



Satellite Proving Ground for Marine, Precipitation, and Satellite Analysis

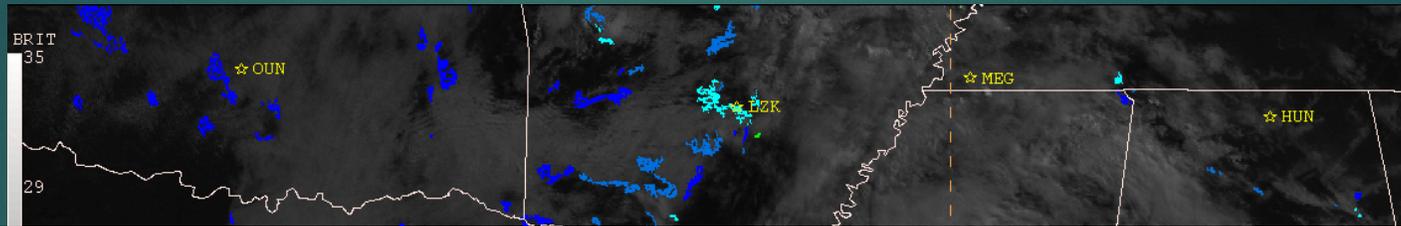
SATELLITE LIAISON: MICHAEL J. FOLMER, PHD

PG ALL-HANDS – 01/12/15

Summer 2014 MPS PG Demo (5/15/14 – 10/30/14)

- ▶ New Products:
 - ▶ Convective Initiation
 - ▶ Hybrid Imagery
 - ▶ Nearcast
 - ▶ ~~Fog and Low Stratus~~
- ▶ Continued Products:
 - ▶ Overshooting Top Detection
 - ▶ GLD-360 Lightning Density
 - ▶ GOES-14 SRSOR
 - ▶ RGB Applications

06/27/14 Flash Flood Convective Initiation



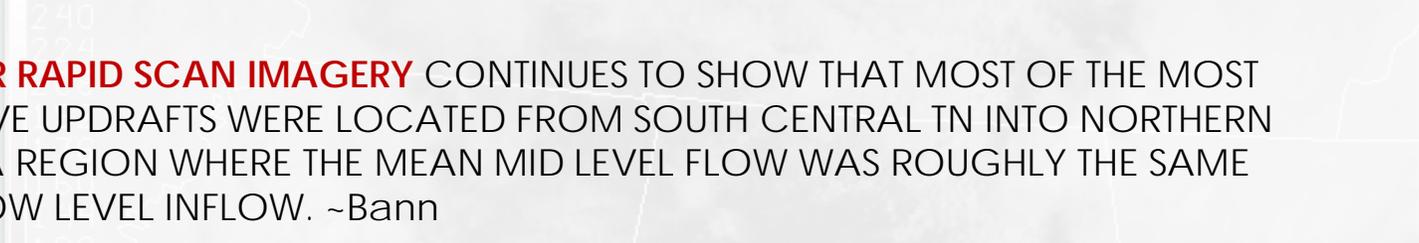
SHORT TERM OUTLOOK VALID 1750-2250Z...HIGH CONFIDENCE FACTOR IN SHORT TERM OUTLOOK...ALREADY CONVECTION HAS DEVELOPED ACROSS PORTIONS OF SE TX/SW LA THIS AFTERNOON WITH SOME LOCATIONS RECEIVING A QUICK 2-3" IN AN HR. INCREASING CONCERN OF ADDITIONAL CONVECTION DEVELOPING/EXPANDING N FROM GULF OF MEXICO AHEAD OF SHORTWAVE TROF THAT IS GRADUALLY LIFTING NWD ACROSS ERN TX/WRN GULF OF MEXICO. **WITHIN THE LAST HR AN OUTFLOW BOUNDARY HAS BEGUN TO PROPAGATE NWD TOWARDS TO COASTLINES OF SE TX/SW LA WITH NEW CONVECTION ALREADY BEGINNING TO INITIATE. GOES CI ALGORITHM DOES SUGGEST POSSIBLE TO LIKELY ADDITIONAL CONVECTIVE TO DEVELOP AHEAD/ALONG OUTFLOW BOUNDARY IN THE NEXT COUPLE OF HRS.** ATTM OBJECTIVE SFC MOISTURE CONVERGENCE MOISTURE HAS A STRONG MAX LOCATED ALONG THE SW LA COAST. GIVEN THE STRONG SRLY 85H MOISTURE TRANSPORT OF 2.0"+ PWS AND SLOW-MOVING NATURE OF THE SHORTWAVE...THINKING THIS STRONG MOISTURE FLUX SHOULD ONLY GRADUALLY SHIFT NWD OVER THE NEXT 2-4 HRS...FAVORING REPEAT CELL ACTIVITY.
~Warren

08/18/14 Heavy Rain Event

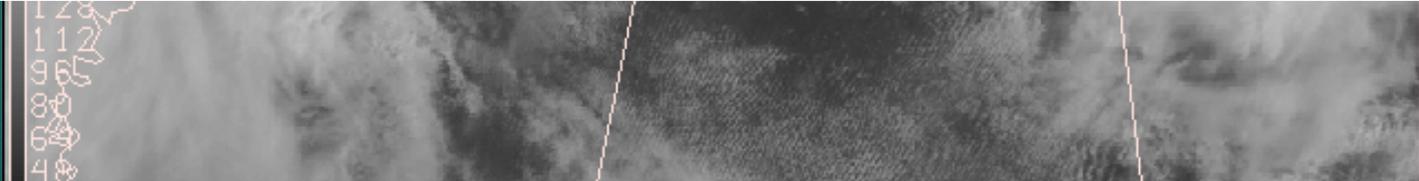
GOES-14 Super Rapid Scan Operations for GOES-R



ADDITIONALLY A MORE EXPANSIVE AXIS OF CONVECTION HAS DEVELOPED ALONG A WEST-EAST LINE WITH THE UPDRAFTS GROWING RAPIDLY PER THE **EXPERIMENTAL 1 MINUTE RAPID SCAN VISIBLE IMAGERY**. THE MEAN STEERING FLOW REMAINS WEST TO EAST WHICH SUGGESTS THE ACTIVITY WILL SLIDE EASTWARD INTO CENTRAL TN DURING THE NEXT COUPLE OF HOURS. ~Rubin-Oster



SUPER RAPID SCAN IMAGERY CONTINUES TO SHOW THAT MOST OF THE MOST ACTIVE UPDRAFTS WERE LOCATED FROM SOUTH CENTRAL TN INTO NORTHERN AL...A REGION WHERE THE MEAN MID LEVEL FLOW WAS ROUGHLY THE SAME AS LOW LEVEL INFLOW. ~Bann

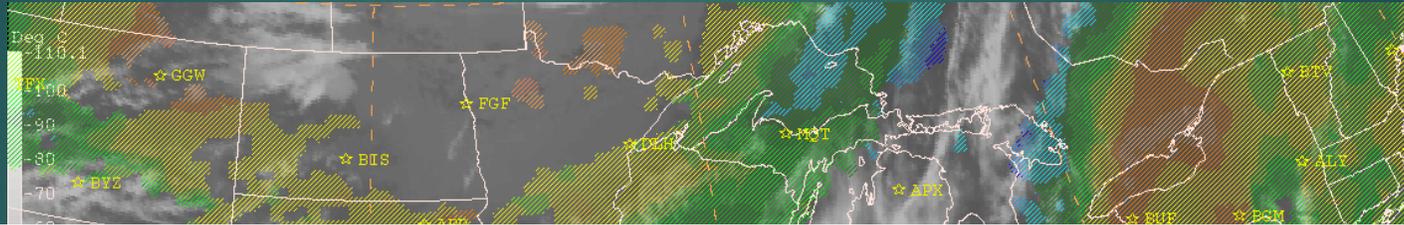


140818/1500 GOES14 VIS

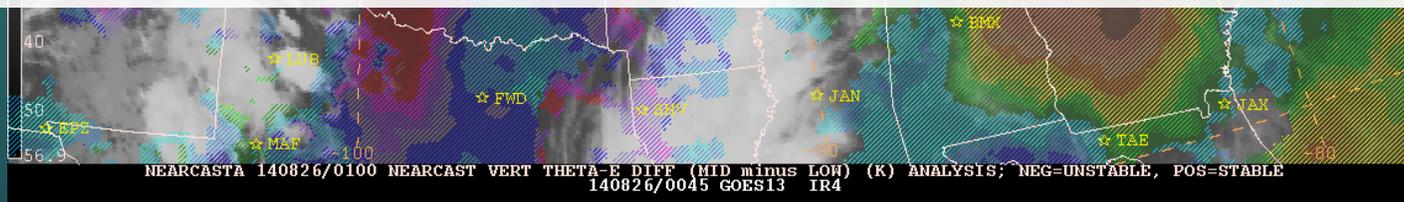
128
112
96
80
64
48
32
16
0

08/26/14 Heavy Rain Event

GOES-13 Infrared and Nearcast Theta-E Difference



THE 00Z NAM-CONEST AND 00Z NSSL-WRF INDICATE A FORMIDABLE W/E OR WSW/ENE AXIS OF STRONG CONVECTION SETTING UP THROUGH 06Z AND TWD THE PREDAWN HOURS INVOLVING SERN NEB AND CNTRL AND SWRN IA. ADDITIONALLY...THE EXPERIMENTAL NEARCAST PRODUCT INDICATES AN AXIS OF DIFFERENTIAL THETA-E THAT SUPPORTS AN INSTABILITY AXIS ACROSS SERN NEB AND THROUGH A LARGE PART OF CNTRL AND SRN IA. THIS IS ALREADY WITHIN THE INSTABILITY GRADIENT AS SEEN BY THE LATEST RAP ANALYSIS...BUT THE NEARCAST PRODUCT INDICATES THIS PERSISTING THROUGH 12Z. THEREFORE...**CONFIDENCE IS RATHER HIGH** THAT CONVECTION WILL CONTINUE TO ORGANIZE AND EXPAND IN A GENERAL WSW/ENE FASHION OVERNIGHT AND ADVANCE INTO OR DEVELOP ACROSS CNTRL/SWRN IA IN PARTICULAR. ~Orrison



Forecaster Feedback on Products:

- ▶ GOESRCI, SAB: For our operations and from my perspective, it did give advance notice of convective development on a couple of occasions, but generally had somewhat limited use given the agitation in the CU field was already seen.
- ▶ RGB Air Mass, WPC: I think the RGB Air Mass product provides advantages to water vapor imagery on occasion if the disturbance is large enough to show up, and obscured in traditional satellite imagery. It is also helpful to see stratospheric air clearly on the RGB product and compare directly to model PV or vorticity fields.
- ▶ OTD/OTM, OPC: Used the magnitude product more frequently than the detection. On a few occasions, when used in conjunction with lightning density and IR imagery, it was useful in determining severe potential of individual offshore supercells.
- ▶ RGB Products, TAFB: Both imagery complemented the suite of imagery aforementioned. The imagery also complemented the convection enhancement in satellite imagery (i.e. low, moderate, high). For example, the RGB Air mass imagery showed middle to upper level dry air in regions of tropical wave environment devoid of convection. The same was true for the Dust imagery; in regions where dust were present, convection wasn't.

Forecaster Feedback on Demonstrations:

- ▶ More examples of applications of these products in real-world examples that demonstrate advantages over traditional model/satellite views would help to prove the utility of these experimental satellite products.
- ▶ Perhaps once per month a center could submit a case study on how they used a proving ground product and why they found it useful (or not useful). The centers could each take turns doing this and anyone from the chosen center could submit the case study. Sharing this case with the group via the satellite blog would help to show how a product is being used differently by various groups and would also encourage more use of the products overall.
- ▶ Handouts with general rules of thumb on how to use or not use the products either via email or even old fashioned paper copies are always appreciated since knowledge learned in the demonstrations may not all be retained.

Looking Ahead. . .

- ▶ Winter 2015 Demonstration: 01/15/15 – 04/15/15
 - ▶ Products
 - ▶ Atmospheric Motion Vectors (still working to get into NAWIPS)
 - ▶ Fog and Low Stratus
 - ▶ FLS Product
 - ▶ GeoColor
 - ▶ RGB Nighttime Microphysics
 - ▶ Layered Precipitable Water (still working out details)
 - ▶ RGB Air Mass and Ozone Products
 - ▶ Refresher training and comparisons with water vapor
 - ▶ Applications based – Explosive Cyclogenesis, shortwave/PV analysis
 - ▶ Himawari Training to start in coordination with COMET, Pacific Region, and Alaska Region readiness (~March/April)

Items of Note:

- ▶ RGBs “On the Fly” for NCP working group will have a phone call in February and another onsite meeting at the AWIPS II testbed in early April.
- ▶ Interns and Students:
 - ▶ Kelcey Smith (USCG Academy) – Fog and Low Stratus product usage in OPC and TAFB waters.
 - ▶ Colleen Wilson (UMD) – Convection and Lightning Density in Offshore zones
 - ▶ Kelsey Thompson (PhD candidate, UAH) – Convection and Lightning in the TAFB Offshore Zones (Gulf of Mexico, SW Atlantic)
 - ▶ Mallory Cato (PhD candidate, SLU) – RGB Air Mass analysis of North Atlantic hurricane-force extratropical storms.
- ▶ OPC and Alaska Region collaboration to begin in 2015

Posted by Michael Folmer on 09/30/2014 [Edit This](#)

First Hurricane-Force Low in the East Pacific

Posted in: Hurricane-Force Storms, MODIS, OPC, RGB. [Leave a comment](#)

From September 20 through September 23, 2014, the Ocean Prediction Center (OPC) was monitoring the development of the season's first hurricane-force extratropical storm in the East Pacific. Models were suggesting a marginal hurricane-force wind event would unfold well west of the Pacific Northwest, near 140W longitude, north of 40N latitude. OPC is routinely using satellite data to monitor and forecast these strong ocean storms. On this particular event, OPC forecaster James Kells collaborated with Michael Rowland and David Kosier on if and when to pull the trigger on the hurricane-force warning.



GOES-15 6.5 um water vapor animation showing the hurricane-force low.



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