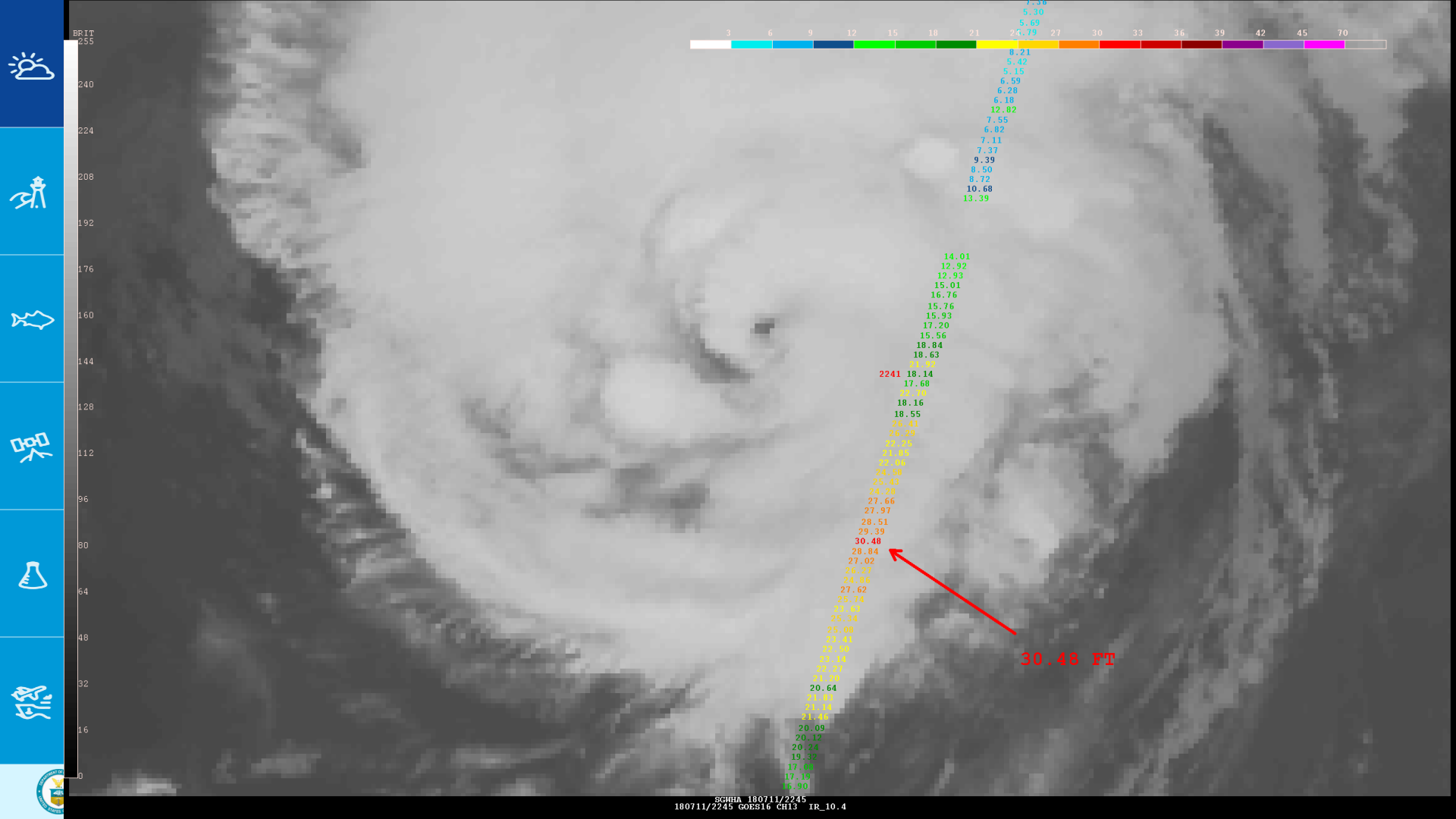


- **Avoidance**
  - ~300 nm of coastal waters void of shipping
  - Area ~ 165,000 nm<sup>2</sup> ships heeding warnings
- Vessels anchored or underway at very slow speed
- Sorted ships off central FL coast
- 2100 NHC 09/12 Advisory

# Hurricane Chris – Extreme Weather Avoidance



- Chris intensified over night.
- Moving NE at 19 kts.
- Channel of avoidance opening up.
- 3 ships (amber) in advance
  - 2 west bound slowed
  - 1 tanker NE @ 15 kts in a challenging position
- 1 cruise ship (blue) departed Bermuda passing to south





Jan 4, 2018 1615 UTC

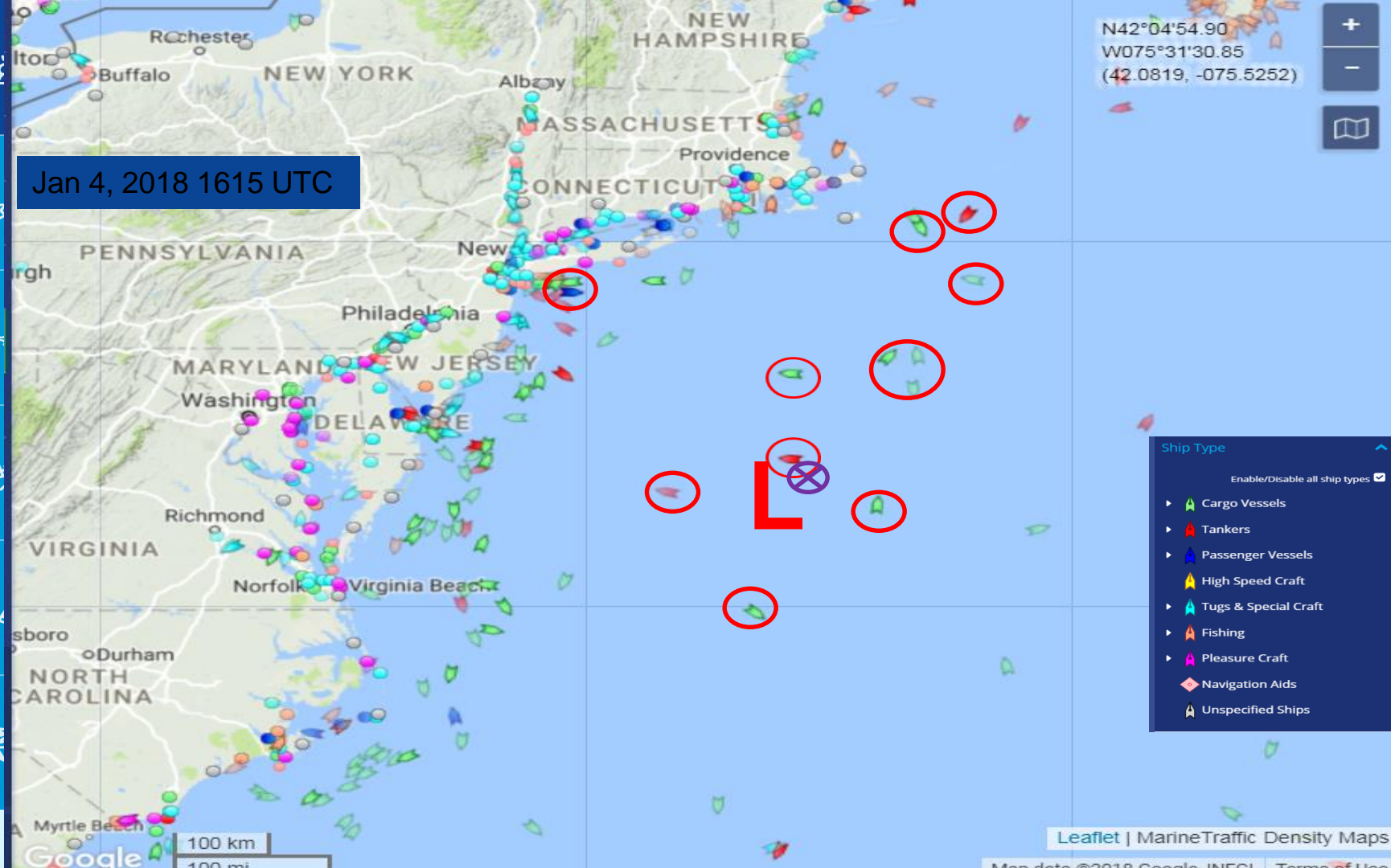
N42°04'54.90  
W075°31'30.85  
(42.0819, -075.5252)

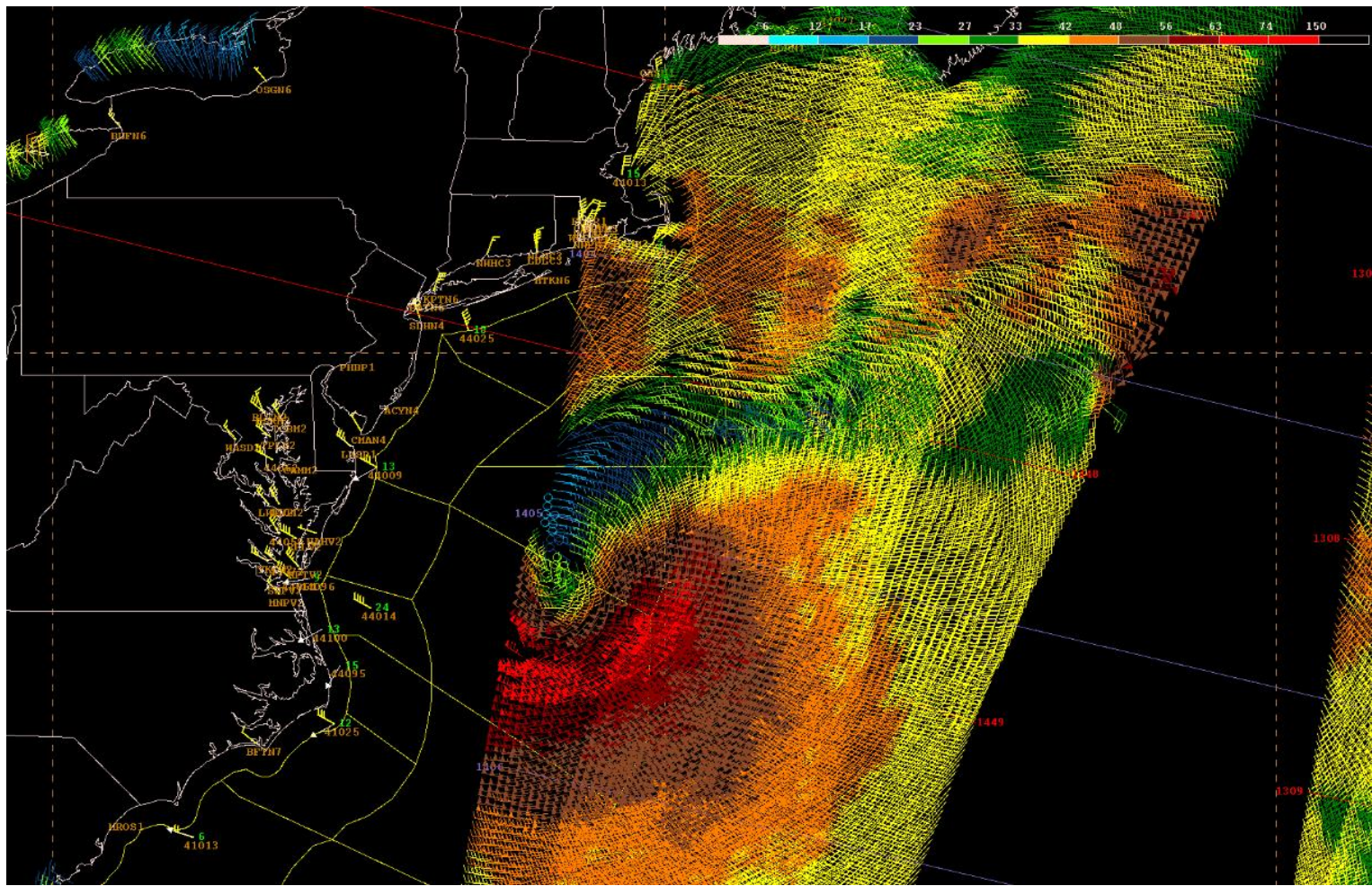


Ship Type

Enable/Disable all ship types

- ▶ Cargo Vessels
- ▶ Tankers
- ▶ Passenger Vessels
- ▶ High Speed Craft
- ▶ Tugs & Special Craft
- ▶ Fishing
- ▶ Pleasure Craft
- ▶ Navigation Aids
- ▶ Unspecified Ships







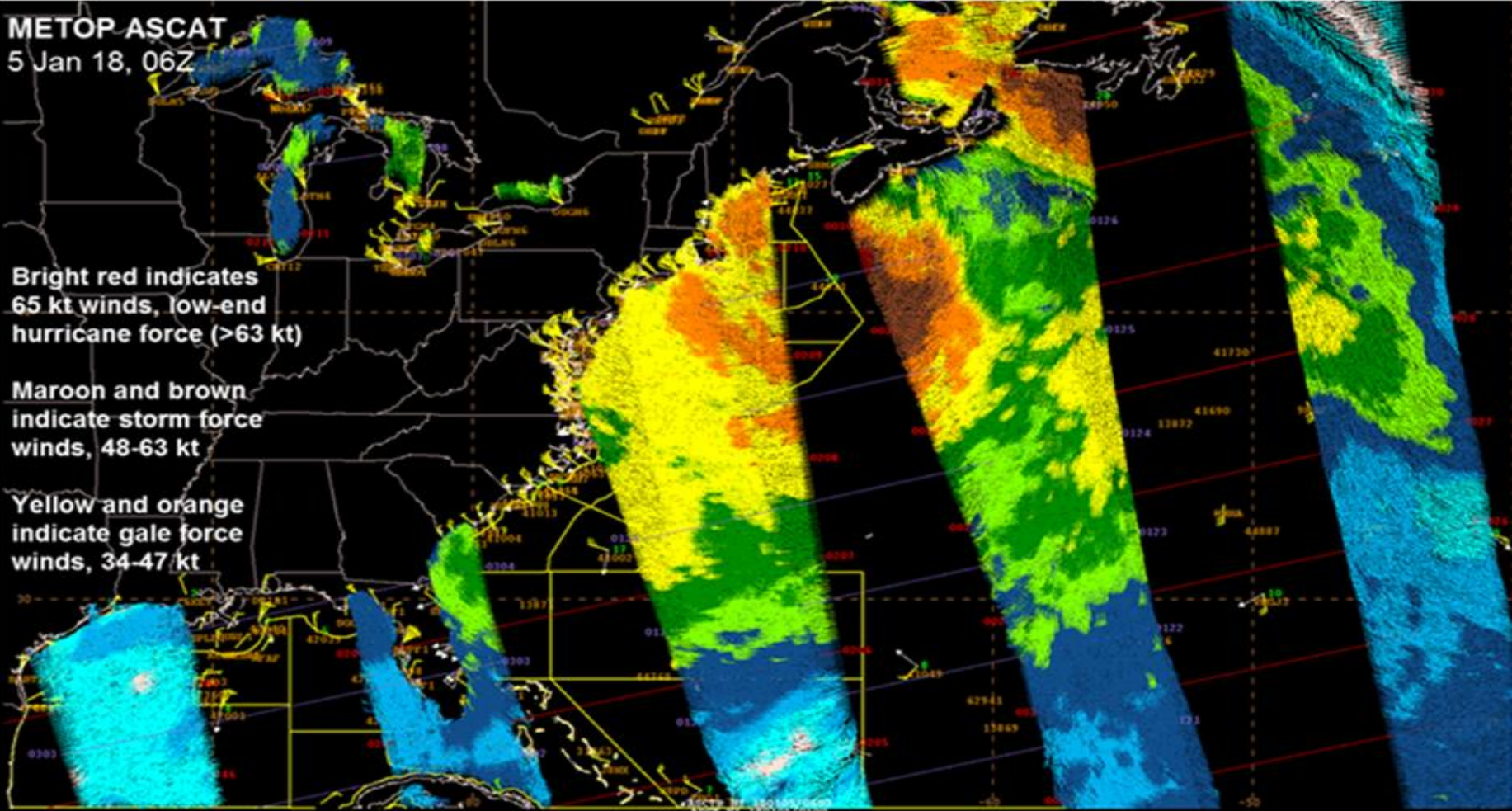
# METOP ASCAT

5 Jan 18, 06Z

Bright red indicates  
65 kt winds, low-end  
hurricane force (>63 kt)

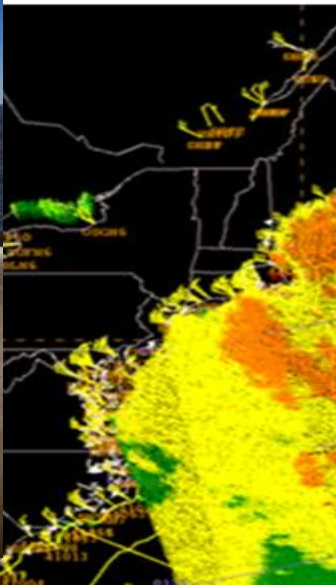
Maroon and brown  
indicate storm force  
winds, 48-63 kt

Yellow and orange  
indicate gale force  
winds, 34-47 kt



BMIP 180105/0600 MSG: MSGT DAMV 0710





indicate gale force winds.



## UNITED STATES COAST GUARD

**REPORT OF THE MARINE BOARD OF INVESTIGATION  
INTO THE  
COMMERCIAL FISHING VESSEL DESTINATION  
SINKING AND LOSS OF THE VESSEL  
WITH ALL SIX CREWMEMBERS  
MISSING AND PRESUMED DECEASED  
APPROXIMATELY 4.4 NM NORTHWEST OF  
ST. GEORGE ISLAND, ALASKA  
ON FEBRUARY 11, 2017**

## THE EL FARO SINKING

Sinking of US Cargo Vessel *SS El Faro*  
Atlantic Ocean, Northeast of Acklins and Crooked Island,  
Bahamas  
October 1, 2015

Ships providing a continuous stream of real-time marine data would enhance both awareness of current conditions and forecasting or early-warning tools, benefiting not only the marine industry but also other public and private entities across the globe. In October 1998, the



National  
Transportation  
Safety Board

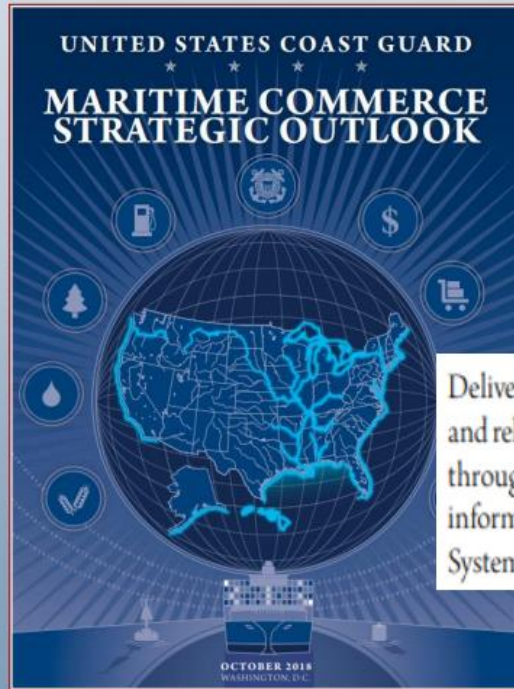
Accident Report  
NTSB/MAR-17/01  
PB2018-100342







# USCG MARITIME COMMERCE STRATEGIC OUTLOOK



Deliver enhanced Marine Safety Information (MSI) to provide mariners with real-time, accessible, and relevant voyage planning data that will result in more efficient, economical, and safer transits through the MTS. The Coast Guard will bolster engagement with NOAA to integrate real-time information to broadcast hydrographic and weather data through the Automatic Identification System (AIS), and continue to seek additional partnerships and information sources.



# WEATHER OBSERVATIONS: AN AIS APPLICATION-SPECIFIC MESSAGE....



**IMO** INTERNATIONAL MARITIME ORGANIZATION

4 ALBERT EMBANKMENT  
LONDON SE1 7SR  
Telephone: +44 (0)20 7735 7611 Fax: +44 (0)20 7587 3210

Ref. T2-OSS/2.7.1

SN.1/Circ.289  
2 June 2010

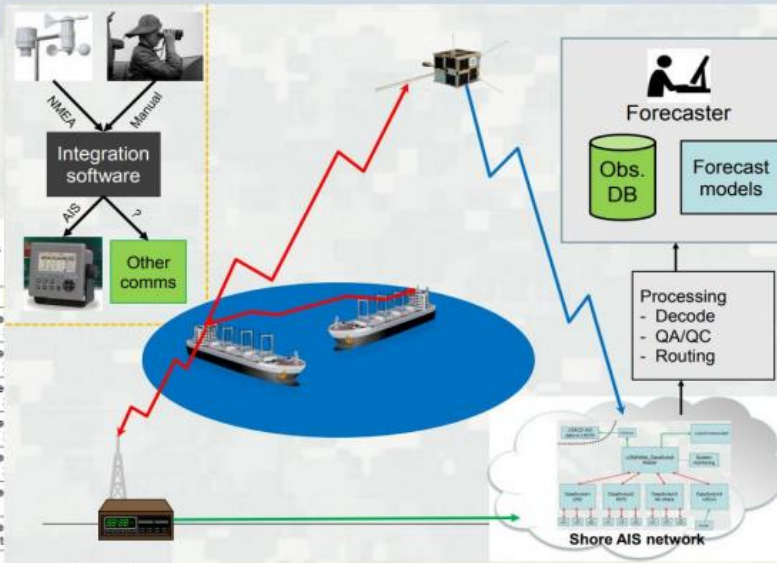
## GUIDANCE ON THE USE OF AIS APPLICATION-SPECIFIC MESSAGES

- The Maritime Safety Committee, at its seventy-eighth session (12 to 21 May 2004), approved SN/Circ.236 on Guidance on the application of AIS binary messages as prepared by the Sub-Committee on Safety of Navigation at its forty-ninth session (30 June to 4 July 2003);
- The Sub-Committee on Safety of Navigation, at its forty-ninth session (30 June to 4 July 2003), selected seven (7) binary messages as shown in annex 2 to SN/Circ.236 to be used as a trial set of messages for a period of four years with no change. It was noted that four additional system-related messages were identified in Recommendation ITU-R M.1371 for the operation of the system.
- The Sub-Committee on Safety of Navigation, at its fifty-fifth session (27 to 31 July 2009), after evaluating the use of binary messages in the trial period defined in SN/Circ.236, agreed on Guidance on the use of AIS Application-Specific Messages, including messages which are recommended for international use.
- The Maritime Safety Committee, at its eighty-seventh session (12 to 21 May 2010), concurred with the Sub-Committee's views and approved the Guidance on the use of AIS Application Specific Messages, as set out in annex.
- Member Governments are invited to bring the annexed Guidance to the attention of a concerned.
- This circular revokes SN/Circ.236 as from 1 January 2013.

\*\*\*

**Table 1**  
Summary of AIS Application-Specific Messages recommended for international use

FI	Message Name	Comments
11	Met/Hydrological	SN/Circ.236 Trial message not to be used after 1 Jan
12	Dangerous cargo indication	SN/Circ.236 Trial message not to be used after 1 Jan
13	Fairway closed	SN/Circ.236 Trial message not to be used after 1 Jan
14	Tidal window	SN/Circ.236 Trial message not to be used after 1 Jan
15	Extended ship static and voyage-related data	SN/Circ.236 Trial message not to be used after 1 Jan
16	Number of persons on board	SN/Circ.236 Trial message corrected
17	VTS-generated/synthetic targets	SN/Circ.236 Trial message to "VTS-generated/Synthet
18	Clearance time to enter port	New message
19	Marine traffic signal	New message
20	<del>Badging data</del>	New message
21	Weather observation report from ship	New message
22	Area notice – broadcast	New message
23	Area notice – addressed	New message
24	Extended ship static and voyage-related data	New message



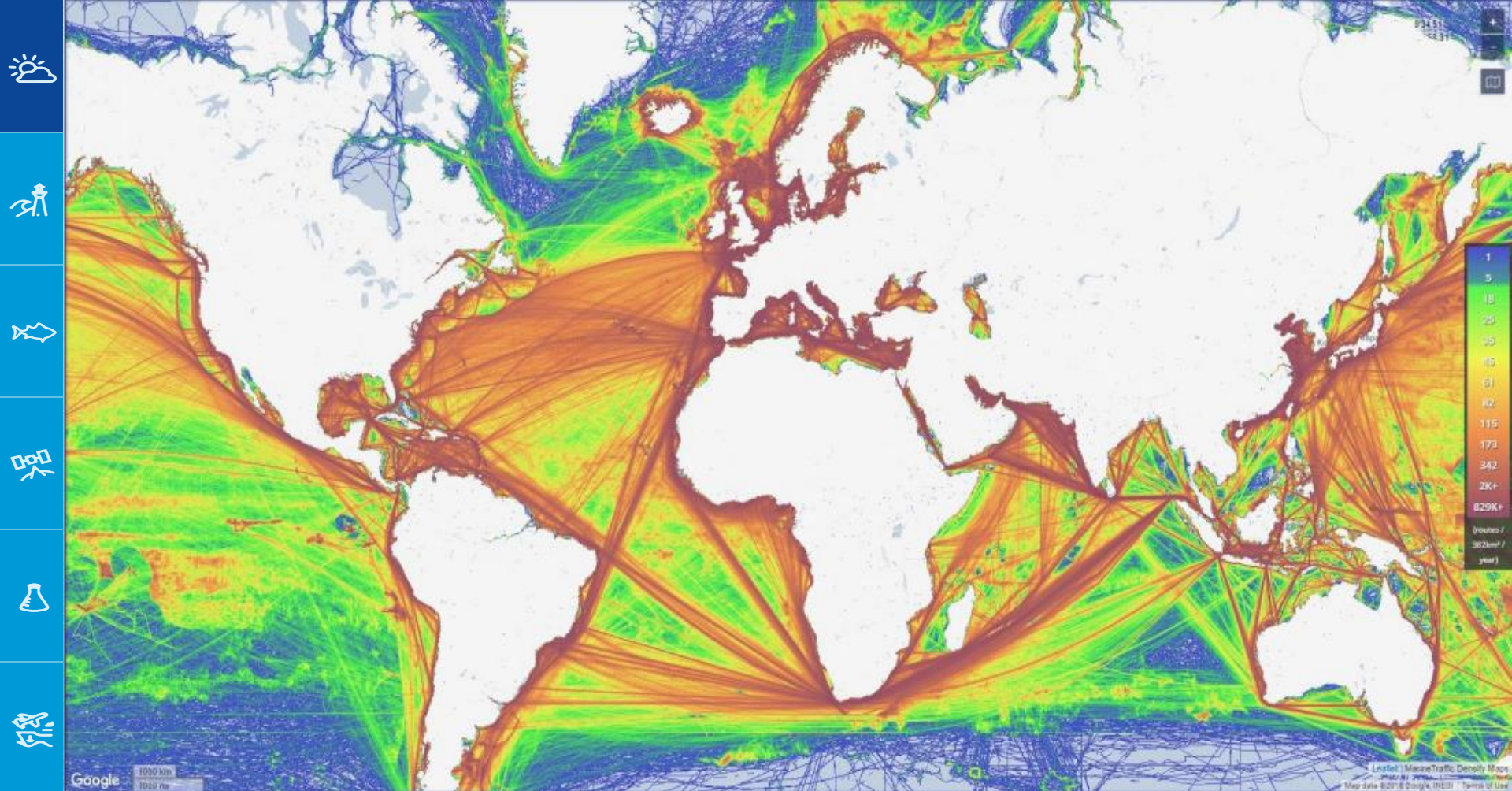
courtesy of Brian Tetreault, USACE



**BUILDING STRONG**

13 December 2018





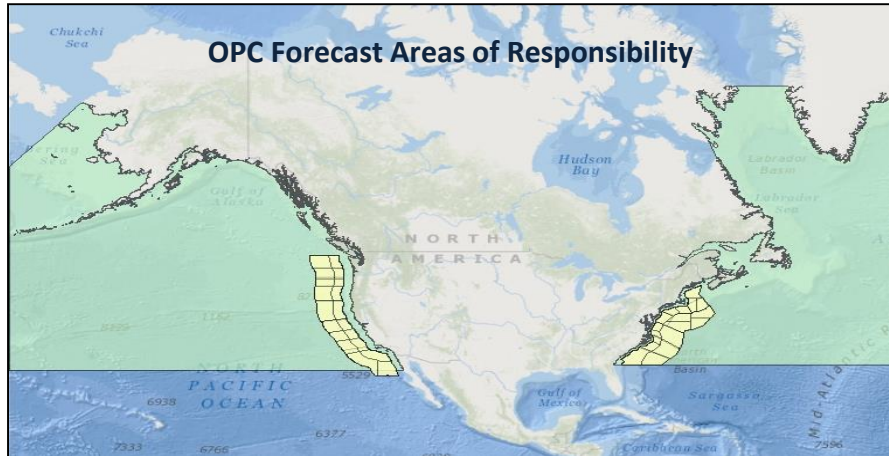


# Ocean Prediction Center (OPC)

## College Park, MD

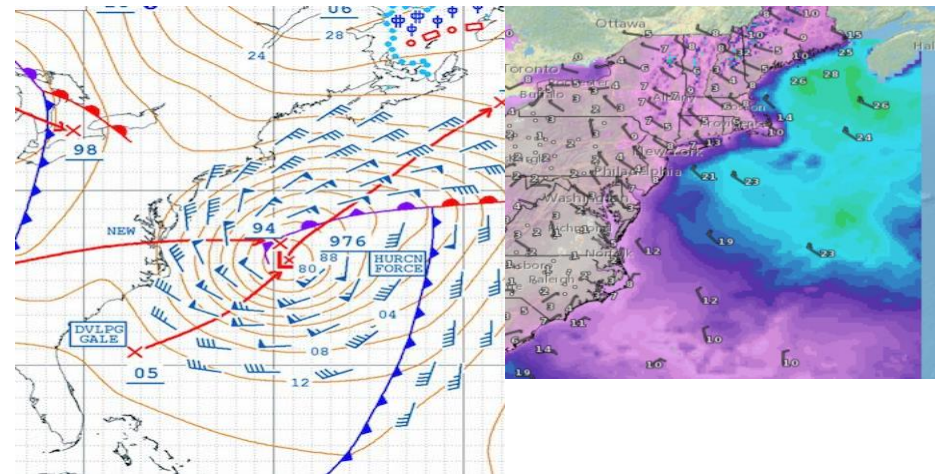


Provides the world's best marine weather decision support services, preventing loss of life and property at sea.



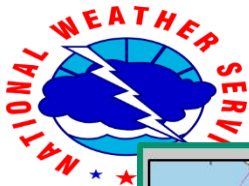
- Zone Forecasts and High Seas Bulletins
- Wind Warnings (gale/storm/hurricane force)
- Outlooks for the next 5 days
- Graphical analysis and forecast charts
- Over 150 products issued daily; 11,000+ warnings per year

4 day forecasts in text, graphical and gridded formats



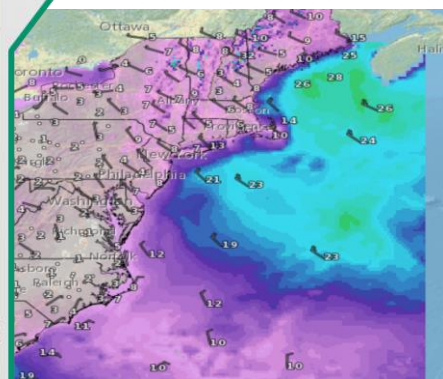
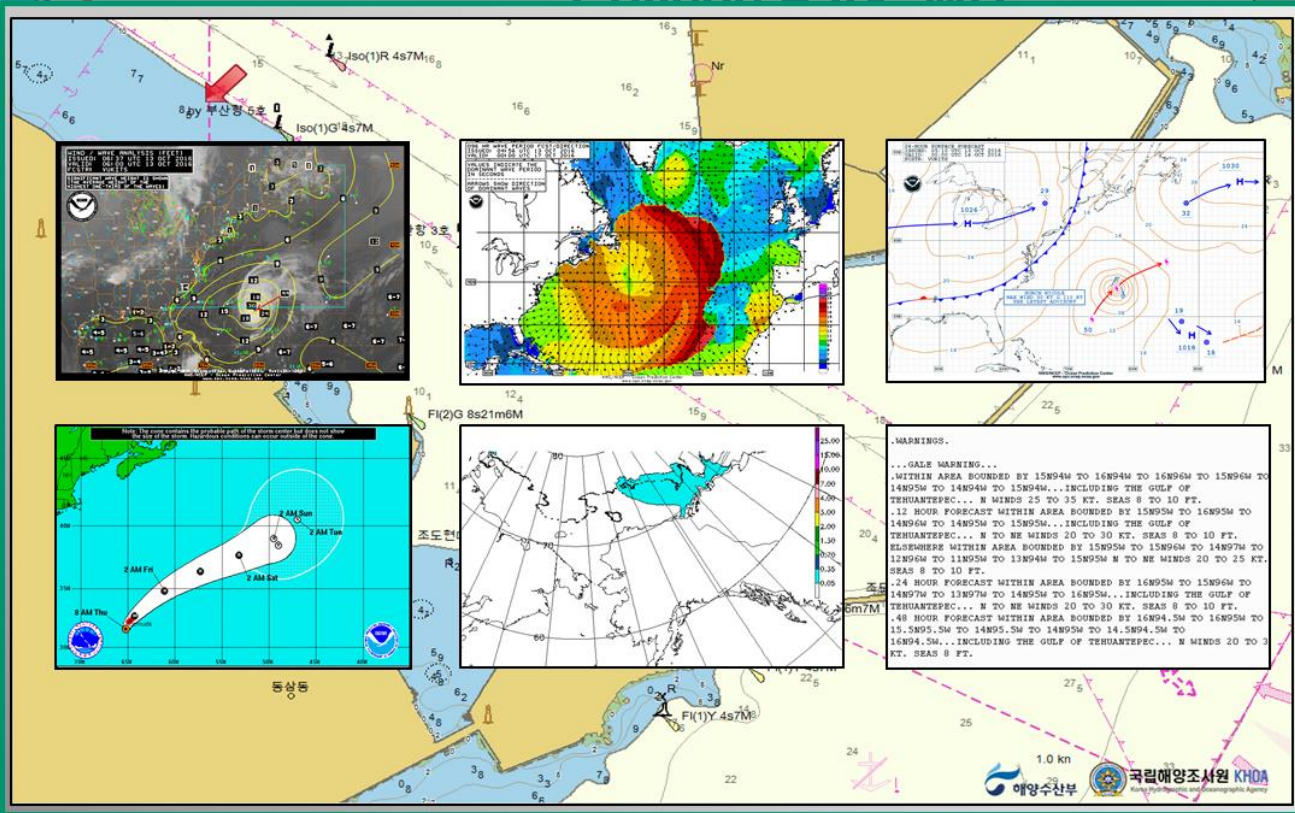
<https://ocean.weather.gov>





# Ocean Prediction Center (OPC)

College Park, MD

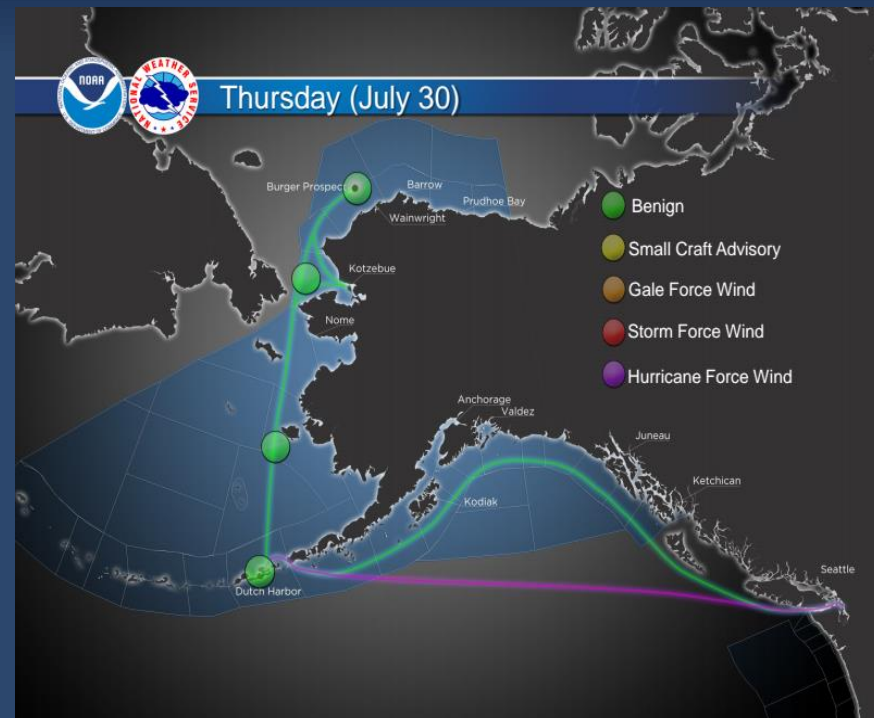


- Zone
- Wind
- Outc
- Graphical analysis and forecast charts
- Over 150 products issued daily; 11,000+ warnings per year



# Challenges

- Arctic
- Probabilistic Forecasts
- Deep Convection
- Ice
- Expansion of Forecasts
  - Time, Space
- Tools to Improve Digital Forecasts
- Impact Decision Support Services
- Explosive Cyclogenesis
- Storm Surge
- Climatology
- Ability to Assimilate Data Sources
- Improved Model Guidance
- **Feedback and Coordination With Partners**



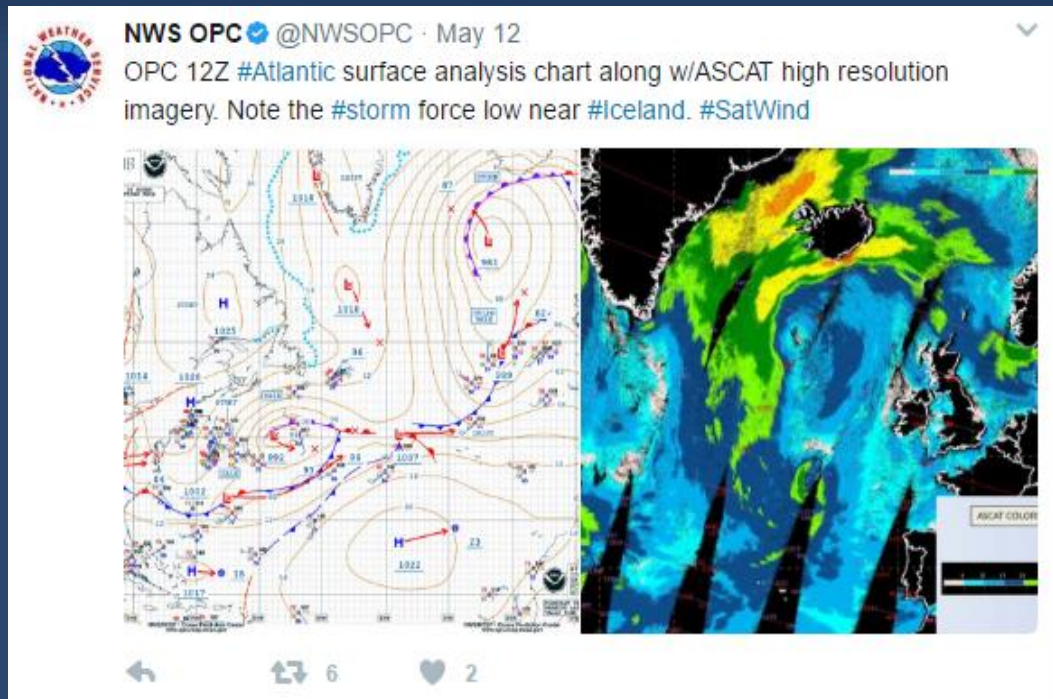
# Social Media

Facebook

<https://www.facebook.com/NWSOPC>

Twitter

@NWSOPC



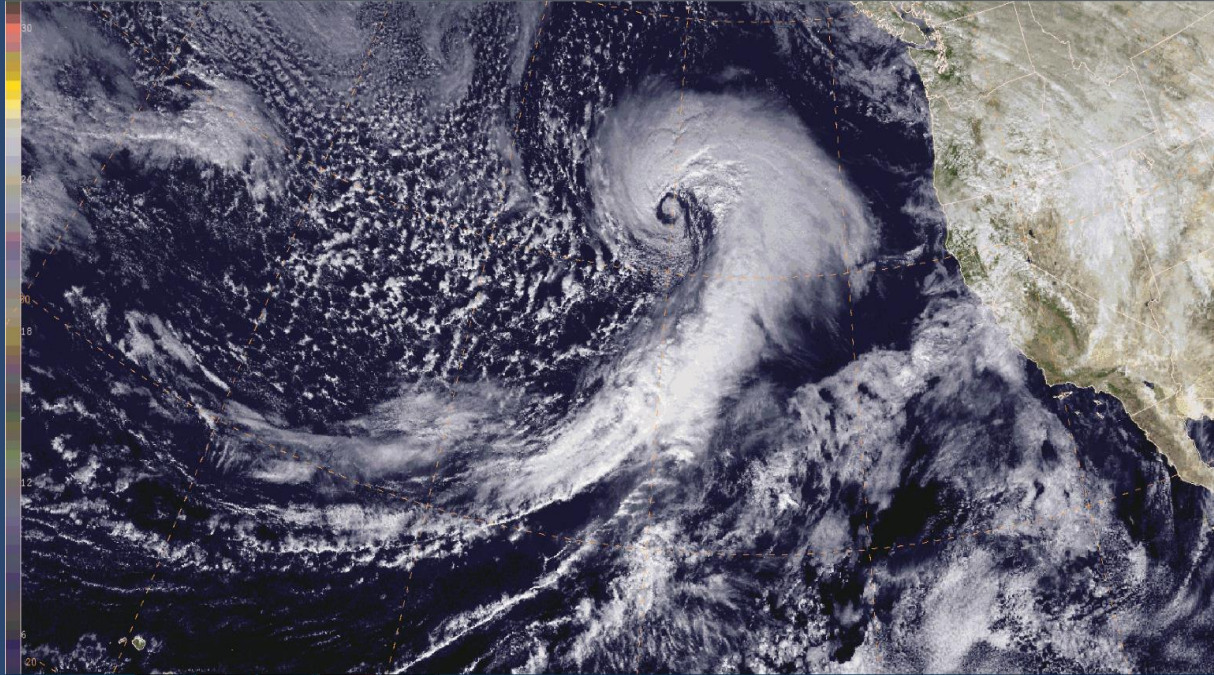


# Thanks!

## North Pacific Extratropical Hurricane Force Low Centers

NOAA NWS Ocean Prediction Center

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11



Ocean Prediction Center

