Are the oceans data sparse?

How forecasters are using GOES-R and JPSS proxy products to forecast maritime weather.

Joe Sienkiewicz, NOAA/NWS Ocean Prediction Center

Dr. Michael Folmer, UMD/CICS

02/17/2014 09:06




"90% of EVERYTHING"
by Rose George
"…the invisible industry…"

- Weather dependent
  - Winds and Waves
  - Visibility
  - Freezing Spray
  - Ice
  - Tstorms

U.S. High Seas Areas

OPC
OPC
NHC
HFO
NHC

journeys
200 500 1000 2000 >5000
<10 20 50 100 200

OPC Activities
Satellite Readiness

- N-AWIPS for graphical production, model assessment

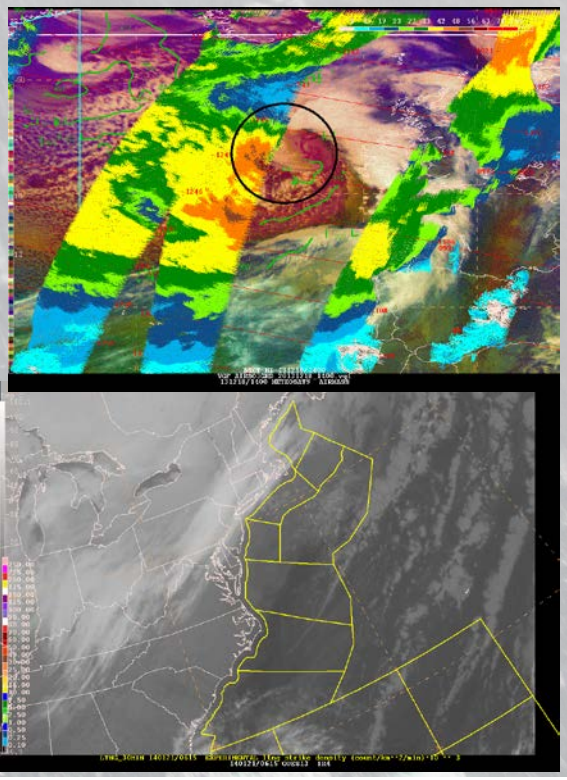
- Using AWIPS2 Graphical Forecast Editor for OFFshore bulletins

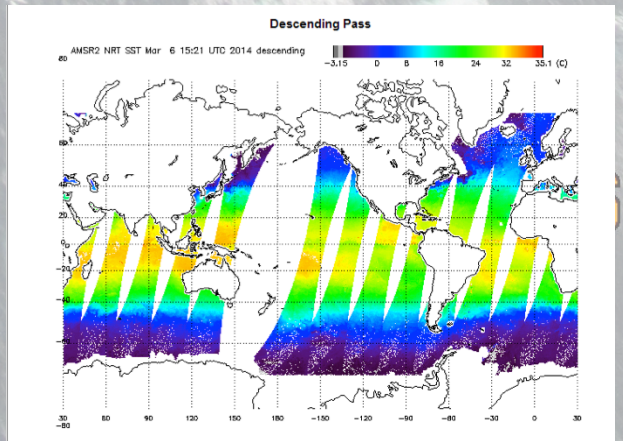
- Migrating to AWIPS2 and National Centers Perspective (NCP) (~2016)

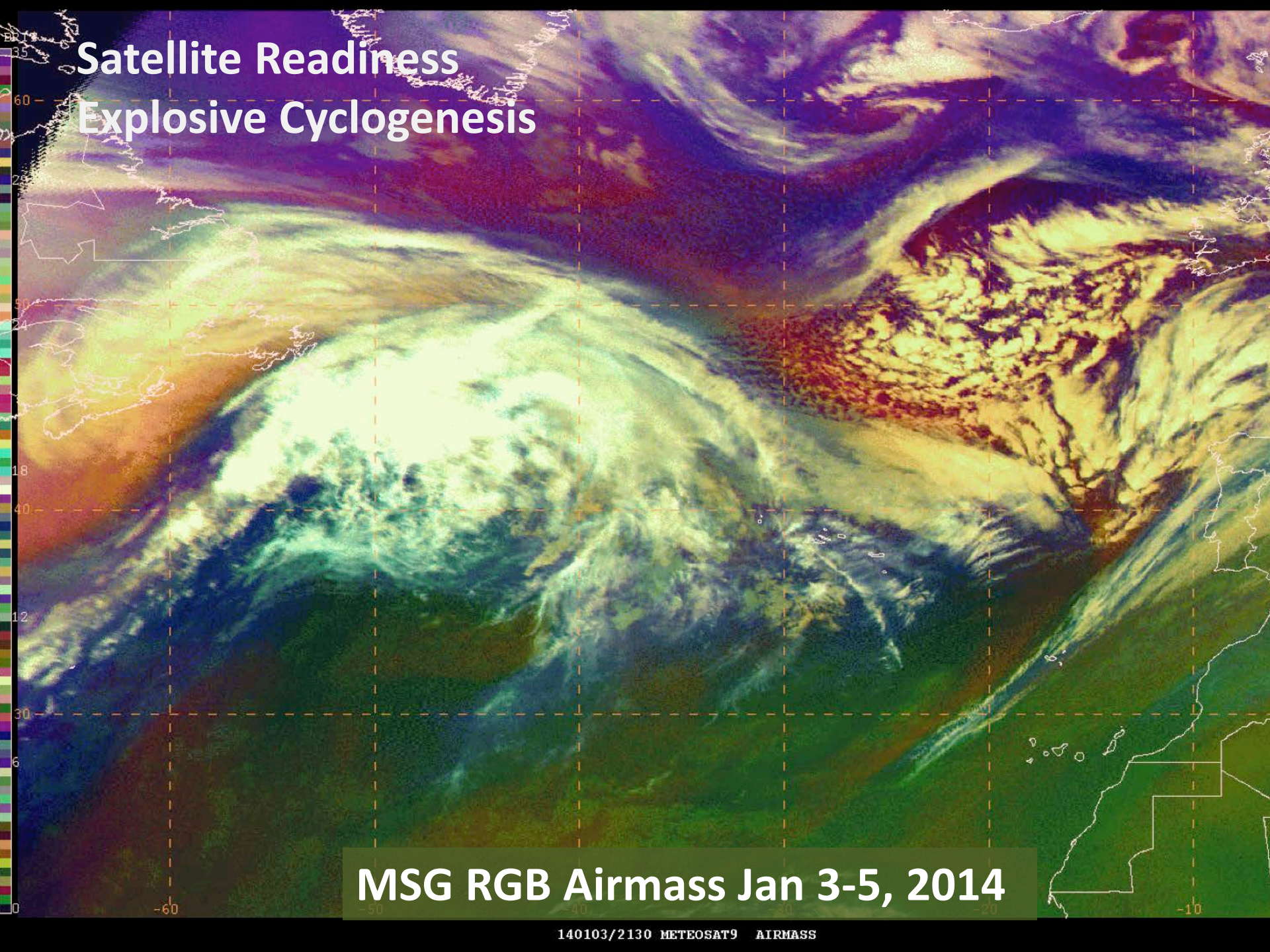
02/17/2014 09:06

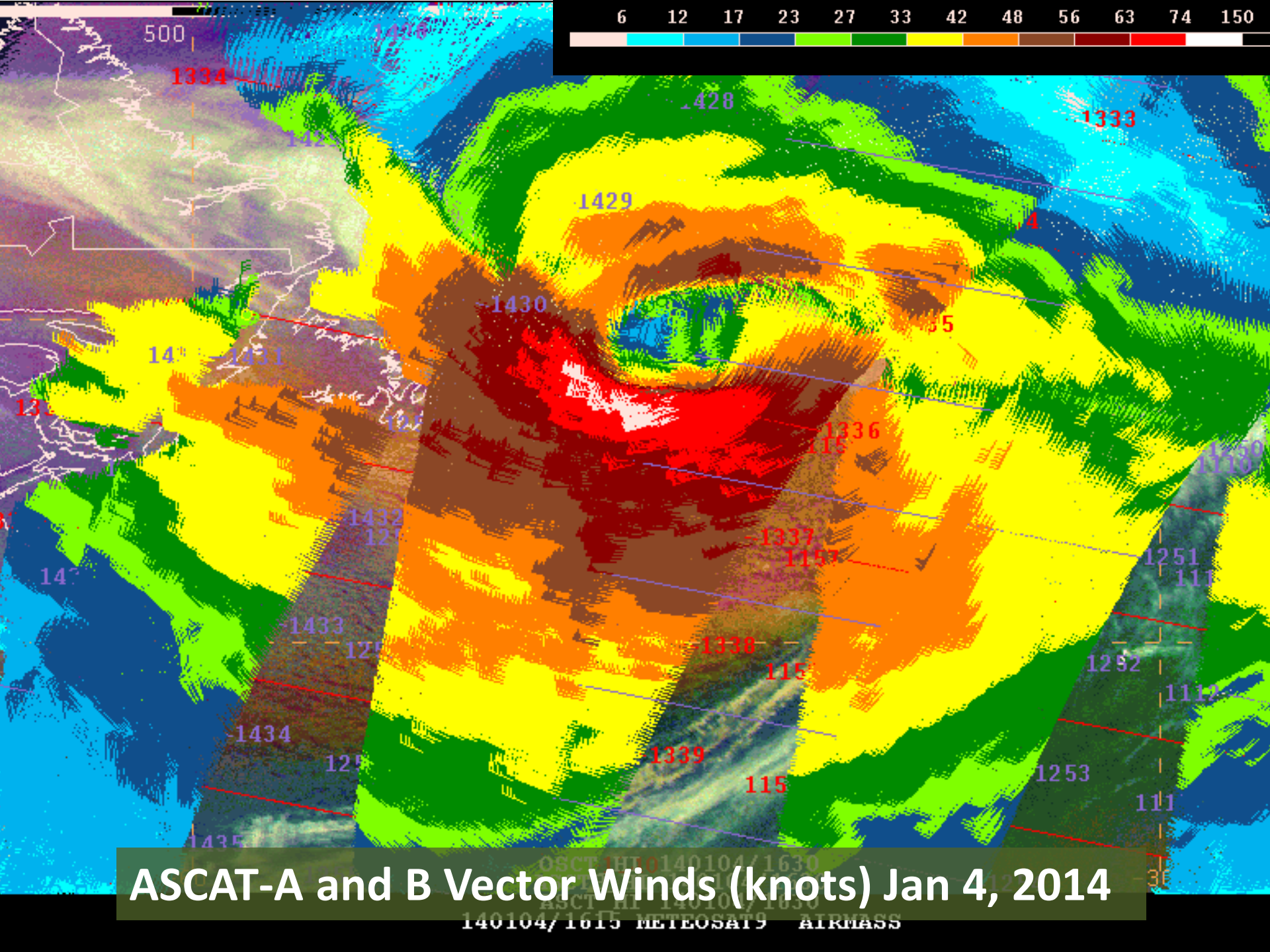
OPC Activities
Satellite Readiness

- ✓ Explosive Cyclogenesis
- ✓ Offshore Convection
  - – Lightning Strike Density
  - – Overshooting Tops
  - – High Temporal sampling
- Low clouds and fog
- Oceanographic products

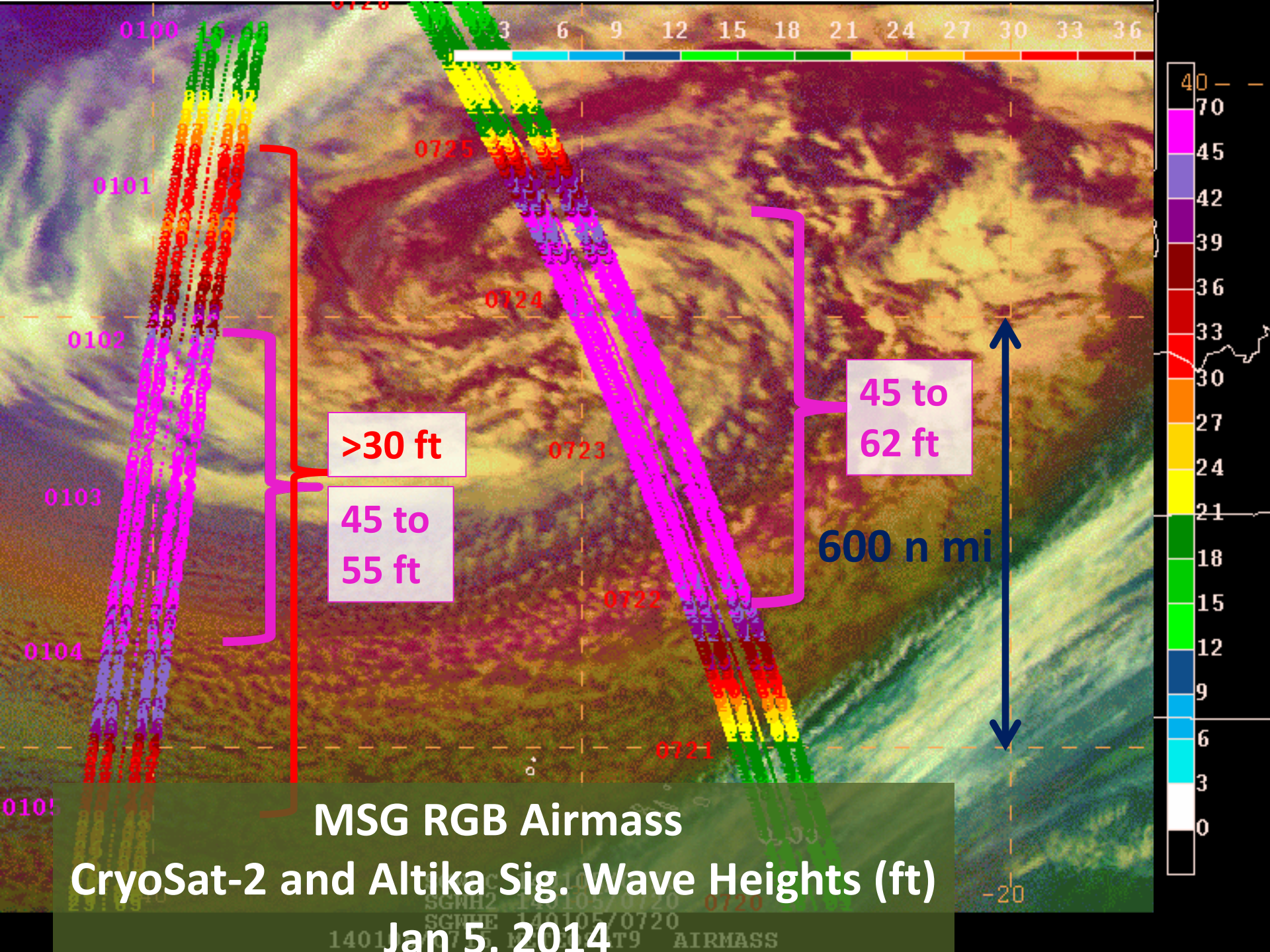




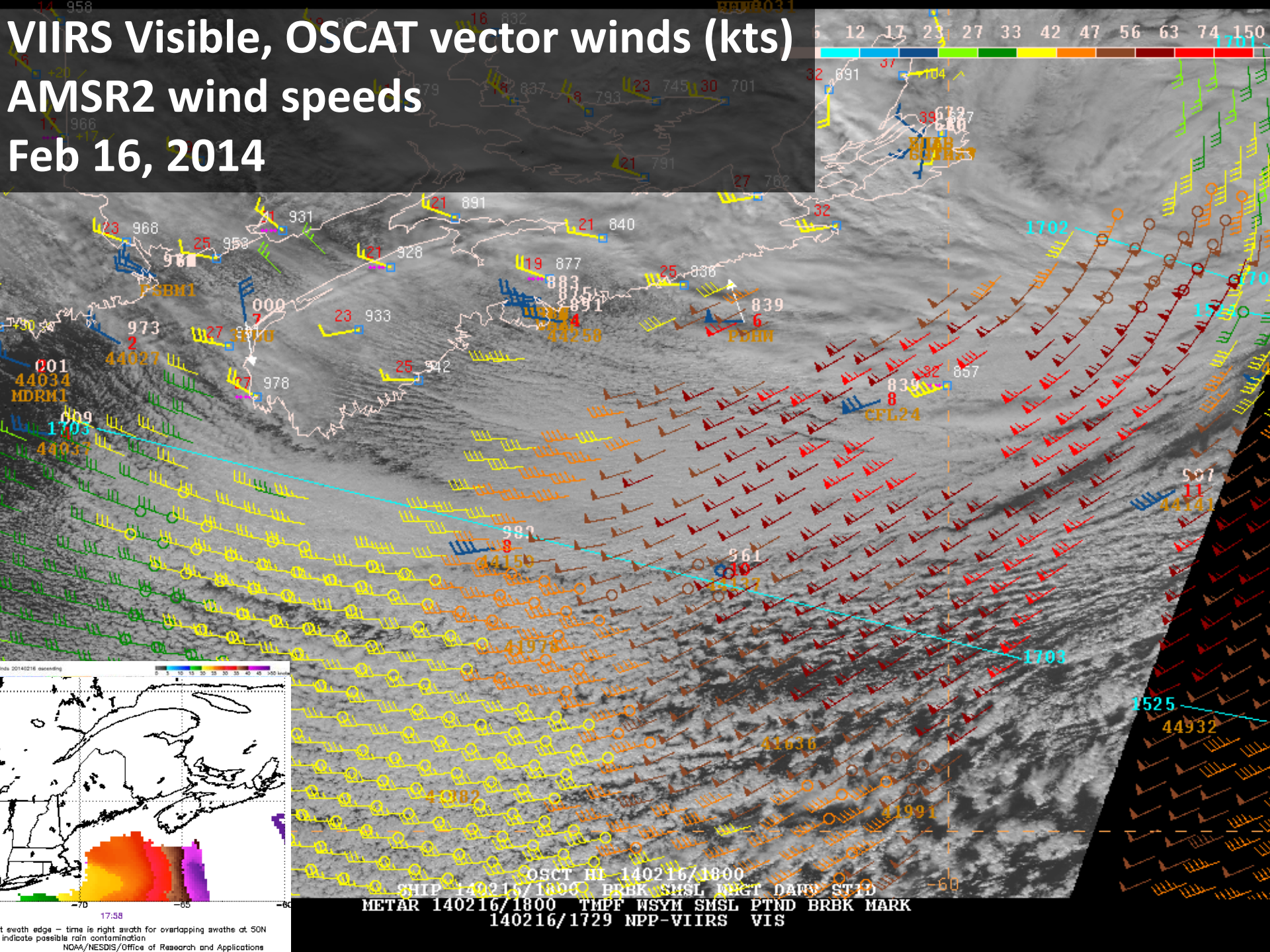

Satellite Readiness
Explosive Cyclogenesis
MSG RGB Airmass Jan 3-5, 2014
140103/2130 METEOSAT9 AIRMASS

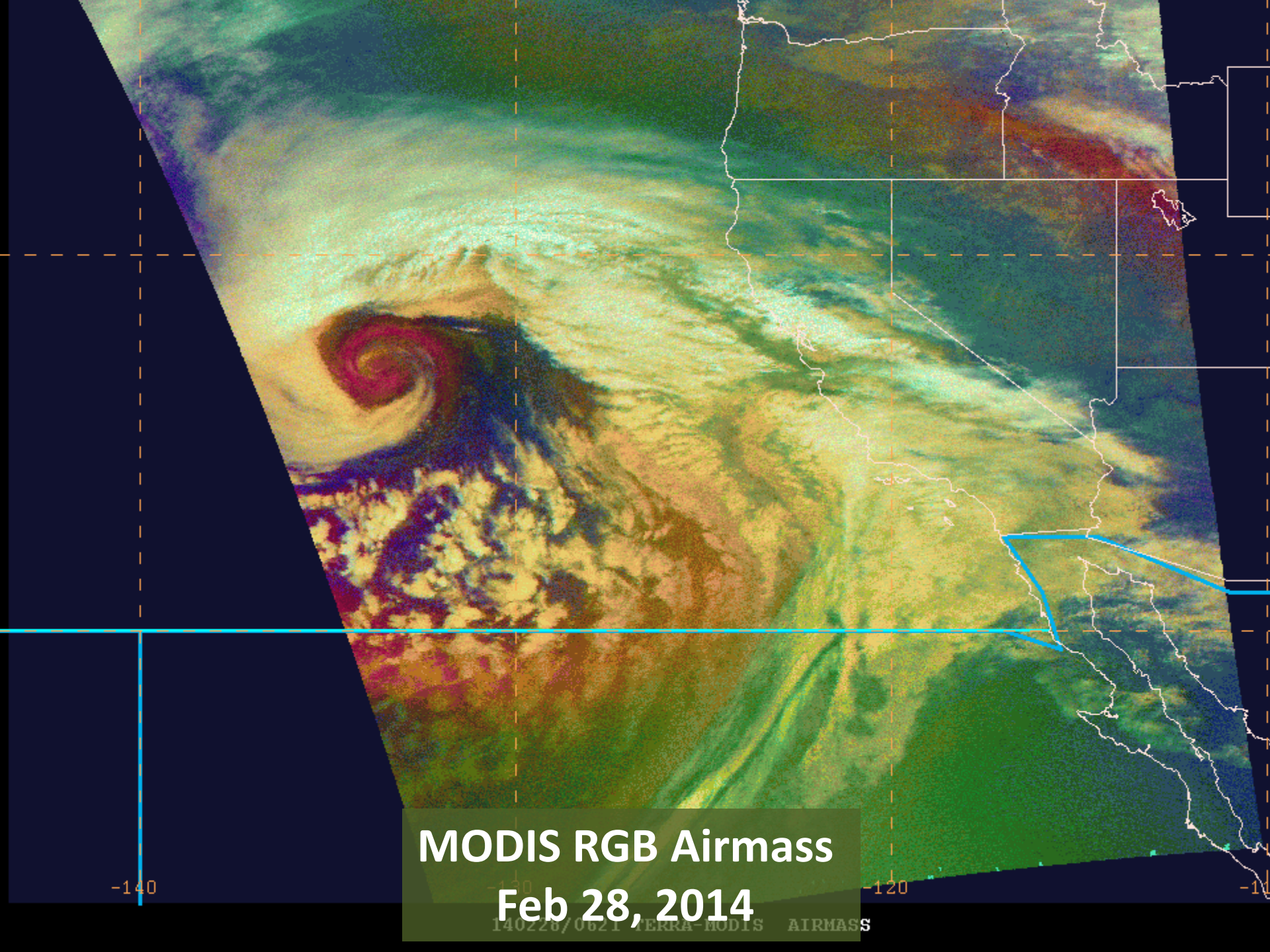


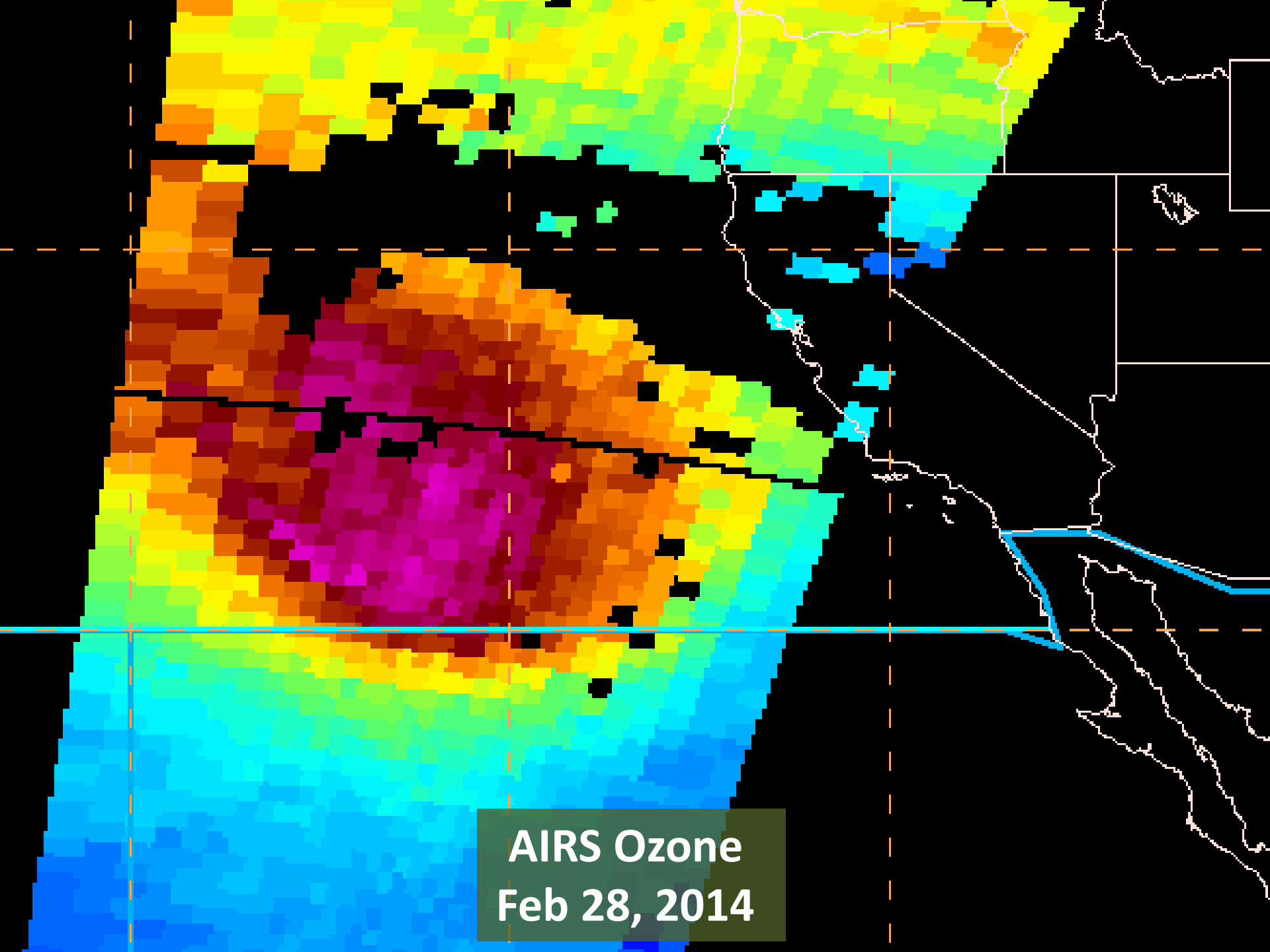
ASCAT-A and B Vector Winds (knots) Jan 4, 2014

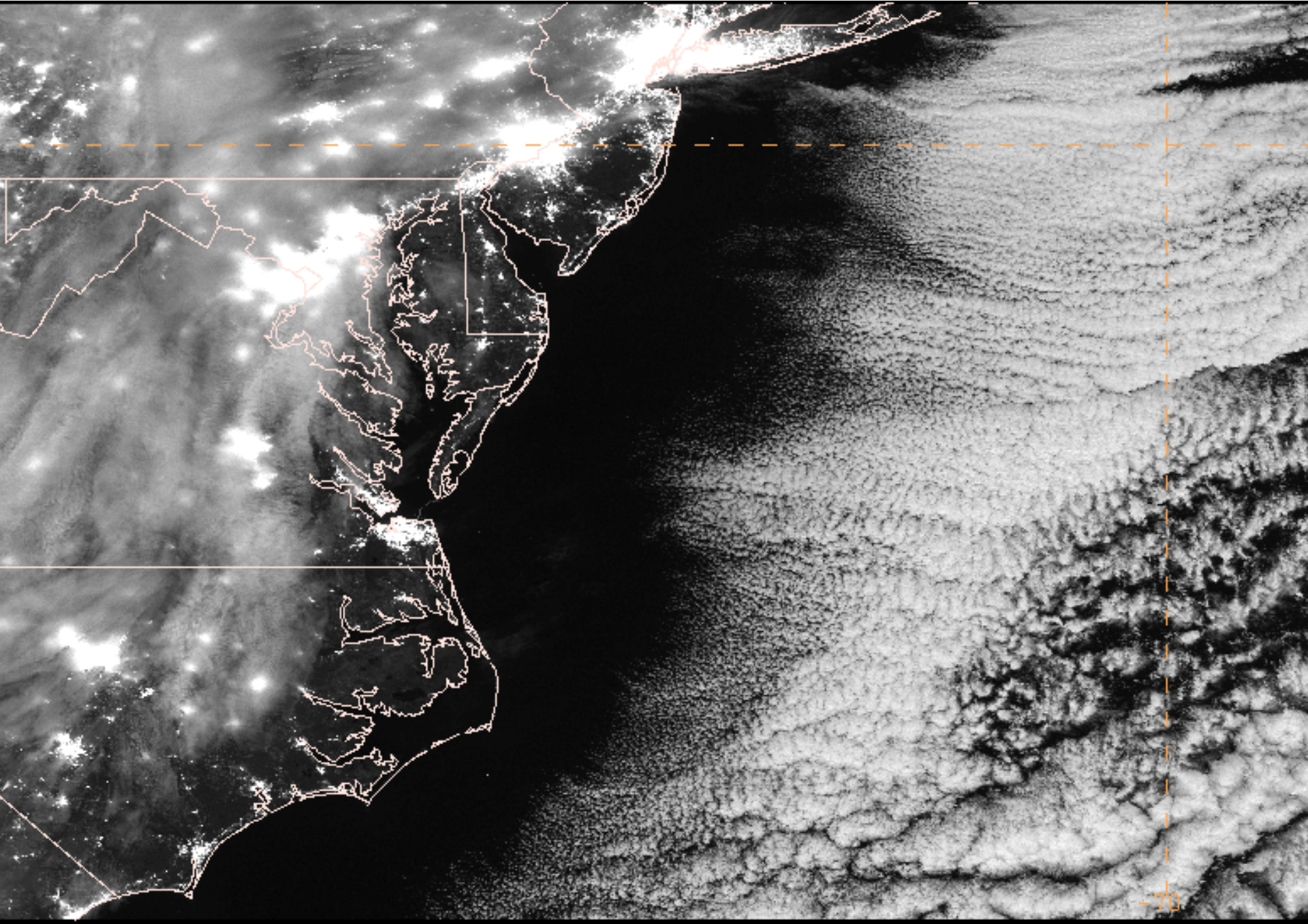

0100
0101
0102
0103
0104
0105
0725
0724
0723
0722
0721
3 6 9 12 15 18 21 24 27 30 33 36
40
70
45
42
39
36
33
30
27
24
21
18
15
12
9
6
3
0
>30 ft
45 to
55 ft
45 to
62 ft
600 n mi
-20
MSG RGB Airmass
CryoSat-2 and Altika Sig. Wave Heights (ft)
Jan 5, 2014

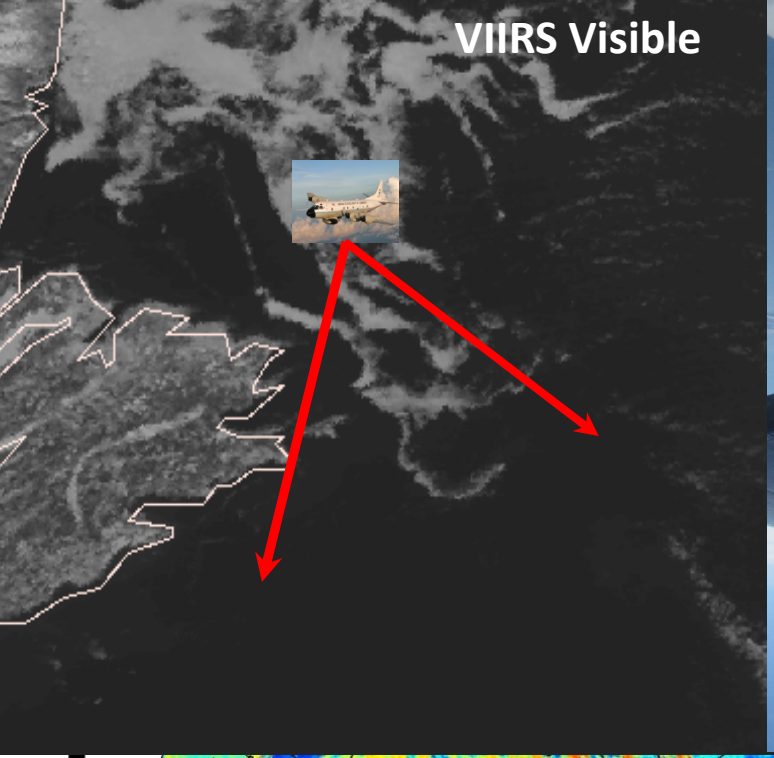
VIIRS Visible, OSCAT vector winds (kts)
AMSR2 wind speeds
Feb 16, 2014



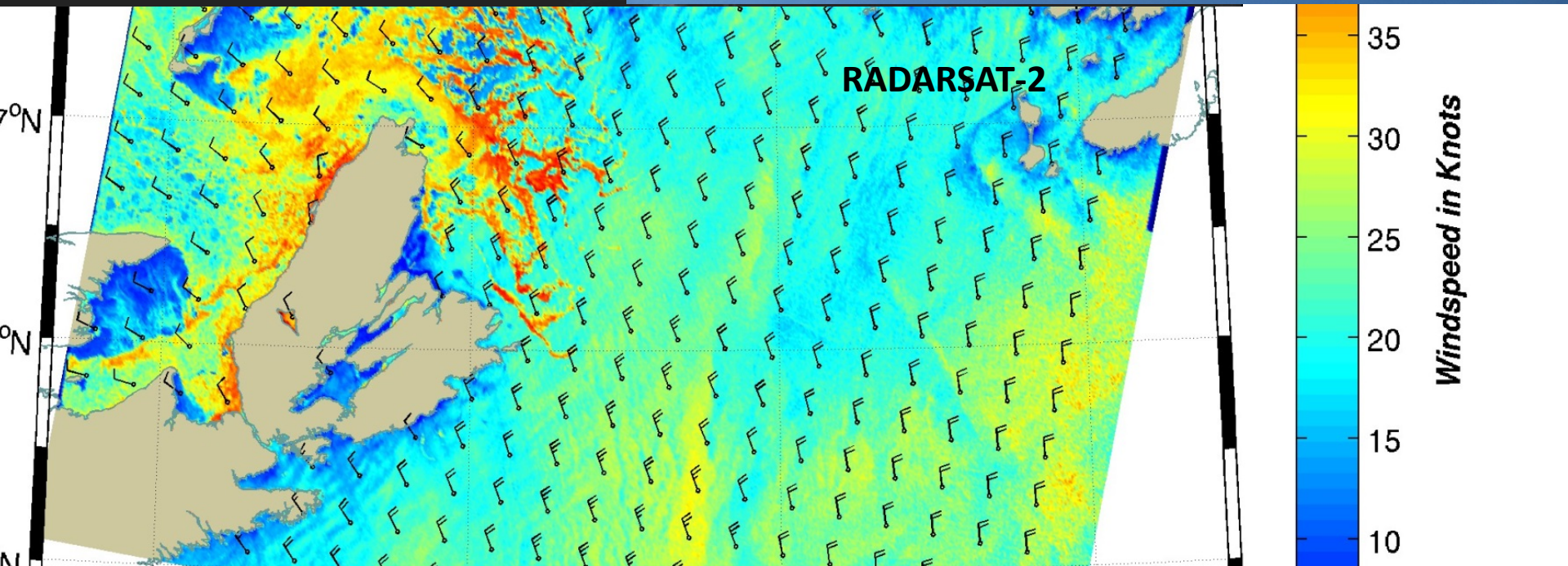

MODIS RGB Airmass
Feb 28, 2014
-140
-120
140228/0621 TERRA-MODIS AIRMASS


AIRS Ozone
Feb 28, 2014

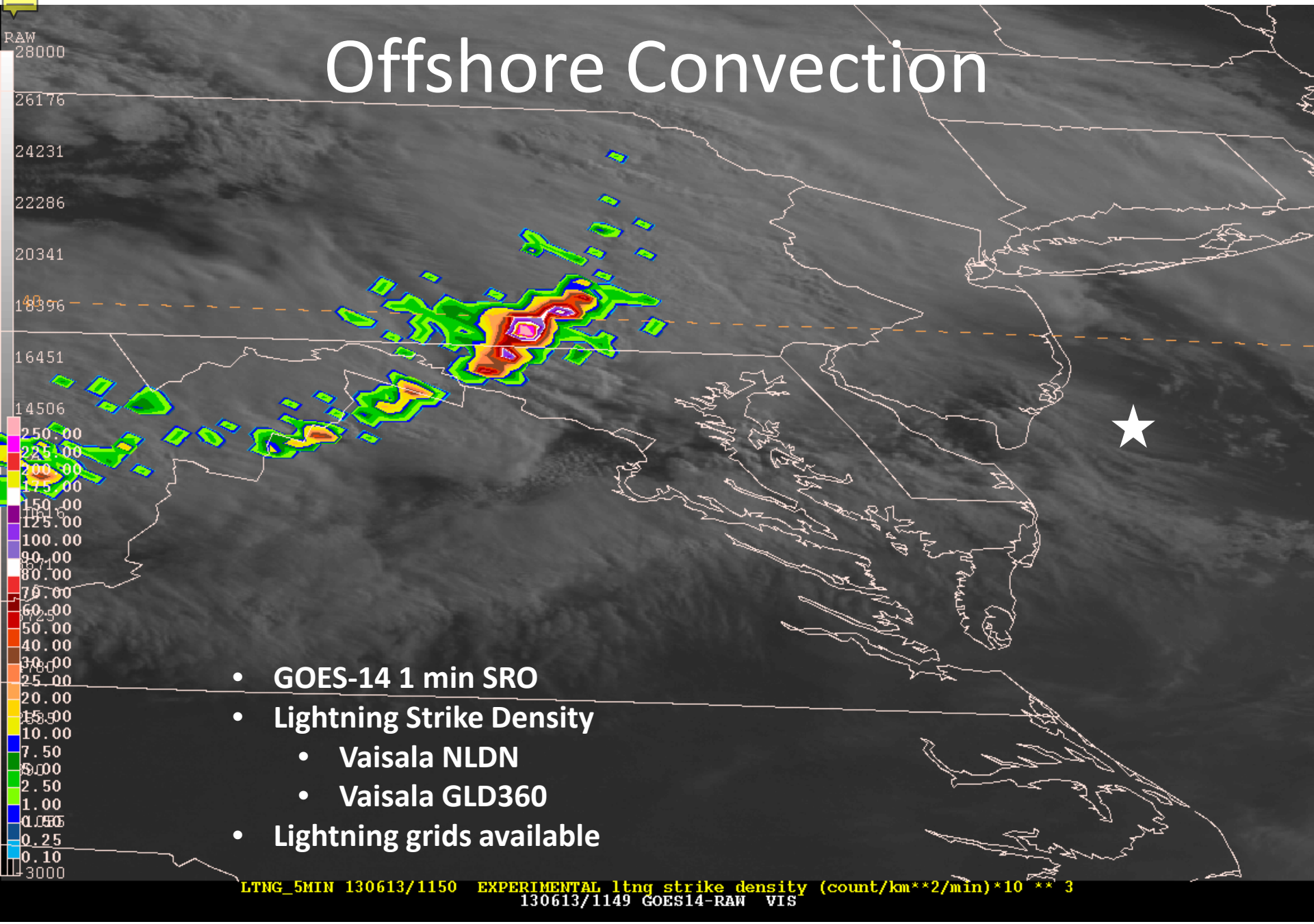

-70
140119/0628 NPP-VIIRS DNBRAD


VIIRS Visible


02/18/2014 19:10
Photo from NOAA P-3
18 Feb 2014

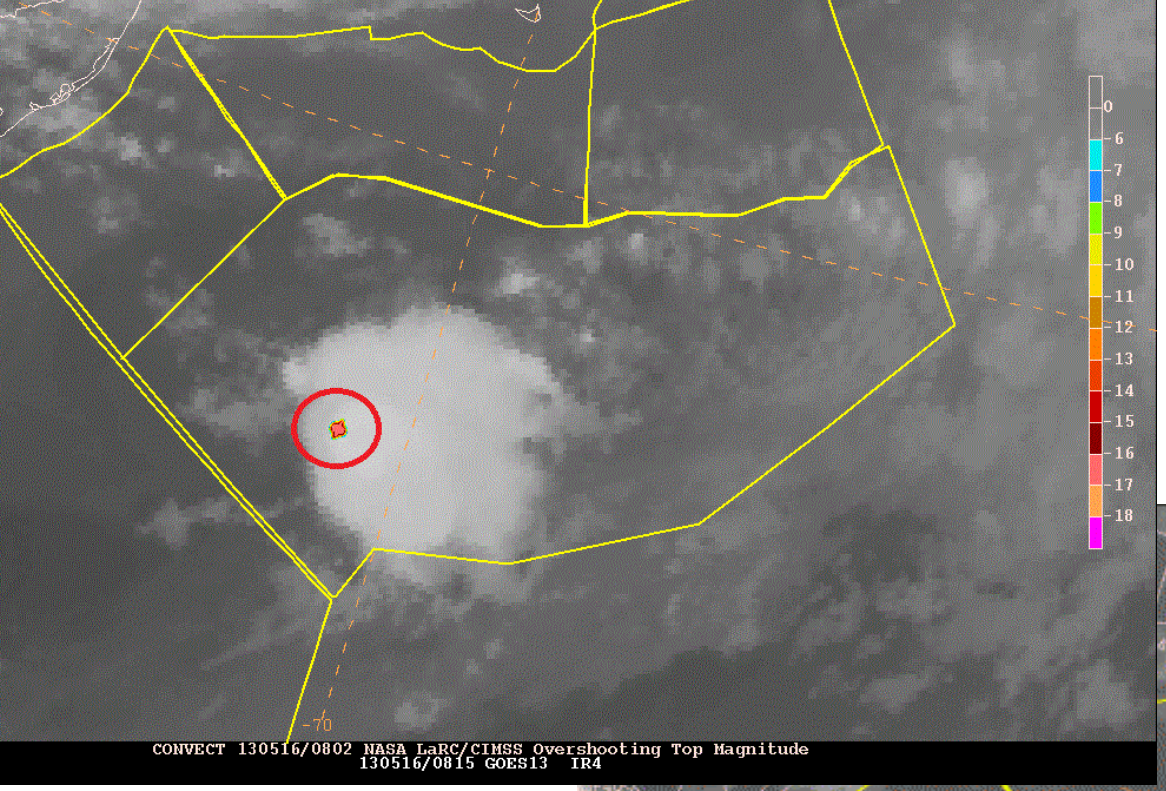

RADARSAT-2
7°N
°N
35
30
25
20
15
10
Windspeed in Knots

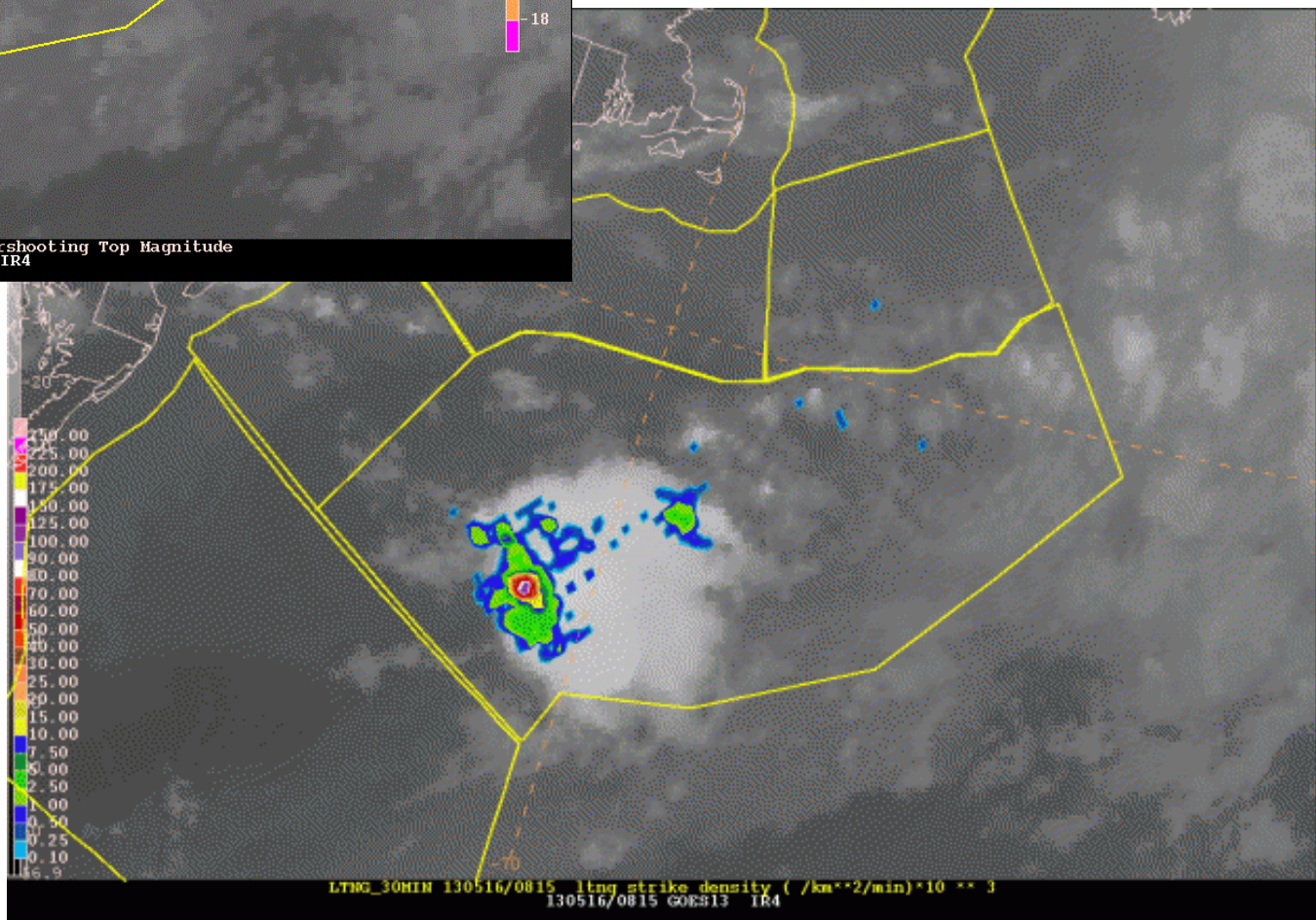
Offshore Convection



- GOES-14 1 min SRO
- Lightning Strike Density
  - Vaisala NLDN
  - Vaisala GLD360
- Lightning grids available

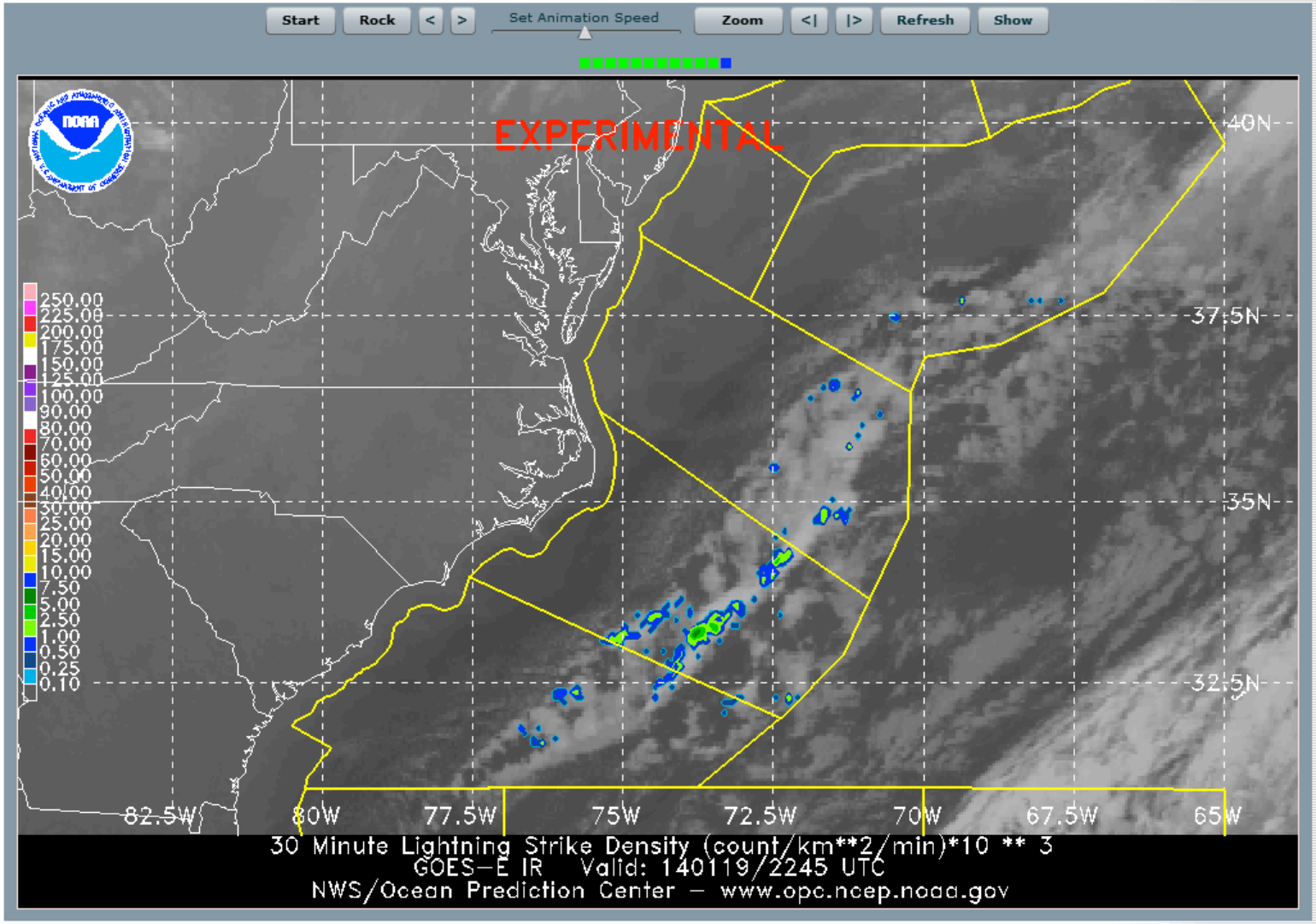
Offshore Convection


0
6
7
8
9
10
11
12
13
14
15
16
17
18
-70
CONVECT 130516/0802 NASA LaRC/CIMSS Overshooting Top Magnitude
130516/0815 GOES13 IR4


-20
-70
LTNG_30MIN 130516/0815 ltng strike density (/km**2/min)*10 ** 3
130516/0815 GOES13 IR4

Experimental Lightning Strike Density

Basin: Atlantic Pacific Sector: North South Satellite: IR VIS Loop: Off On



If you are having problems seeing these loops (requiring the Adobe Flash Player plugin) try the static images link.

Experimental Lightning Strike Density

Are the oceans data sparse?

Increasing reliance on remotely sensed data.

How forecasters are using GOES-R and JPSS proxy products to forecast maritime weather.

- Integrated into operations (i.e., MSG, Lightning Strike Density, Overshooting Tops)
- Observations of opportunity (Case Studies, examples) Suomi NPP, MODIS,
- Low clouds and fog (visibility) next
- Oceanographic focus
  - AMSR2 into NAWIPS
  - Temporal sampling for SST

Offshore Convection

http://goesrnatcentperspective.wordpress.com/