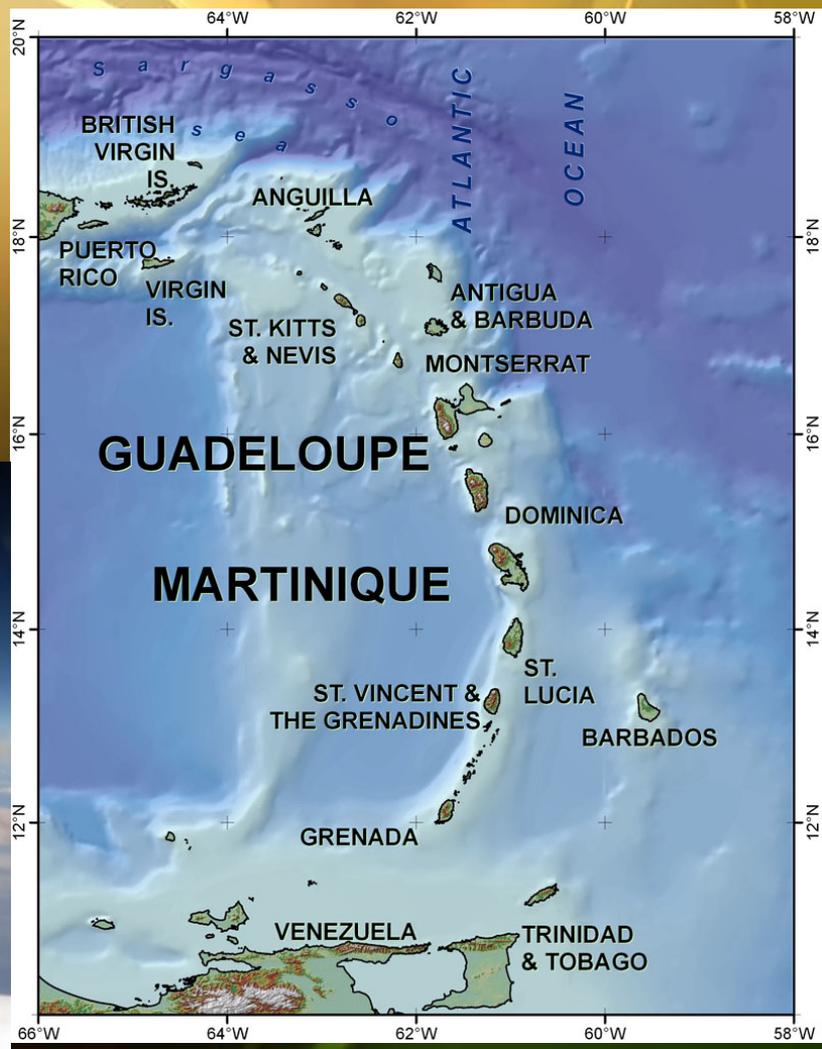
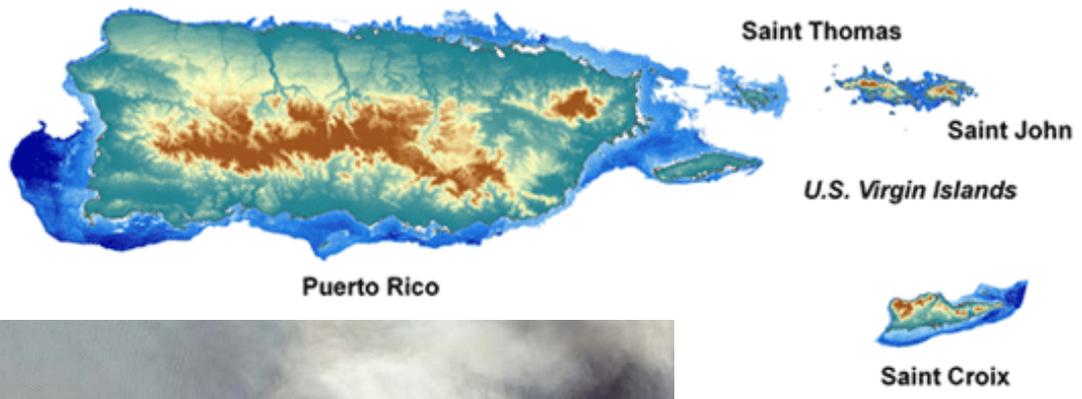


2014 GOES-R/JPSS OCONUS R20
Interchange Meeting (TIM)
Use of Satellite Imagery/Products
at WFO San Juan
July 30, 2014



Gary Votaw
Science and Operations Officer
WFO San Juan, Puerto Rico





Evaluation site for new satellite products tested by SPoRT

MODIS Puerto Rico (longwave)

<http://weather.msfc.nasa.gov/cgi-bin/sportPublishData.pl?dataset-modispuertorico>

In AWIPS:

NESDIS QPE - 1, 3, 6, 12, 24, 72, and 168 hours (one week)

SST Composite and SST Latency

MODIS SST



NESDIS QPE



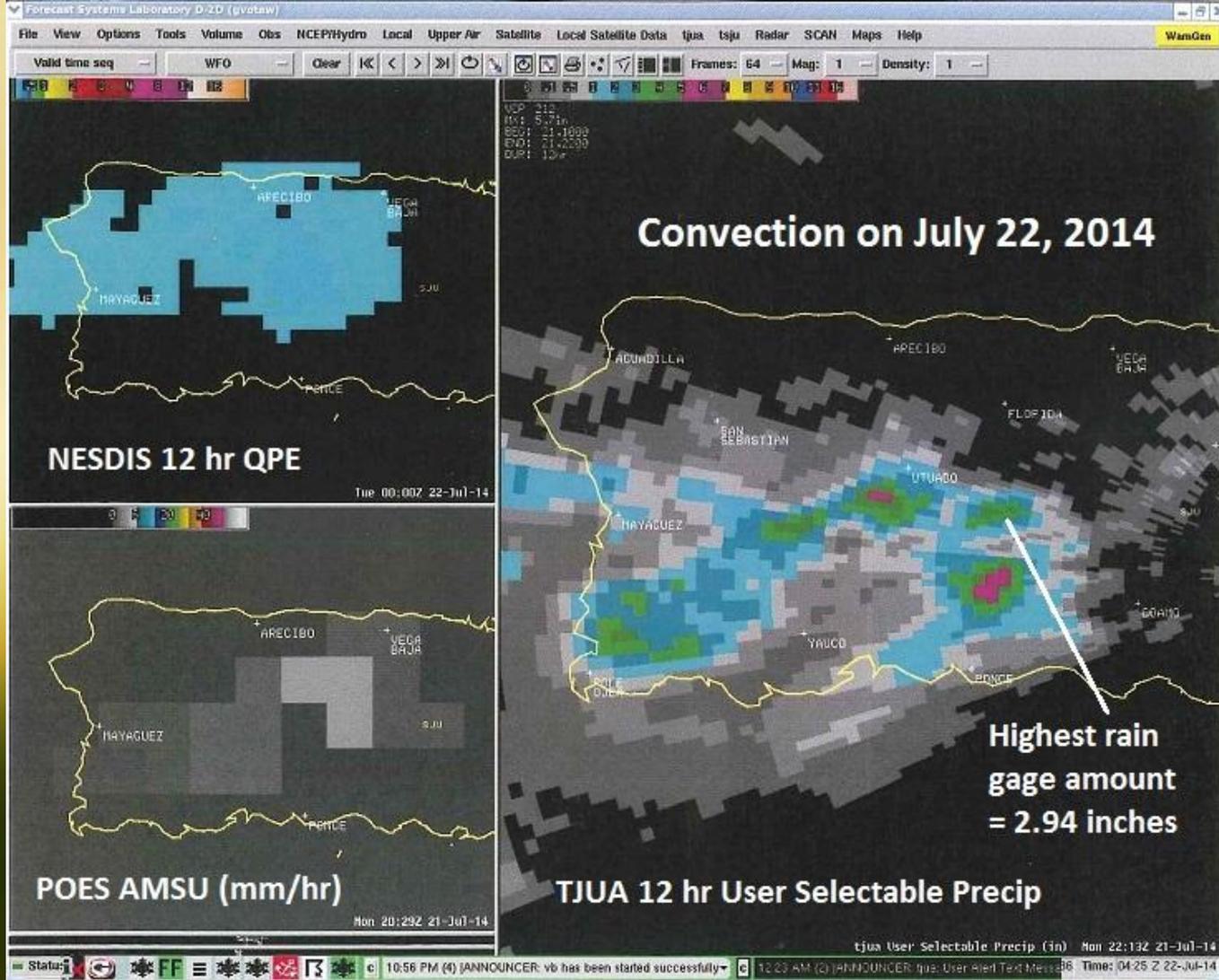
Comments from Luis Rosa (SJU Sr Met) in Aug. '13

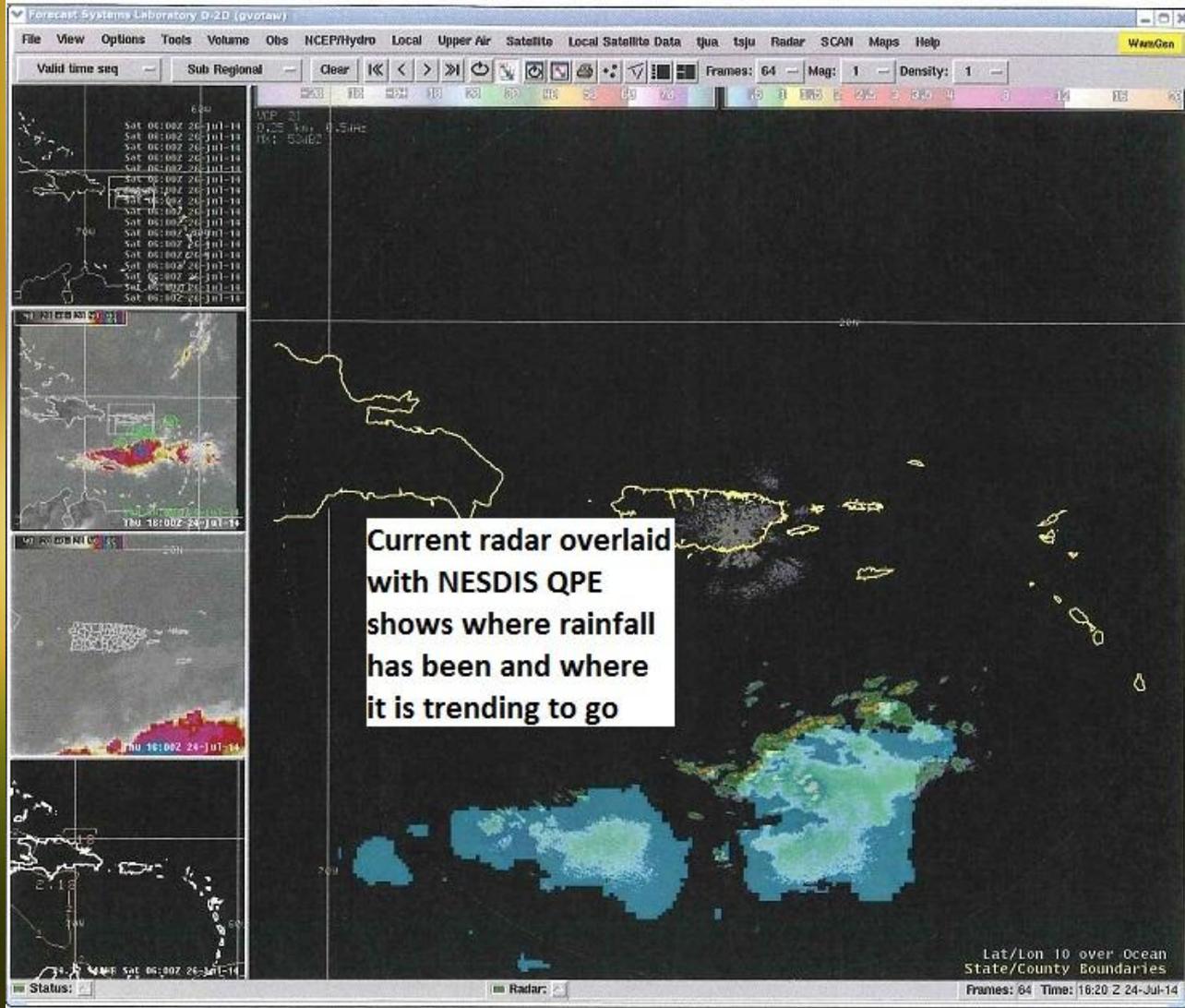
Evaluation so far:

- Tends to underestimate rainfall over PR. This is largely due to current spatial resolution of GOES-IR channel.
- Convection over PR too explosive, rain rate estimates every 15-min not frequent enough to capture fast evolution of thunderstorms. Expected to become available every 5-10 minutes in the near future when GOES-RSO in effect.
- Need for improvements in rain rate calibration especially with warm cloud top convection. A few cases so far have provided valuable information that will improve the algorithm in the longer term. Need more!
- When QPE picks up rain, need to play very close attention to gauges as flooding rains may be about to occur.

Location and intensity issues remain. NESDIS estimated up to ¼ inch and too far north. AMSU showed a max of 4.1 mm/hr (0.16 in.)

Highest actual amount was likely near 4 inches.

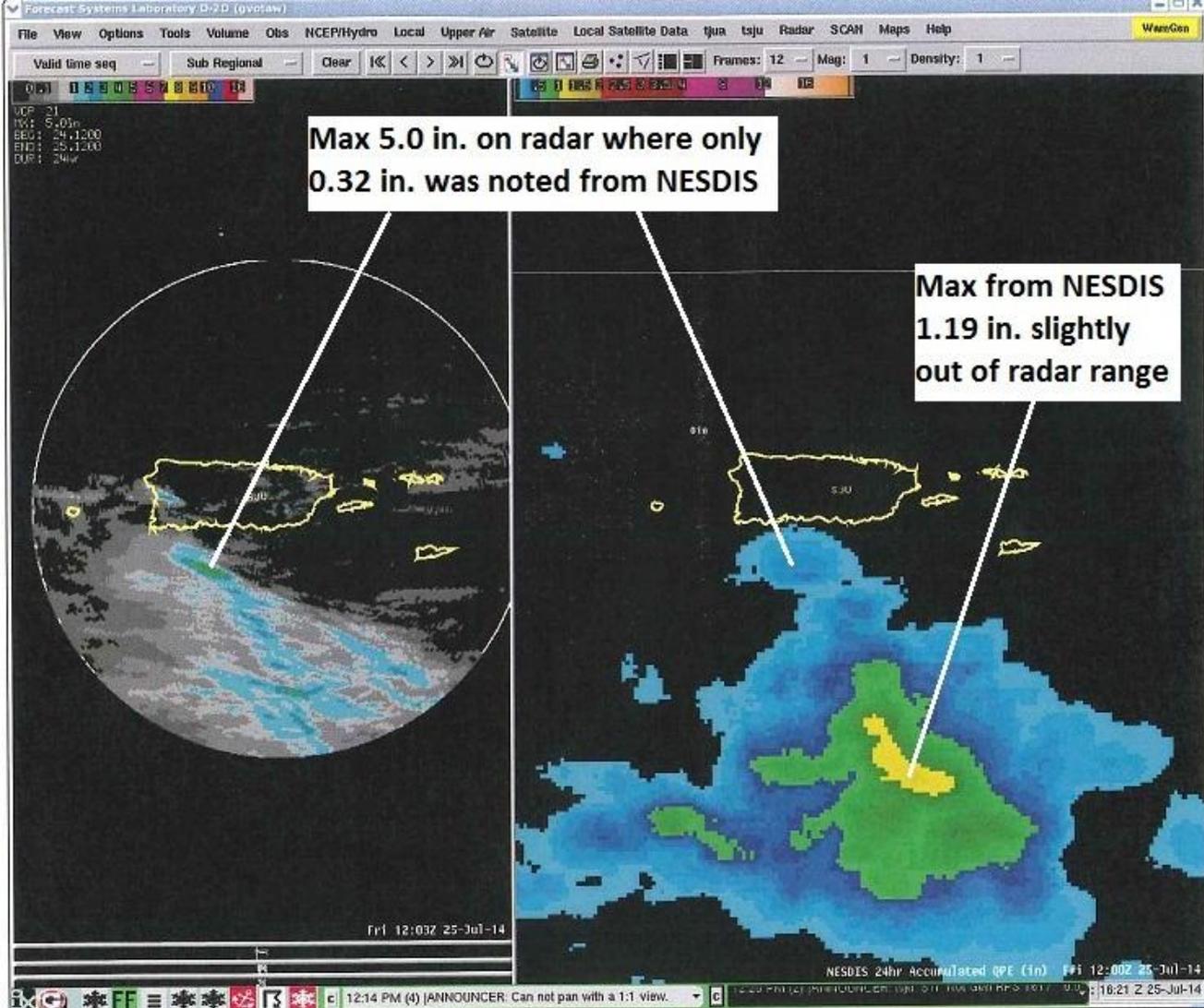




Current radar overlaid with NESDIS QPE shows where rainfall has been and where it is trending to go

Lat/Lon 10 over Ocean State/County Boundaries

Frames: 64 Time: 18:20 Z 24-Jul-14



Max 5.0 in. on radar where only 0.32 in. was noted from NESDIS

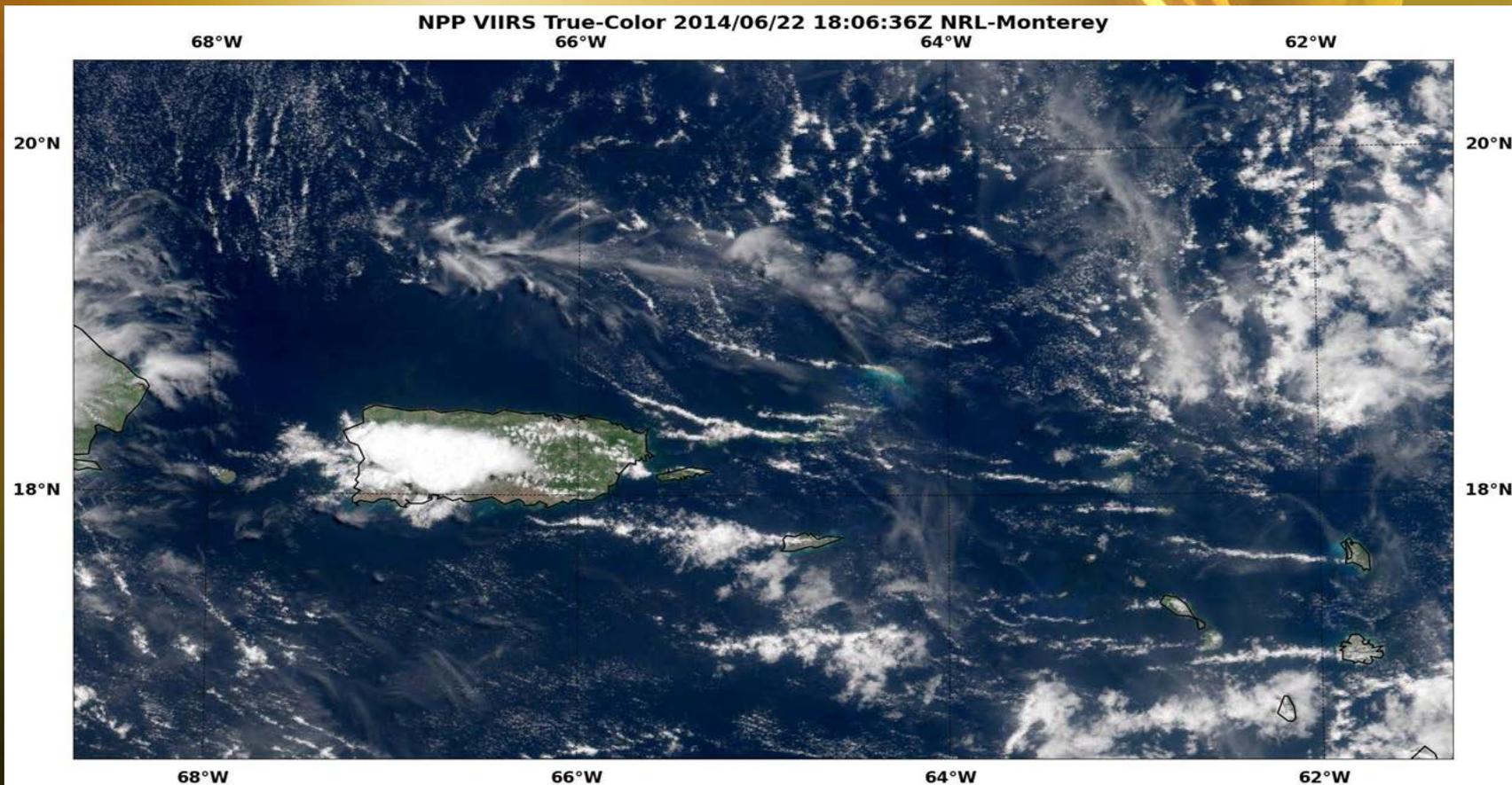
Max from NESDIS 1.19 in. slightly out of radar range

24 Hour Rainfall ending at 12 UTC July 25, 2014

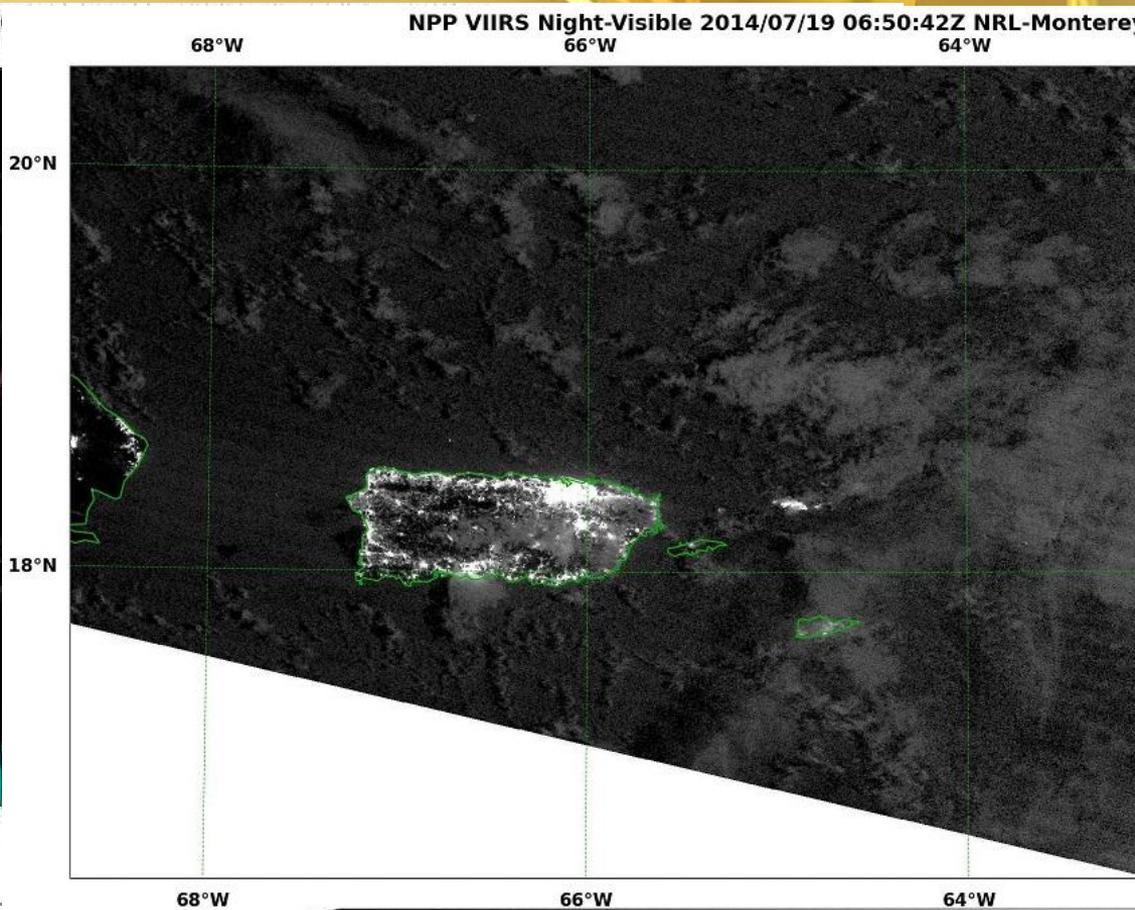
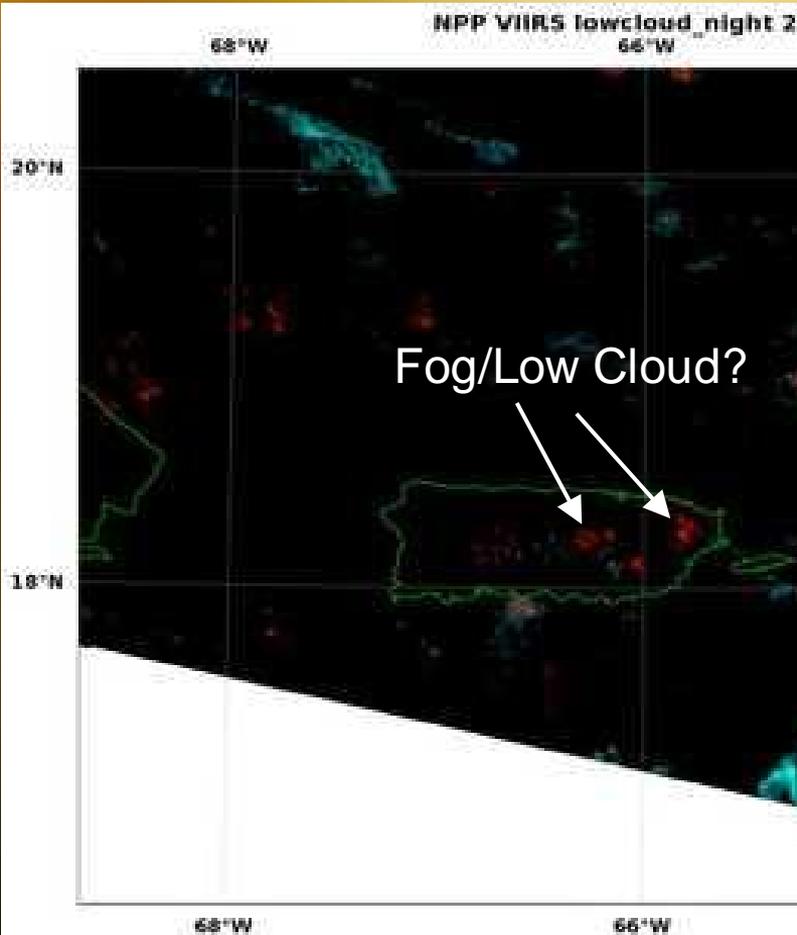
24 Hour NESDIS QPE Rainfall intensity has not yet been very helpful except show where the maximum amounts probably were, but the location gives a better heads up for rainfall than other satellite images..

VIIRS True Color

(<http://www.nrlmry.navy.mil>)

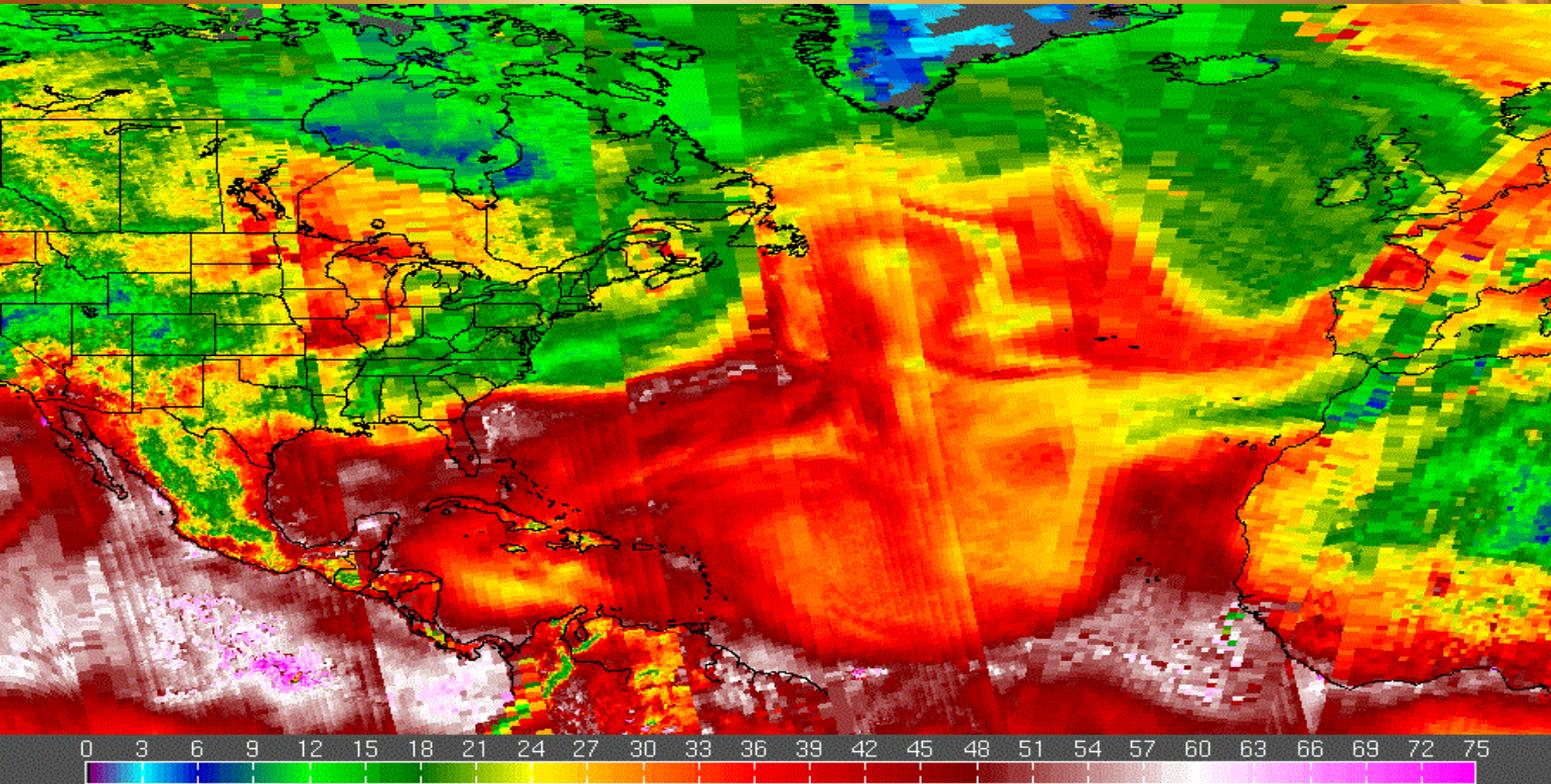


VIIRS Low Cloud and Night-Vis-IR (<http://www.nrlmry.navy.mil>)



CIRA Layered Precipitable Water (total) every 3 hours from polar orbiters

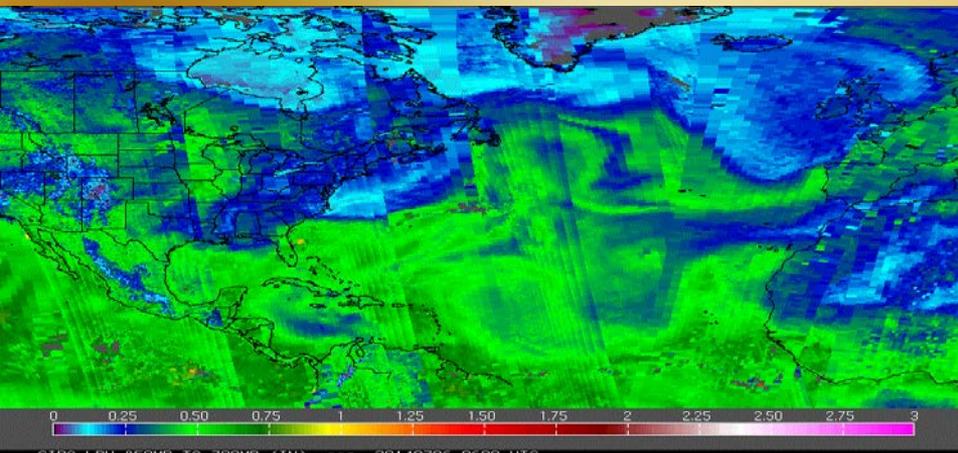
(<http://weather.msfc.nasa.gov/cgi-bin/sportPublishData.pl?dataset=ciralpw>)



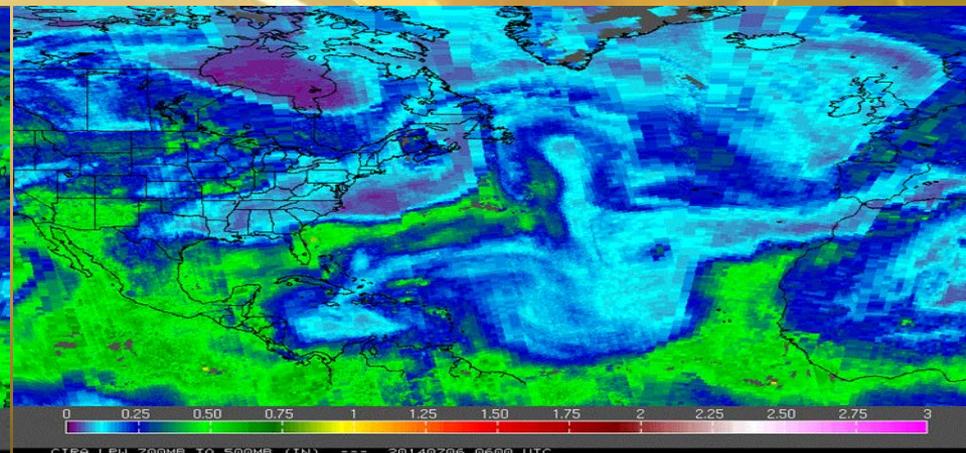
CIRA LPW TOTAL (MM) --- 20140706 0600 UTC

GOES-R will provide the same layered data for the entire area at least every 15 minutes with fewer mosaic difficulties.

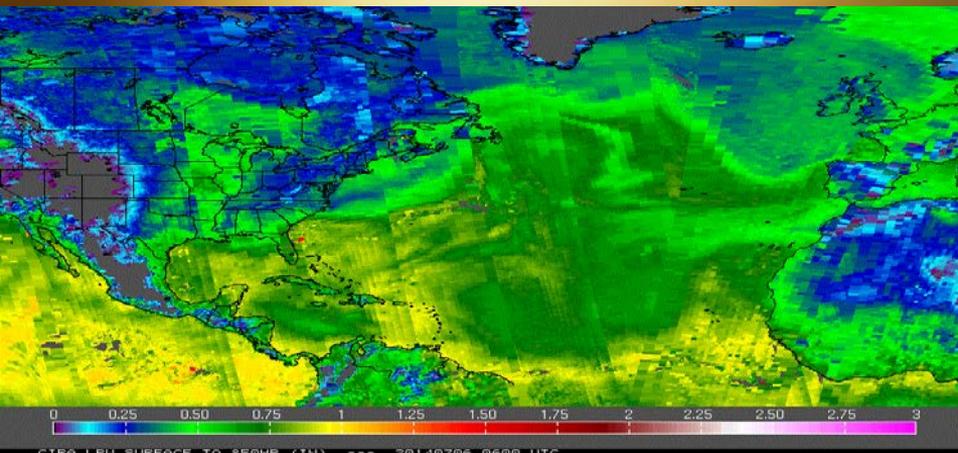
850 mb to 700 mb



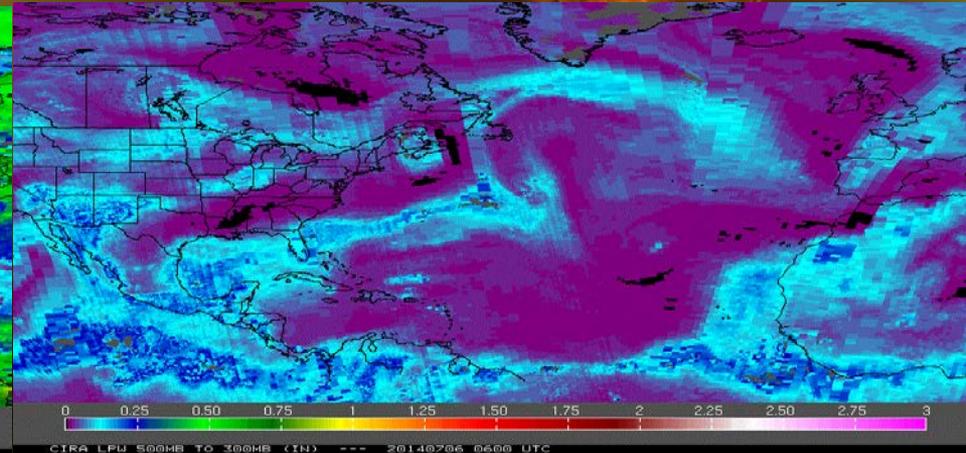
700 mb to 500 mb



Surface to 850 mb



500 mb to 300 mb

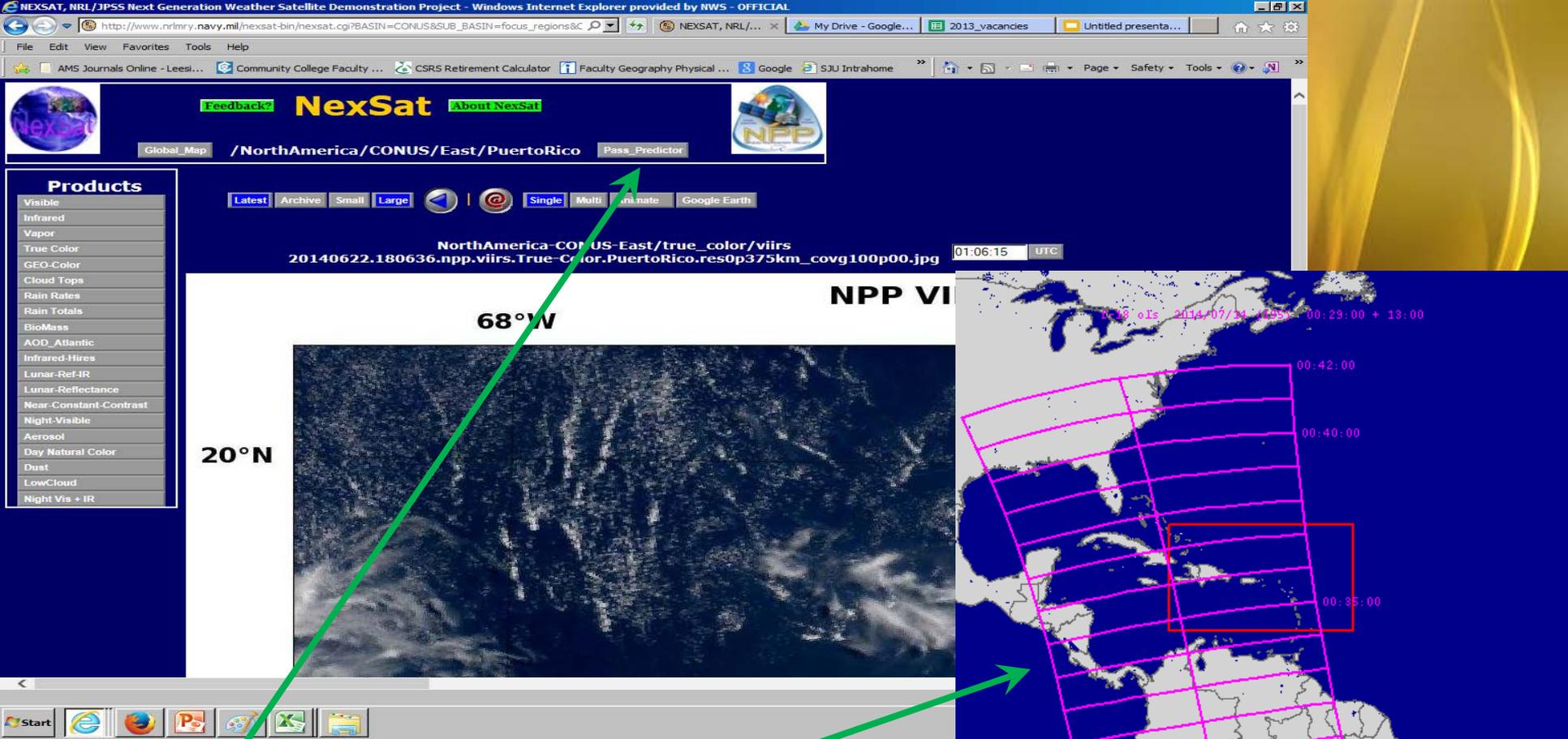


Recent and expected orbit tracks (out to 7 days)

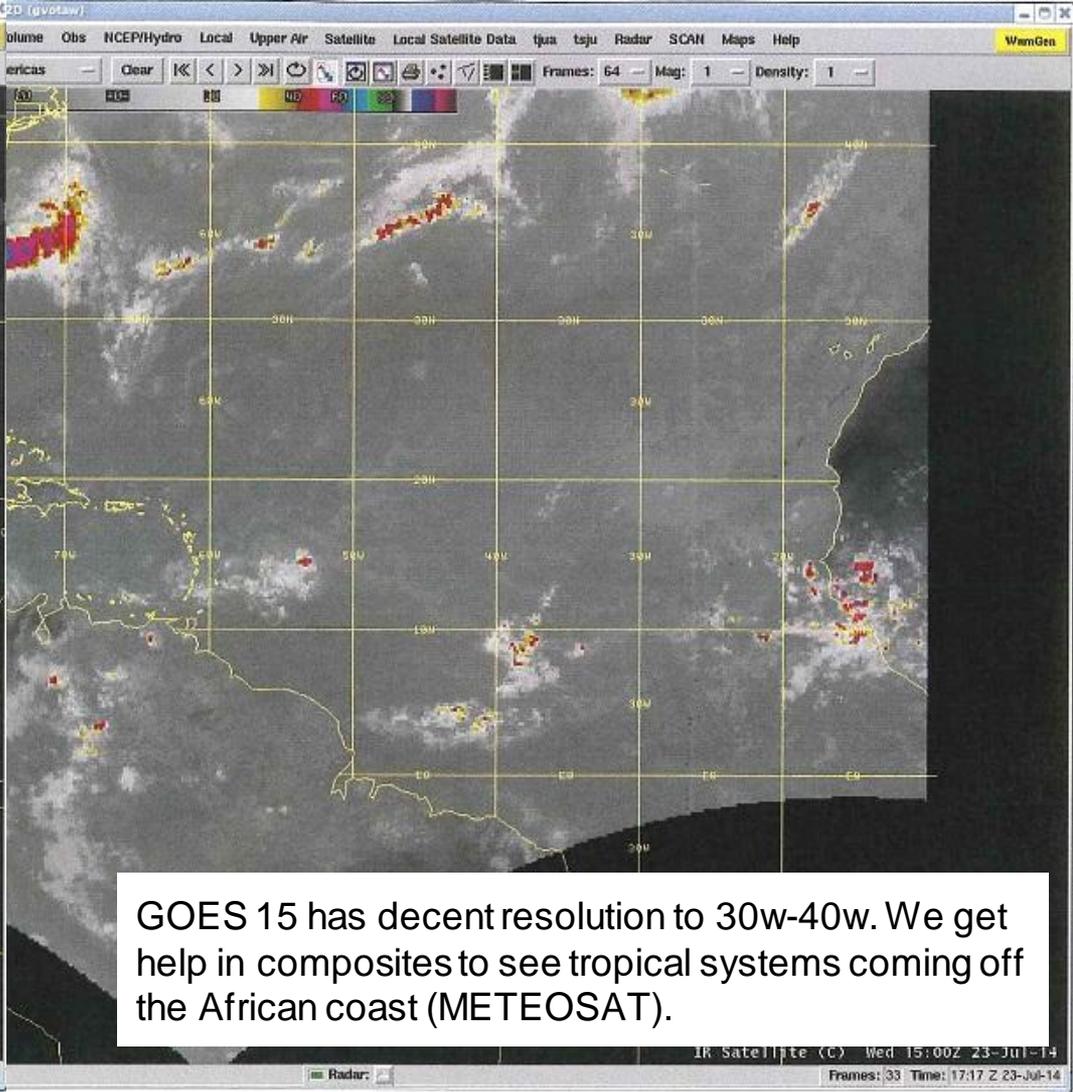
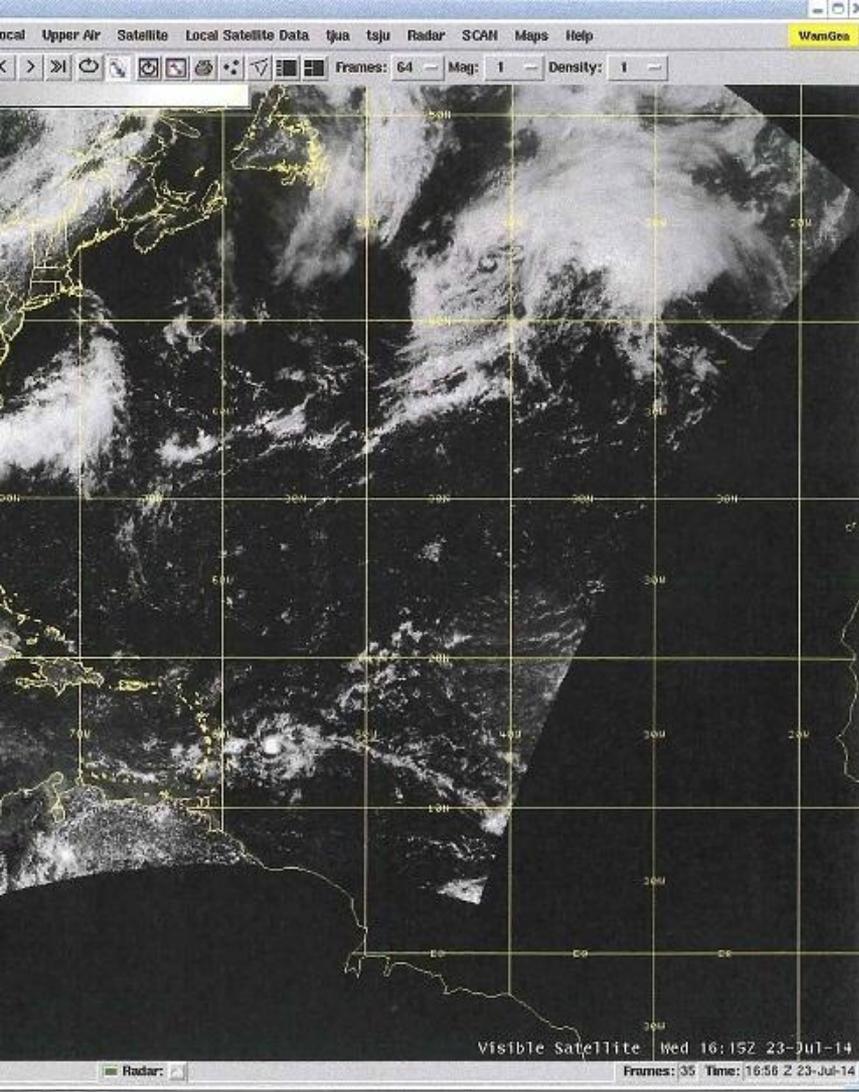
(<http://weather.msfc.nasa.gov>)

The screenshot shows a web browser window displaying the SPoRT Aqua Orbit Tracks page. The browser's address bar shows the URL <http://weather.msfc.nasa.gov/cgi-bin/sporT/publishData.pl?dataset=orbit&product=aqua&stamp=>. The page features the SPoRT logo and the NASA logo. The main heading is "Aqua Orbit Tracks - July 06, 2014 - 18:00 UTC". Below this, there is a navigation menu with options: Real-Time Data, Core Projects, GOES-R PG, JPSS PG, Transitions, Library, and Organization. A section titled "Availability Notes:" lists: Aqua tracks cover MODIS and AIRS, Terra tracks cover MODIS, Suomi NPP tracks cover VIIRS and CrIS, and Coriolis tracks cover WindSat. A "Select a date:" dropdown is set to "July 06, 2014 - 18:00 UTC". A "Previous Next" section is followed by a list of "Orbit Tracks by product" including Aqua, Coriolis, GPM, GeoEye-1, ISS, Landsat 7, Landsat 8, QuickBird2, SPOT 5, SPOT 6, Suomi, Terra, WorldView-1, and WorldView-2. A "Legend" section indicates "Currently Displayed" and "Unavailable". An "Animate This Product" link is also present. The main content area shows a map of the Americas with several cyan-colored orbit tracks overlaid. Each track is labeled with a time, such as 13:55, 12:15, 23:20, 21:40, 20:00, 18:20, 14:00, 12:25, 23:15, 21:35, 13:50, 23:30, 21:55, 13:40, 20:15, 18:35, 16:55, 15:20, 12:05, 13:40, 13:45, 13:05, 12:10, 20:10, 18:30, 18:25, 21:45, 20:05, 21:40, 20:00, 18:20, 13:55, 12:15, 23:20, 21:40, 20:00, 18:25, 14:00, 12:25, 23:15, 21:35, 13:50, 23:30, 21:55, 13:40, 20:15, 18:35, 16:55, 15:20, 12:05, 13:40, 13:45, 13:05, 12:10, 20:10, 18:30, 18:25, 21:45, 20:05, 21:40, 20:00, 18:20, 13:55, 12:15, 23:20, 21:40, 20:00, 18:25, 14:00, 12:25, 23:15, 21:35, 13:50, 23:30, 21:55, 13:40, 20:15, 18:35, 16:55, 15:20, 12:05, 13:40, 13:45, 13:05, 12:10, 20:10, 18:30, 18:25, 21:45, 20:05, 21:40, 20:00, 18:20.

Technical Contact: Dr. Gary J. Jedlovec (gary.jedlovec@nasa.gov)
Responsible Official: Dr. James L. Smoot (james.l.smoot@nasa.gov)
Page Curator: Kevin M. McGrath (kevin.m.mcgrath@nasa.gov)
[Disclaimer](#)

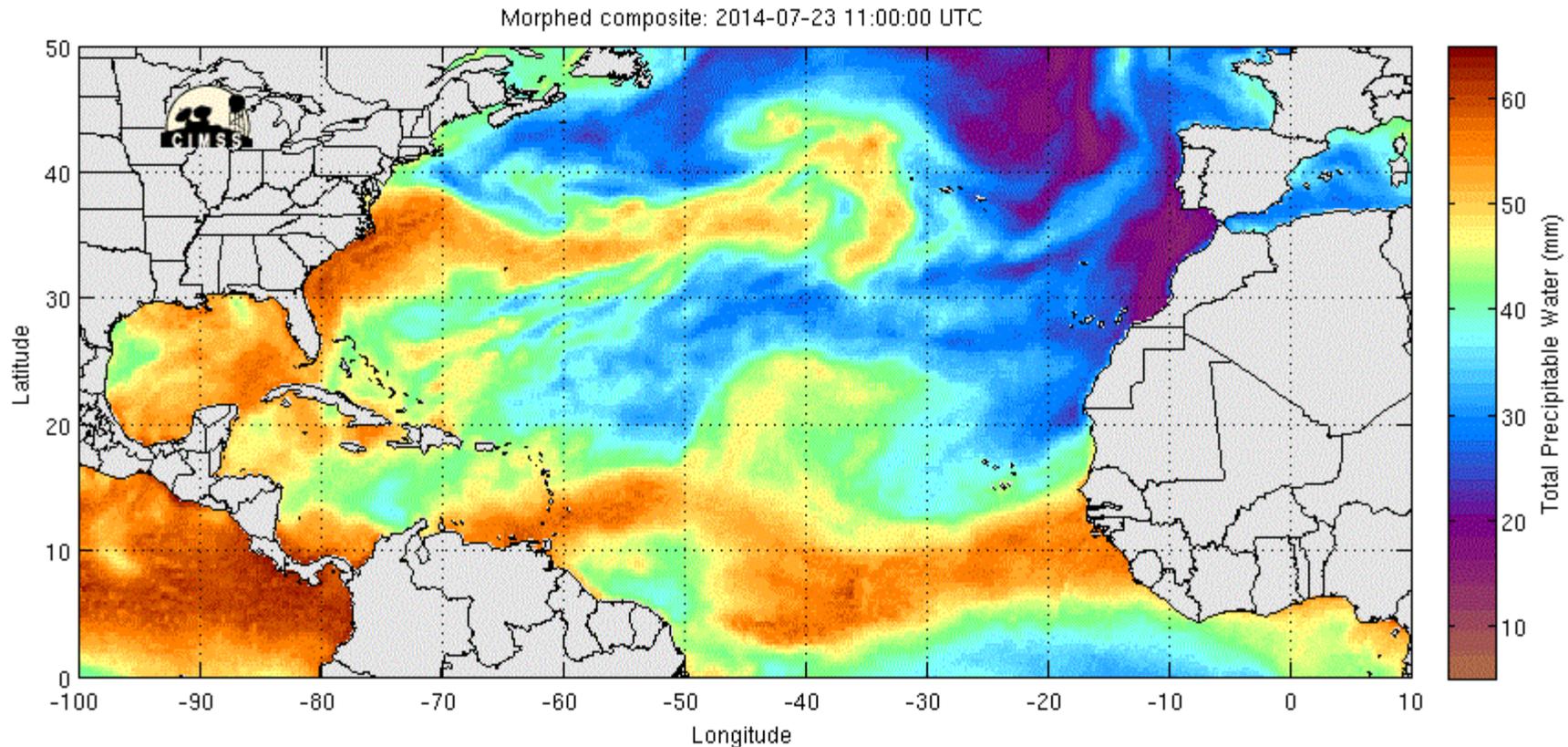


Pass Predictor for F18 Sat,
2014/07/14 at 00:35:40

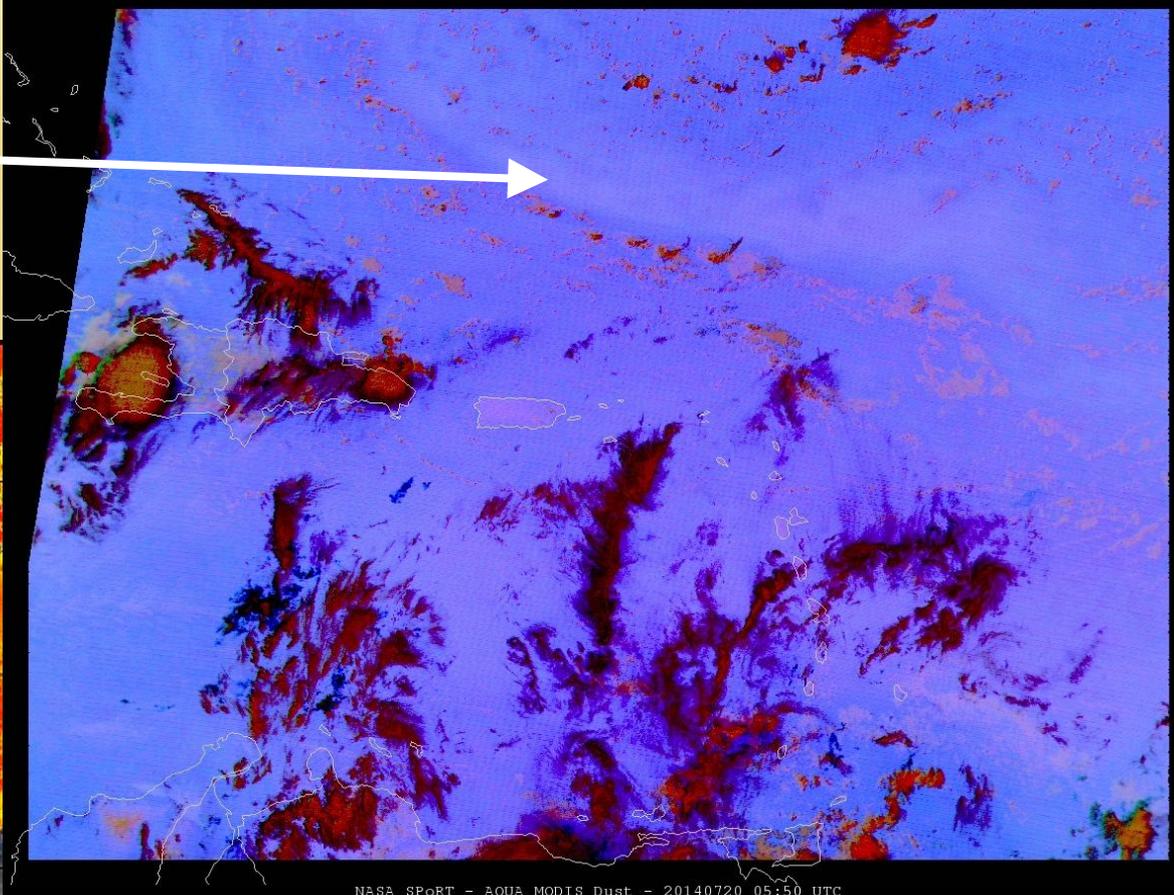
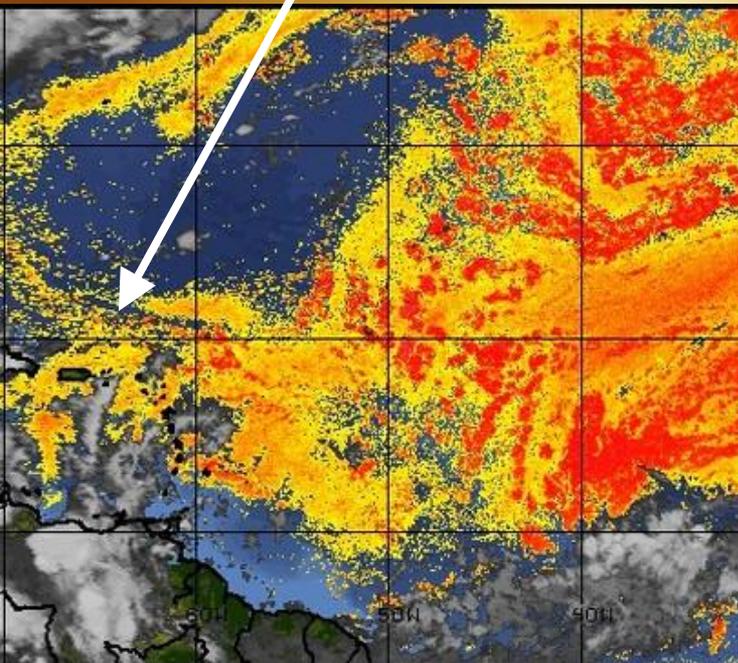


GOES 15 has decent resolution to 30w-40w. We get help in composites to see tropical systems coming off the African coast (METEOSAT).

MIMIC/TPW product is the most used product not on AWIPS by operational forecasters at WFO San Juan

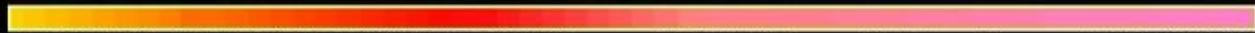


Saharan dust more clearly delineated on MODIS than on METEOSAT

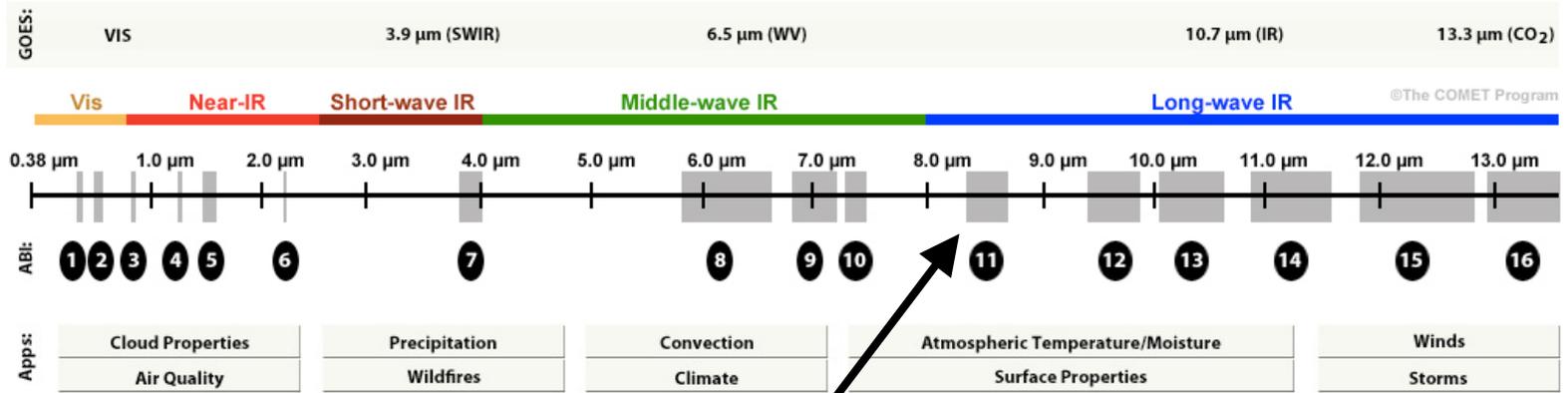


NASA SPoRT - AQUA MODIS Dust - 20140720 05:50 UTC

LESS <----- DRY AIR (LOW/MID-LEVEL) AND/OR DUSTY SAL AIRMASS -----> MORE



Explore the ABI Spectrum

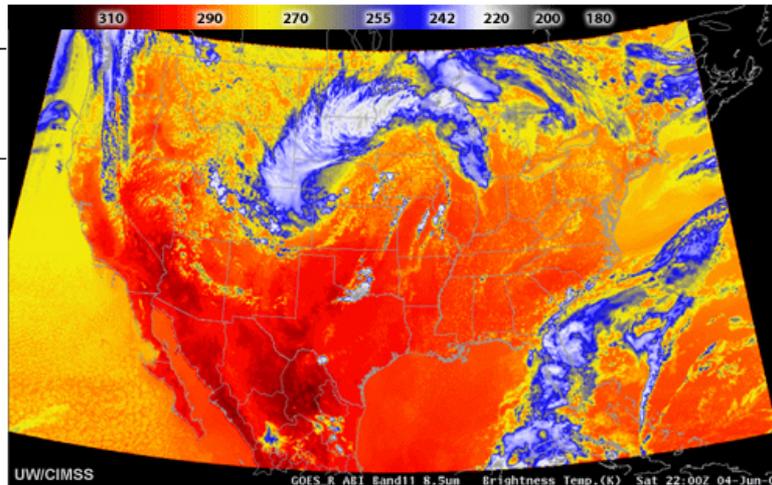


Ch. 11

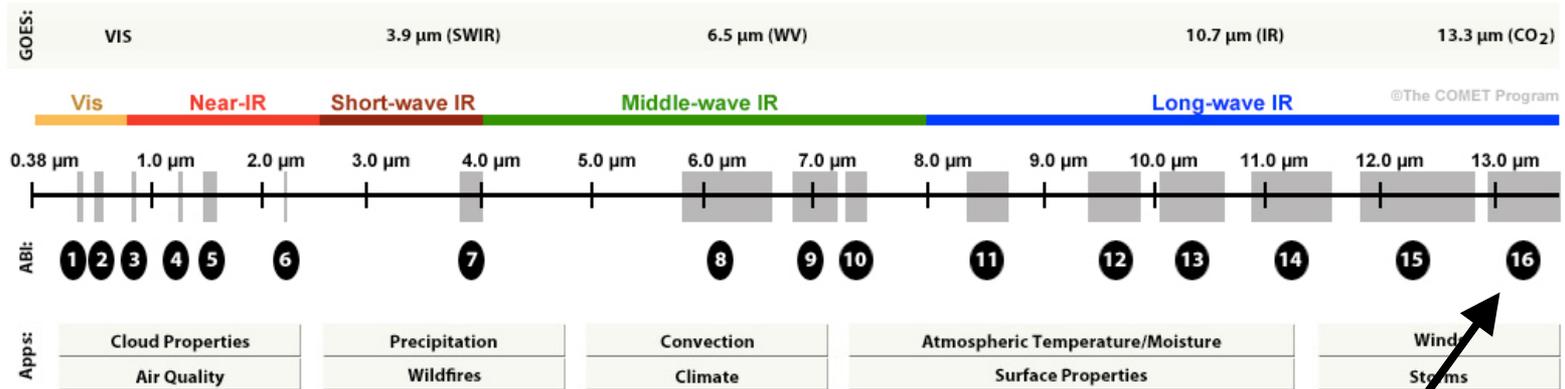
Central wavelength:
8.5 μm

Sample uses:

- Total water for stability
- Cloud phase
- Dust
- Sulfur dioxide
- Rainfall



Explore the ABI Spectrum



Ch. 16

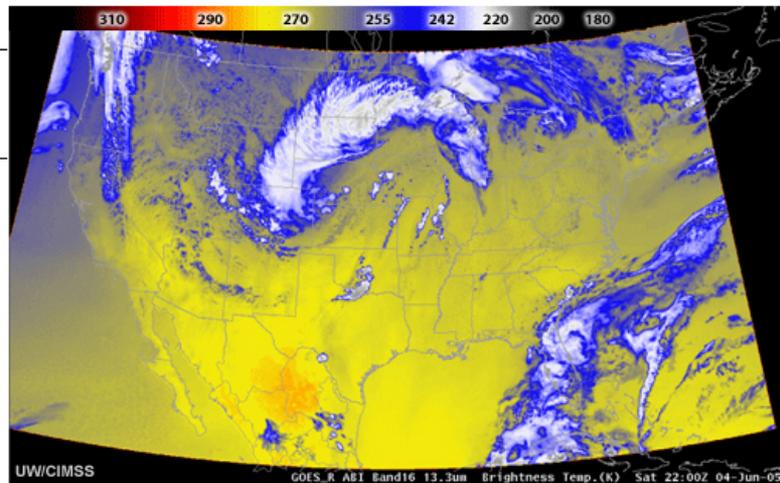
Central wavelength:
13.3 μm

Sample uses:

Air temperature

Cloud heights & amount

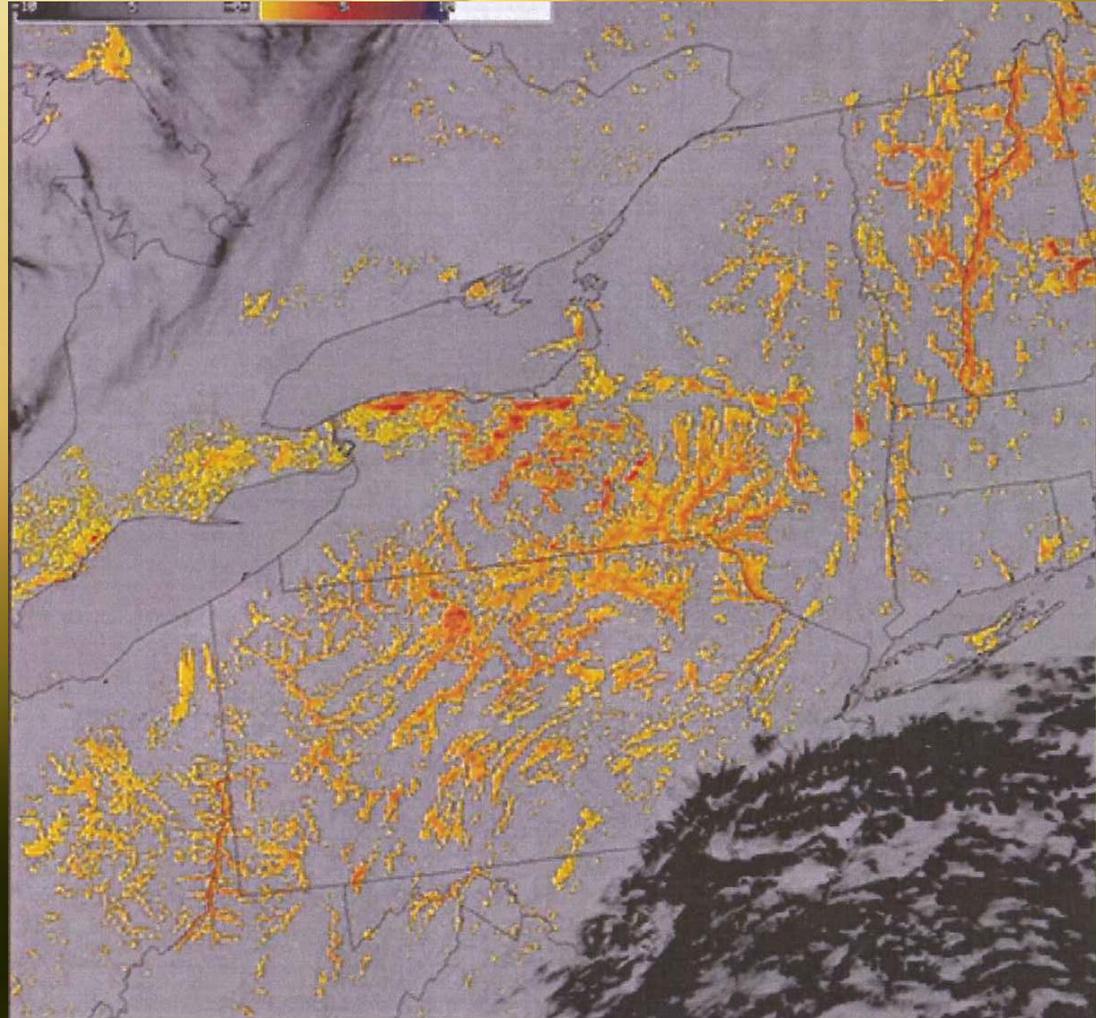
Volcanic ash height



Fog forecasts have never been attempted by the NWS for Puerto Rico/U.S. Virgin Islands.

Lack of sensors (including no web cams) for the interior of the islands have prevented remote detection.

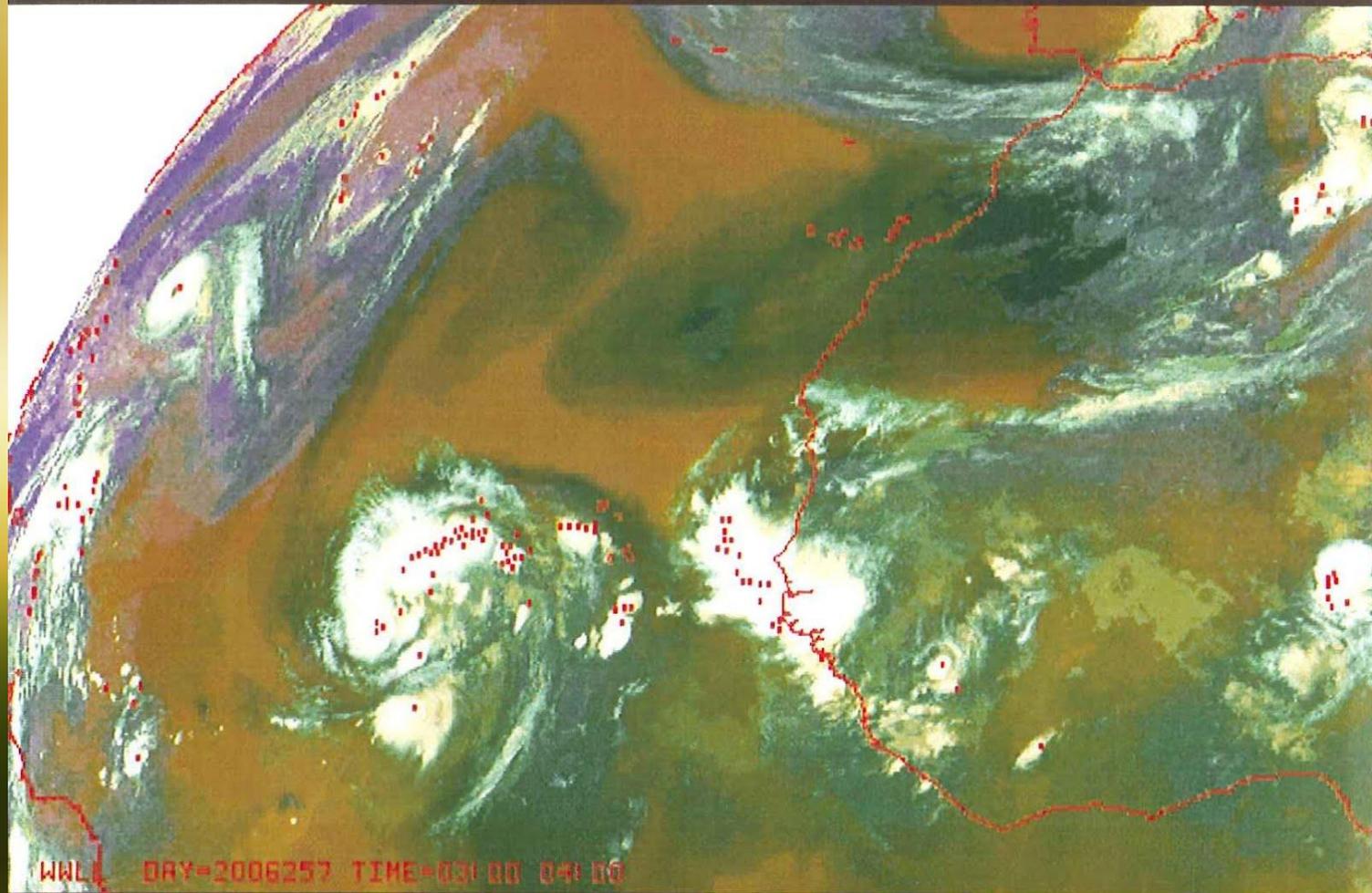
GOES-R channel 2 (day) channel 7 (night) are sensitive to low clouds/fog. Channel 7 is also best for detection of fires/hot spots.



Hourly Meteosat-9 Airmass Product and Surface-based Lightning During Tropical Storm Helene 13 to 14 Sep 2006

Lightning detection in PR/USVI has been unreliable through private sources and unavailable elsewhere.

Geostationary Lightning Mapper (GLM) would provide better information on convection and probably help estimate rainfall rates.



The background features a dynamic, abstract composition of flowing, translucent lines in shades of gold, orange, and green. These lines swirl and curve across the frame, creating a sense of movement and depth. The overall color palette is warm and vibrant, with a gradient from dark green at the bottom to bright yellow and gold at the top.

Questions?