An Update – Usage of ASCAT and OSCAT Winds at the NOAA Ocean Prediction Center (OPC), National Hurricane Center (NHC)

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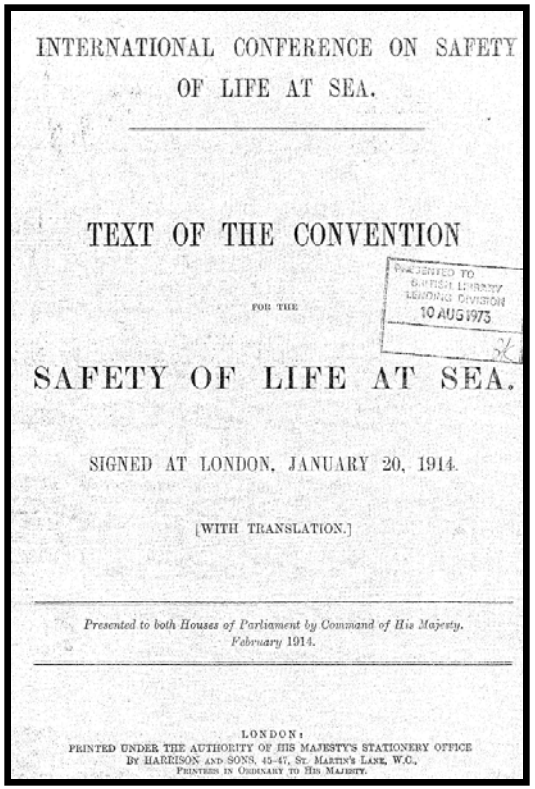
Safety of Life At Sea, 1914

http://www.imo.org



INTERNATIONAL CONFERENCE ON SAFETY OF LIFE AT SEA.

TEXT OF THE CONVENTION

FOR THE

SAFETY OF LIFE AT SEA.

SIGNED AT LONDON, JANUARY 20, 1914.

[WITH TRANSLATION.]

Presented to both Houses of Parliament by Command of His Majesty.
February 1914.

LONDON:
PRINTED UNDER THE AUTHORITY OF HIS MAJESTY'S STATIONERY OFFICE
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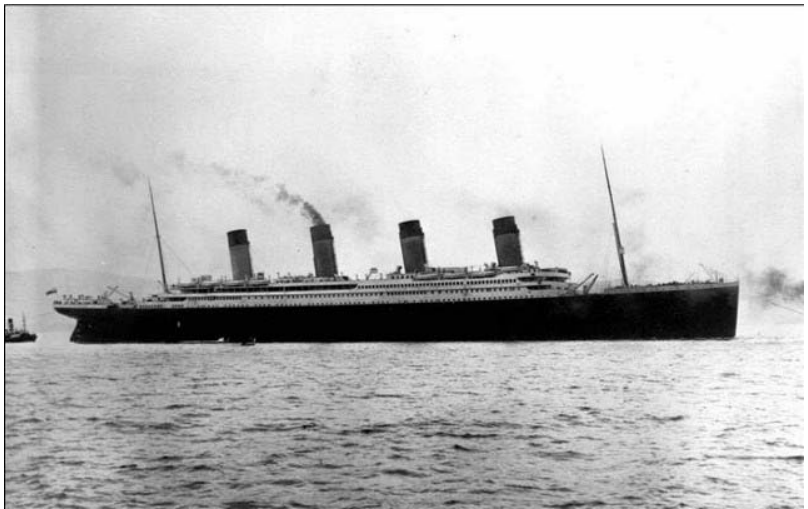
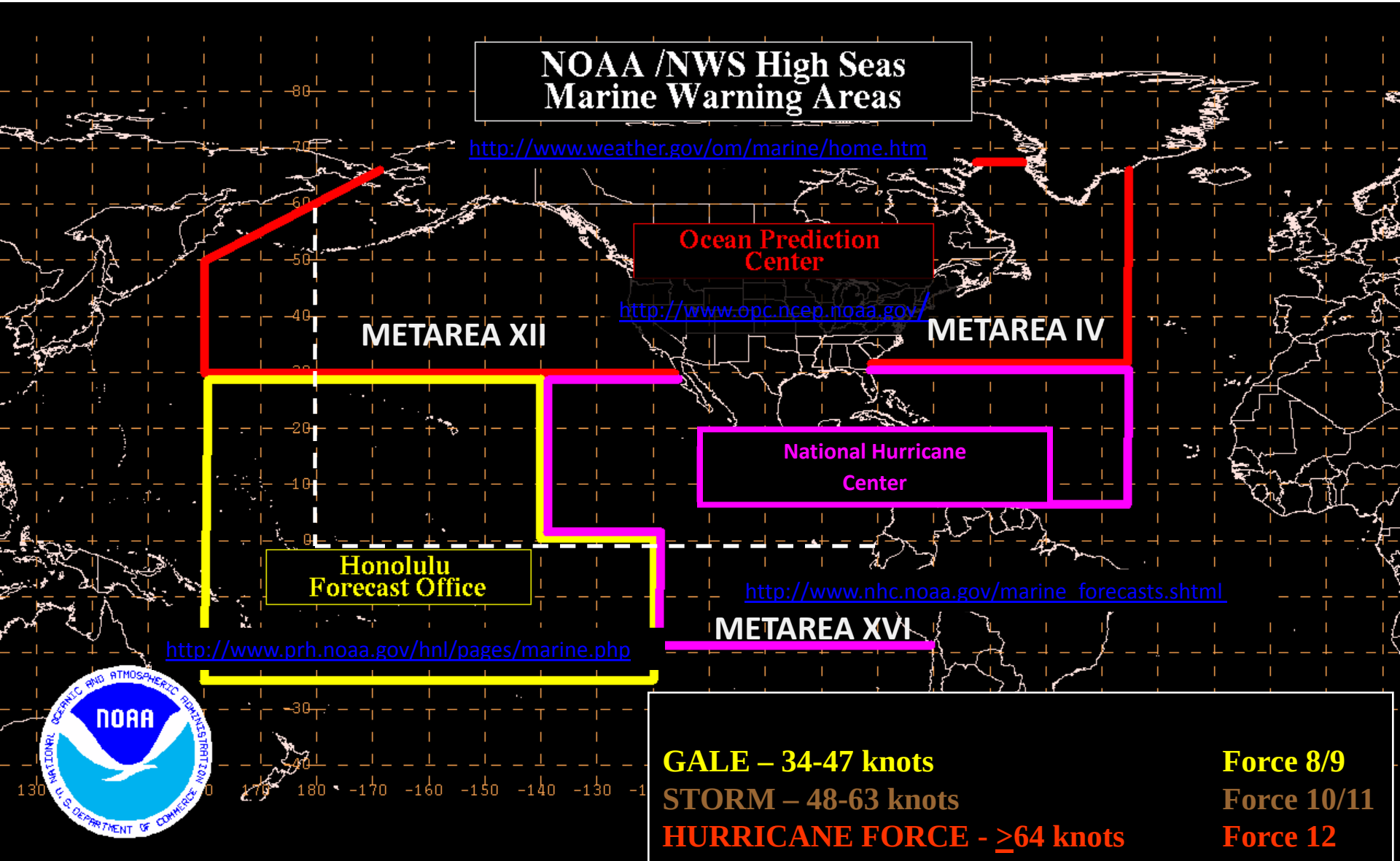
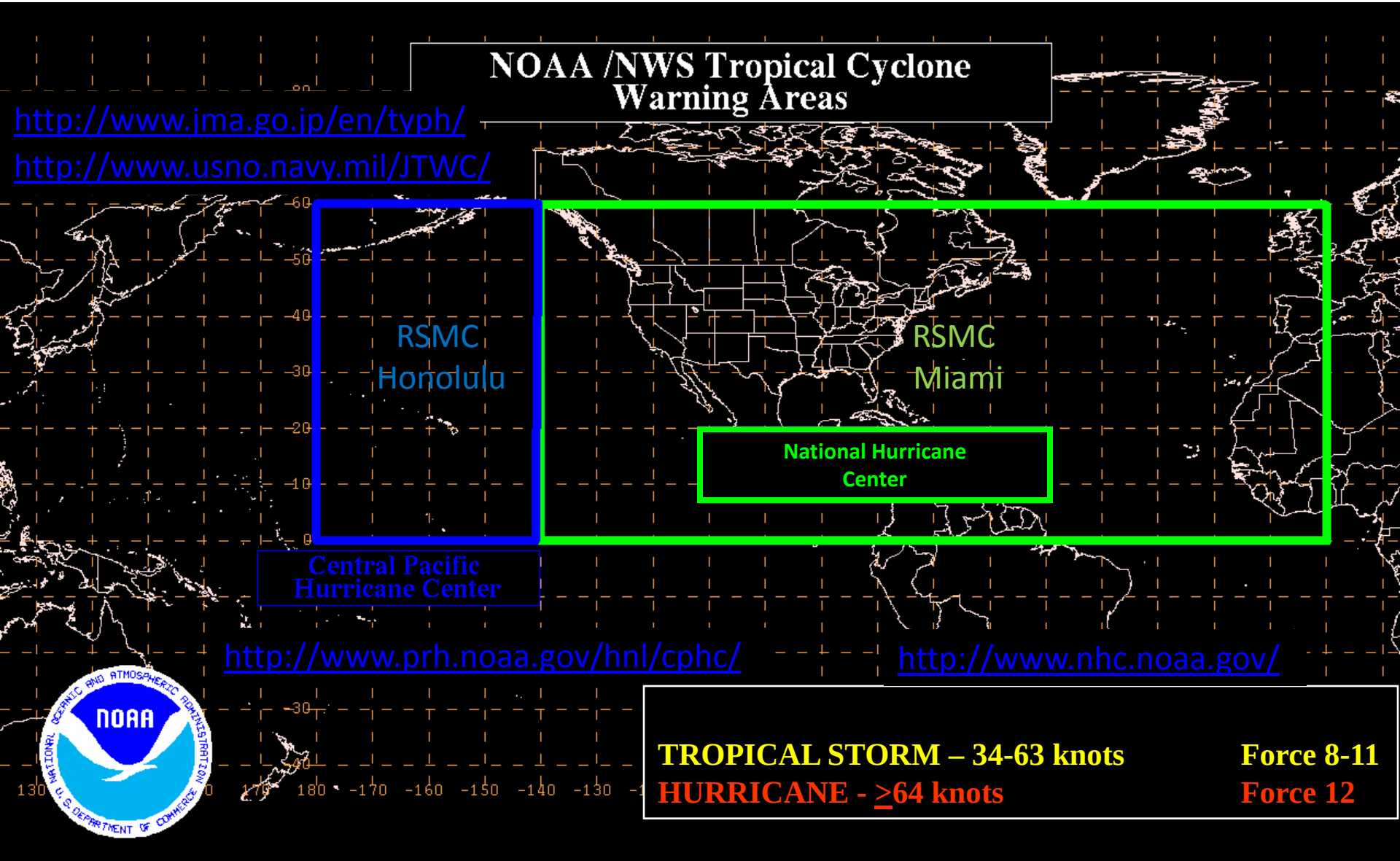
- Chapter III – Safety of Navigation
  - Part I – Ice and Derelicts
  - Part II – Meteorological Information
- Chapter V - Radiotelegraphy



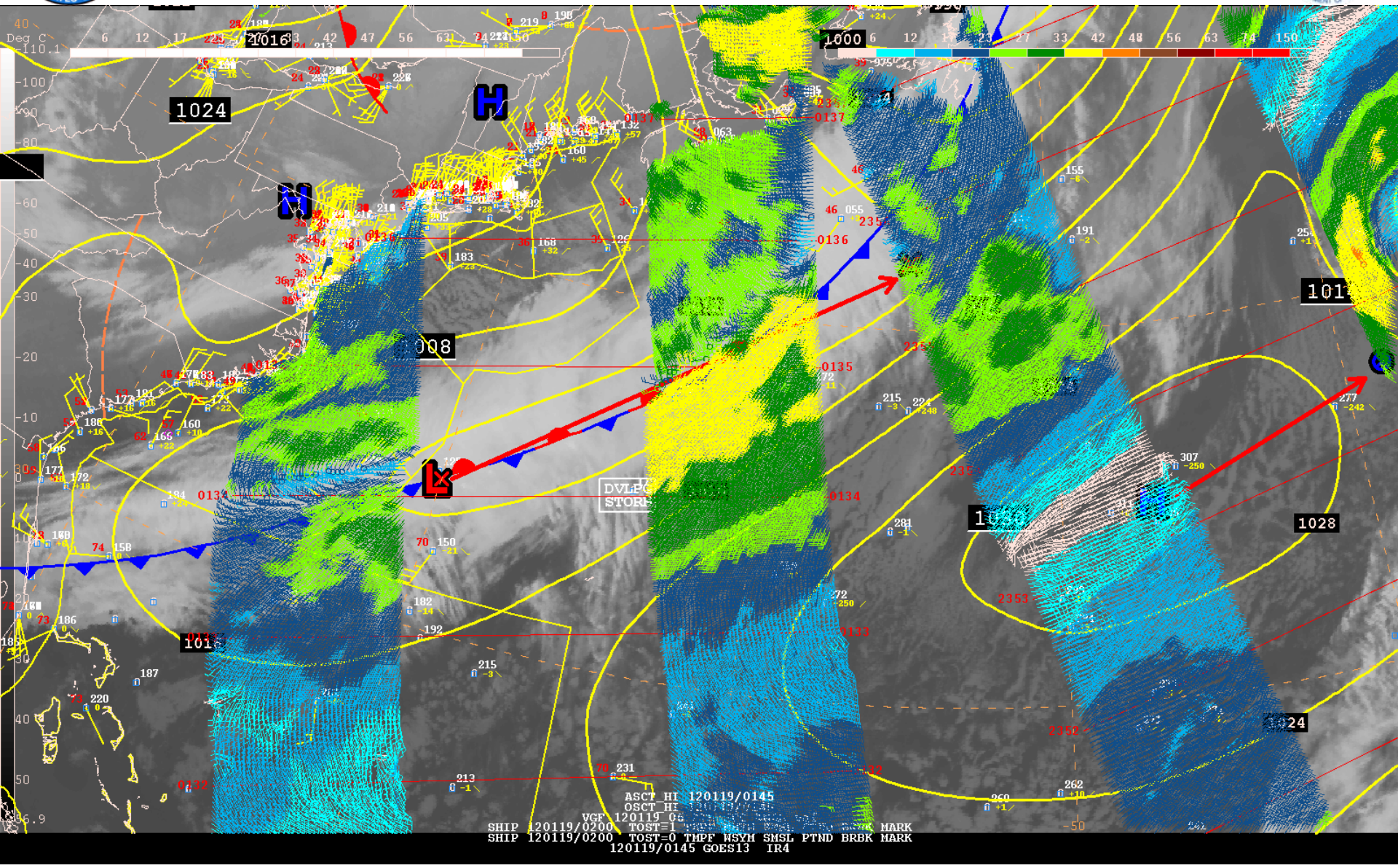
NOAA Forecast Responsibility

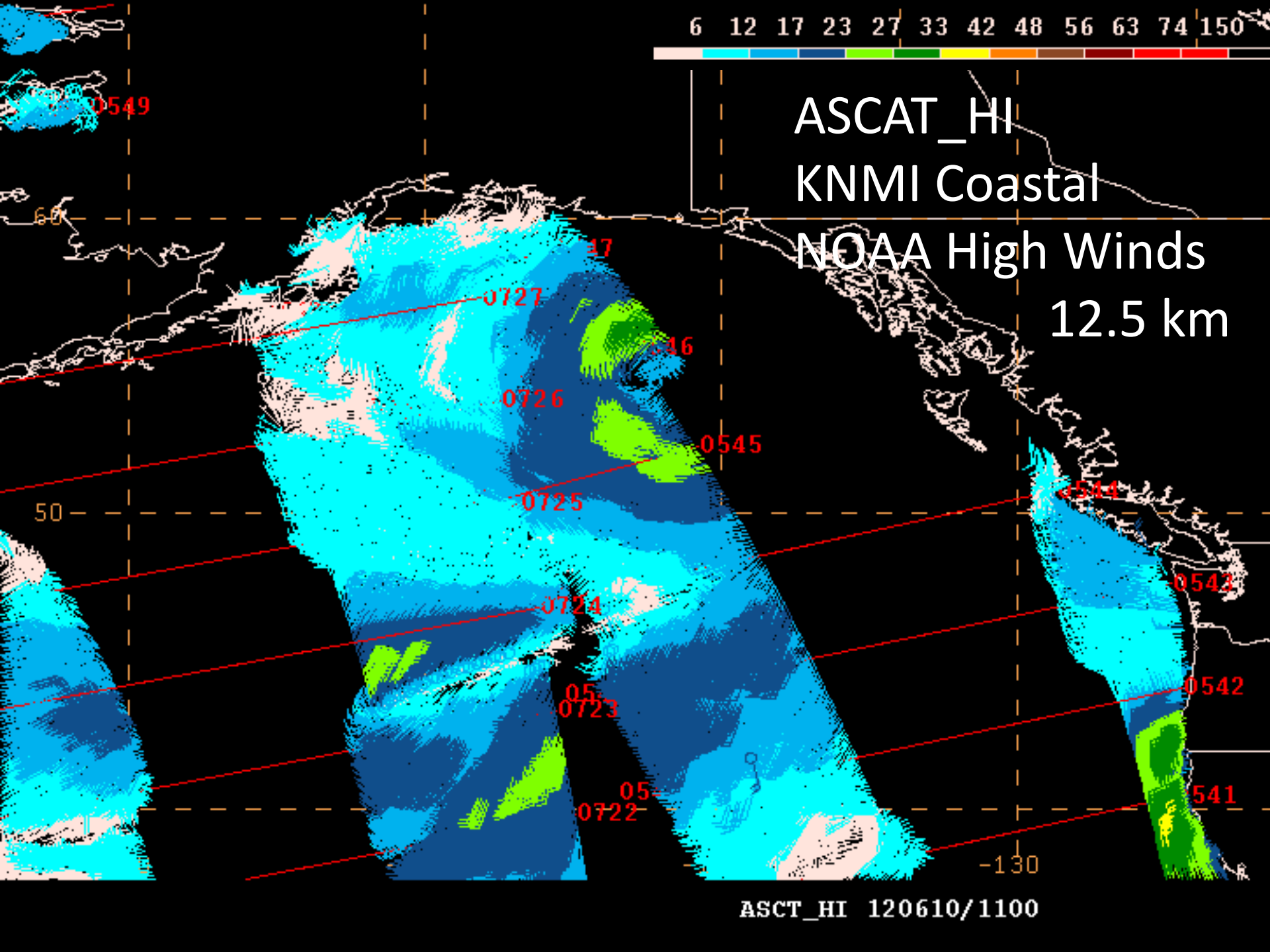


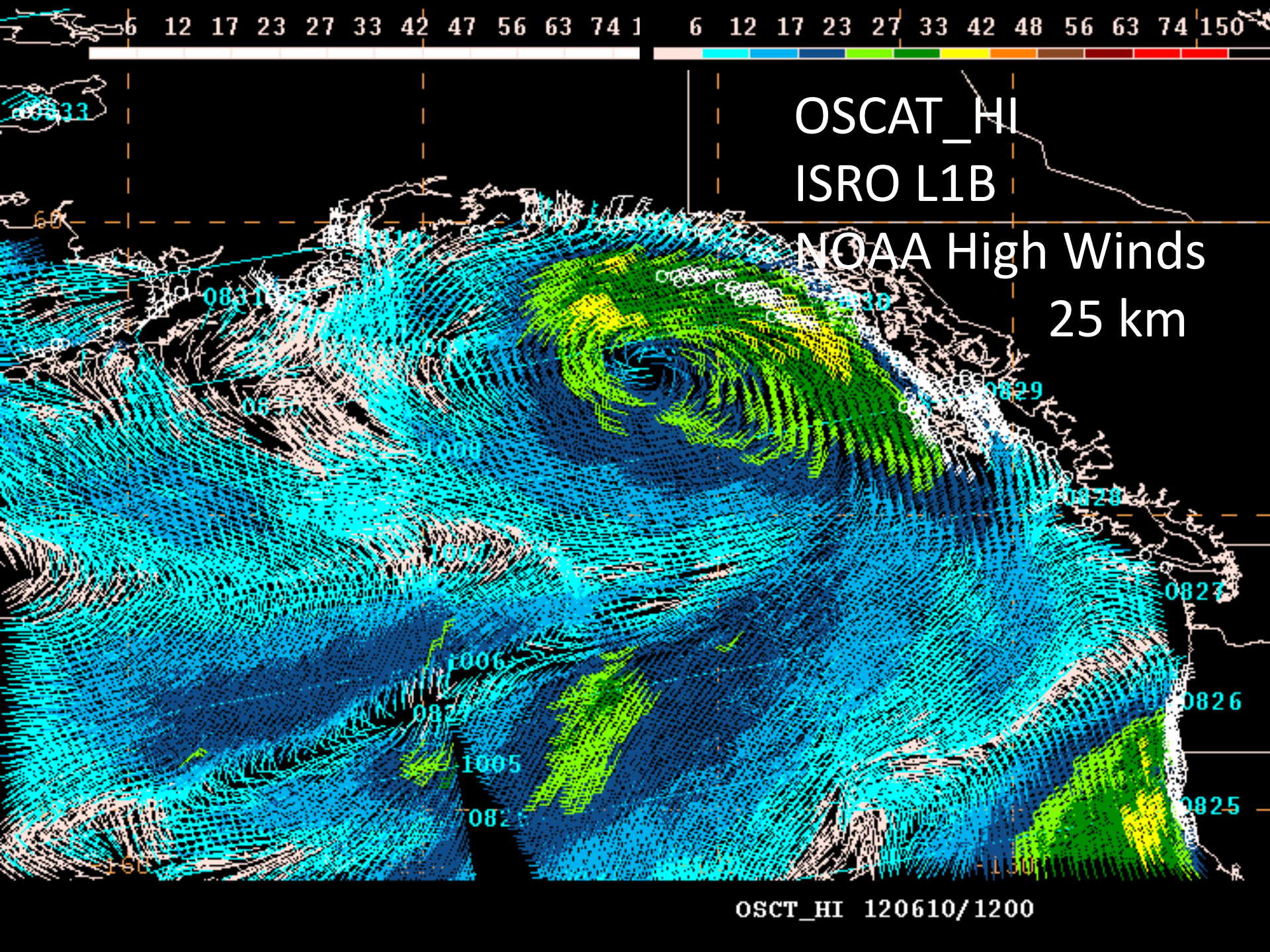
NOAA Forecast Responsibility

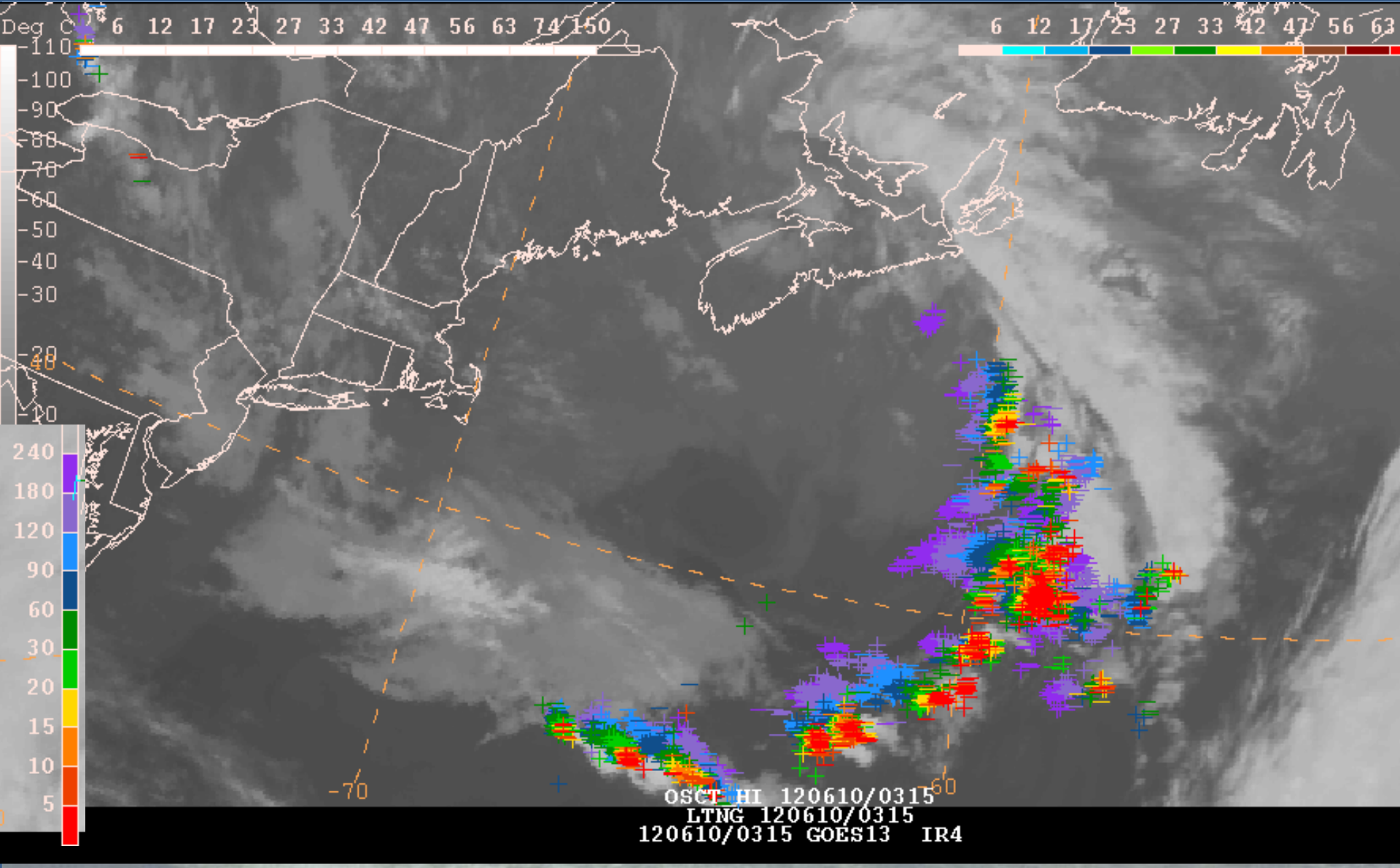


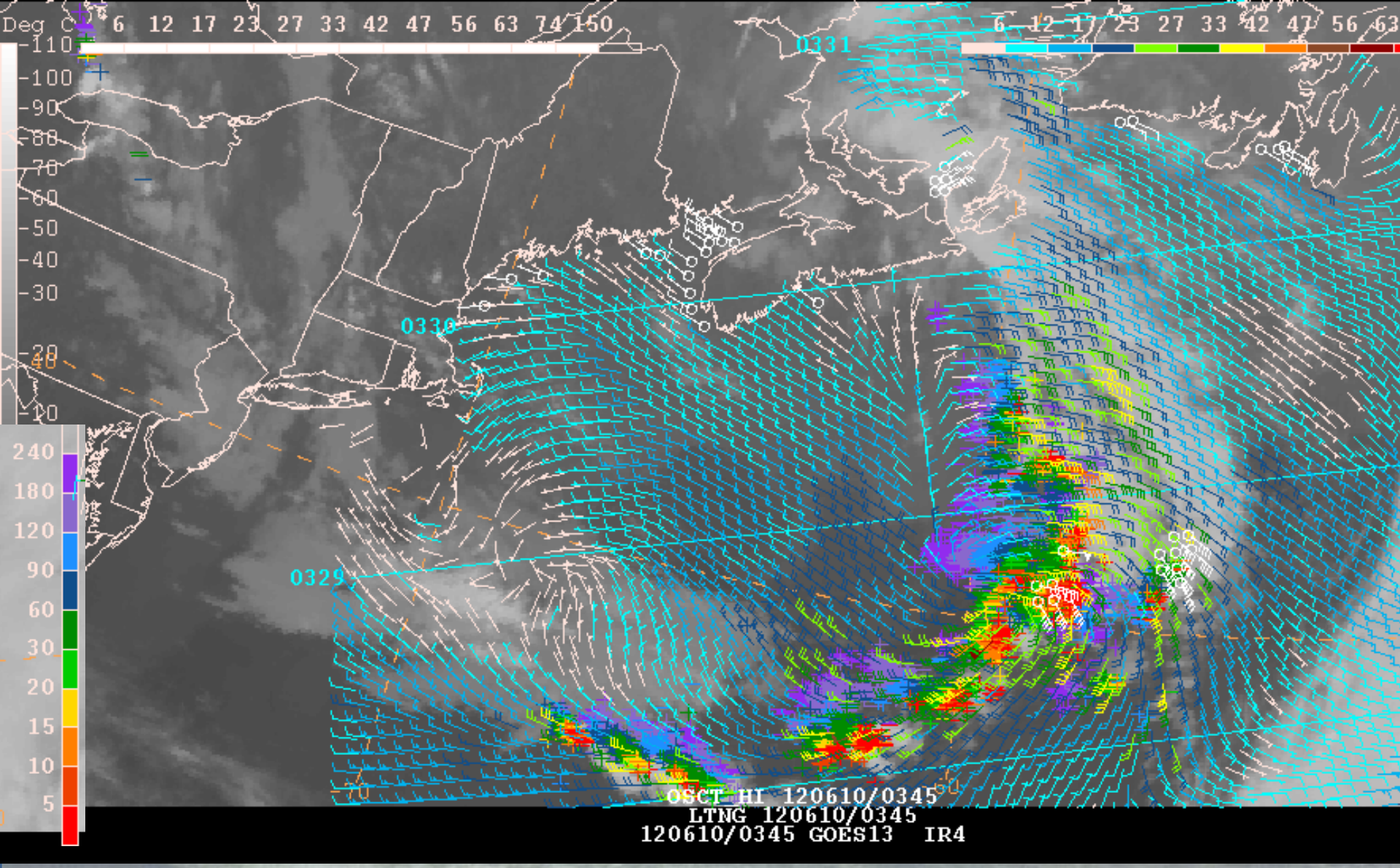
Integrated Display Capability – ASCAT



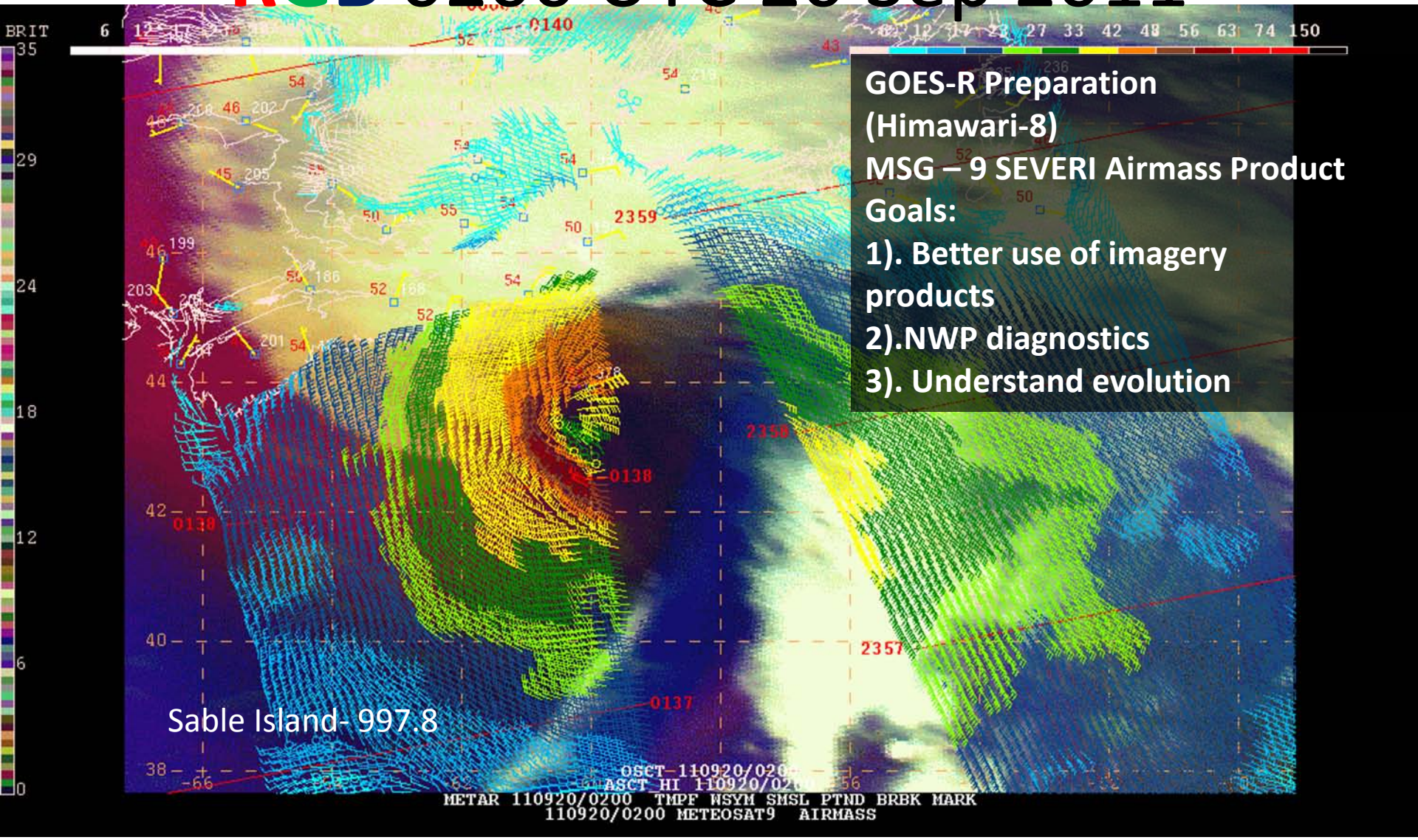

6 12 17 23 27 33 42 48 56 63 74 150
ASCAT_HI
KNMI Coastal
NOAA High Winds
12.5 km
0549
60
0727
0726
0545
50
0725
0724
0723
0722
-130
ASCT_HI 120610/1100


6 12 17 23 27 33 42 47 56 63 74
6 12 17 23 27 33 42 48 56 63 74 150
OSCAT_HI
ISRO L1B
NOAA High Winds
25 km
OSCT_HI 120610/1200


Deg C
6 12 17 23 27 33 42 47 56 63 74 150
6 12 17 23 27 33 42 47 56 63
-110
-100
-90
-80
-70
-60
-50
-40
-30
-20
-10
240
180
120
90
60
30
20
15
10
5
-70
-60
OSCT HI 120610/0315
LTNG 120610/0315
120610/0315 GOES13 IR4


Deg C
6 12 17 23 27 33 42 47 56 63 74 150
6 12 17 23 27 33 42 47 56 63
-110
-100
-90
-80
-70
-60
-50
-40
-30
-20
-10
240
180
120
90
60
30
20
15
10
5
0331
0330
0329
OSCT HI 120610/0345
LTNG 120610/0345
120610/0345 GOES13 IR4

RGB 0200 UTC 20 Sep 2011



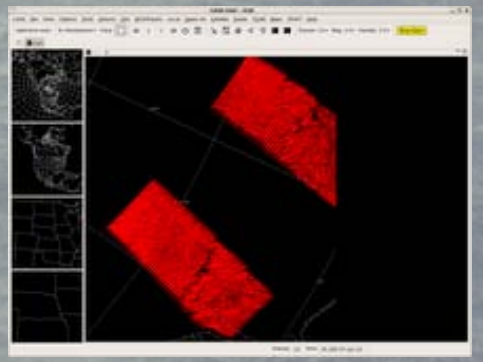
OSCAT- AWIPS 2 display capability

- NWS National Centers (OPC and NHC) enjoy GEMPAK based display and product generation capabilities (NAWIPS)

- Display capabilities of OSVW at coastal NWS Forecast Offices - implementation slow due to:
  - Process
  - Limited band width for data flow
  - Competition with other capabilities
  - Resources

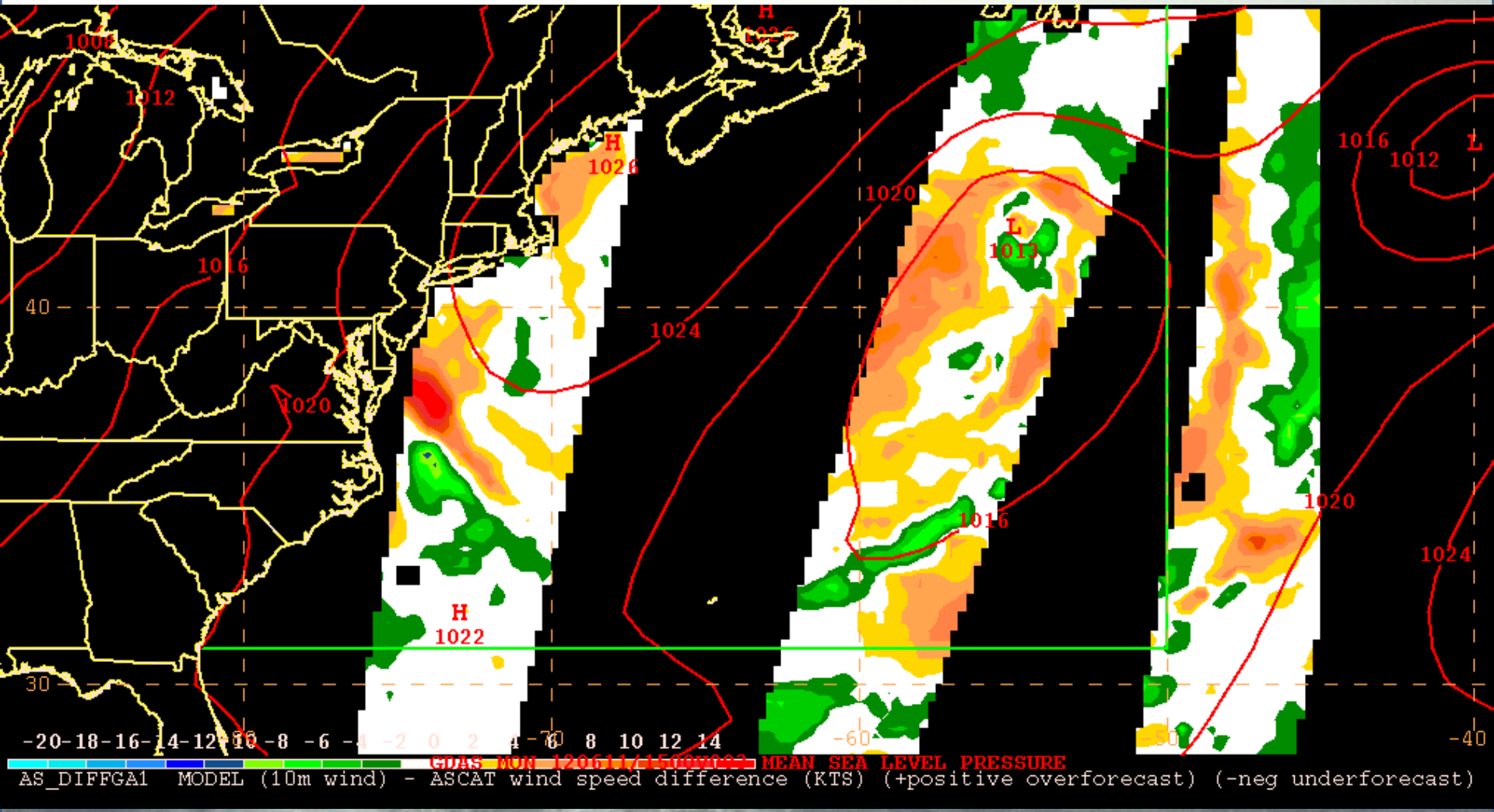
- Ongoing effort (NCEP Systems Integration Branch and NASA SpORT) to develop and deliver display functionality for OSCAT in AWIPS 2
  - Adaptation of GEMPAK "plug in"
  - Expedite process
  - More generic (less instrument specific)
  - Data flow – non-operational

- Goals
  - Data and display capability to coastal WFOs
  - Extend integrated display across NWS
  - Equitable services across NWS waters of responsibility
  - Build advocacy across NWS offices with marine warning responsibility



ASCAT display in AWIPS D2D

ASCAT – GFS Wind Speed Difference

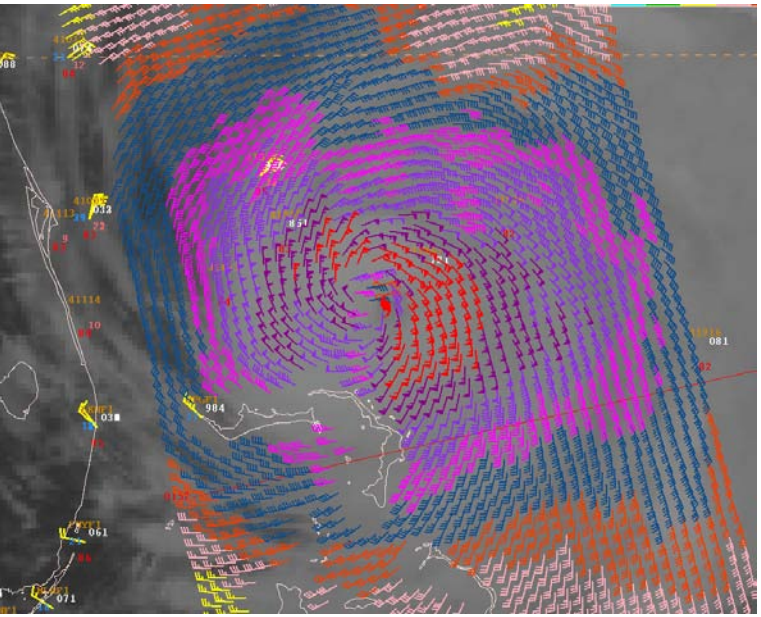


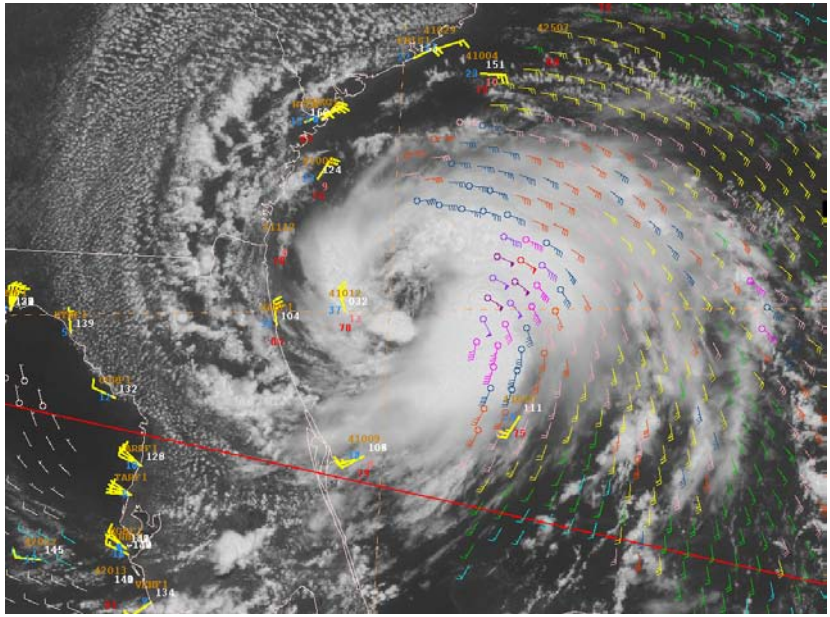
OSCAT – gridded fields

NWP bias correction

Great Circle ray tracing

National Hurricane Center Ocean Vector Wind Update





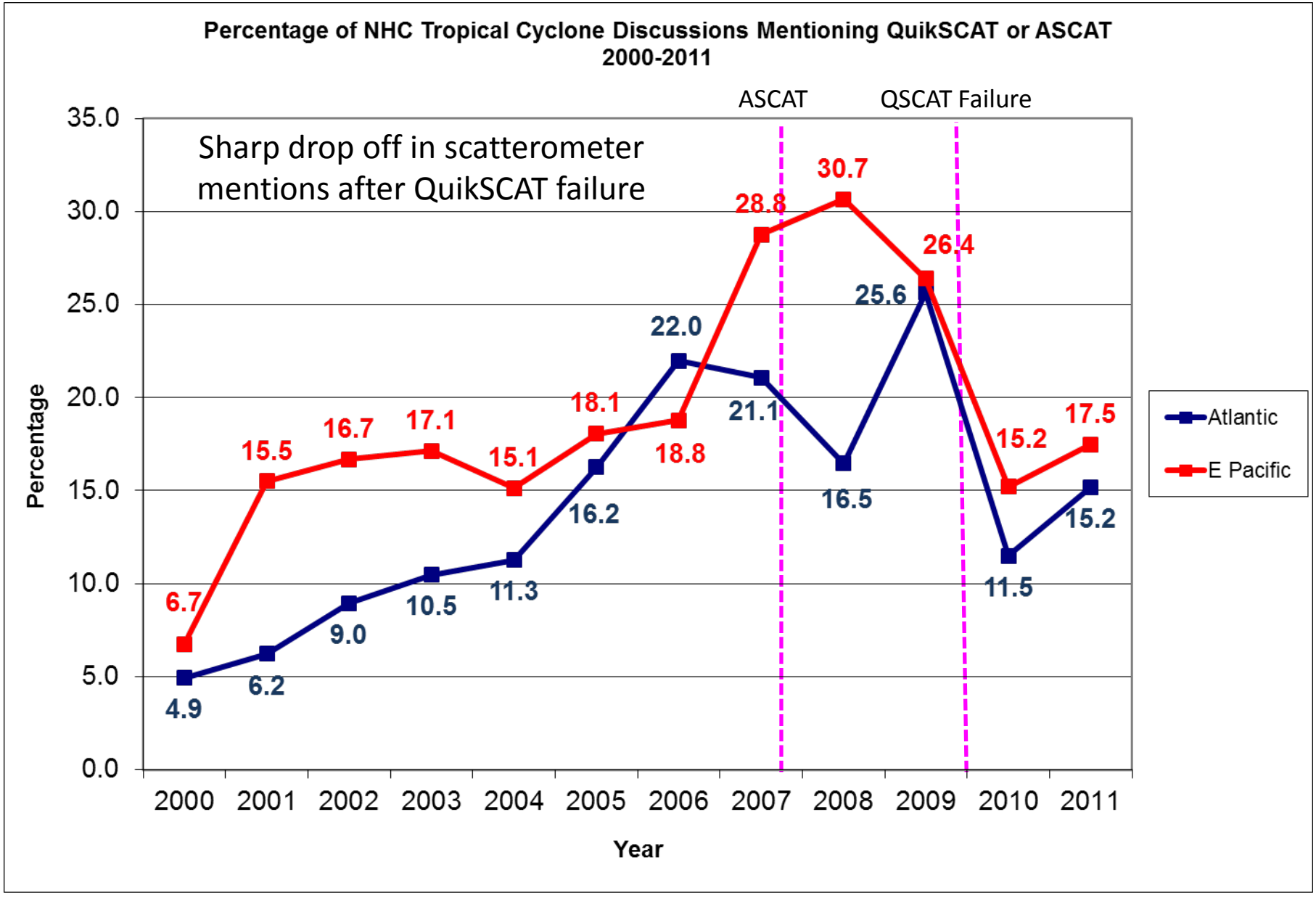
Michael J. Brennan

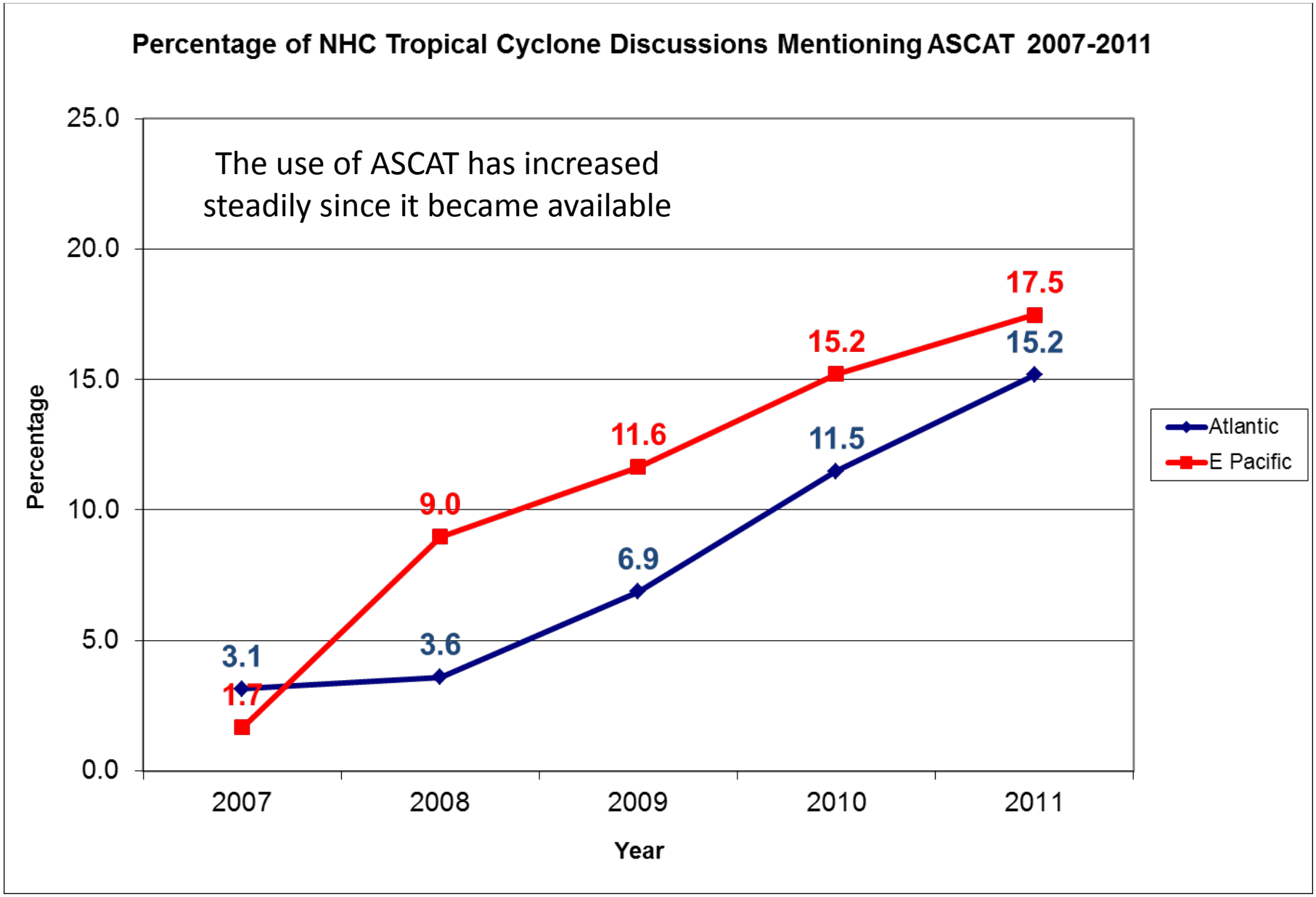
NOAA/NWS/NCEP National Hurricane Center, Miami, Florida

International Ocean Vector Wind Science Team Meeting

Utrecht, Netherlands

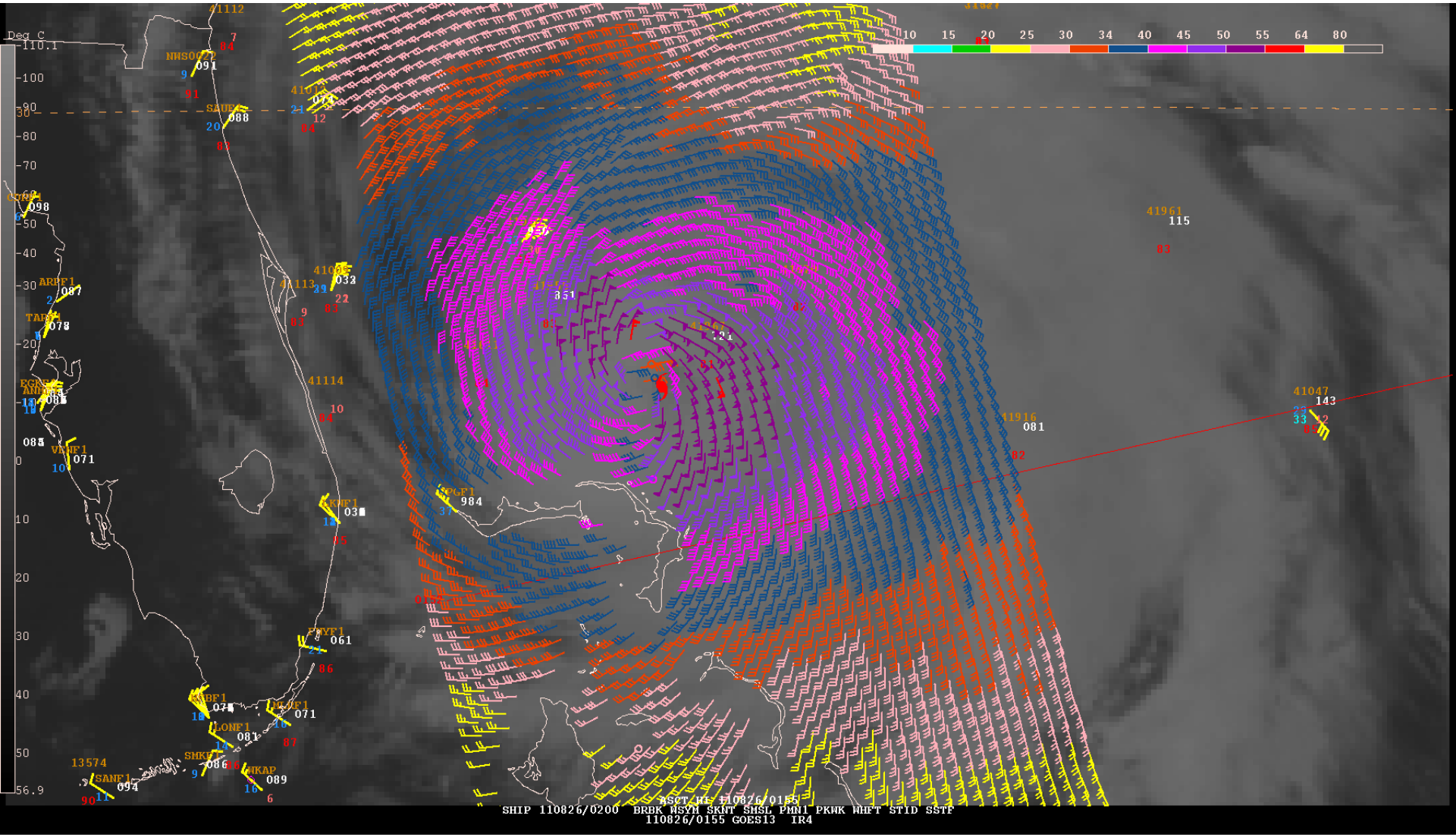
14 June 2012


Percentage of NHC Tropical Cyclone Discussions Mentioning QuikSCAT or ASCAT
2000-2011
ASCAT
QSCAT Failure
Sharp drop off in scatterometer mentions after QuikSCAT failure
Percentage
Year
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
6.7
15.5
16.7
17.1
15.1
18.1
18.8
28.8
30.7
26.4
15.2
17.5
4.9
6.2
9.0
10.5
11.3
16.2
22.0
21.1
16.5
25.6
11.5
15.2
Atlantic
E Pacific


Percentage of NHC Tropical Cyclone Discussions Mentioning ASCAT 2007-2011
The use of ASCAT has increased steadily since it became available
25.0
20.0
15.0
10.0
5.0
0.0
Percentage
2007
2008
2009
2010
2011
Year
3.1
3.6
6.9
11.5
15.2
1.7
9.0
11.6
15.2
17.5
Atlantic
E Pacific

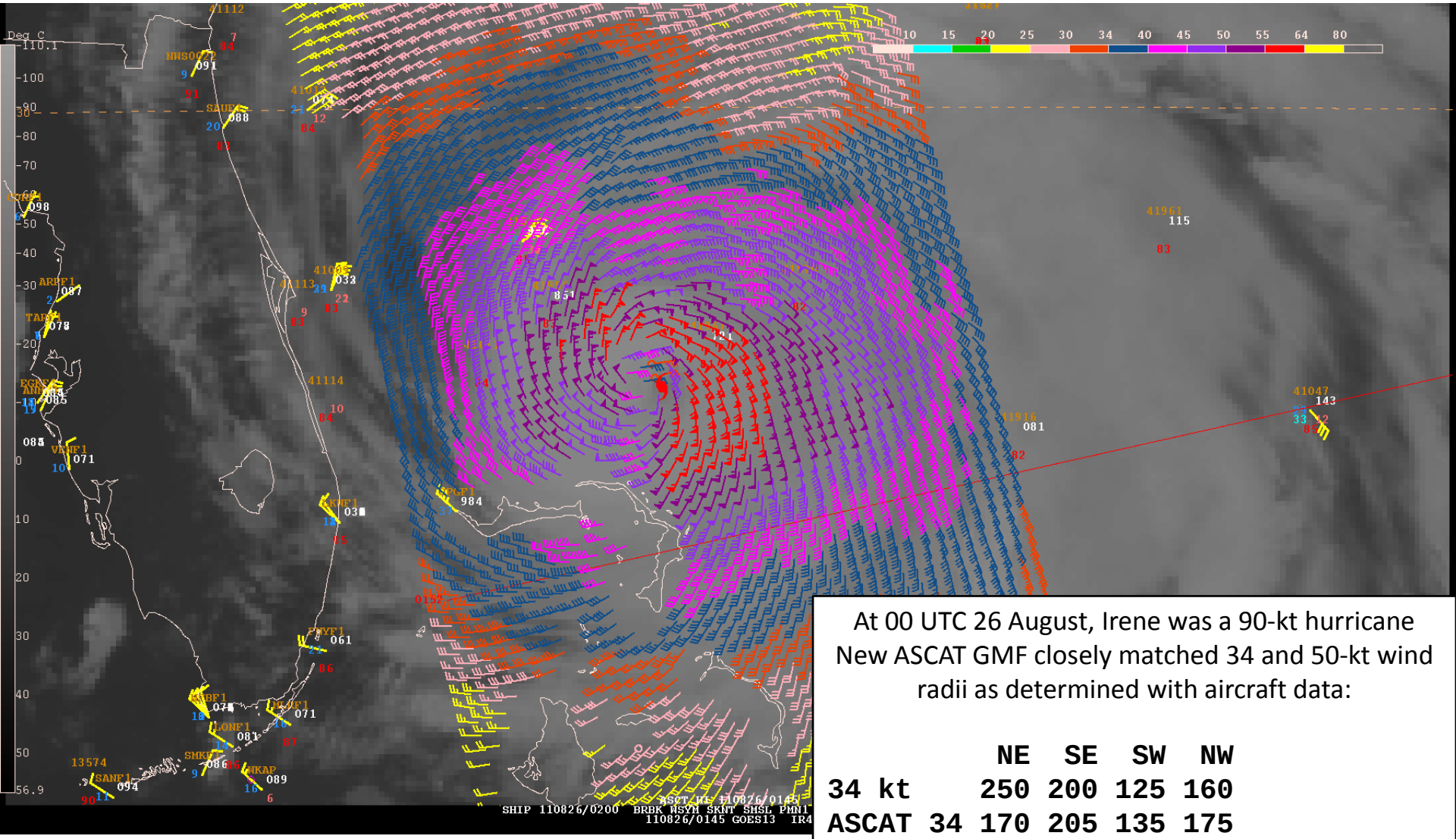
Operational ASCAT GMF

Hurricane Irene 0152 UTC 26 August 2011



New ASCAT GMF

Hurricane Irene 0152 UTC 26 August 2011

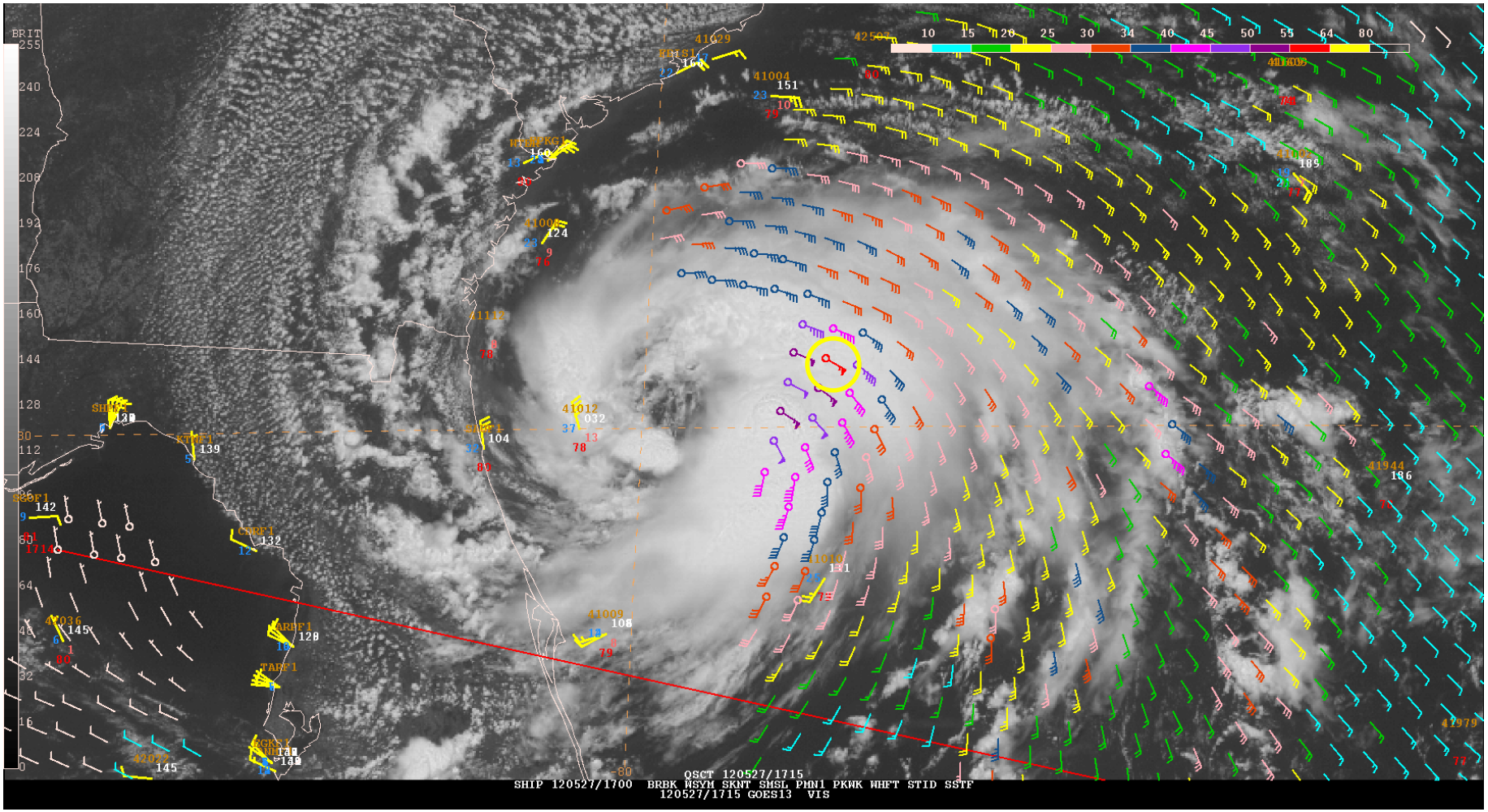


At 00 UTC 26 August, Irene was a 90-kt hurricane
New ASCAT GMF closely matched 34 and 50-kt wind radii as determined with aircraft data:

	NE	SE	SW	NW
34 kt	250	200	125	160
ASCAT 34	170	205	135	175
50 kt	110	100	50	75
ASCAT 50	90	105	60	70

OSCAT

Tropical Storm Beryl – 1714 UTC 27 May 2012

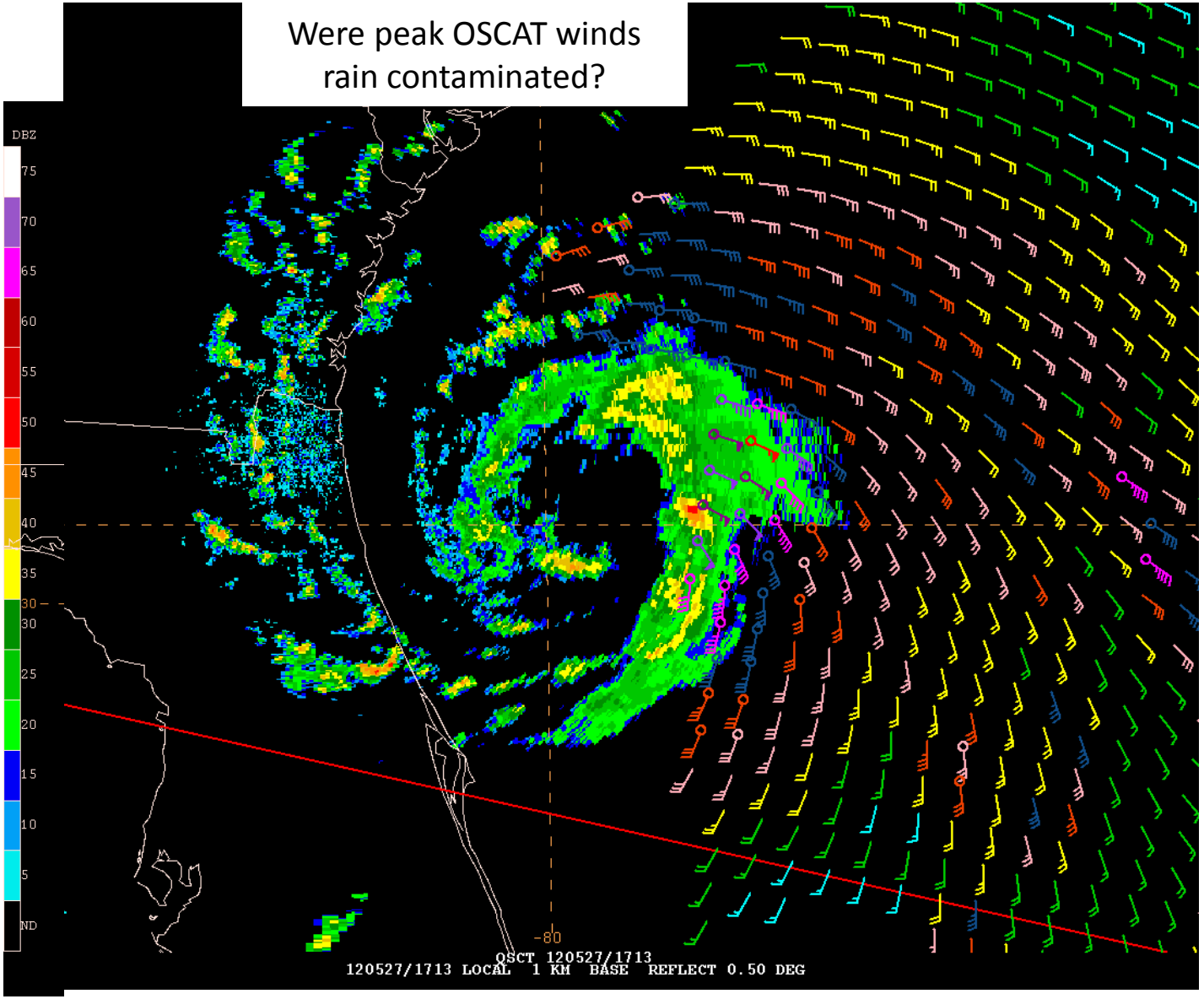


OSCAT showed peak winds of 55 kt in Beryl, the actual intensity of the system at that time. However, aircraft data around 2100 UTC showed strongest winds were in a band to the west of the center, with weaker winds of around 35 kt where OSCAT peak winds were

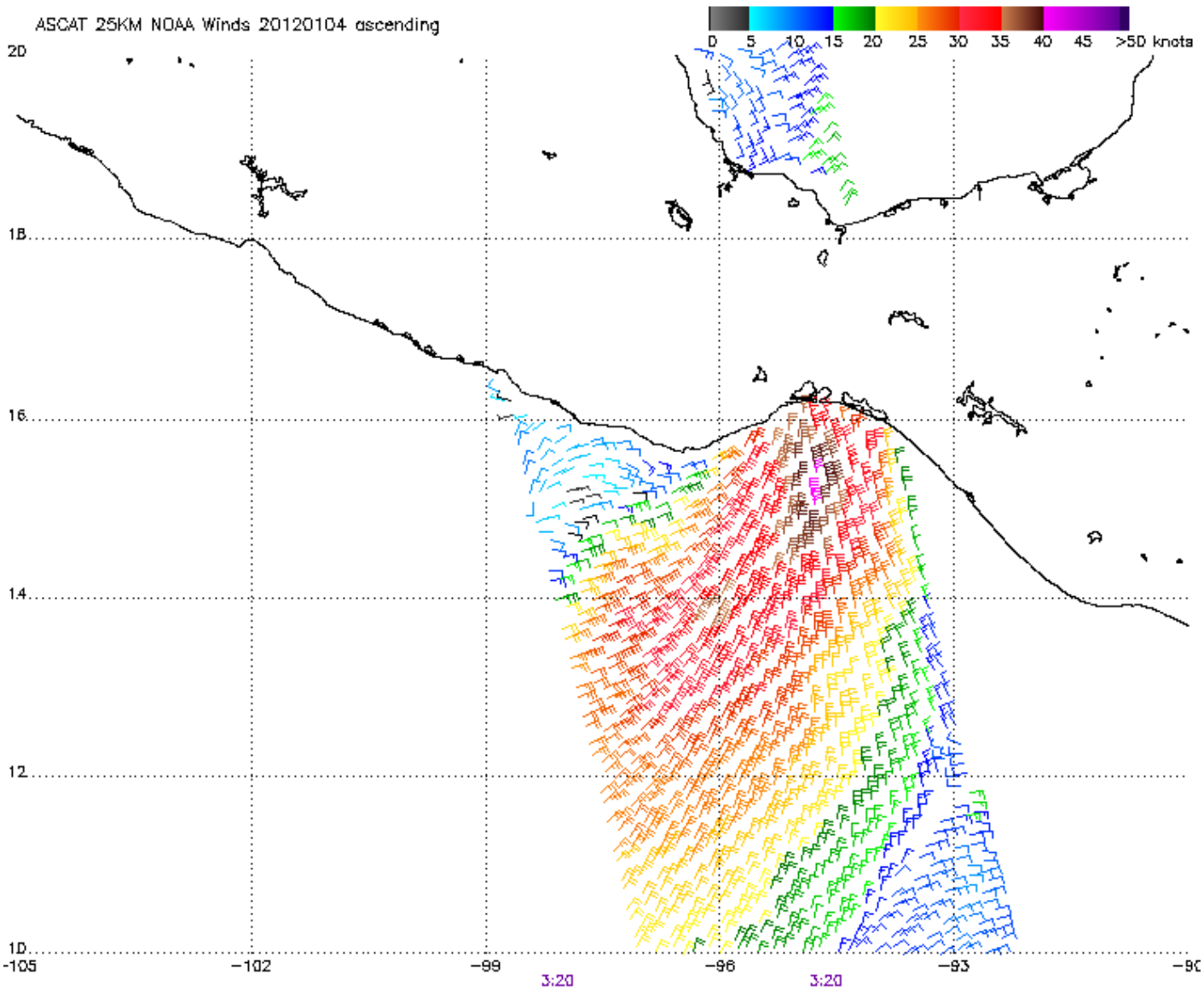
OSCAT

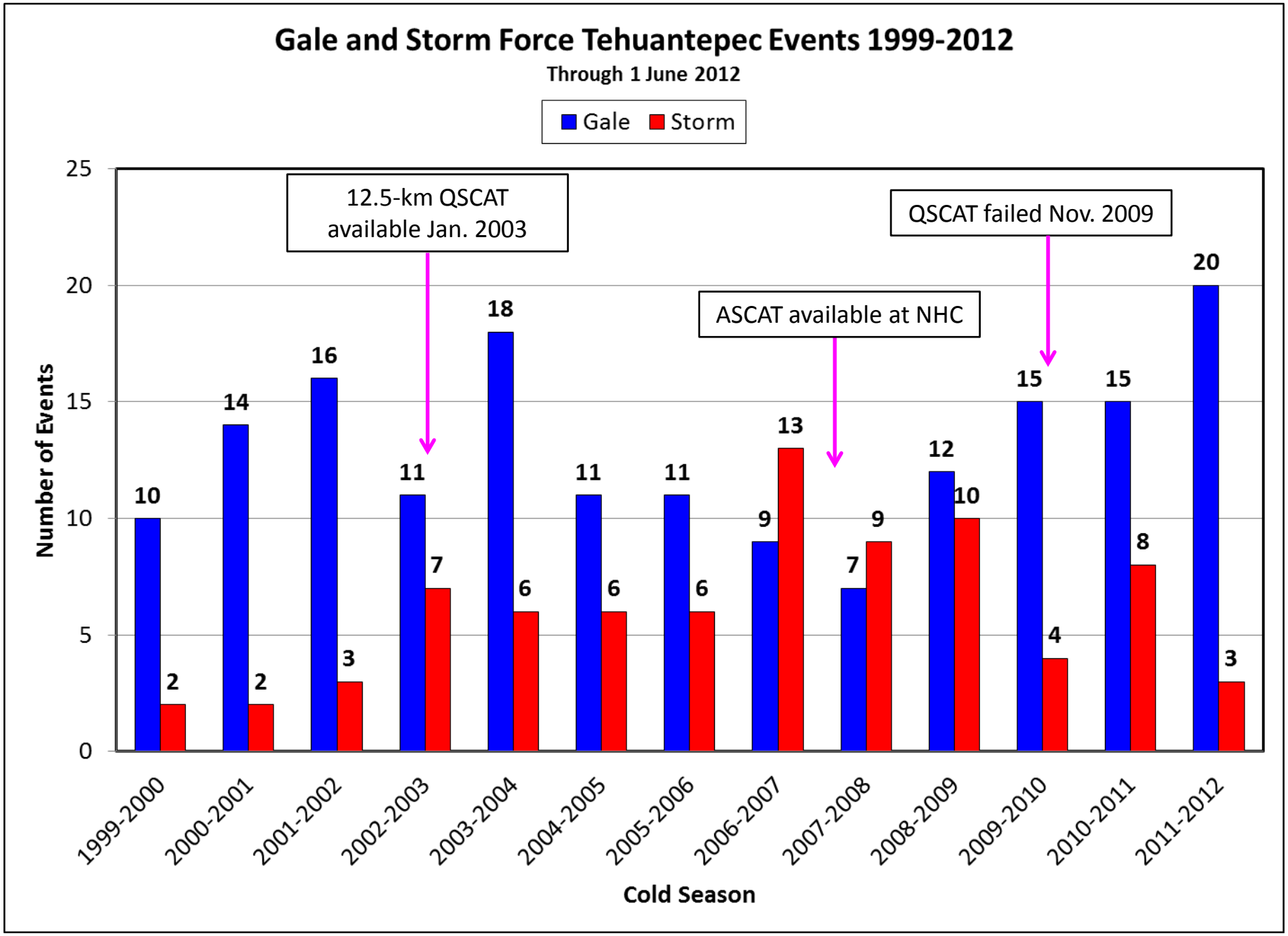
Tropical Storm Beryl – 1714 UTC 27 May 2012

Were peak OSCAT winds rain contaminated?



Gulf of Tehuantepec




Gale and Storm Force Tehuantepec Events 1999-2012
Through 1 June 2012
Gale
Storm
12.5-km QSCAT available Jan. 2003
ASCAT available at NHC
QSCAT failed Nov. 2009
Number of Events
Cold Season
0
5
10
15
20
25
1999-2000
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
2005-2006
2006-2007
2007-2008
2008-2009
2009-2010
2010-2011
2011-2012
10
2
14
2
16
3
11
7
18
6
11
6
11
6
9
13
7
9
12
10
15
4
15
8
20
3

Tehuantepec Event Trends

- 25-km QuikSCAT era (1999-2002)
  - 15.6 total events per year
  - 13.3 gale, 2.3 storm
- 12.5-km QuikSCAT era (2003-2009, including ASCAT since 2007)
  - 19.4 total events per year
  - 11.3 gale, 8.1 storm
- Post-QuikSCAT era (2009-2012)
  - 21.6 events per year
  - 16.6 gale, 5 storm

Summary

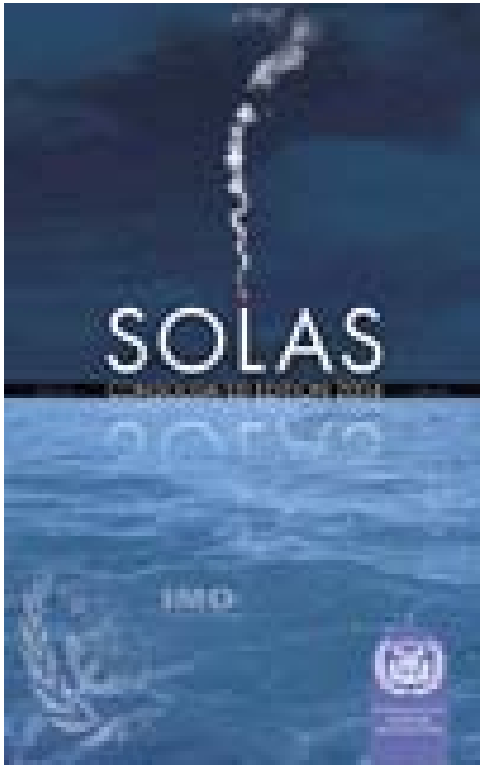
- **ASCAT Coastal / High Wind fully integrated into OPC and NHC operations**

- **OSCAT with Dec 21 L1b ISRO improvements and NESDIS StAR GMF becoming integrated into OPC and NHC operations.**
  - **Forecasters rapidly gaining familiarity**
  - **High bias for higher winds**
  - **Rain contamination an issue**
  - **Near QuikSCAT quality**
  - **Accelerating availability to coastal NWS Offices**
  - **Thrilled to have a wide swath scatterometer to complement ASCAT-A**

- **Preparing for ASCAT-B**

Safety of Life At Sea, 1974

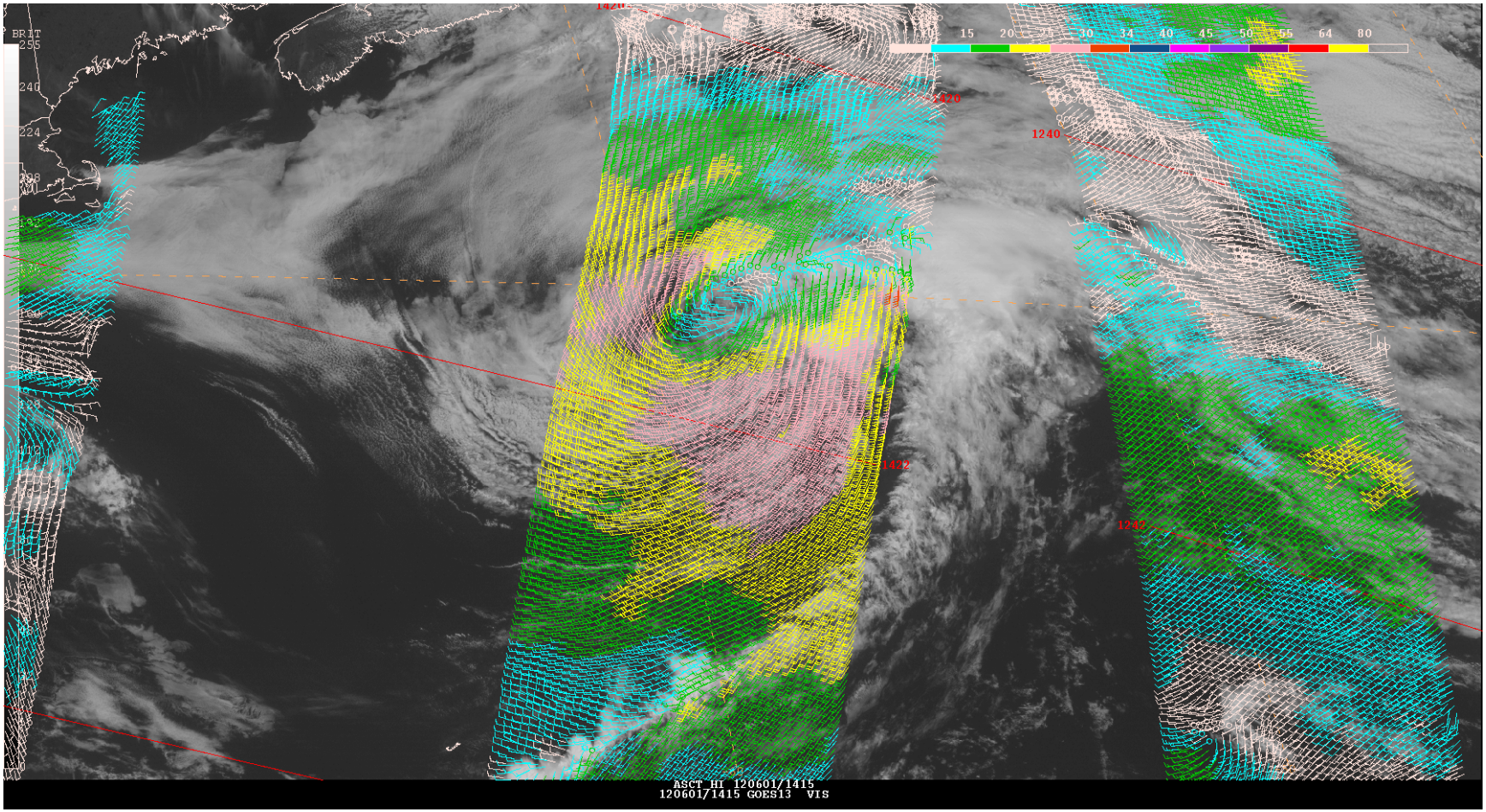
http://www.imo.org



- Chapter IV – Radio Communication
  - GMDSS
    http://www.navcen.uscg.gov/?pageName=GMDSS
- Chapter V – Safety of Navigation
  - Meteorological services

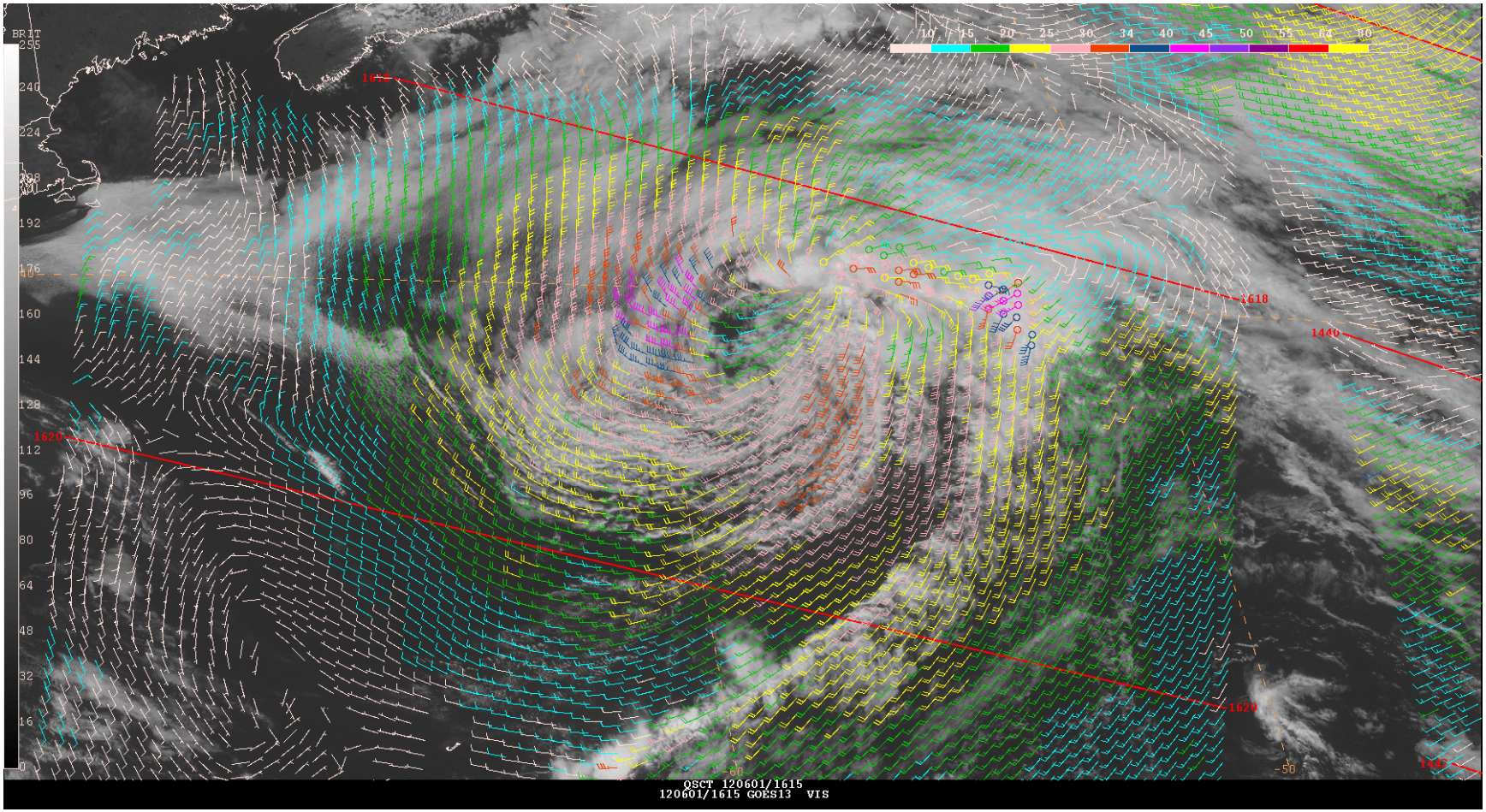
ASCAT

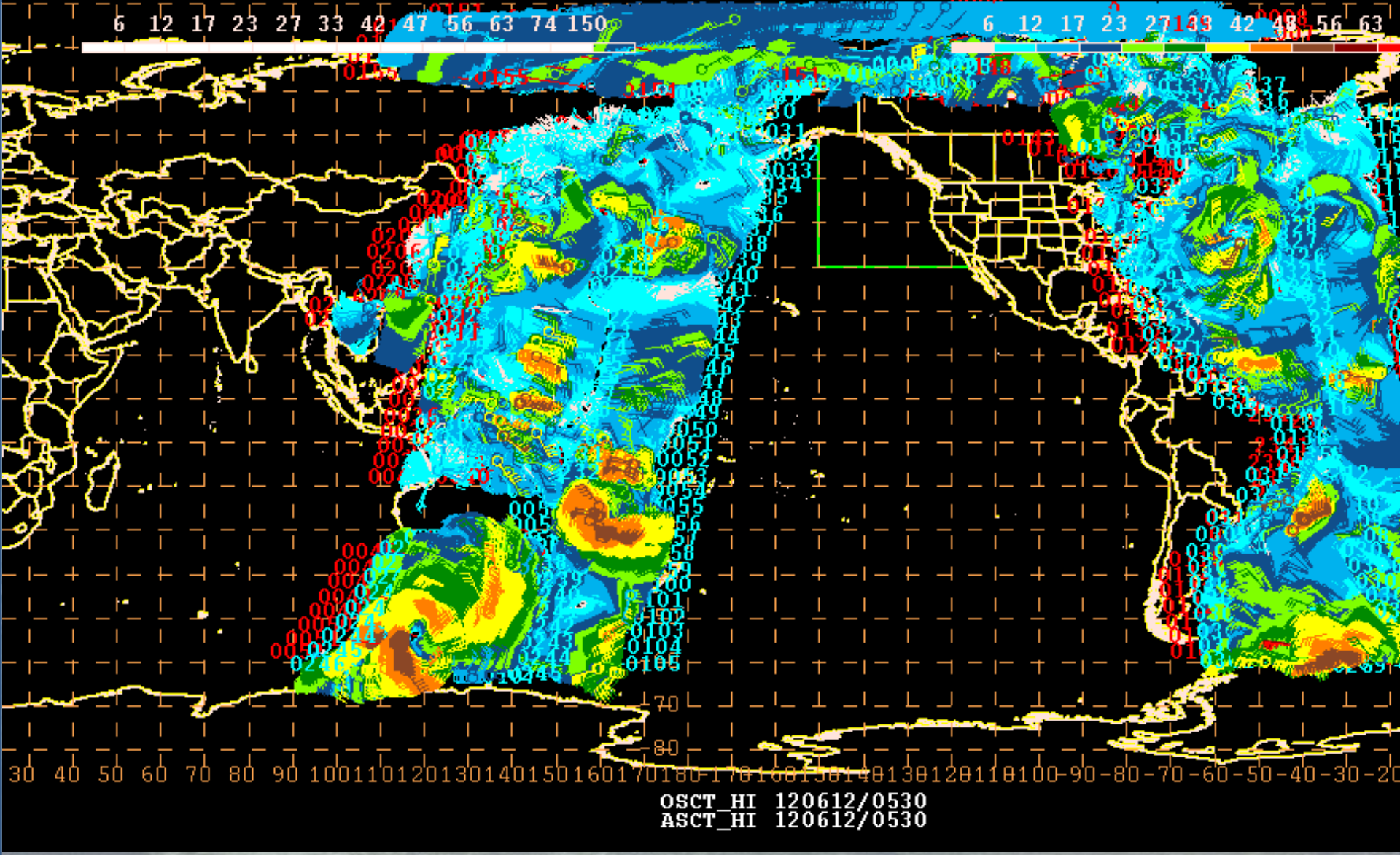
Extratropical Remnants of Beryl – 1422 UTC 1 June 2012



OSCAT

Extratropical Remnants of Beryl – 1618 UTC 1 June 2012





ASCAT-HI (25 km)
KNMI - Coastal Winds (pre-op)
NOAA High Winds

OSCAT-HI 25 km
starting point ISRO L1B
NOAA NESDIS High Winds