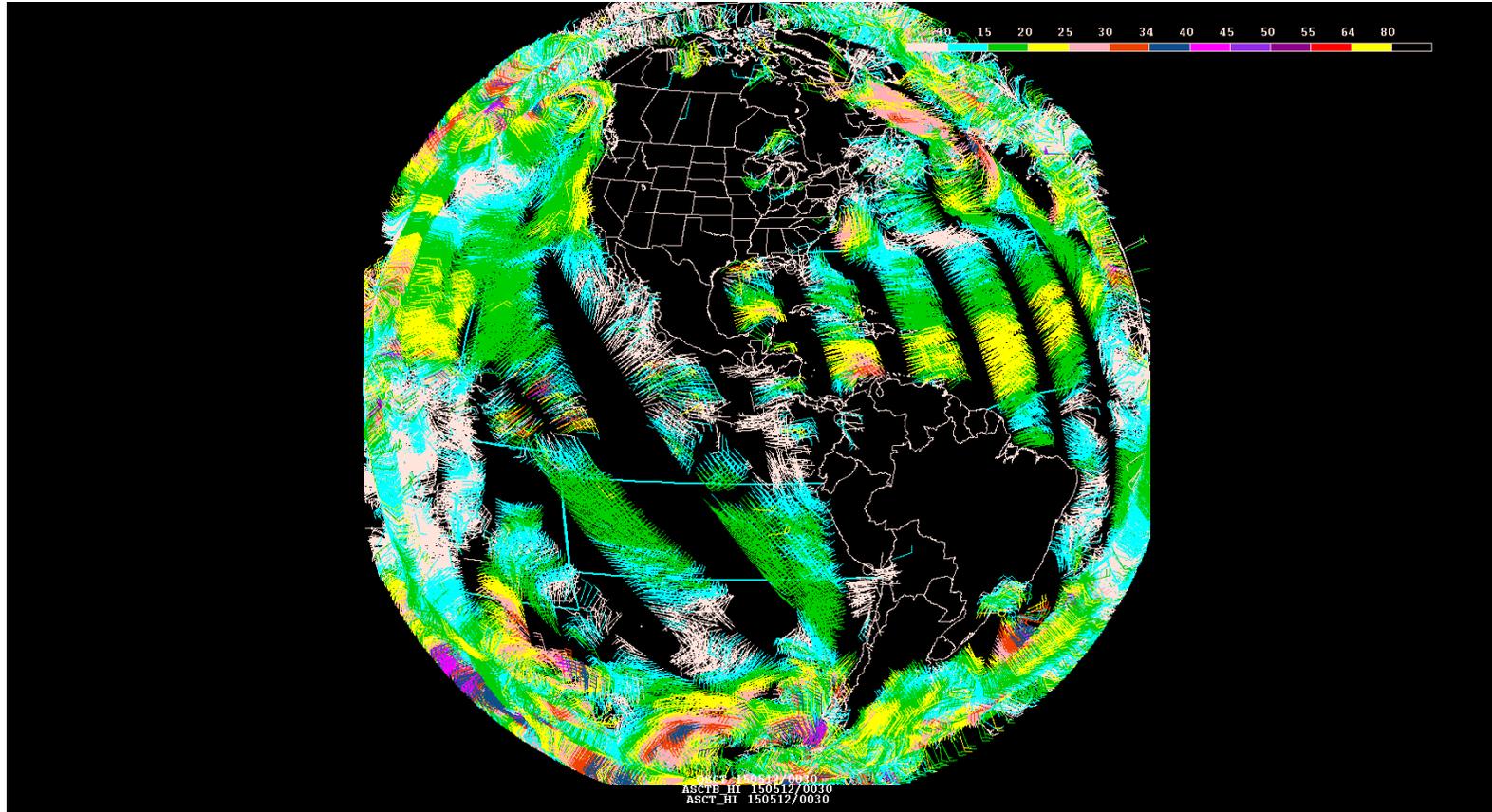


NHC Ocean Vector Winds Update



Michael J. Brennan

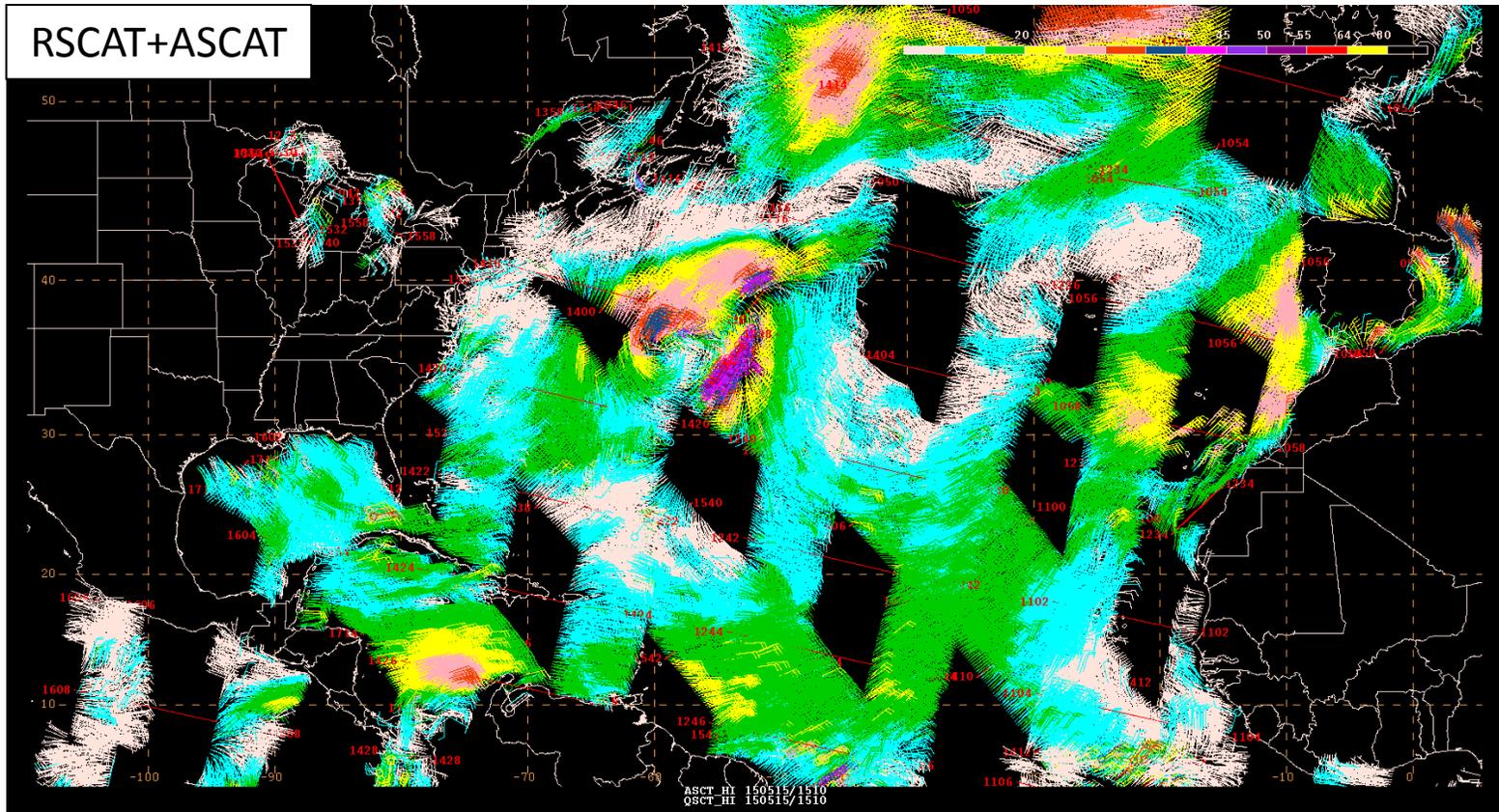
NOAA/NWS/NCEP National Hurricane Center

International Ocean Vector Winds Science Team Meeting

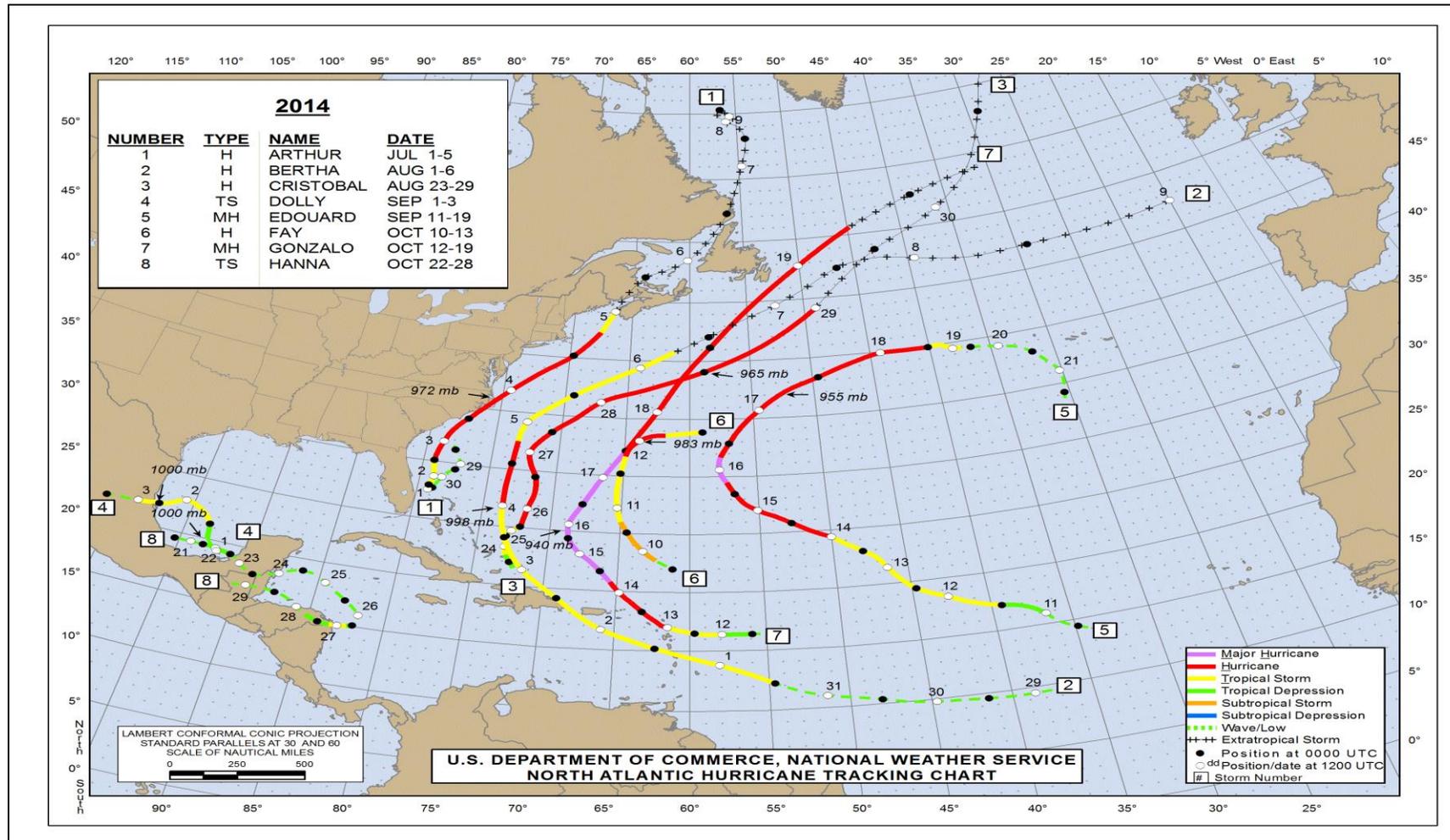
Portland, Oregon, 20 May 2015

Current Status

- NHC is currently using ASCAT-A, ASCAT-B, and RapidScat in operations
- ISS orbit provides swaths cutting SE/NW or NW/SE across the subtropics and tropics
- These orbits cut across ASCAT swaths and help fill gaps in coverage at lower latitudes



2014 Atlantic Hurricane Season

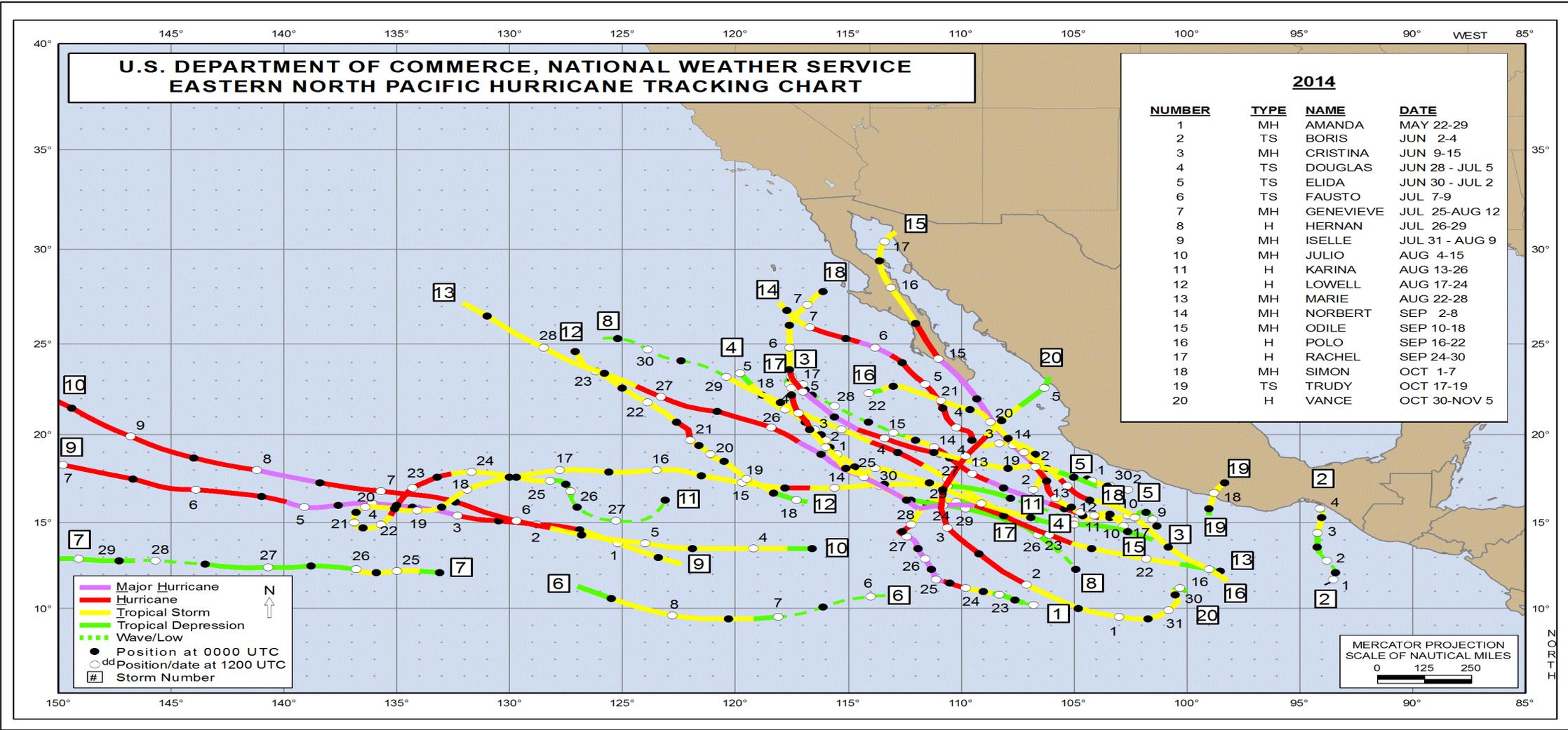


Below normal activity overall (12 named storms, 6 hurricane, 3 major)

ACE = 72% of median

One hurricane landfall in the U.S. (Arthur) and two in Bermuda

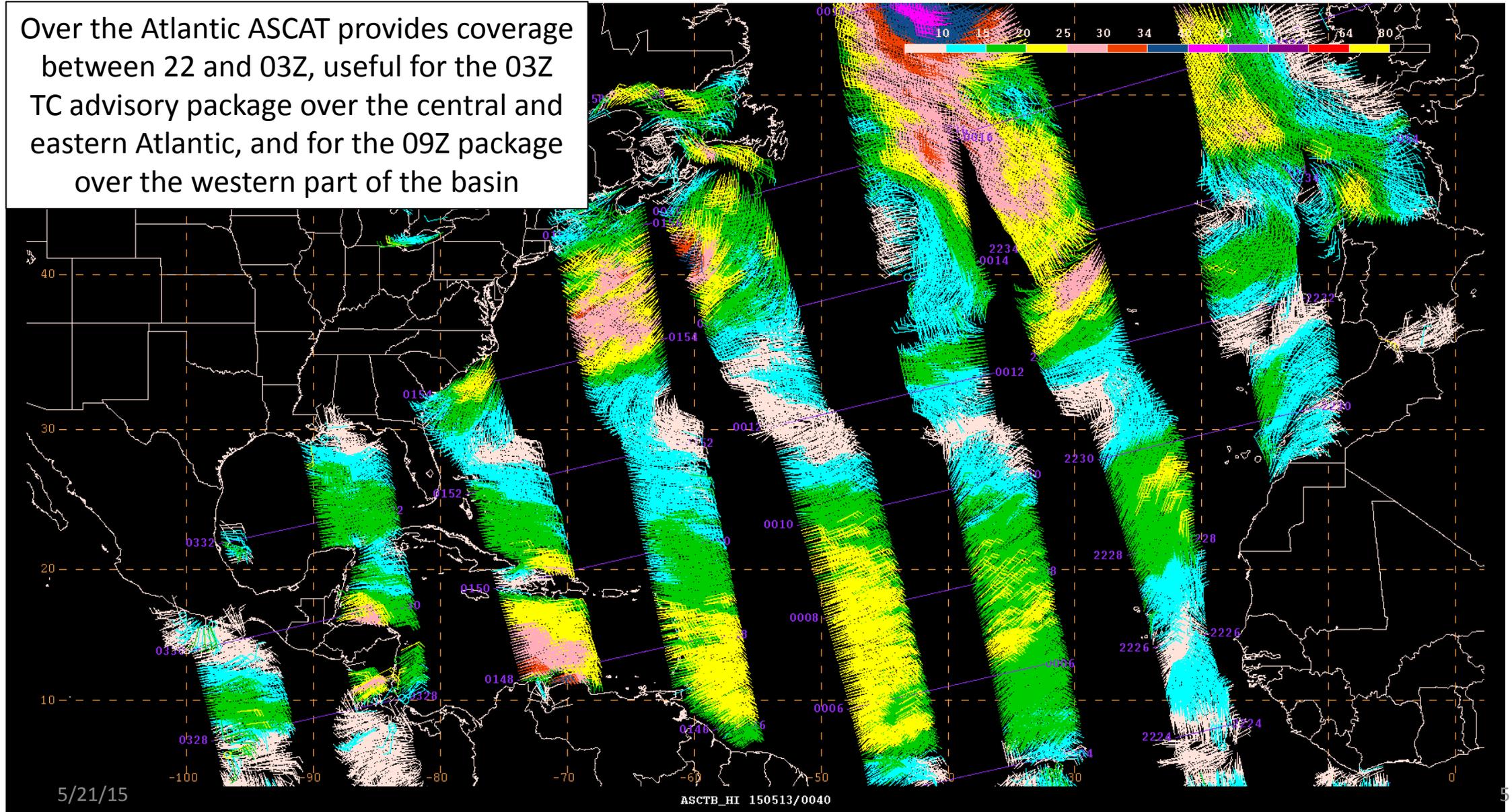
2014 East Pacific Hurricane Season



Very busy – 20 named storms, 14 hurricanes (8 major)
 ACE = 162% of median
 Significant impacts in Hawaii, Mexico

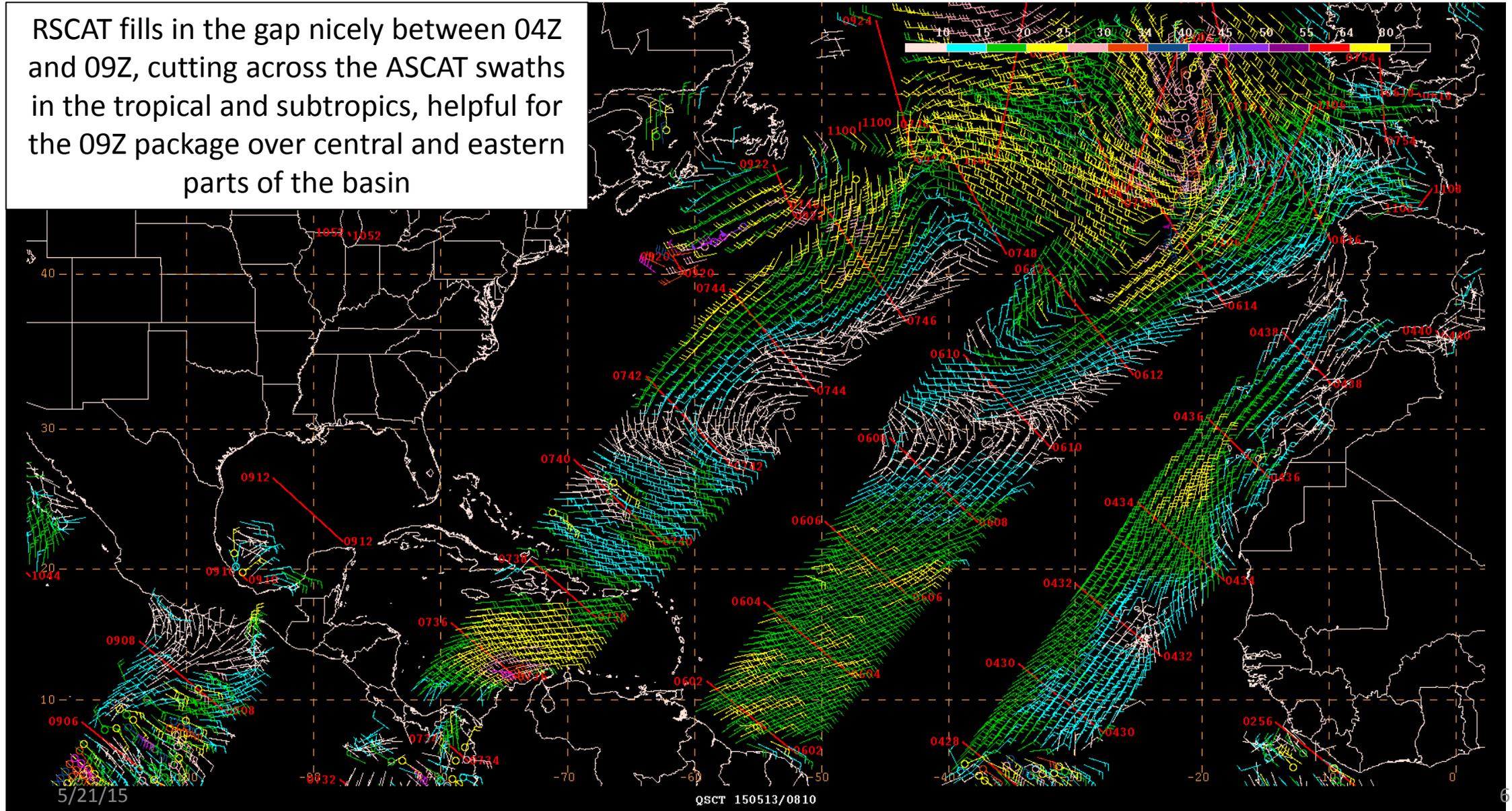
ASCAT vs. RSCAT coverage

Over the Atlantic ASCAT provides coverage between 22 and 03Z, useful for the 03Z TC advisory package over the central and eastern Atlantic, and for the 09Z package over the western part of the basin



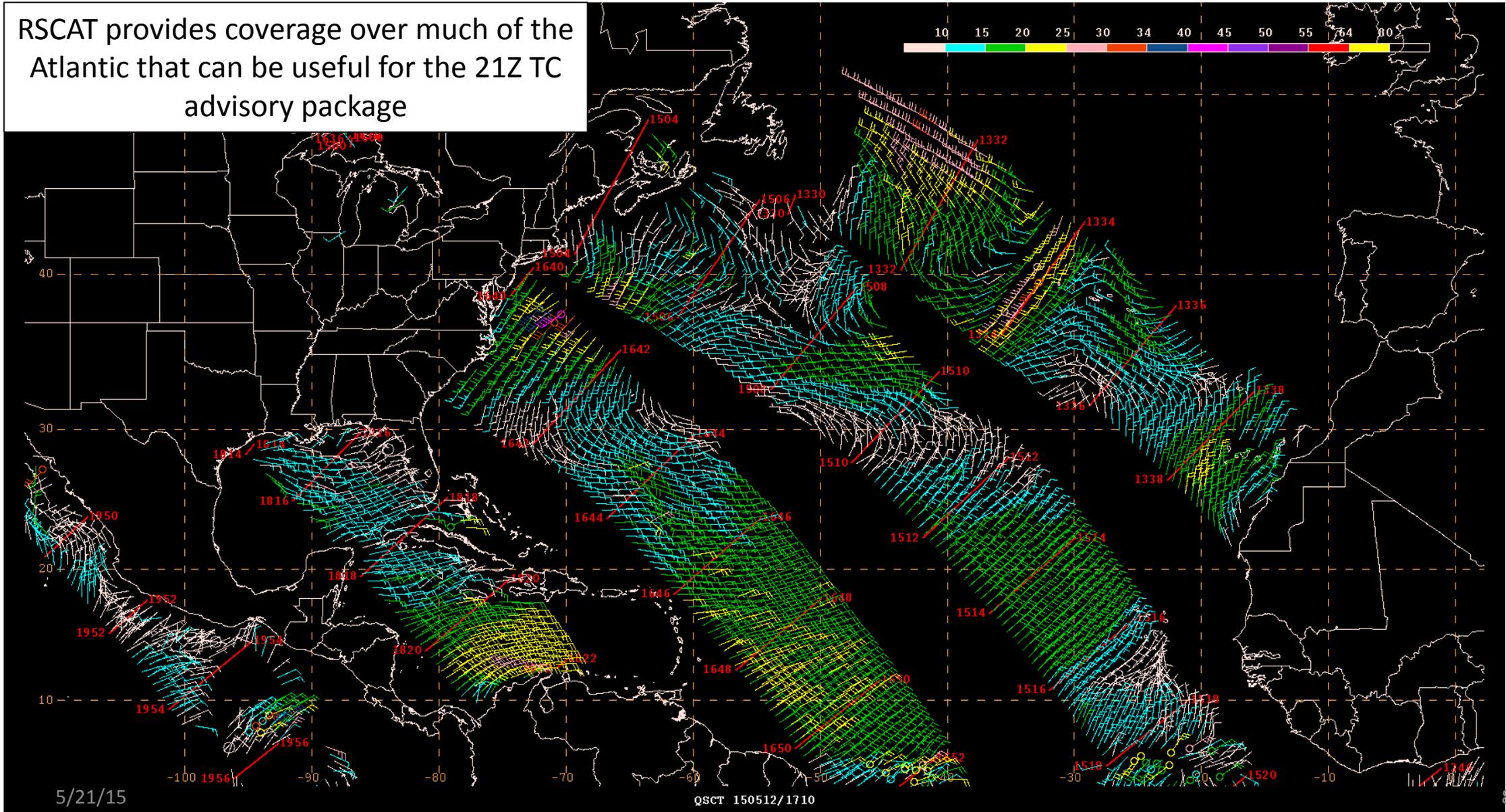
ASCAT vs. RSCAT coverage

RSCAT fills in the gap nicely between 04Z and 09Z, cutting across the ASCAT swaths in the tropical and subtropics, helpful for the 09Z package over central and eastern parts of the basin

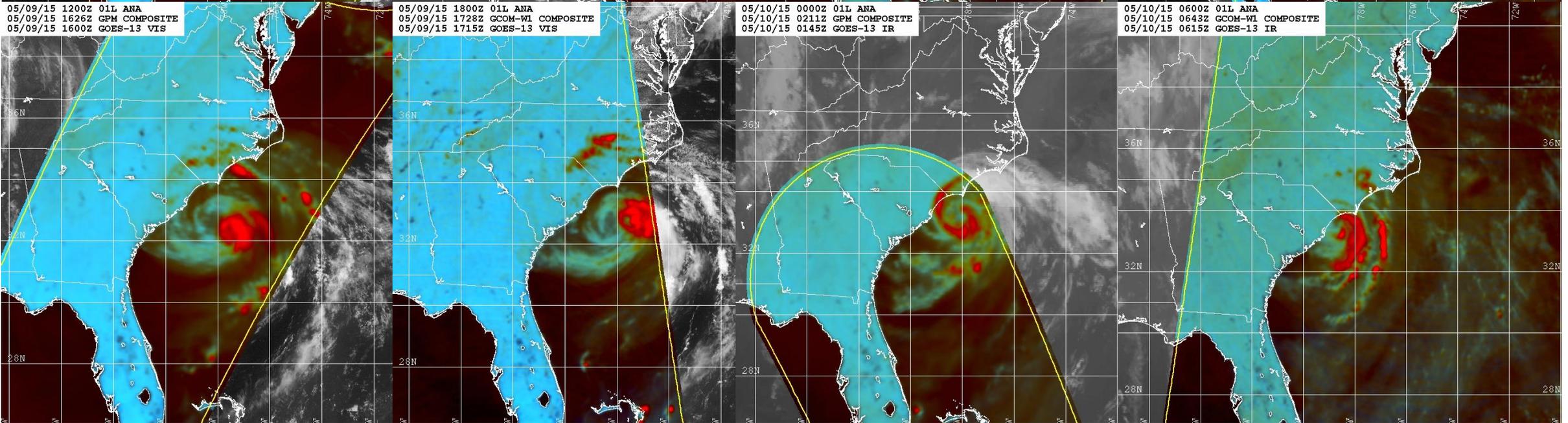
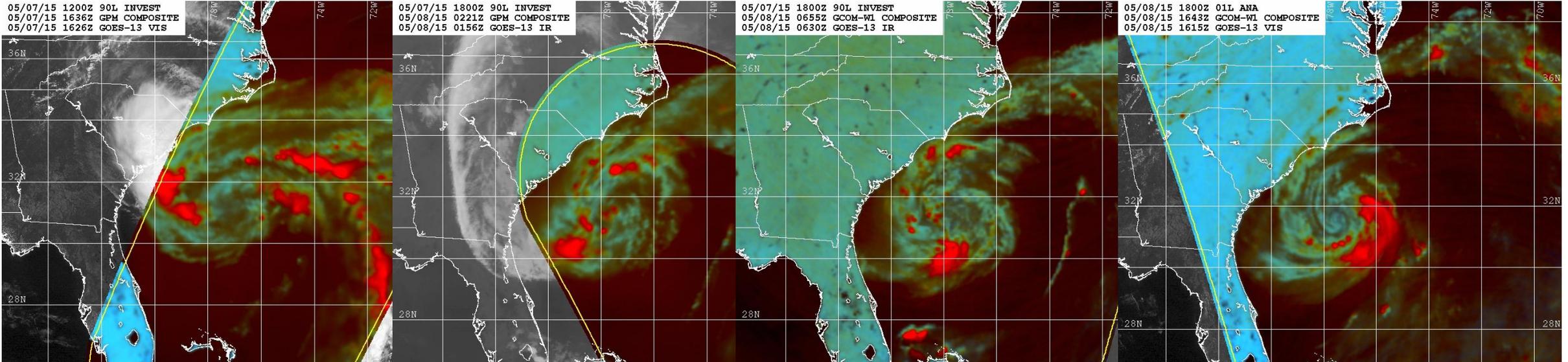


ASCAT vs. RSCAT coverage

RSCAT provides coverage over much of the Atlantic that can be useful for the 21Z TC advisory package

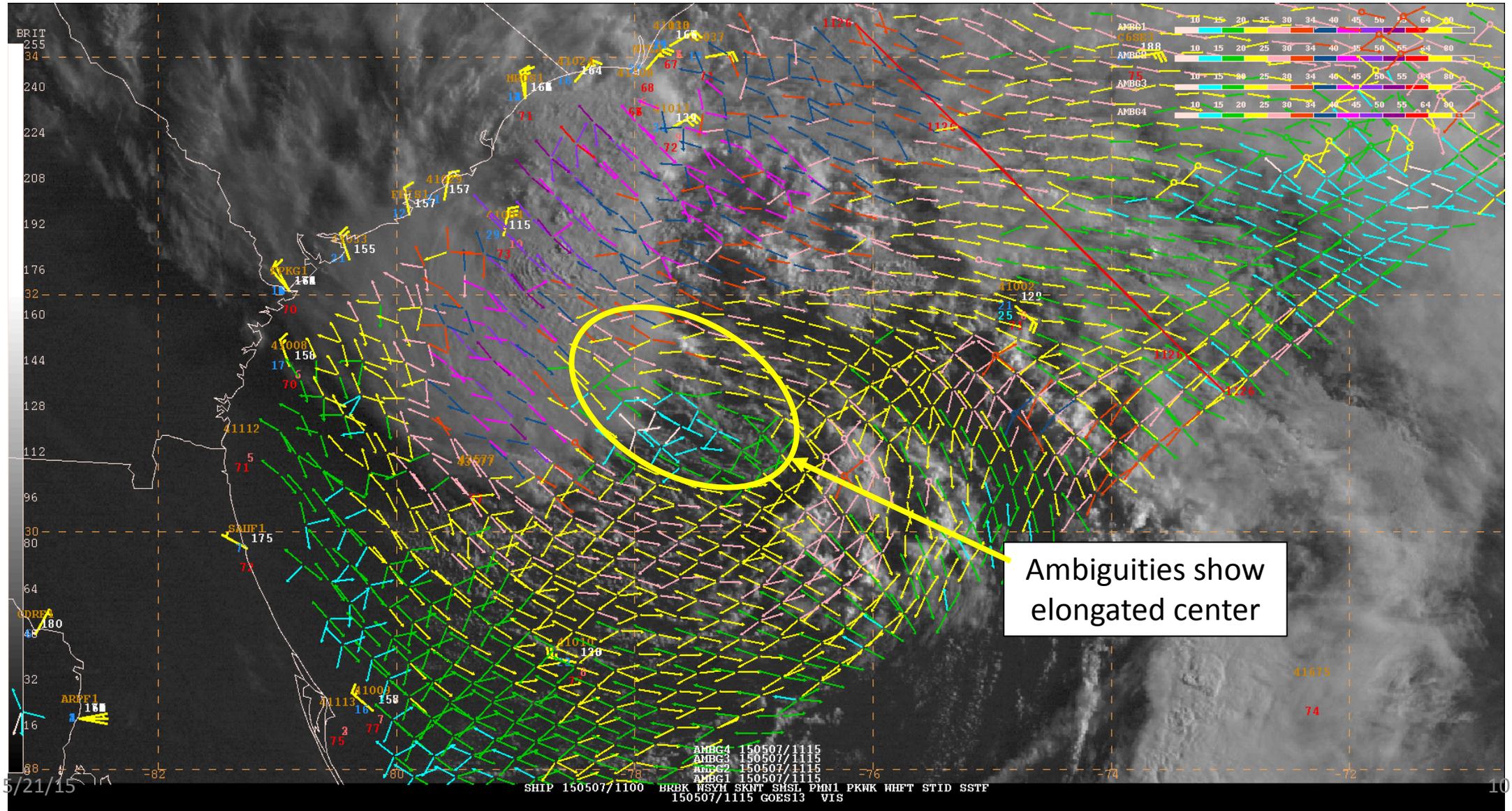


Ana's Lifecycle



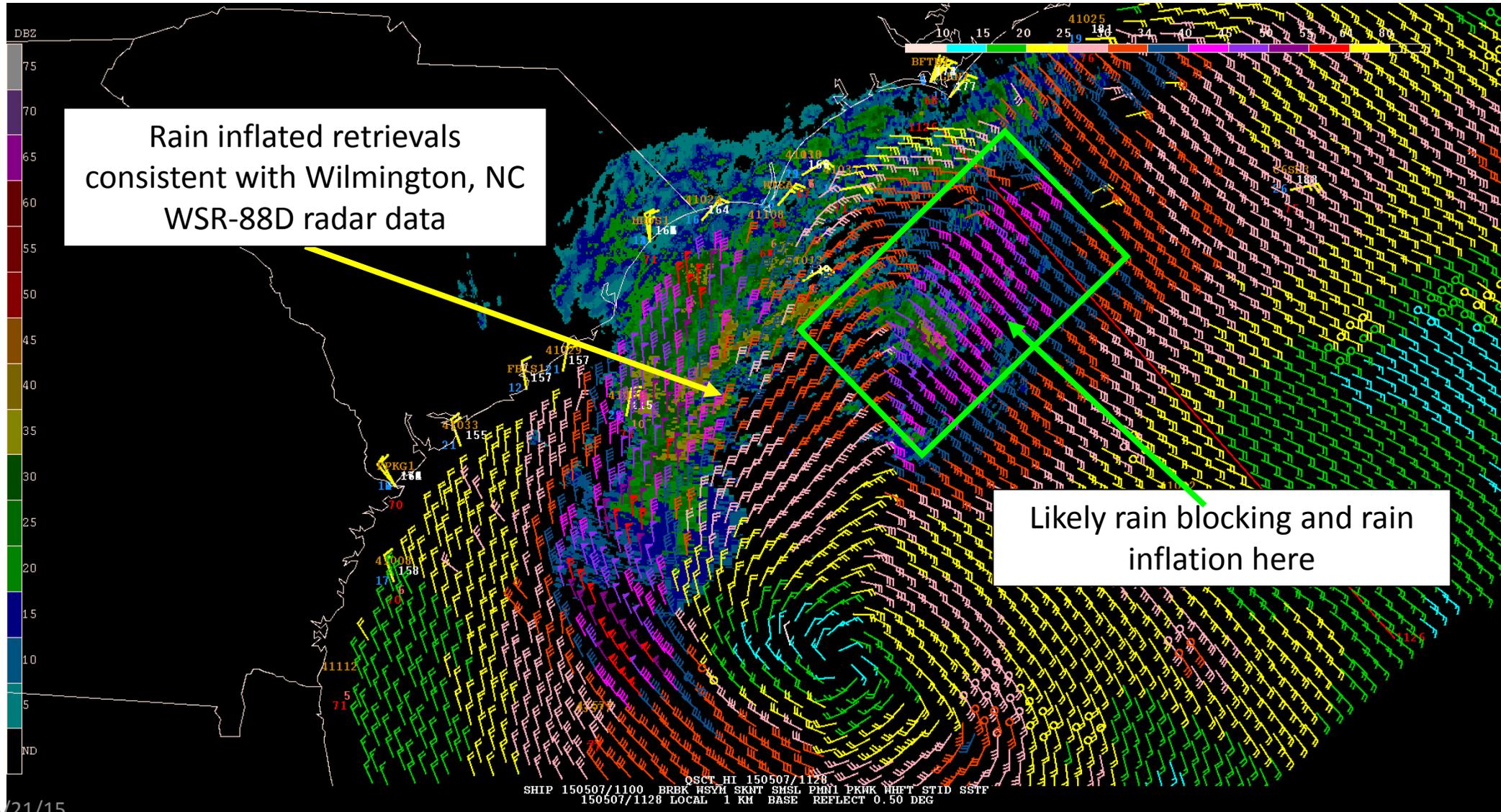
Subtropical Storm Ana

1126Z 7 May (pre genesis)



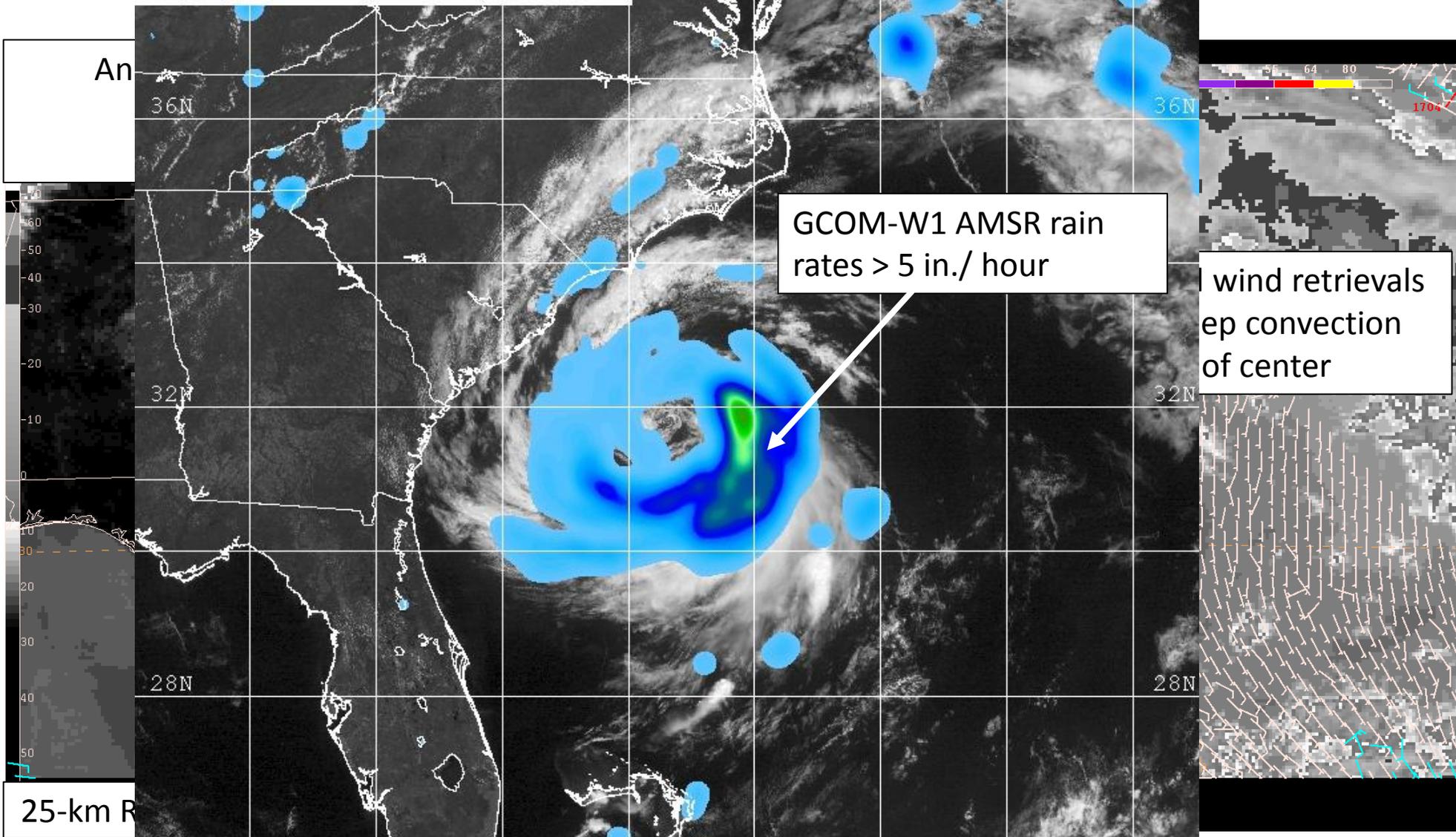
Subtropical Storm Ana

1126Z 7 May (pre genesis)



Subtropical Storm Ana

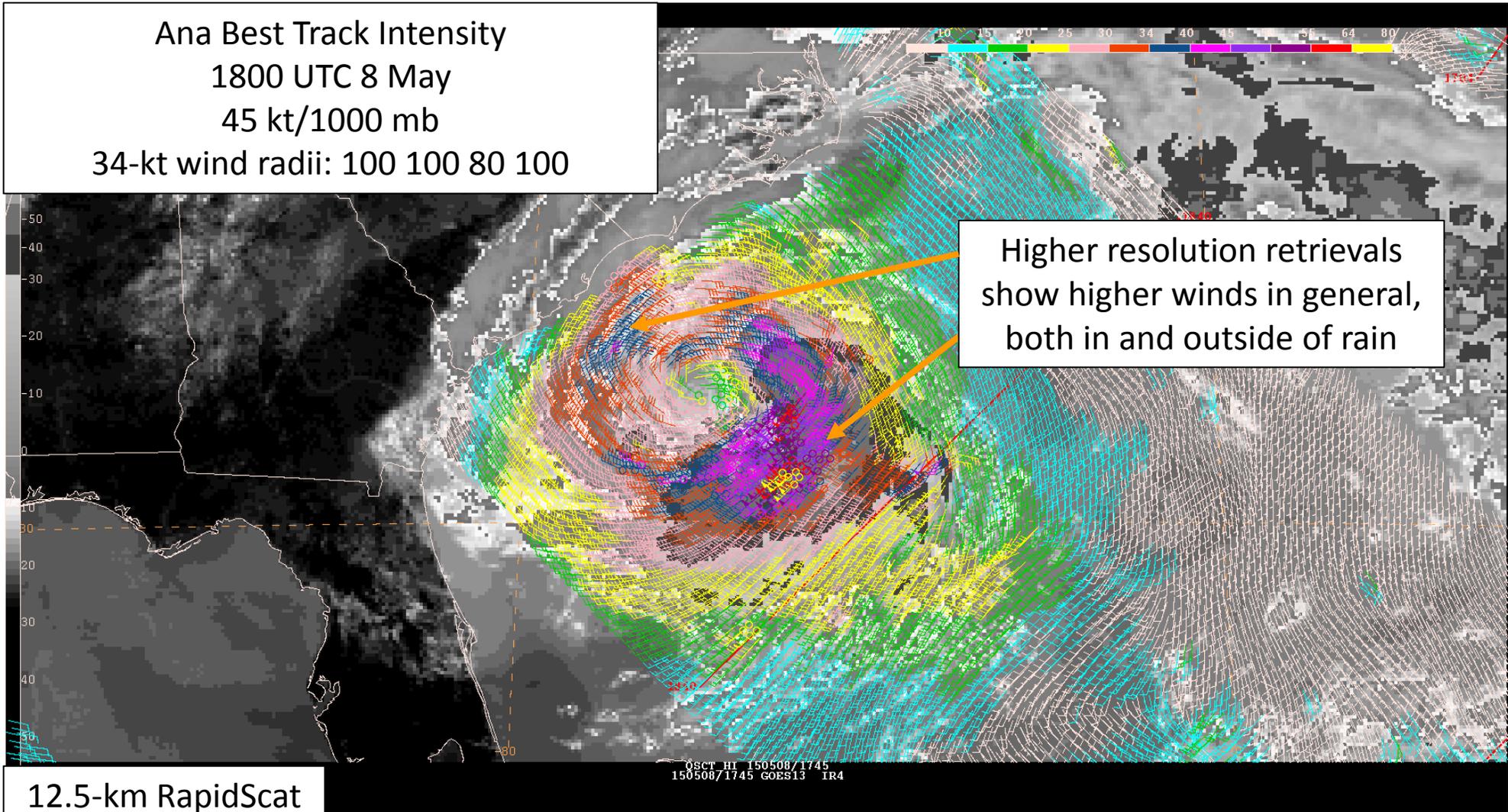
05/08/15 1800Z 01L ANA
05/08/15 1643Z GCOM-W1 Rain_Rate
05/08/15 1615Z GOES-13 VIS



Subtropical Storm Ana

RapidScat Pass 1840 UTC 8 May

Ana Best Track Intensity
1800 UTC 8 May
45 kt/1000 mb
34-kt wind radii: 100 100 80 100

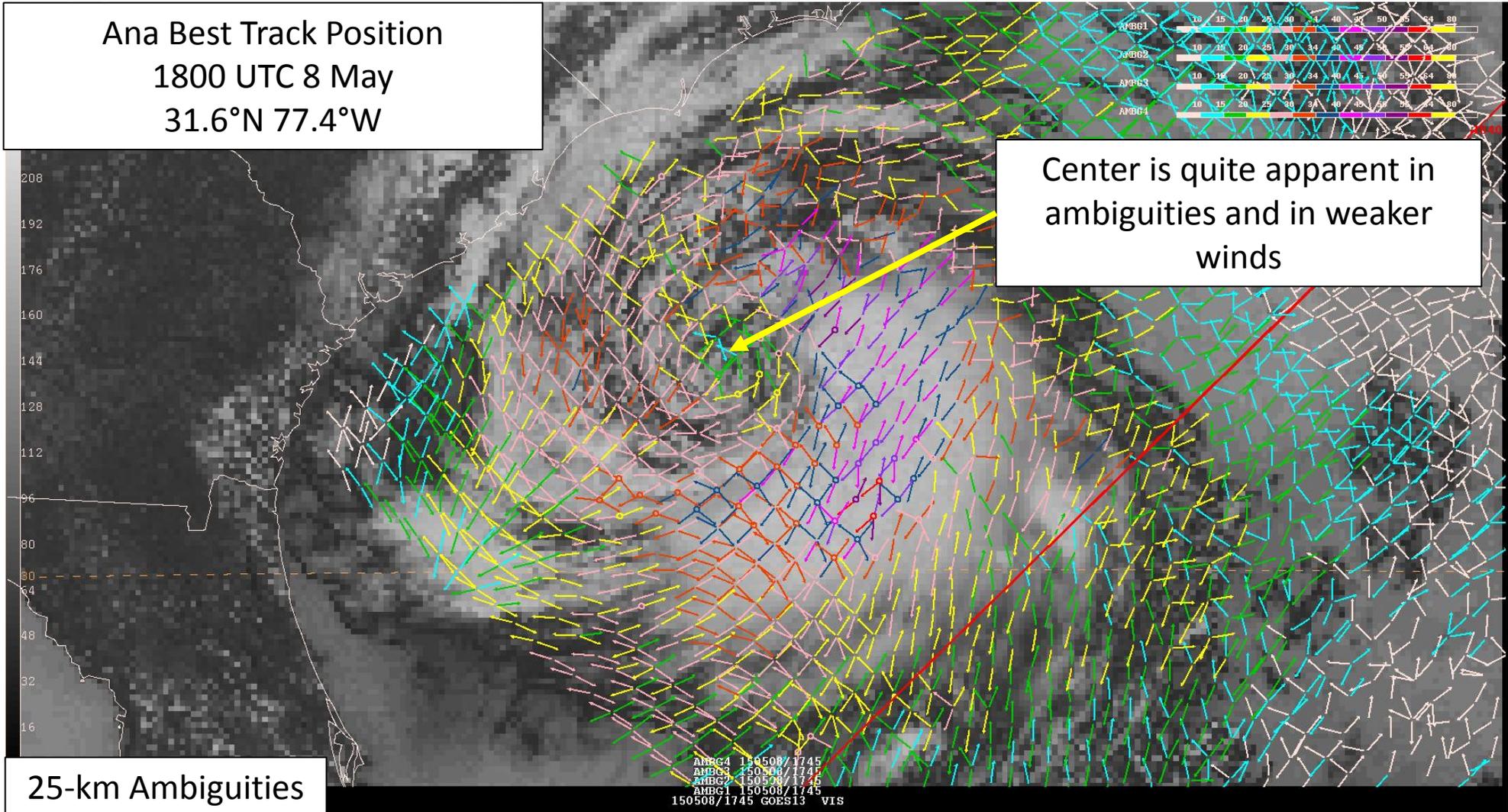


12.5-km RapidScat

Subtropical Storm Ana

RapidScat Pass 1840 UTC 8 May

Ana Best Track Position
1800 UTC 8 May
31.6°N 77.4°W



Center is quite apparent in ambiguities and in weaker winds

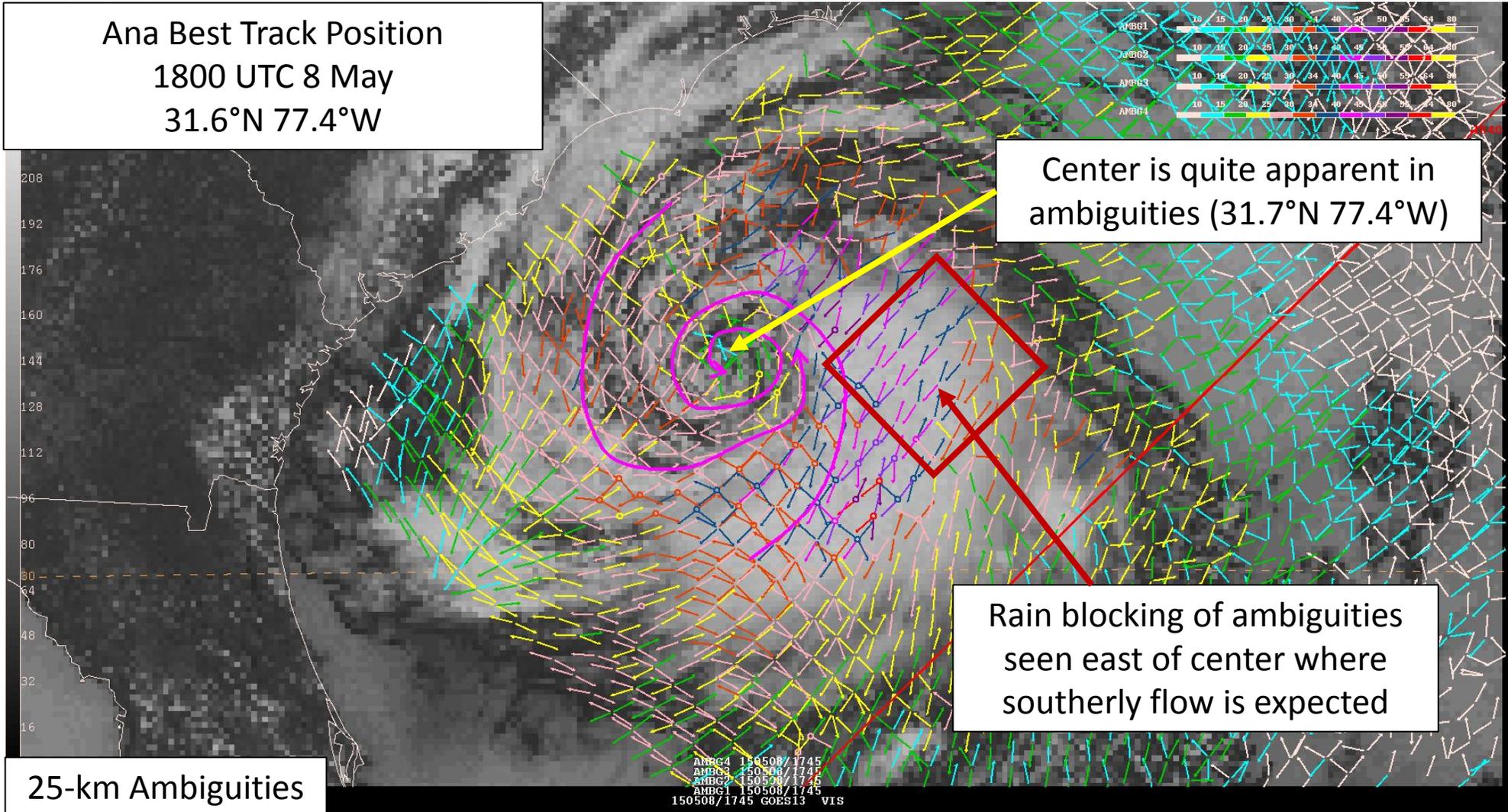
25-km Ambiguities

AMB4 150508/1745
AMB3 150508/1745
AMB2 150508/1745
AMB1 150508/1745
150508/1745 GOES13 VIS

Subtropical Storm Ana

RapidScat Pass 1840 UTC 8 May

Ana Best Track Position
1800 UTC 8 May
31.6°N 77.4°W



Center is quite apparent in ambiguities (31.7°N 77.4°W)

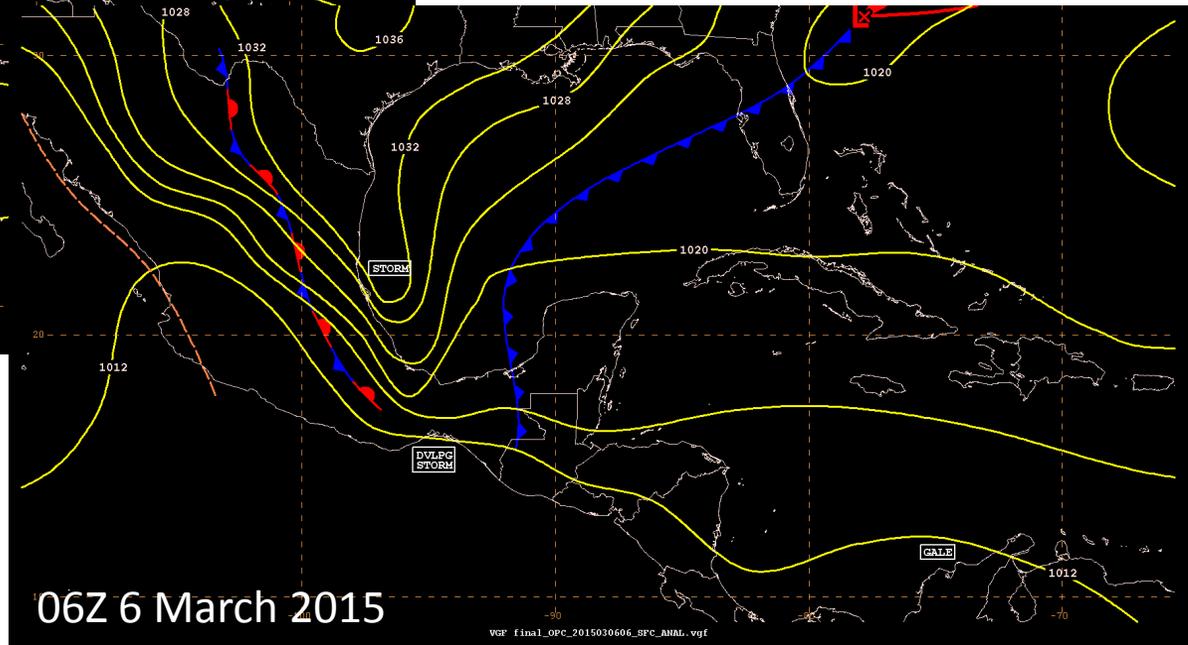
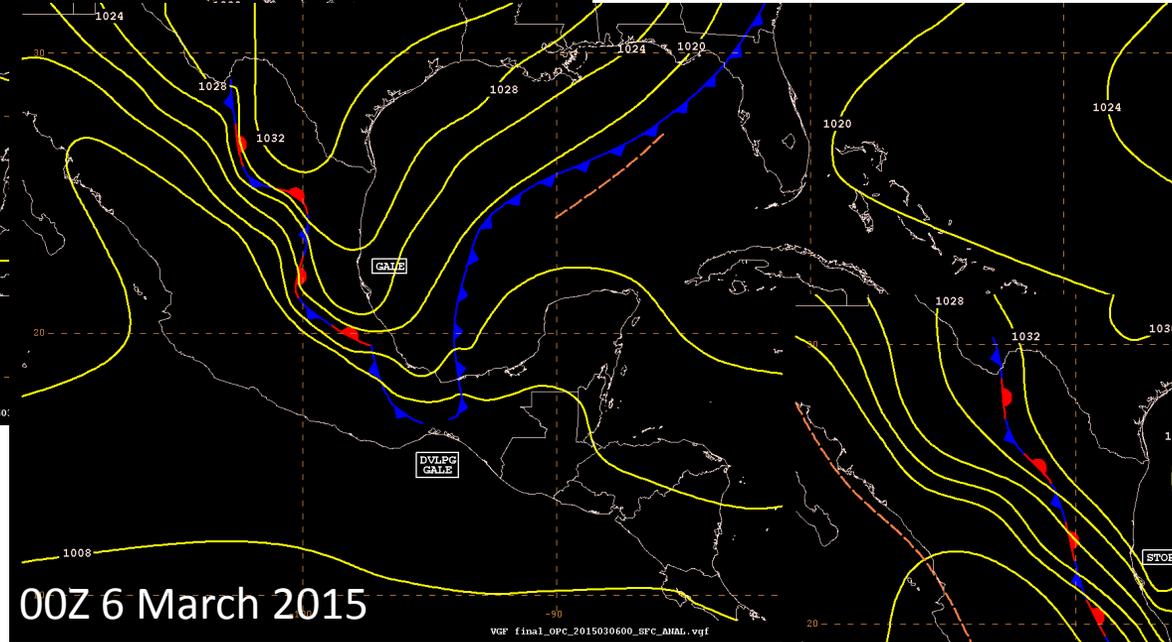
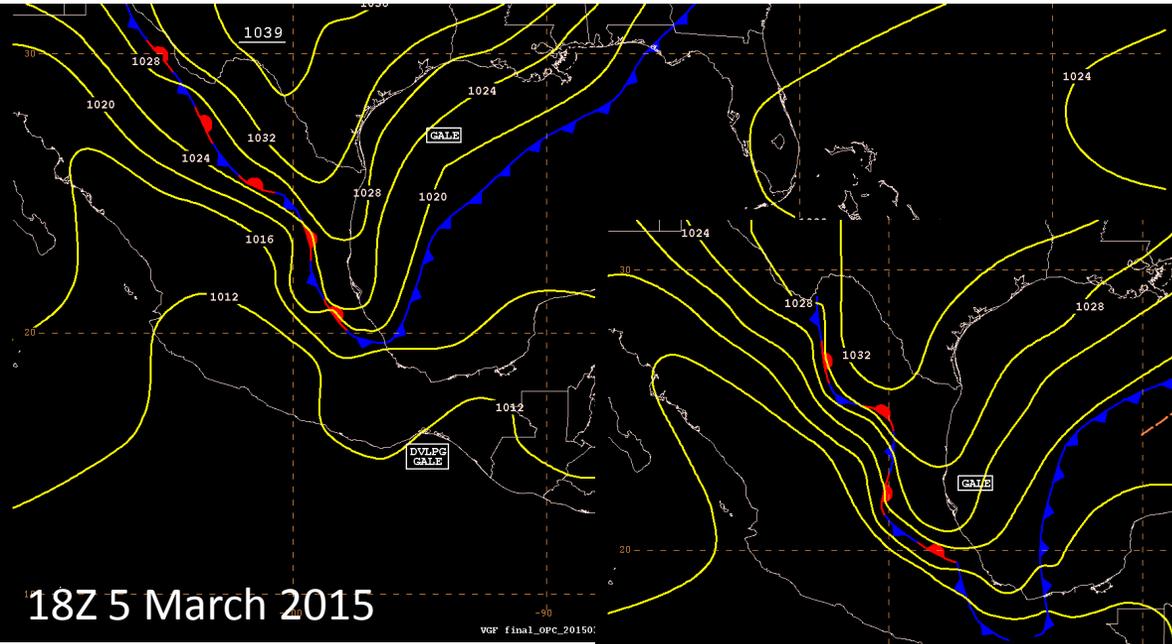
Rain blocking of ambiguities seen east of center where southerly flow is expected

25-km Ambiguities

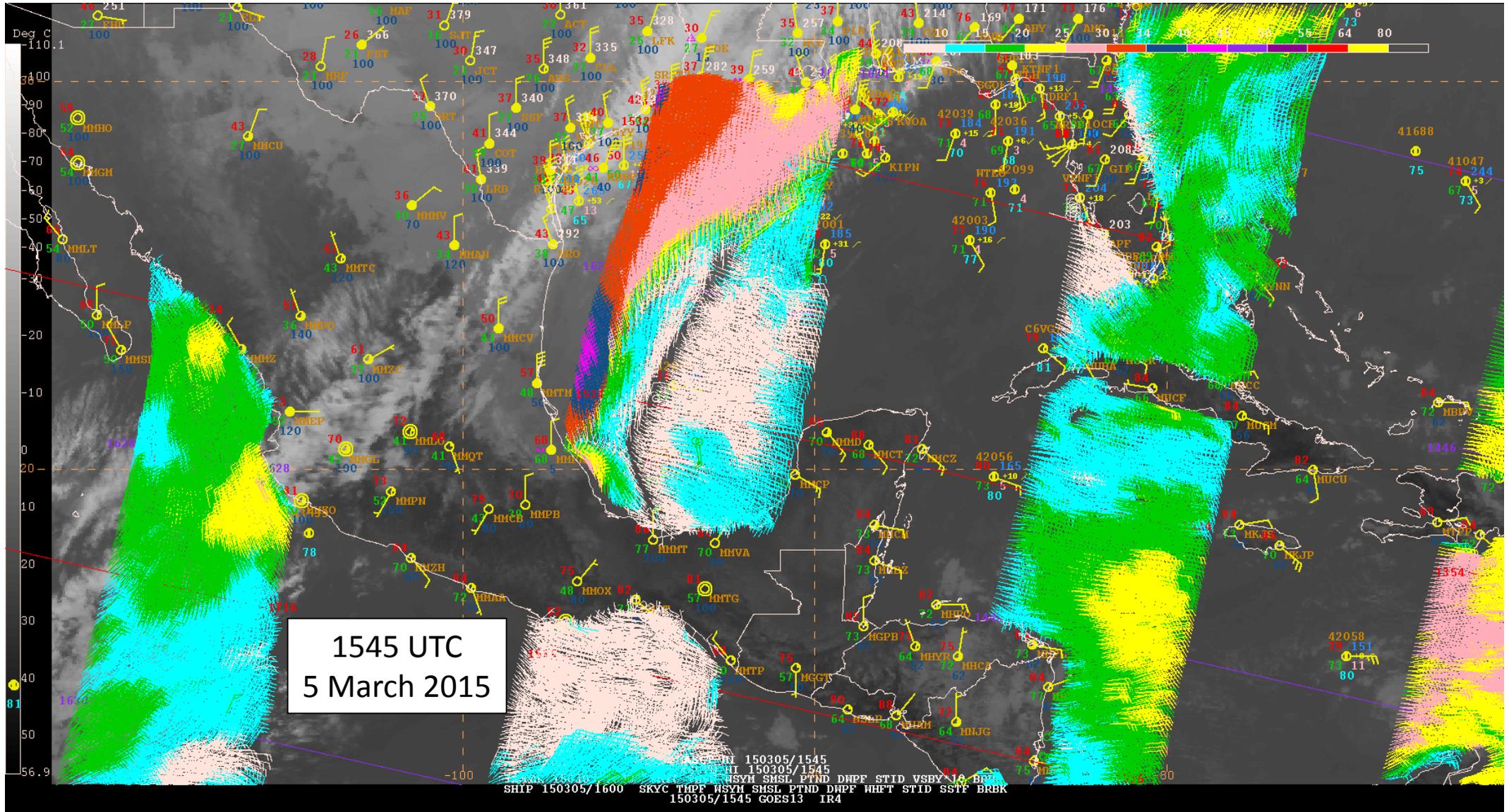
Gulf of Mexico Storm Event March 5-6 2015

Synoptic Setup

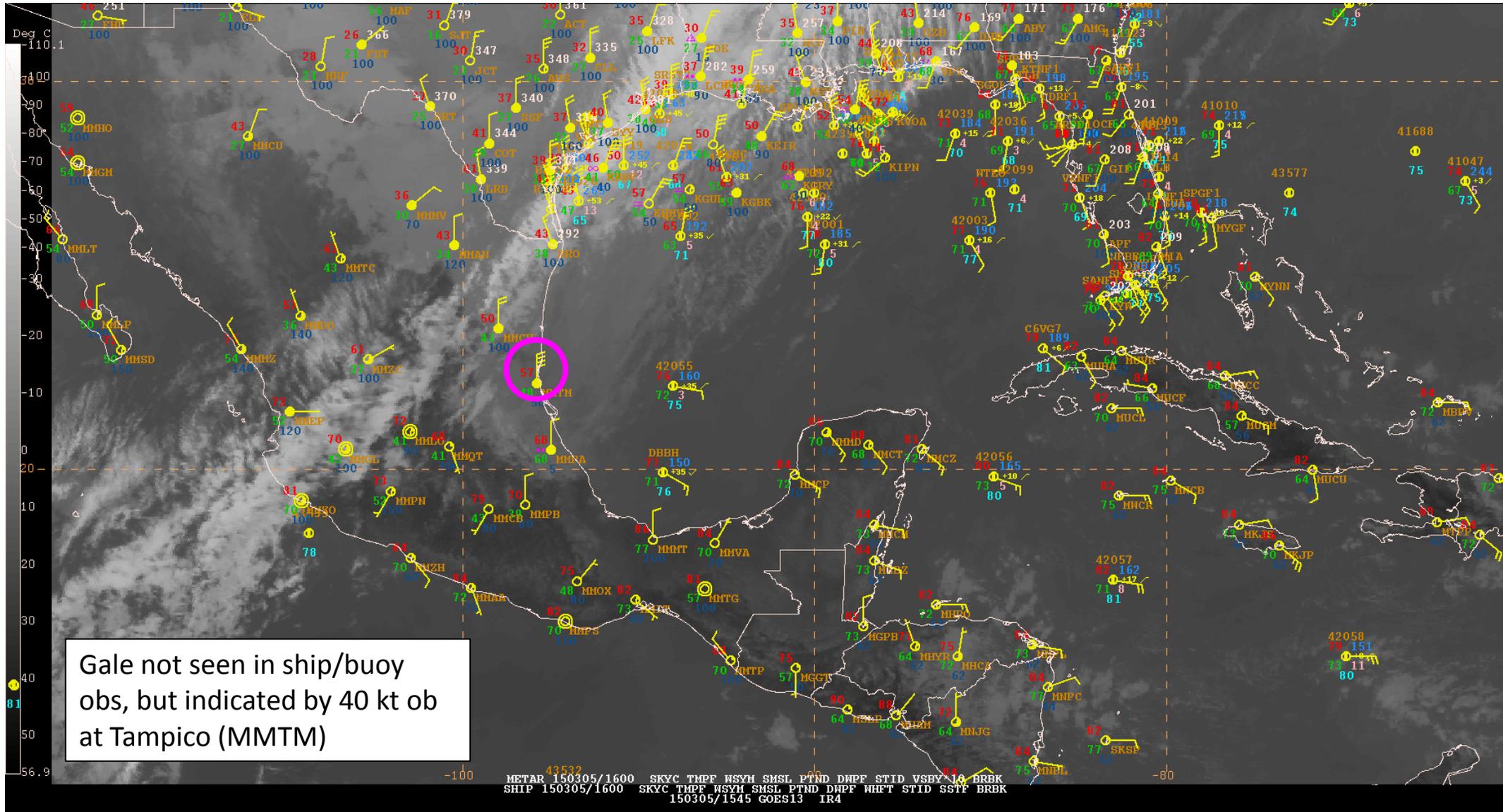
Strong Cold Front Moving into the Gulf of Mexico



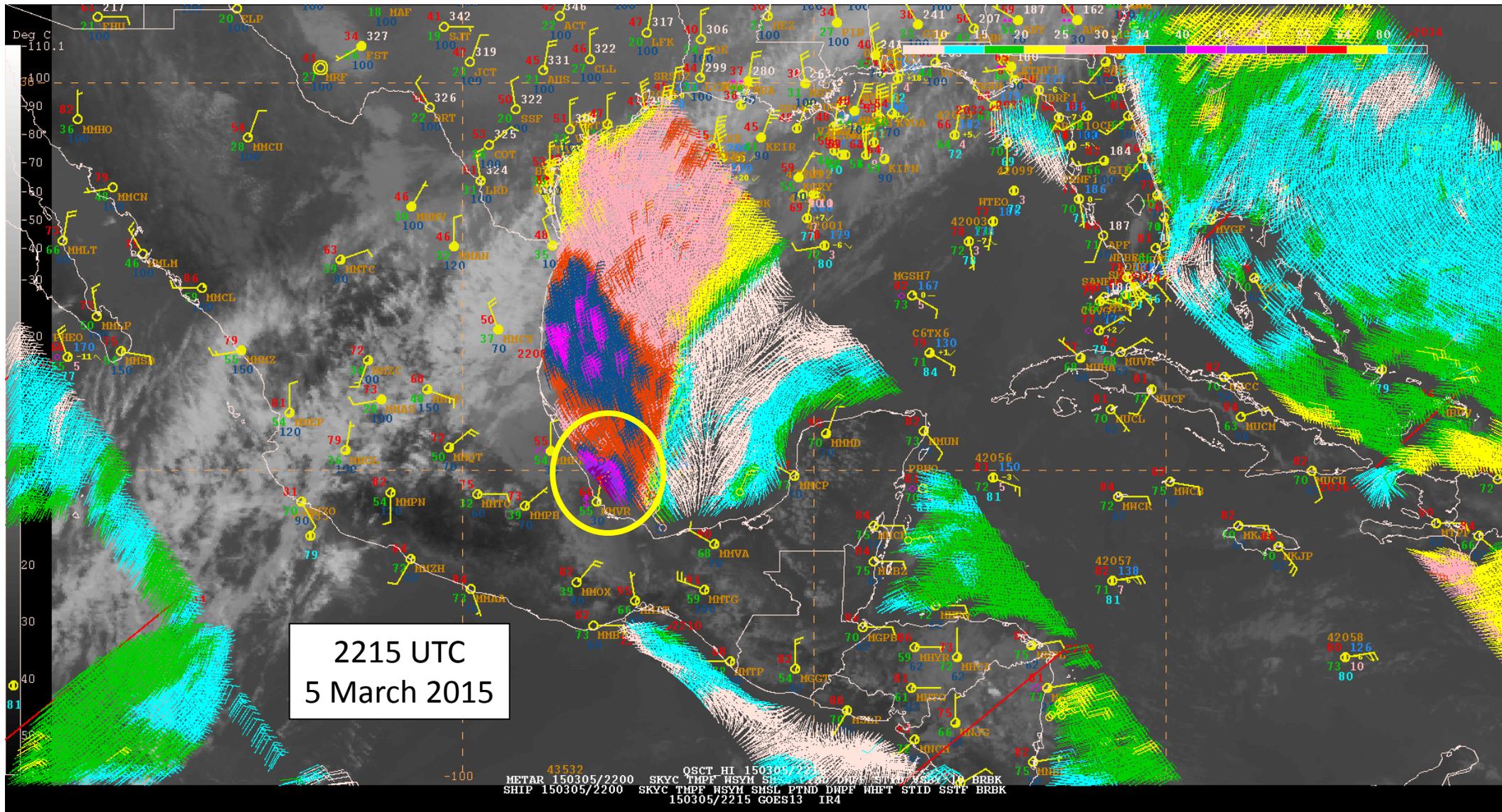
Late Morning ASCAT Pass Showed Gale Conditions



Late Morning ASCAT Pass Showed Gale Conditions



Early Evening RapidScat Pass Showed Storm Conditions



Early Evening RapidScat Pass Showed Storm Conditions

FZNT02 KNHC 060055 AAA
HSFAT2

HIGH SEAS FORECAST....UPDATED
NWS NATIONAL HURRICANE CENTER MIAMI FL
2230 UTC THU MAR 05 2015

UPDATED FOR STORM WARNING IN GULF OF MEXICO BASED ON RAPIDSCAT

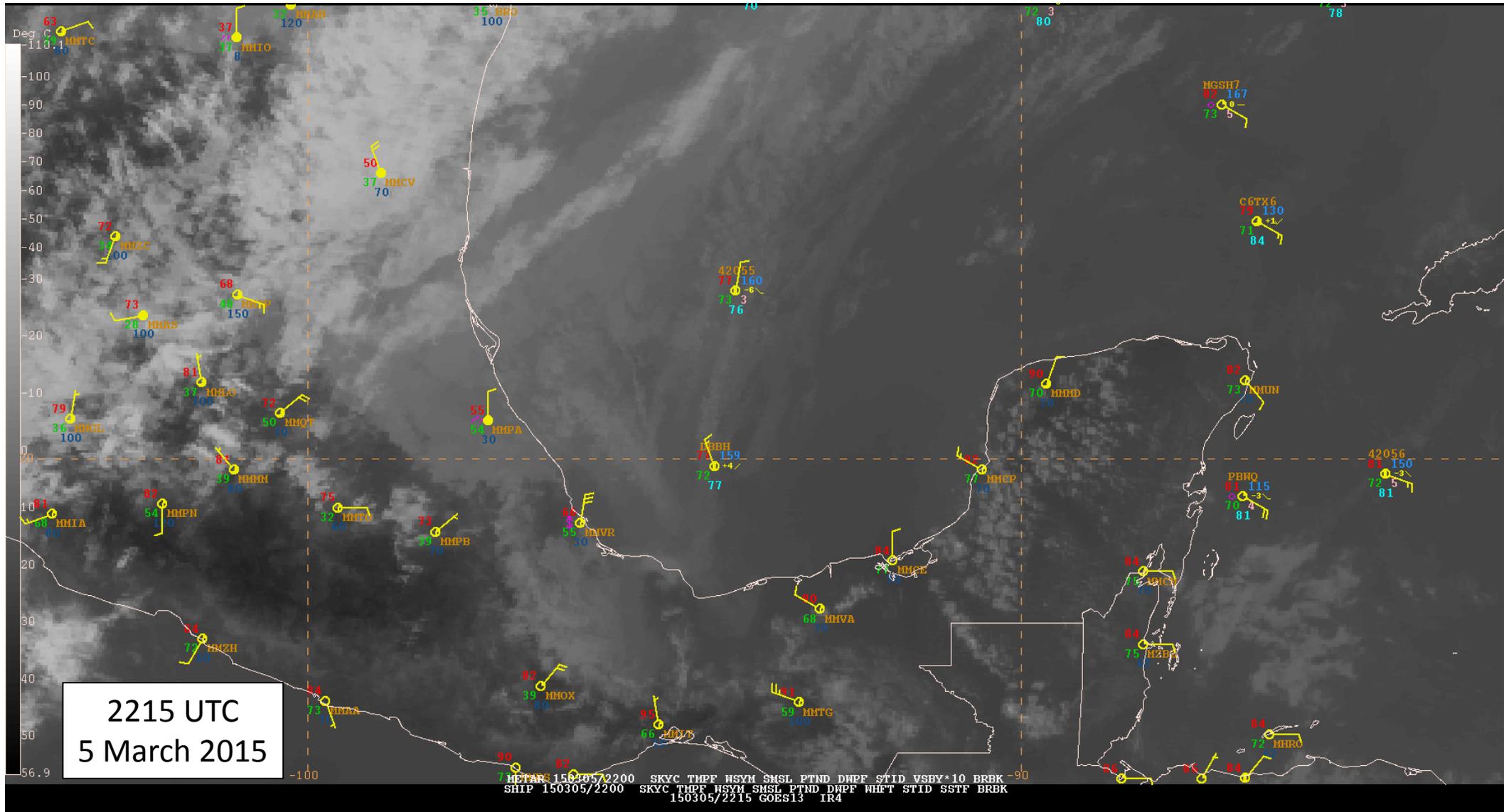
...GULF OF MEXICO STORM WARNING...

.COLD FRONT FROM 30N86W TO 26N92W TO 19N96W. W OF FRONT S OF 26N
NW TO N WINDS 30 TO 40 KT. SEAS 8 TO 14 FT. W OF FRONT N OF 26N
N WINDS 20 TO 30 KT. SEAS 8 TO 12 FT IN N SWELL.

.04 HOUR FORECAST COLD FRONT FROM 30N83W TO 24N93W TO 18N94W. S
OF 20N W OF 95W **NW WINDS 40 TO 55 KT**. SEAS 10 TO 13 FT.

ELSEWHERE S OF 26N W OF 94W NW TO N WINDS 30 TO 40 KT. SEAS 11
TO 17 FT. REMAINDER AREA N OF FRONT W OF 86W N TO NE WINDS 20 TO
30 KT WITH HIGHER GUSTS. SEAS 8 TO 12 FT IN N TO NE
SWELL...EXCEPT 10 TO 15 FT S OF 28N W OF 93W.

Early Evening RapidScat Pass Showed Storm Conditions



Storm Conditions Observed at Sacrifice Island near Veracruz (SACV4)

MM DD	TIME (CST)	WDIR	WSPD kts	GST kts	Previous observations												
					WVHT ft	DPD sec	APD sec	MWD	PRES in	PTDY in	ATMP °F	WTMP °F	DEWP °F	SAL psu	VIS nmi	TIDE ft	
03 06	11:00 am	N	27.0	29.9	-	-	-	-	-	30.34	+0.02	60.8	-	57.0	-	-	-
03 06	10:00 am	N	24.1	27.0	-	-	-	-	-	30.34	+0.04	61.3	-	58.3	-	-	-
03 06	9:00 am	N	28.0	33.0	-	-	-	-	-	30.33	+0.06	59.9	-	56.5	-	-	-
03 06	8:00 am	N	28.9	32.1	-	-	-	-	-	30.32	+0.05	59.9	-	56.8	-	-	-
03 06	7:00 am	N	31.1	35.0	-	-	-	-	-	30.30	+0.04	59.7	-	56.5	-	-	-
03 06	6:00 am	NNW	31.1	34.0	-	-	-	-	-	30.27	+0.02	60.6	-	57.2	-	-	-
03 06	5:00 am	N	29.9	35.9	-	-	-	-	-	30.26	+0.02	60.4	-	57.7	-	-	-
03 06	4:00 am	N	29.9	35.9	-	-	-	-	-	30.26	+0.01	61.7	-	57.2	-	-	-
03 06	3:00 am	N	35.0	40.0	-	-	-	-	-	30.25	+0.01	61.9	-	56.1	-	-	-
03 06	2:00 am	N	38.1	42.0	-	-	-	-	-	30.24	+0.02	62.4	-	56.5	-	-	-
03 06	1:00 am	N	38.1	46.0	-	-	-	-	-	30.25	+0.04	62.4	-	56.8	-	-	-
03 06	12:00 am	N	40.0	46.0	-	-	-	-	-	30.24	+0.02	62.2	-	57.6	-	-	-
03 05	11:00 pm	N	47.0	55.0	-	-	-	-	-	30.22	+0.05	61.9	-	56.7	-	-	-
03 05	10:00 pm	N	49.0	59.1	-	-	-	-	-	30.21	+0.09	62.1	-	56.3	-	-	-
03 05	9:00 pm	N	46.0	53.0	-	-	-	-	-	30.22	+0.15	61.5	-	57.9	-	-	-
03 05	8:00 pm	N	46.0	55.0	-	-	-	-	-	30.17	+0.14	61.7	-	59.5	-	-	-
03 05	7:00 pm	N	48.0	54.0	-	-	-	-	-	30.12	-	61.7	-	60.1	-	-	-
03 05	6:00 pm	N	51.1	56.9	-	-	-	-	-	30.07	+0.06	63.1	-	58.8	-	-	-
03 05	5:00 pm	N	45.1	52.1	-	-	-	-	-	30.03	+0.03	65.1	-	58.5	-	-	-
03 05	3:00 pm	N	48.0	55.0	-	-	-	-	-	30.01	+0.05	66.0	-	61.9	-	-	-
03 05	2:00 pm	N	42.9	51.1	-	-	-	-	-	30.01	+0.03	66.4	-	65.5	-	-	-
03 05	1:00 pm	N	44.1	49.9	-	-	-	-	-	29.99	+0.02	67.8	-	67.3	-	-	-

Final Thoughts

- OSVW data are deeply integrated into NHC's marine and tropical cyclone operations
- As the NWS mission trends toward decision support, additional information about the structure, intensity, and location of TCs and other hazardous phenomena from OSVW and other sources will assist predictions of specific hazards such as storm surge, wind, waves/swell, rainfall, etc.
- We are appreciative of our partnerships with NASA, ESA, EUMETSAT, KNMI, ISRO, and others and look forward to additional future missions