THE 'UNUSUAL' EVOLUTION OF HURRICANE ARTHUR 2014:

GOES-R AND JPSS SATELLITE PROVING GROUND PERSPECTIVE

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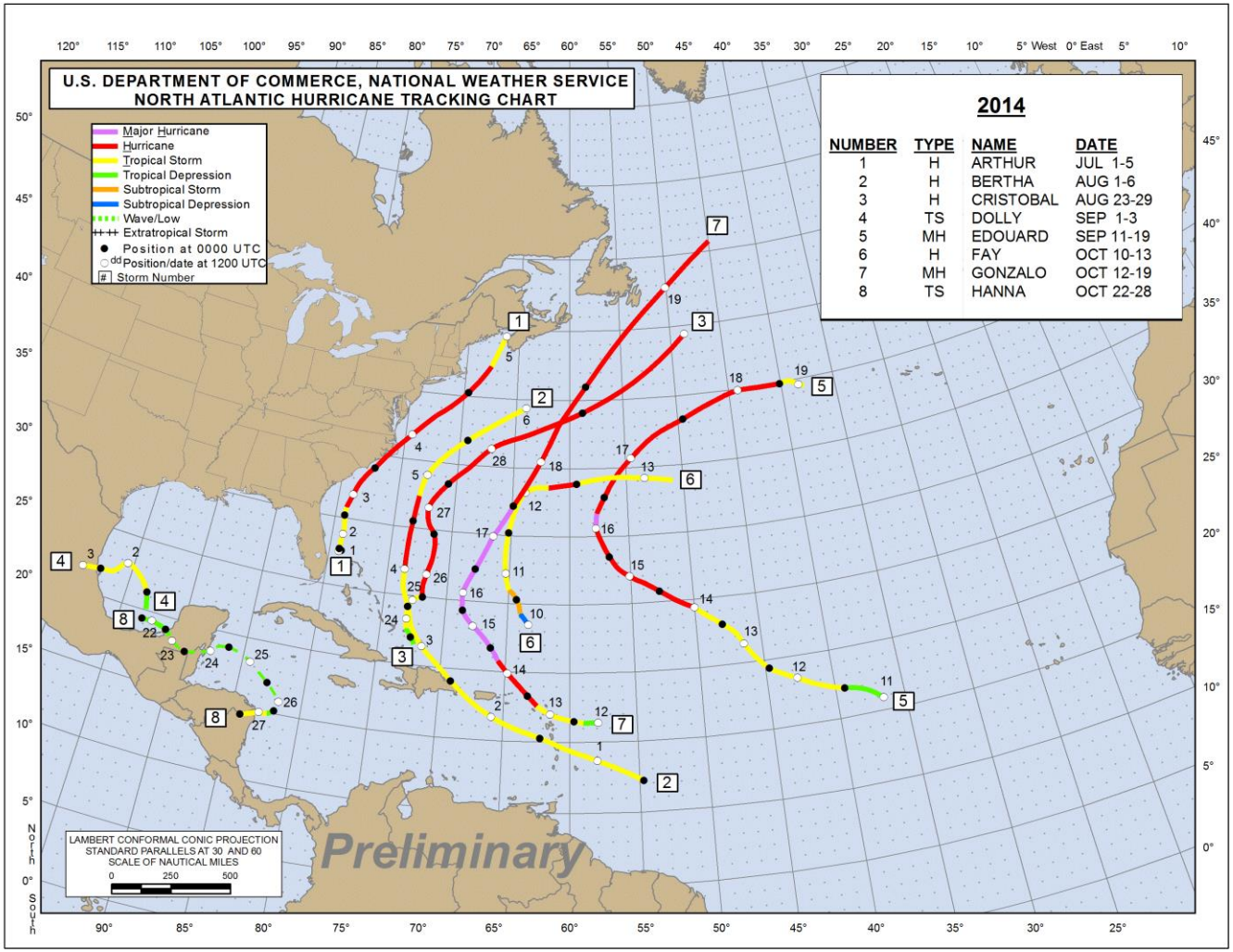
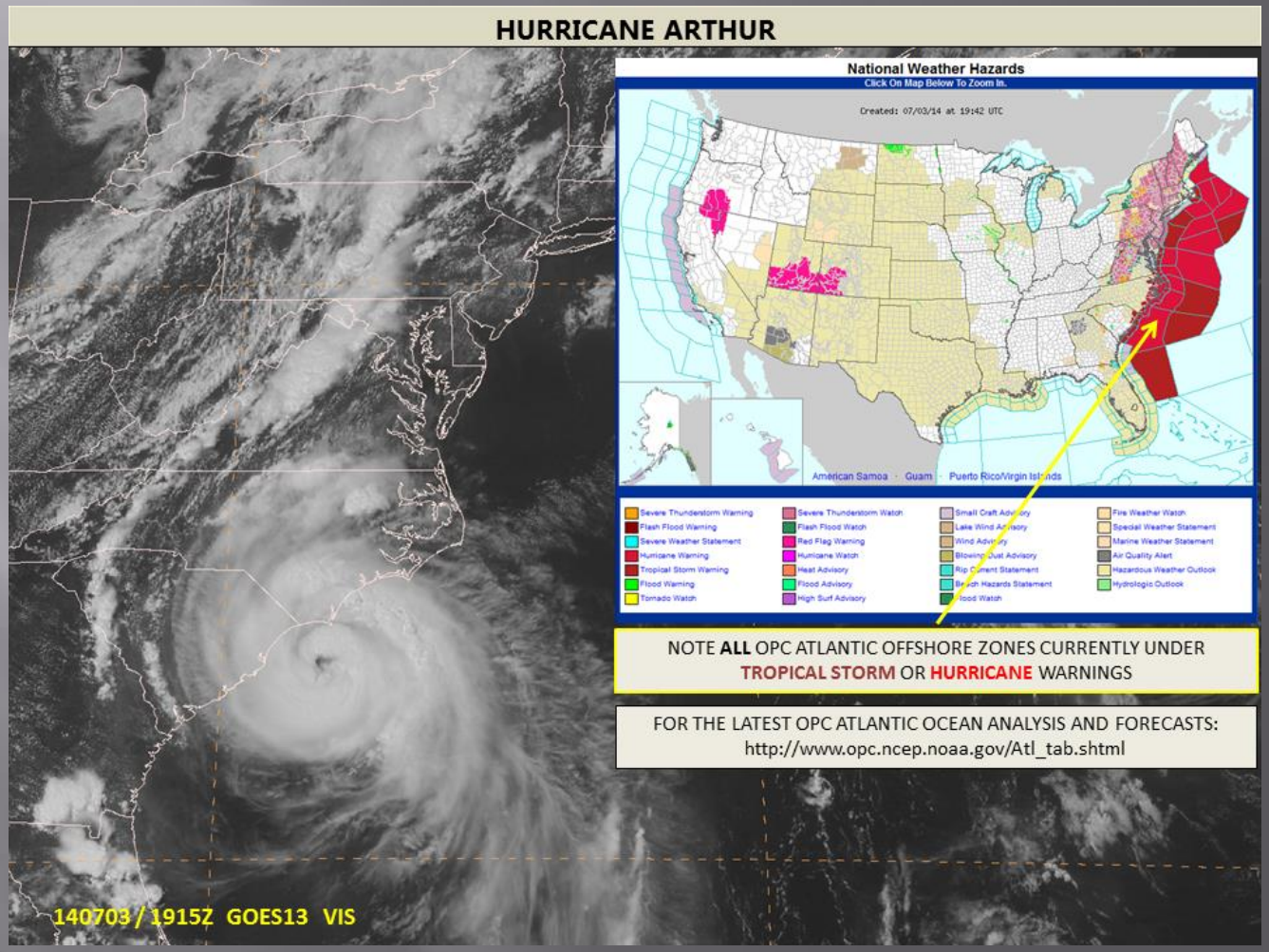
95th AMS Annual Meeting
01/05/15

2014 Atlantic Hurricane Season



NWS Watches and Warnings as Arthur Moved up the East Coast



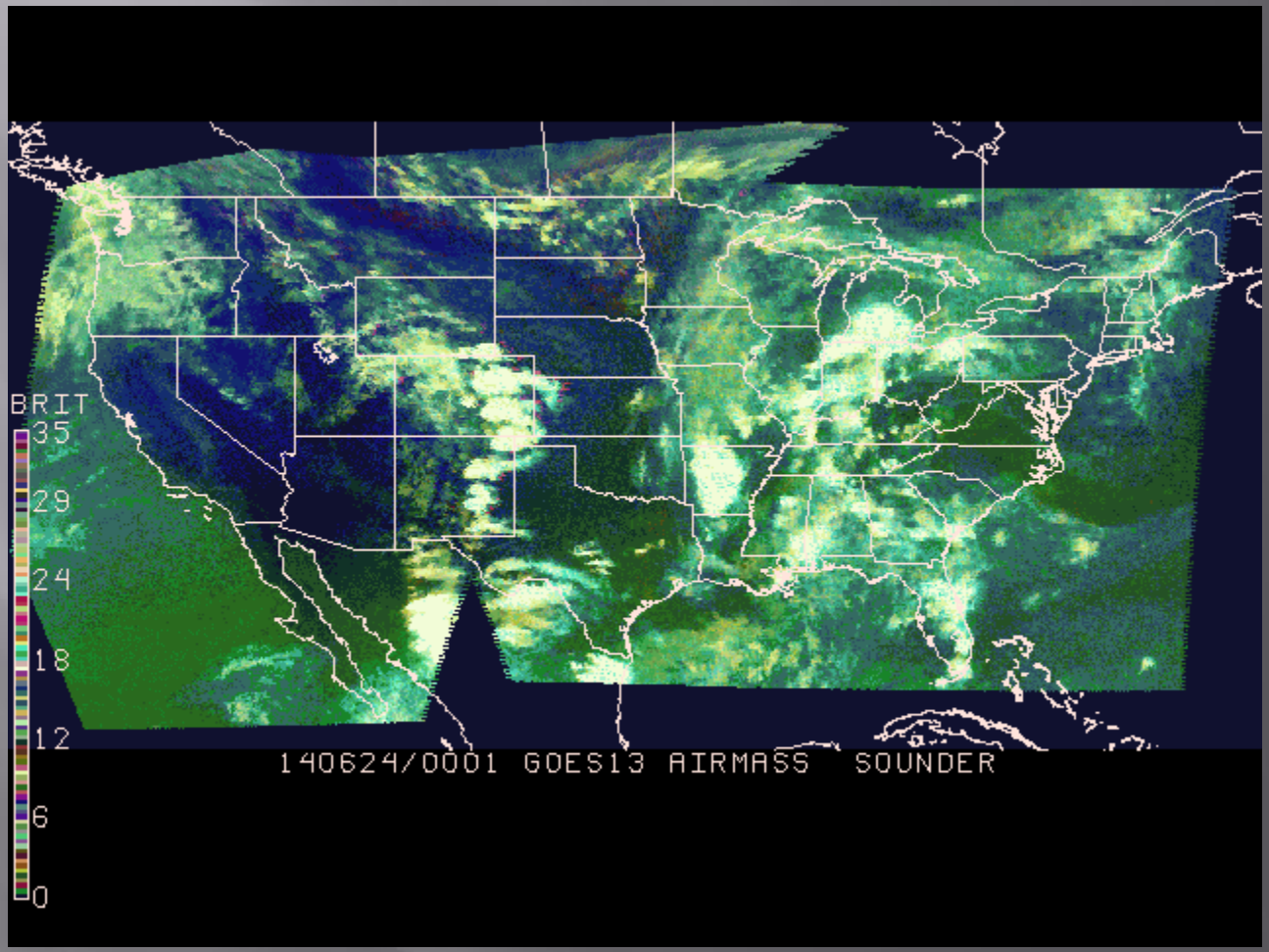
Hurricane Arthur's Lifecycle

- A cluster of thunderstorm in northeast NM moves southeast into the TX panhandle and forms an MCV.
- The MCV gradually moves east towards the SC coastline between 06/25/14 – 06/30/14.
- The MCV develops thunderstorms that remain sheared for ~48 hours while drifting south towards the northern Bahamas.
- Tropical Storm: 1500 UTC on 07/01/14
- Hurricane: 0900 UTC on 07/03/14
  - Landfall in NC at 0315 UTC on 07/04/14
- Transitions to an extratropical storm on 07/05/14, producing damage in Nova Scotia.

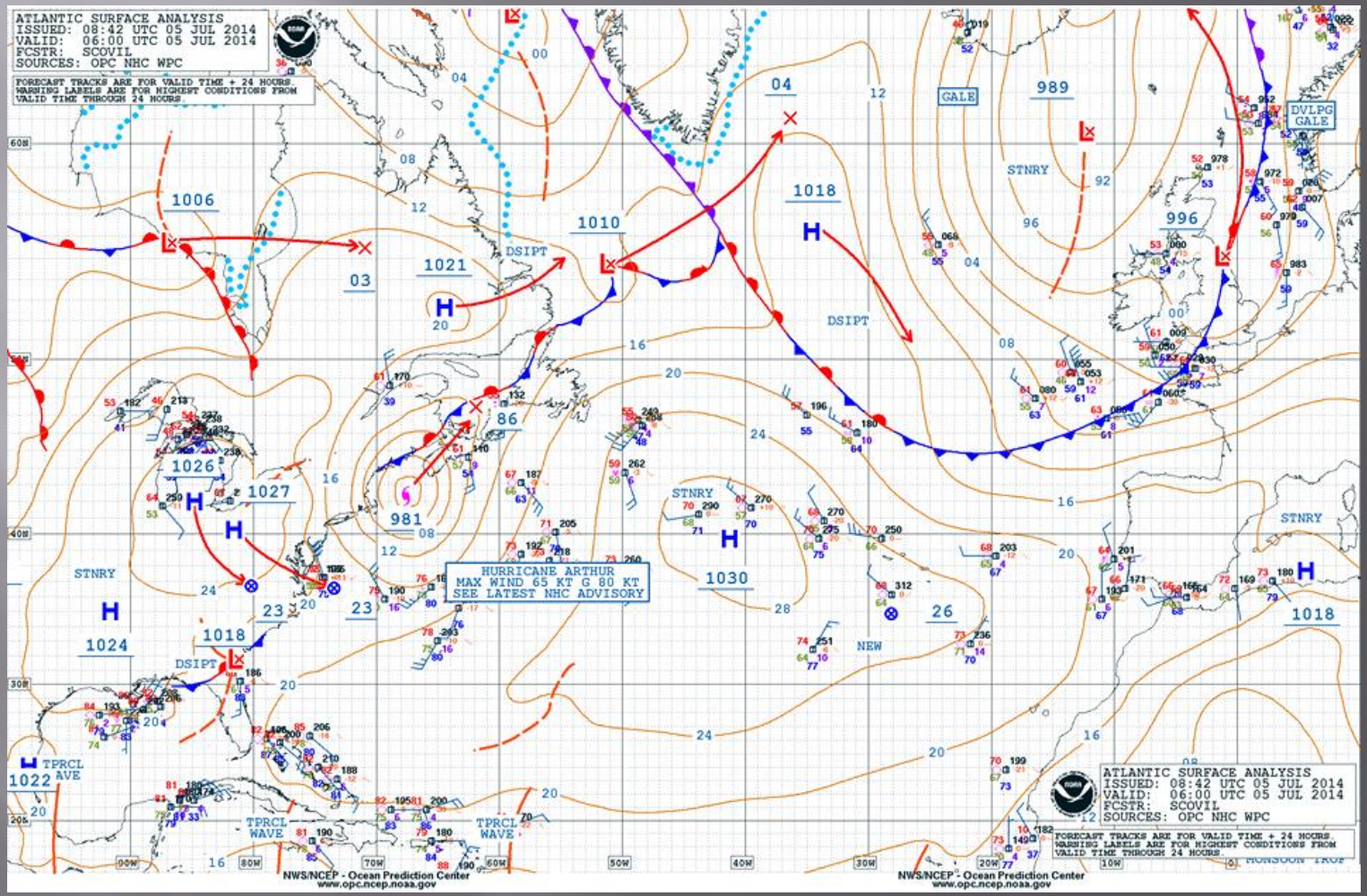
Satellite PG Products Available to Forecasters

- RGB Air Mass Product
  - GOES Sounder and MODIS
- Overshooting Top Detection/Magnitude
- Convective Initiation
- GLD-360 Lightning Density

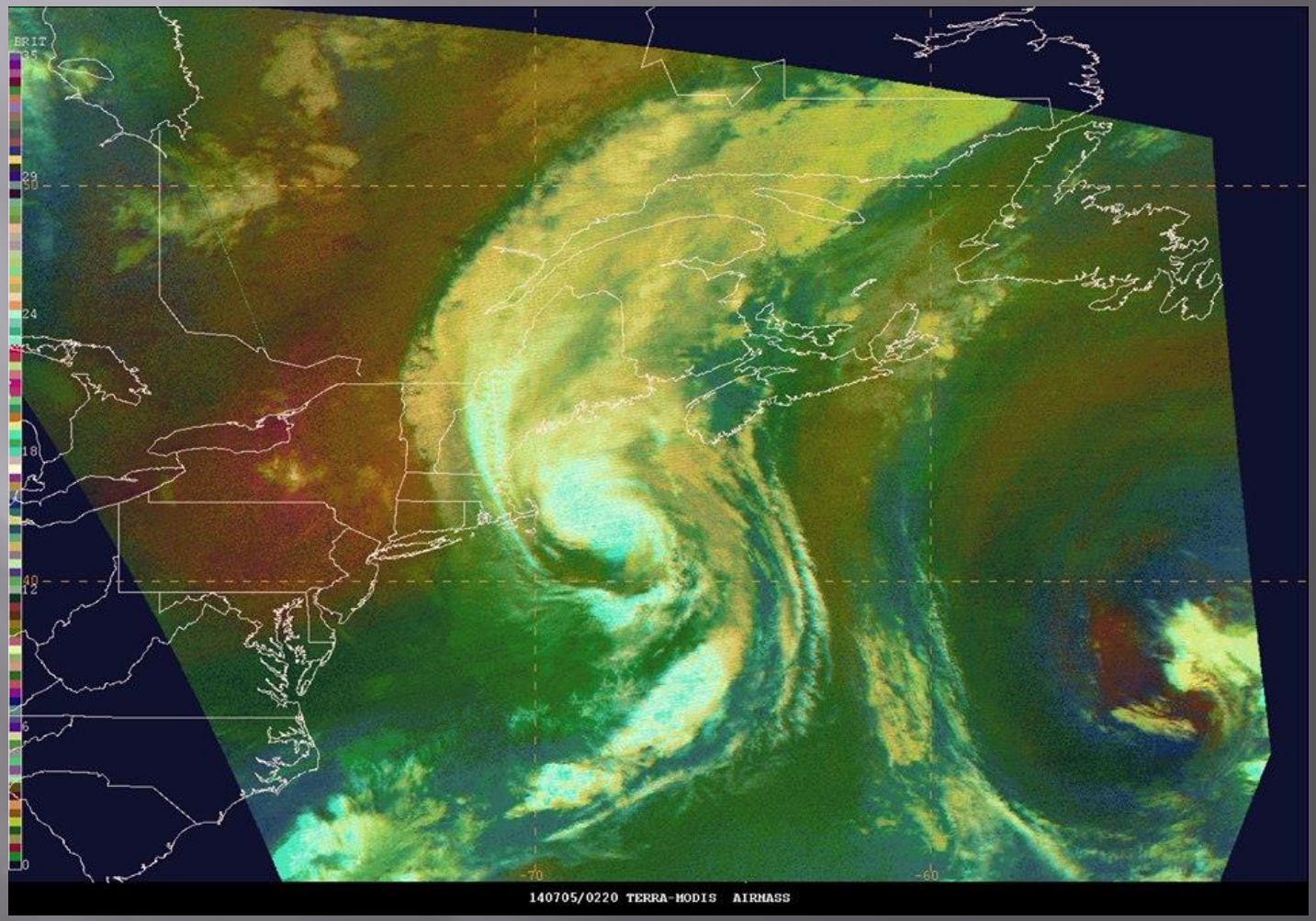
GOES-Sounder RGB Air Mass Hurricane Arthur's Lifecycle



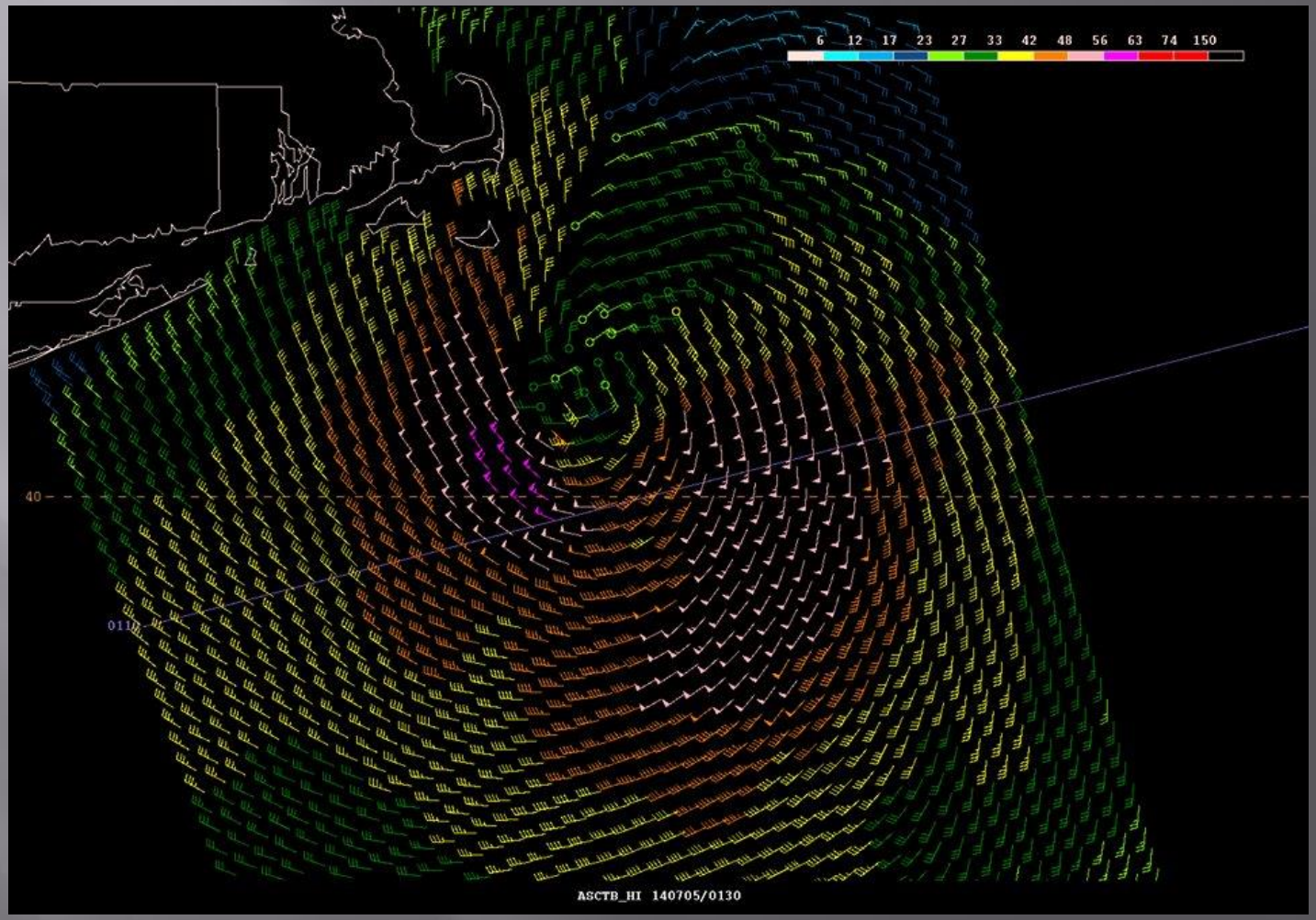
OPC Surface Analysis with forecast positions indicated



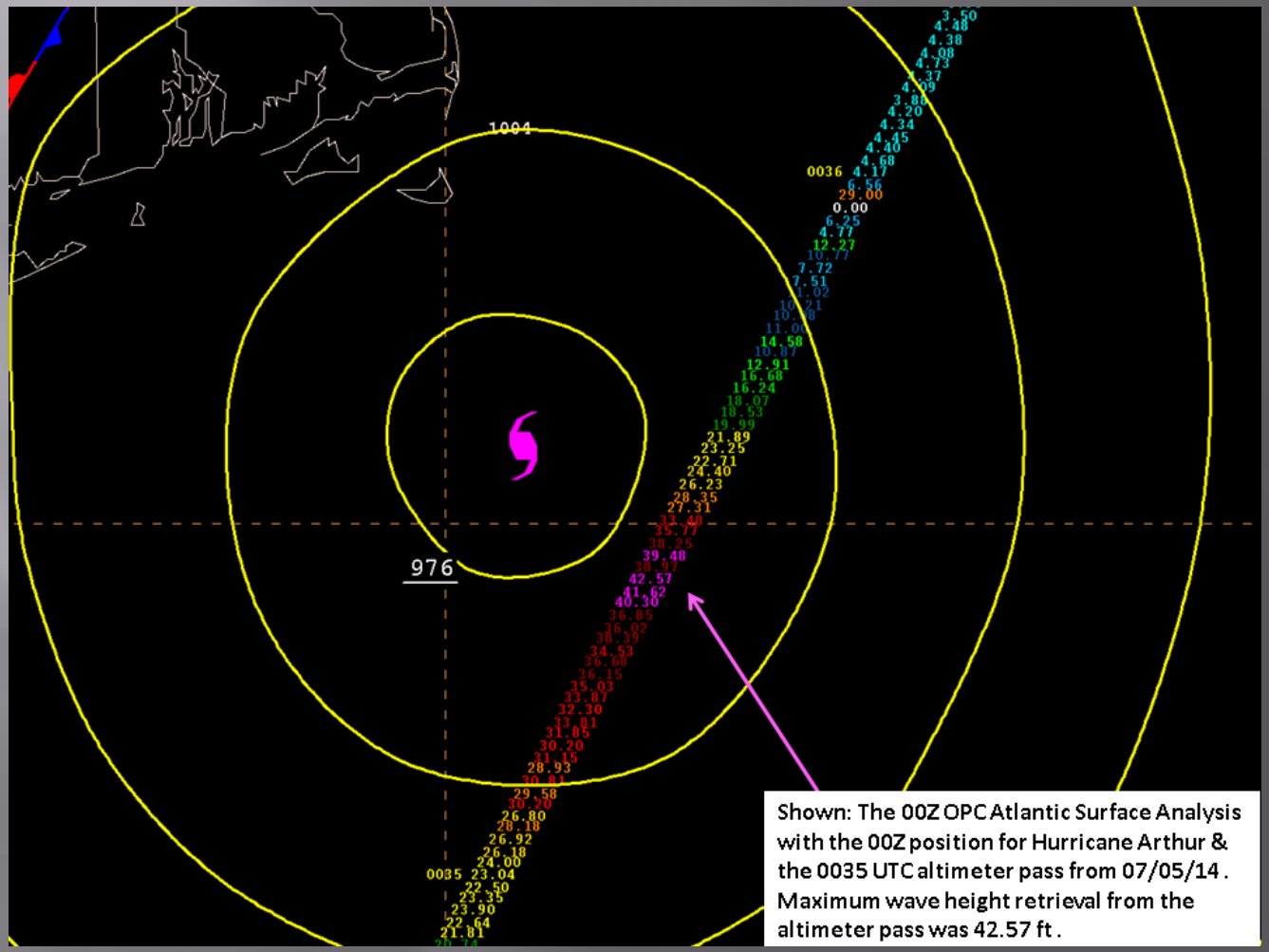
RGB Air Mass: Hurricane Phase on 07/05/14



ASCAT Hi-Res Pass on 07/05/14



Jason-2 Altimetry Pass on 07/05/14



Summary

- Satellite PG products were available to forecasters during Arthur's lifecycle and were occasionally used.
- Arthur's extratropical transition was well-forecast and there were interesting features noted in the RGB Air Mass imagery that may help during these transitions.
- More research needs to be done to quantify these PG products for extratropical transitions.