

The GOES-R/JPSS Proving Ground: A National Centers Perspective



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The Proving Ground



A pre-operational environment in which to demonstrate and evaluate algorithms associated with day to day weather hazards experienced across the nation and familiarize forecasters with our next generation satellite systems

The Proving Ground at the National Centers



National Center for Weather and Climate Prediction

- Weather (Hydrometeorological) Prediction Center
- NESDIS Satellite Analysis Branch
- Ocean Prediction Center



National Weather Center

- Storm Prediction Center
- Hazardous Weather Testbed



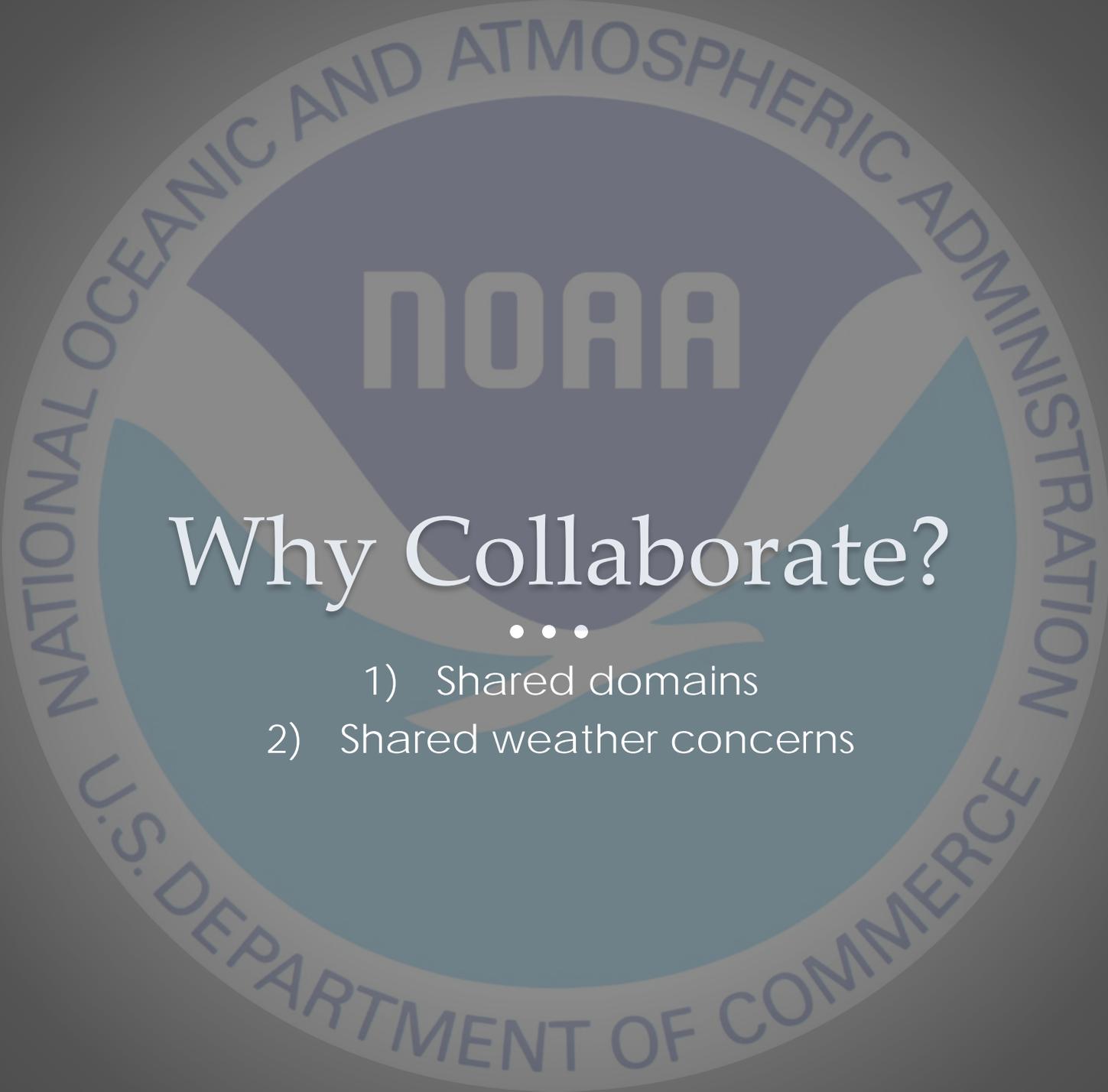
Aviation Weather Center

- Aviation Weather Testbed
- Air Traffic Control Systems Command Center



National Hurricane Center

- Tropical Forecast and Analysis Branch
- Hurricane Specialist Unit

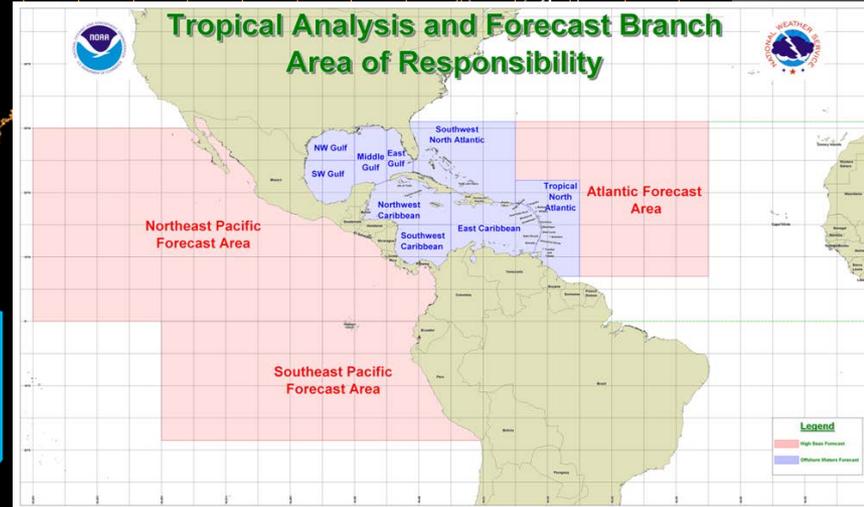
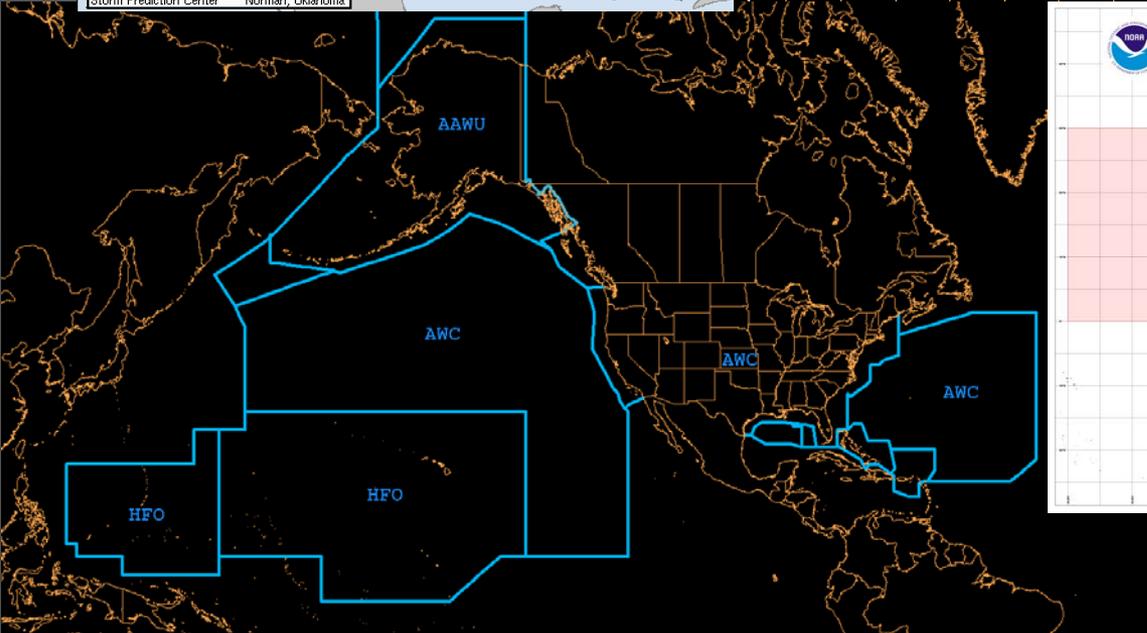
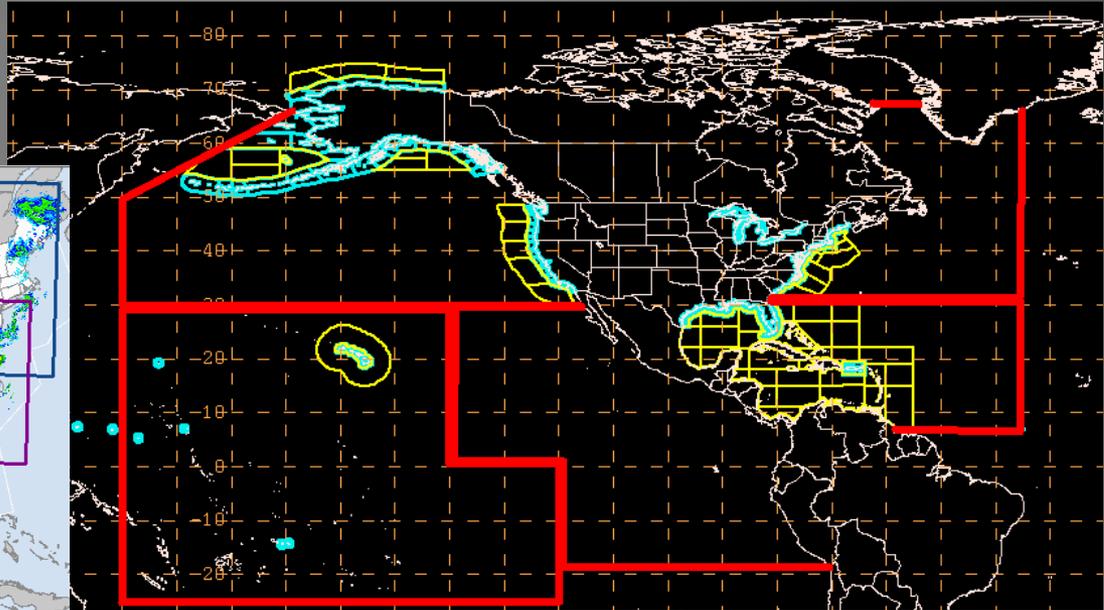
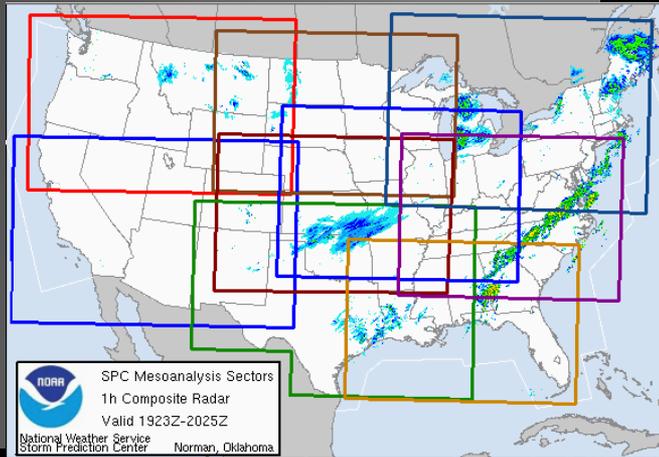


Why Collaborate?

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- 1) Shared domains
- 2) Shared weather concerns

Collaboration... shared domains



The background features a large, semi-transparent watermark of the NOAA logo. The logo is circular and contains the text "NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION" around the top edge and "U.S. DEPARTMENT OF COMMERCE" around the bottom edge. In the center of the logo is a stylized eagle with its wings spread, and the word "NOAA" is written in large, bold, sans-serif letters across the eagle's chest.

Collaboration... shared concerns

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August 13th, 2013

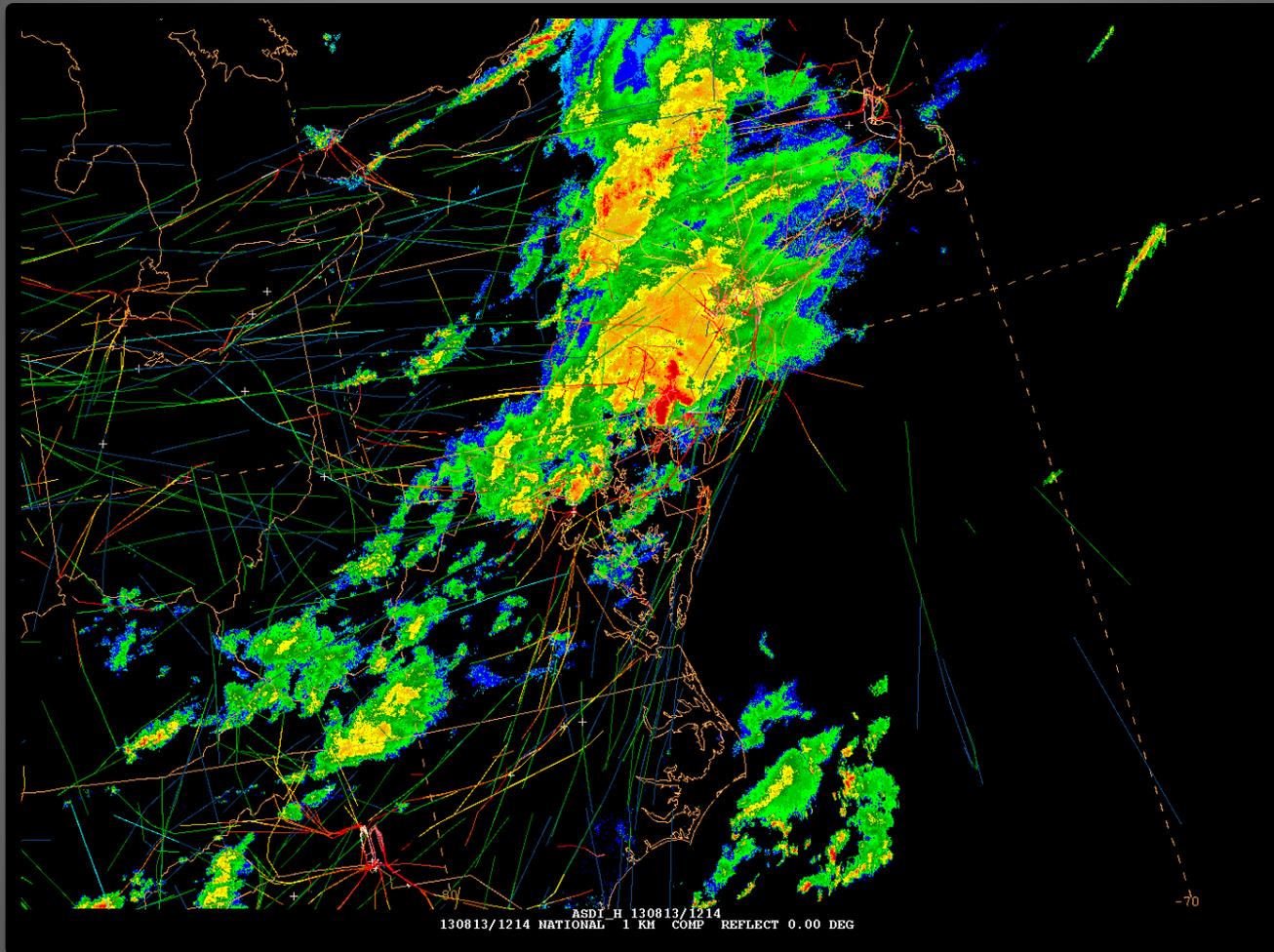
Convection in the Northeast from center to center:

- Aviation Weather Center
- Weather Prediction Center
- NESDIS Satellite Analysis Branch
- Storm Prediction Center



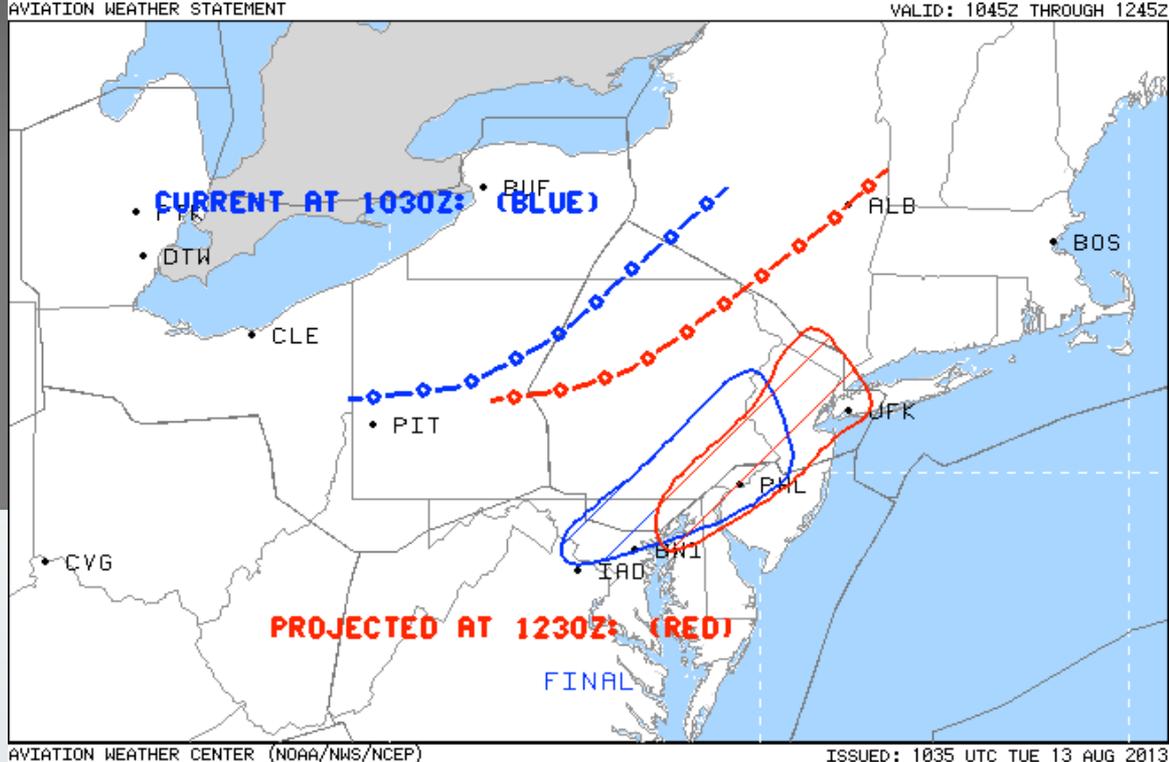
GOES-R at the Aviation Weather Testbed

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AWC - Kansas City, MO
ATCSCC – Warrenton, VA



20130814 1214 – 1230 UTC composite reflectivity and ASDI flight tracks

Aviation Weather Statement – August 13th, 1031 UTC



AVIATION WEATHER STATEMENT 0138
NWS AVIATION WEATHER CENTER
KANSAS CITY MO
1031 UTC TUE 13 AUG 2013

VALID TIME...1045Z THROUGH 1245Z

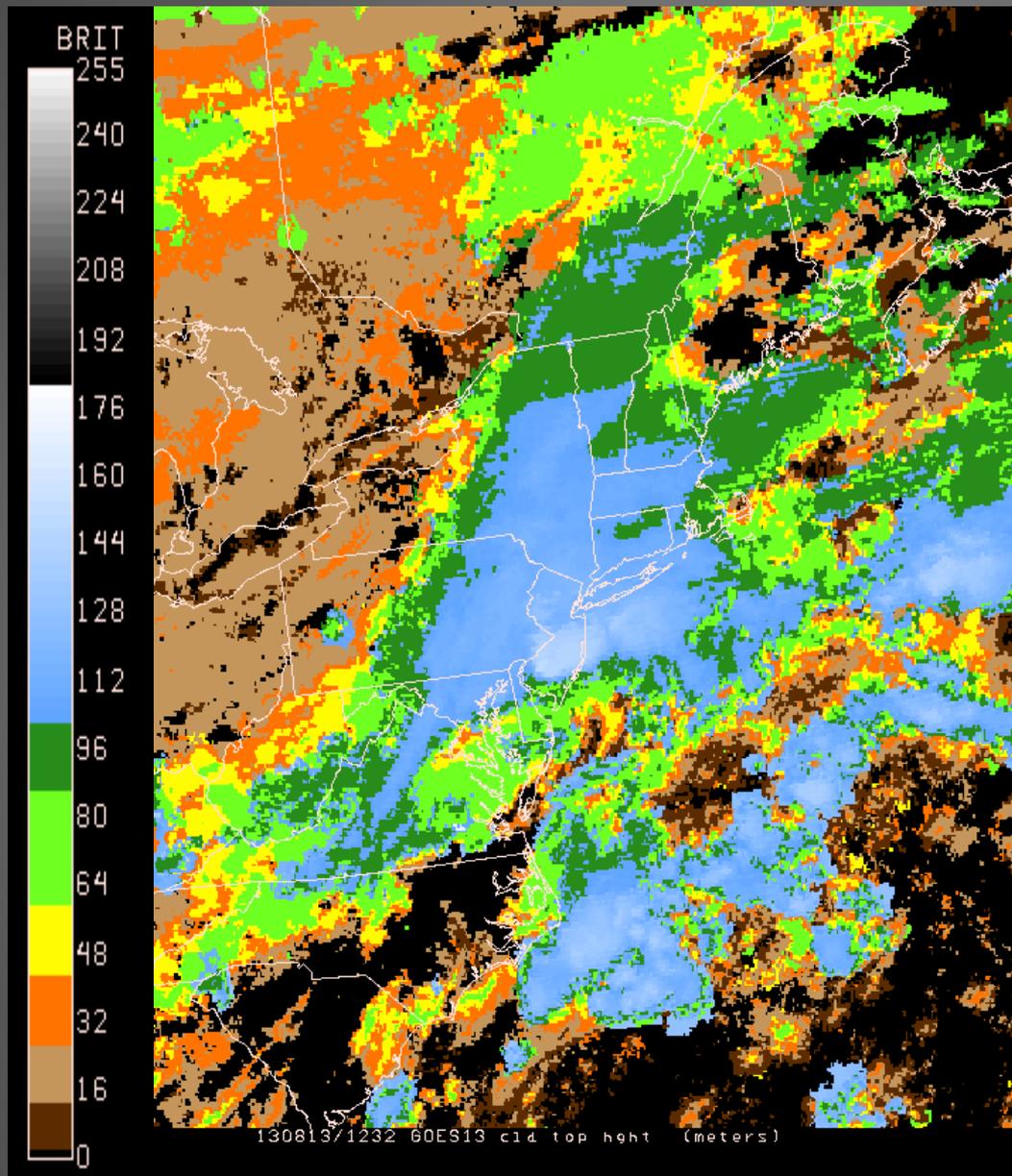
NAS ELEMENTS EFFECTED...ALL N90 GATES/ROUTES...NY TERMINALS

CONSTRAINTS...AREA OF HEAVY SHOWERS AND THUNDERSTORMS OVER SE PA MOVING INTO CENTRAL NJ AT THE CURRENT TIME. THIS AREA WILL MOVE NE INTO THE N90 AIRSPACE AND TERMINAL AREA.

A SECOND LINE OF THUNDERSTORMS OVER CENTRAL NY AND W PA WILL MOVE EAST INTO EASTERN NY AND CENTRAL PA THROUGH 1245Z.

SIGNIFICANT ROUTE AND GATE IMPACTS EXPECTED WITH MAX TOPS TO FL400.

TIMING AT TERMINALS: SHOWERS AFTER 1130Z...THUNDERSTORMS FROM 1230Z AND LATER.

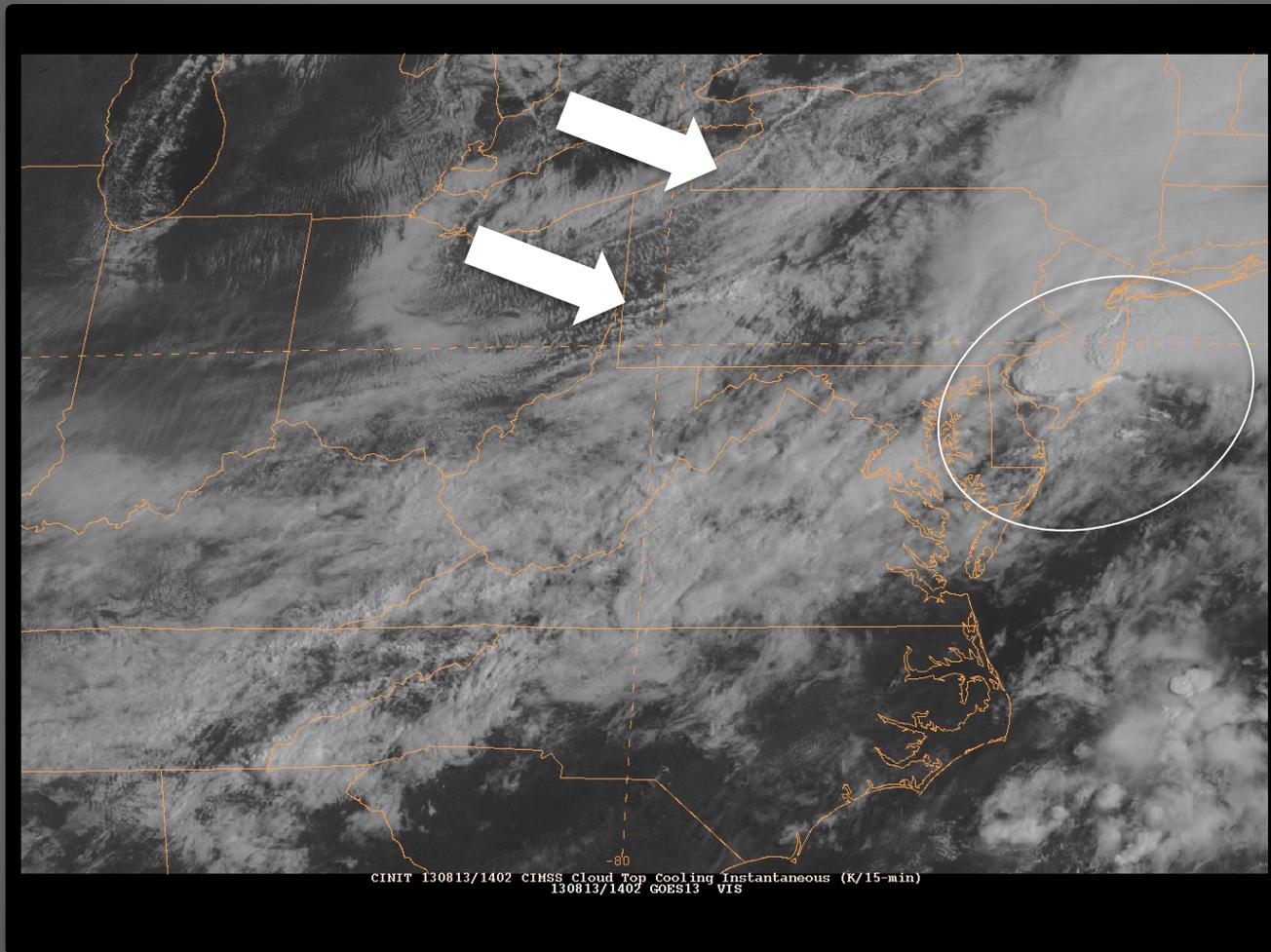


August 13th GOES-R Cloud Top Heights

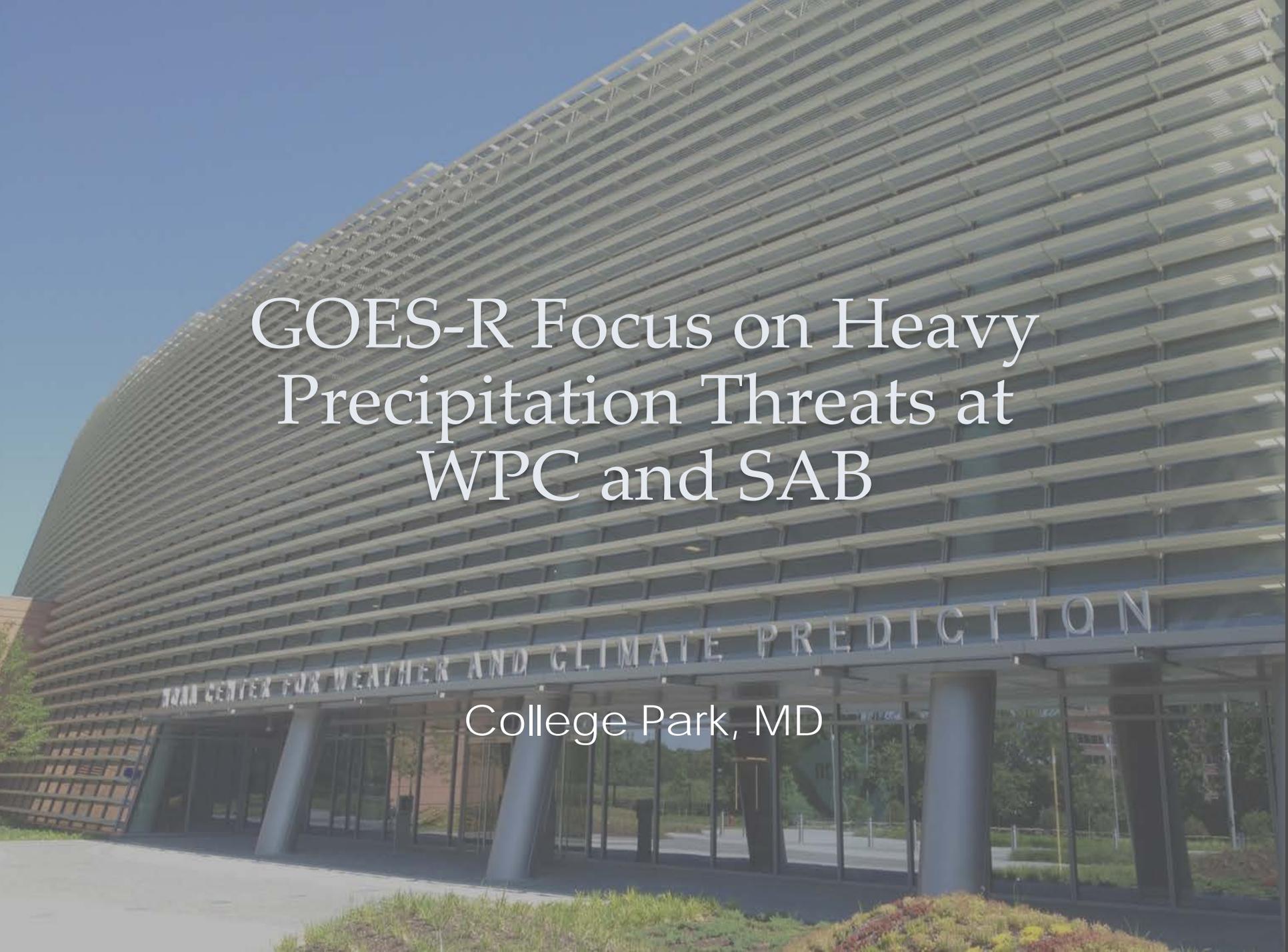
1232 UTC

- Heavy convection south of EWR, continuing to move offshore
- Tops to ~14400 meters or to ~FL450 and greater
- S, SW, and SE gates into the NY area affected, N gates to DC area affected
- AR routes expected to be affected

Cloud Top Cooling



20130813 1402 – 1545 UTC Cloud Top Cooling and visible
imagery



GOES-R Focus on Heavy Precipitation Threats at WPC and SAB

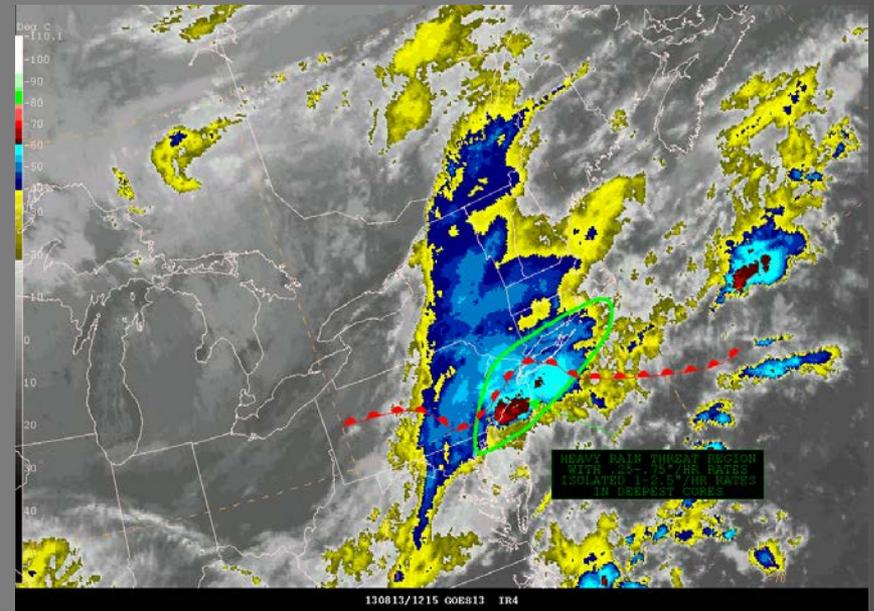
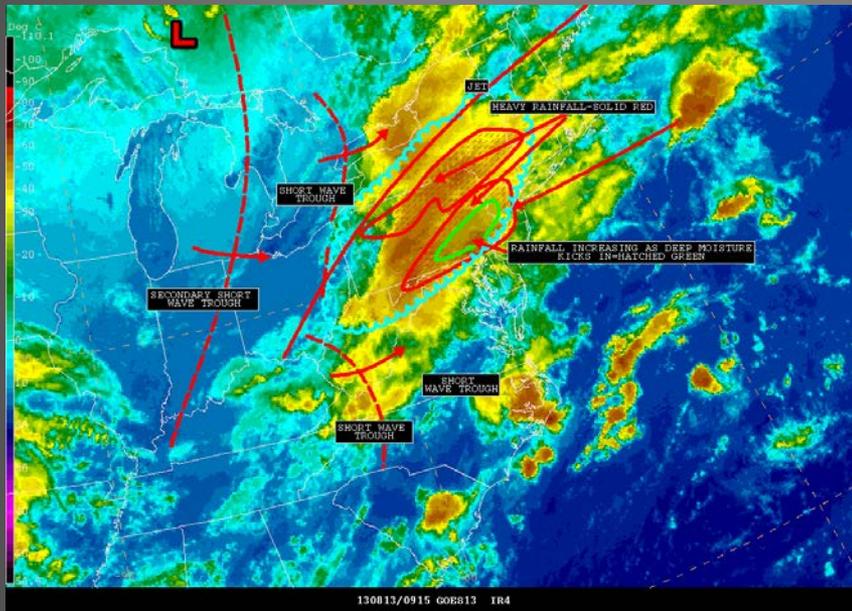
NOAA CENTER FOR WEATHER AND CLIMATE PREDICTION

College Park, MD

Satellite Analysis Branch

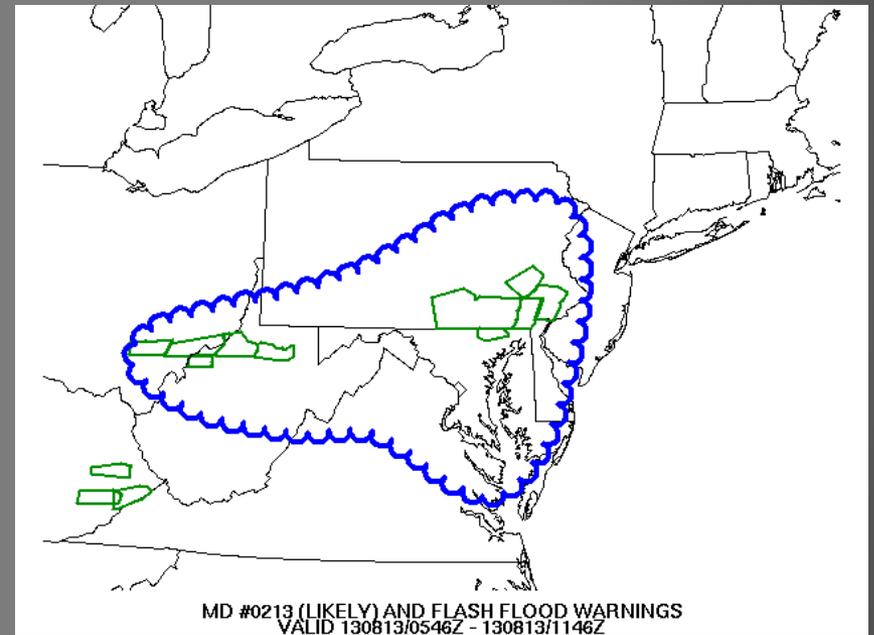
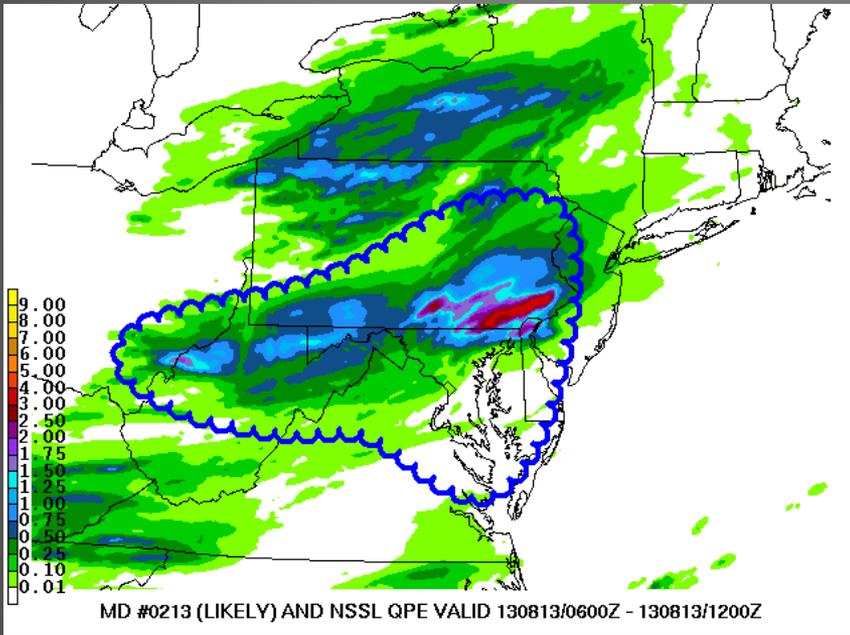
Precipitation Desk

Satellite Precipitation Estimates

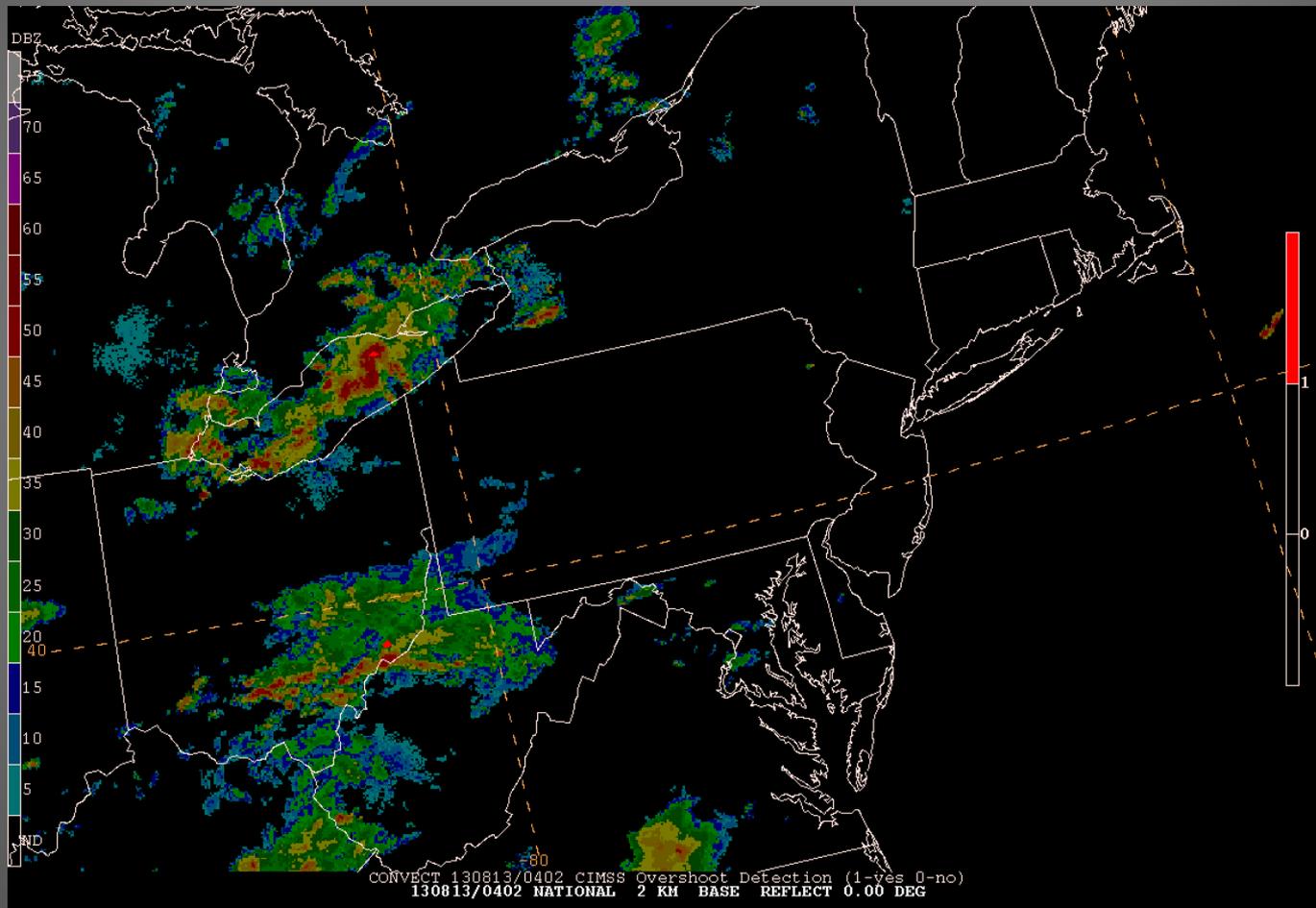


Weather Prediction Center

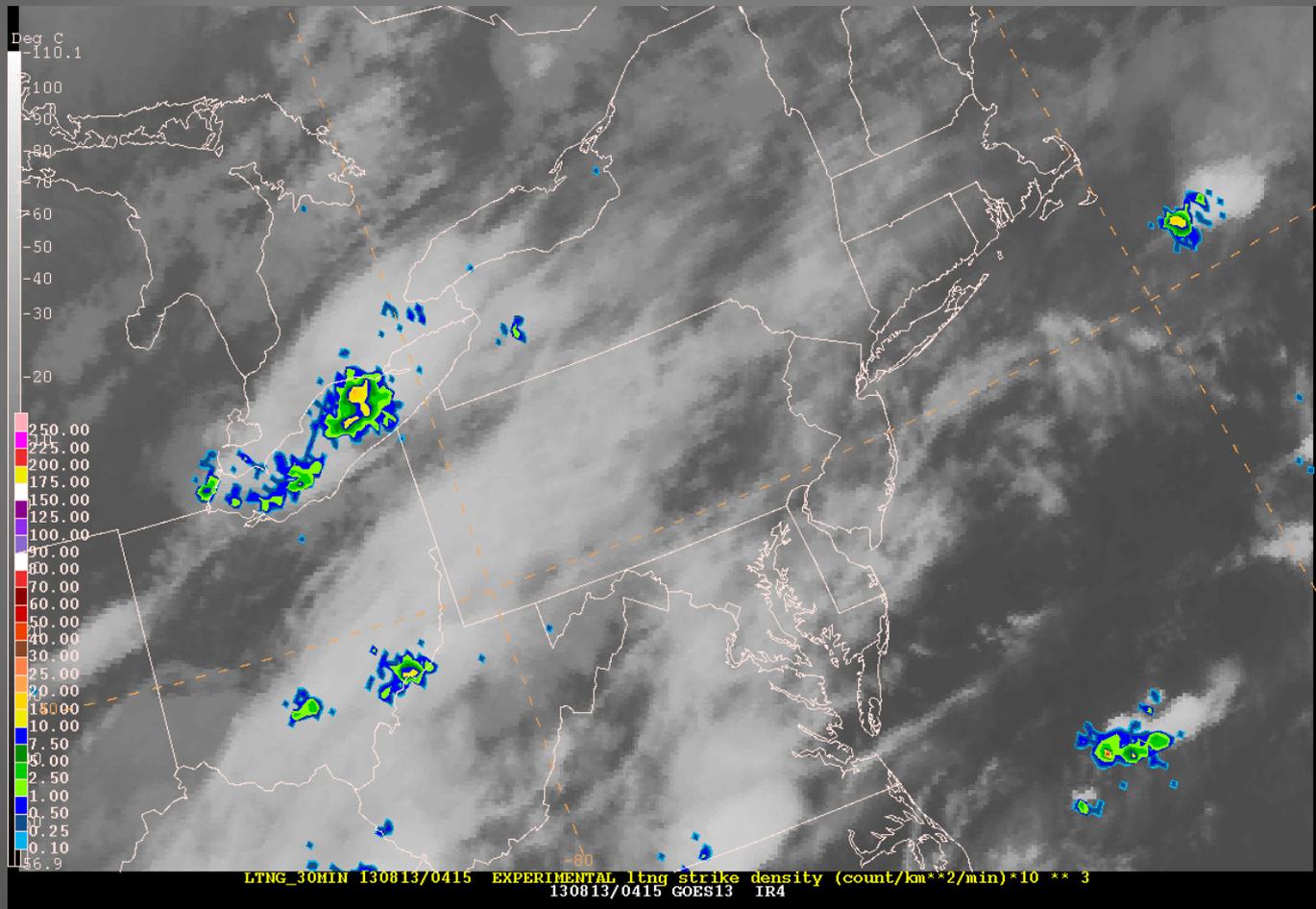
Metwatch Desk

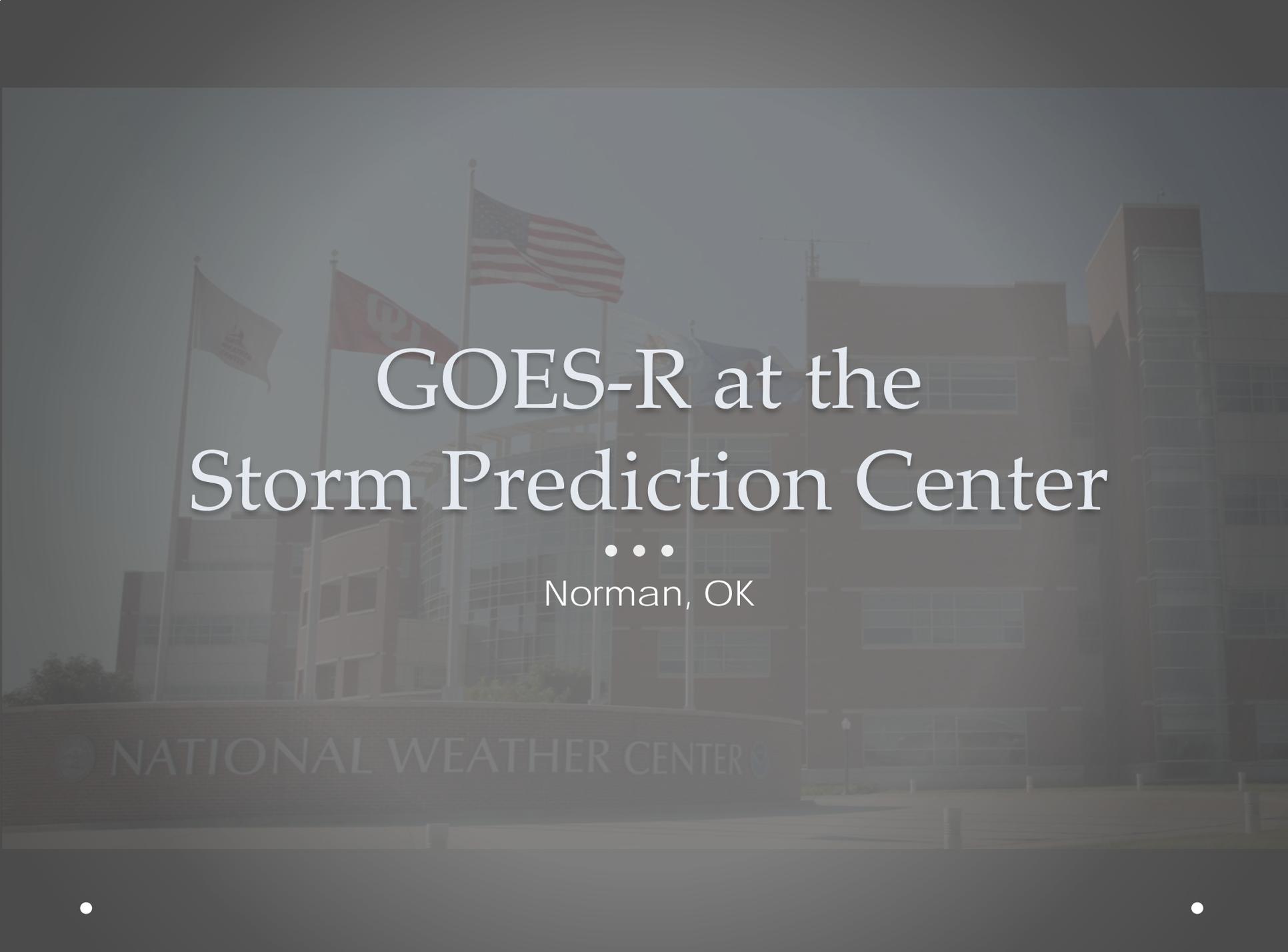


Reflectivity with OTD to monitor convective trends



GOES-13 Infrared Imagery overlaid with GLD-360 Lightning Density





GOES-R at the Storm Prediction Center

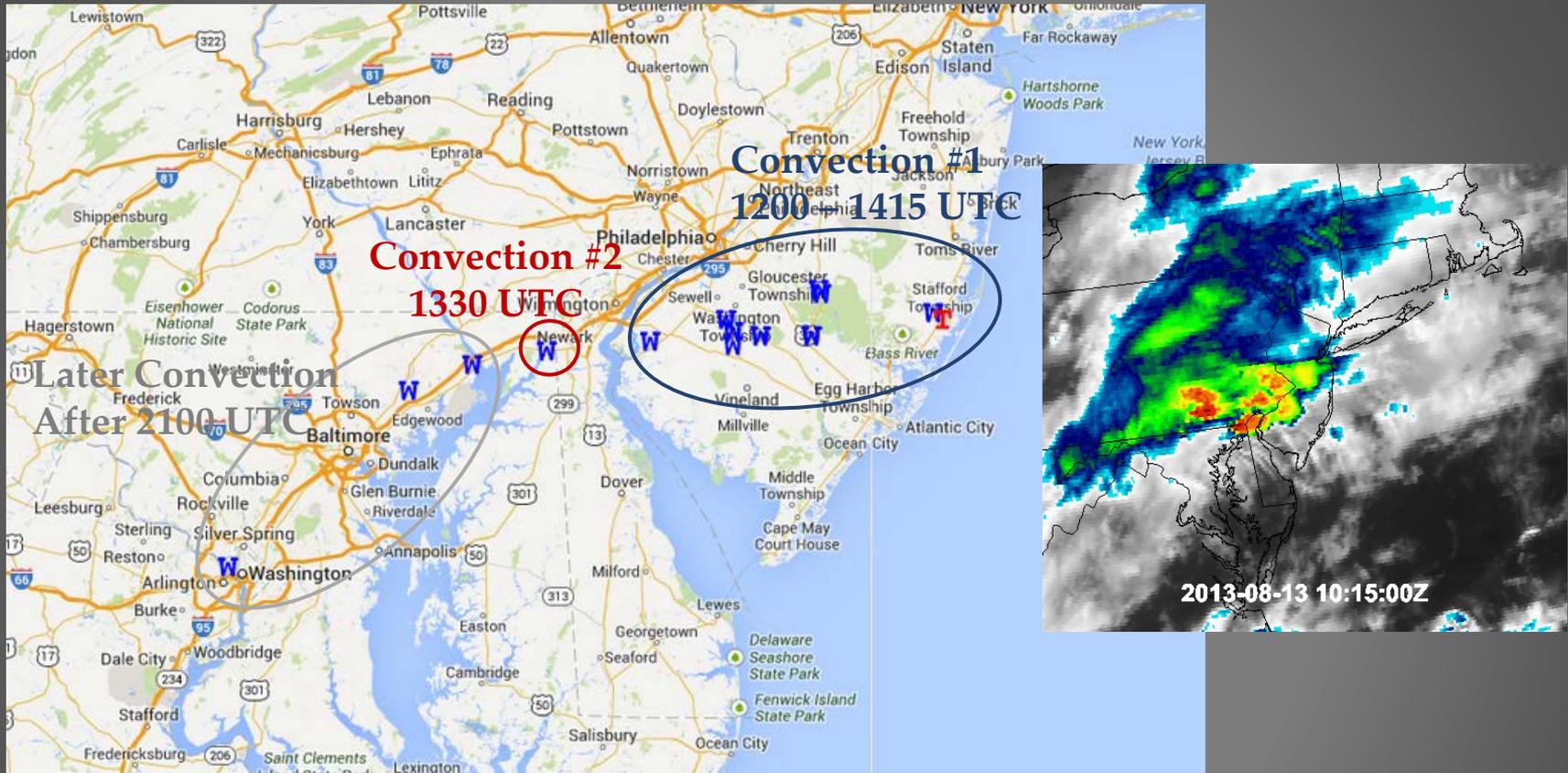
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Norman, OK

NATIONAL WEATHER CENTER



SPC Storm Reports for 8/13/13



- Severe winds reported across New Jersey including downed trees and power lines, structural damage and a measured gust of 65 KT
- EF-0 tornado reported near Jersey coast

SPC Mesoscale Discussion

MESOSCALE DISCUSSION 1705

NWS STORM PREDICTION CENTER
NORMAN OK

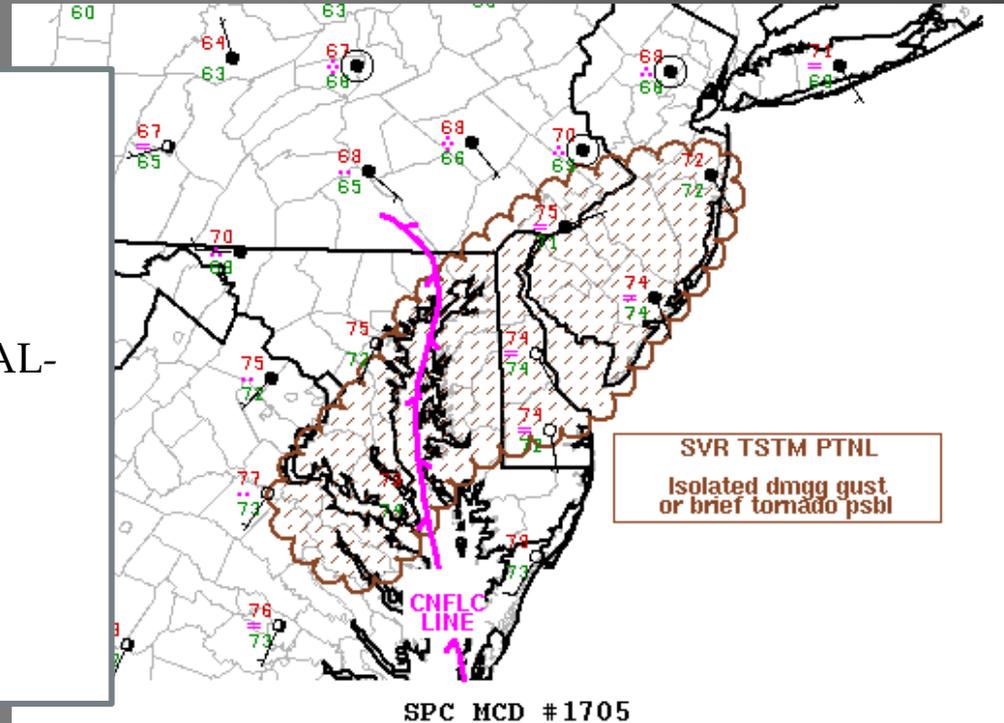
0524 AM CDT TUE AUG 13 2013

AREAS AFFECTED...PORTIONS DE...ERN
VA...EXTREME SERN PA...CENTRAL-
ERN MD...NJ.

CONCERNING...SEVERE
POTENTIAL...WATCH UNLIKELY

VALID 131024Z - 131300Z

PROBABILITY OF WATCH ISSUANCE...20
PERCENT

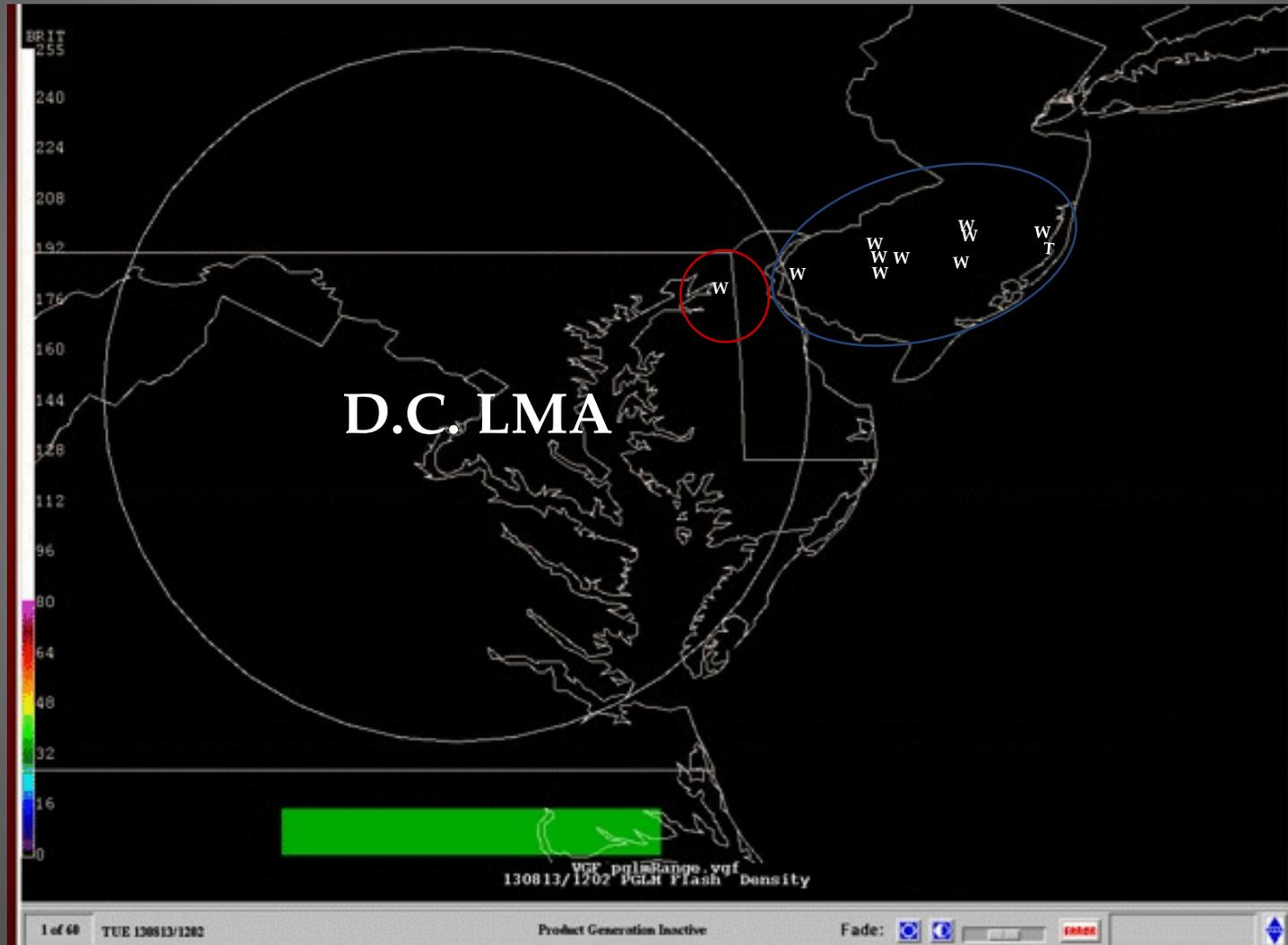


SUMMARY...SCATTERED TSTMS HAVE BEEN INTENSIFYING IN NE-SW ALIGNED BAND ACROSS NRN MD...MOVING NEWD TOWARD LOWER DE RIVER VALLEY REGION AND PORTIONS CENTRAL/SRN NJ. ADDITIONAL DEVELOPMENT MAY OCCUR FARTHER SW OVER CENTRAL/ERN VA AND MOVE NEWD INTO MRGL ENVIRONMENT FOR SVR. **ISOLATED DAMAGING GUSTS ARE POSSIBLE...AND A TORNADO CANNOT BE RULED OUT.**

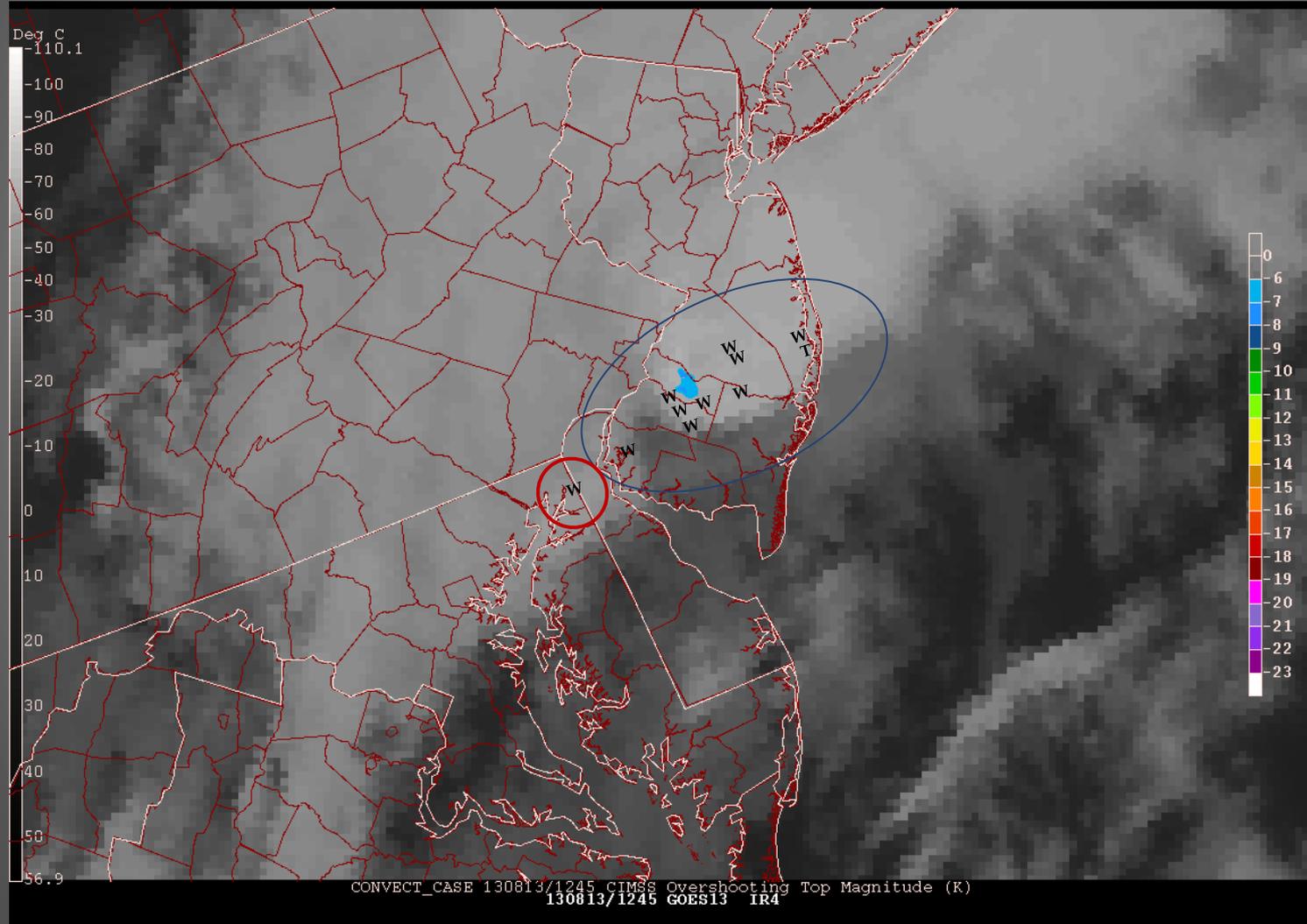
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DISCUSSION...MOISTURE CHANNEL IMAGERY INDICATES WEAK SHORTWAVE TROUGH MOVING EWD ACROSS ERN KY...PRECEDED BY FIELD OF LARGE-SCALE ASCENT. THIS INCLUDES WAA ASSOCIATED WITH ROUGHLY 30-KT SWLY 850-MB FLOW NOTED IN DC-AREA VWP. MODIFIED RAOBS...FCST SOUNDINGS AND SFC OBS SUGGEST BOUNDARY LAYER REMAINS WEAKLY DECOUPLED...BUT WITH EFFECTIVE-INFLOW PARCELS EXTENDING TO NEAR SFC IN SOME AREAS. SFC TEMPS AND DEW POINTS IN LOW-MID 70S YIELD LOW LCL...AND OFFSET SMALL LAPSE RATES ALOFT ENOUGH TO YIELD MRGL BUOYANCY WITH MLCAPE 200-500 J/KG. PARADOXICALLY...WEAKNESS OF SFC FLOW ENHANCES LOW-LEVEL SHEAR...YIELDING 0-3 KM AGL VECTOR-SHEAR MAGNITUDES AROUND 30 KT AND SAME-LAYER SRH AROUND 150 J/KG...ALONG AND E OF WEAK CONFLUENCE LINE LOCATED NEAR CHESAPEAKE BAY AND LOWER SUSQUEHANNA RIVER. THIS MAY SUPPORT ADDITIONAL/TRANSIENT SUPERCELL CHARACTERISTICS. HOWEVER...SUCH WEAK WINDS ALSO RESTRICT BOTH CONVERGENCE AND STORM-RELATIVE INFLOW. CLUSTERED CONVECTIVE MODES ALSO WILL IMPEDE UNMODIFIED STORM INFLOW EXCEPT FOR CELLS NEAR TAIL-END OF SEGMENTS.

Total Lightning (pGLM) Flash Density



Overshooting Top Detection Magnitude



Summary

- The Liaisons continue to collaborate on ways to share lessons learned within each Proving Ground on use of proxy GOES-R and JPSS products.
- The Proving Ground is now becoming an integral part of the National Centers' collaboration during high impact weather events as forecasters are trained on new satellite techniques.
- Prior to and after the launch of GOES-R and JPSS 1 & 2, the Proving Grounds will continue to find unique ways to integrate satellite information into operations to assist with decision support.

