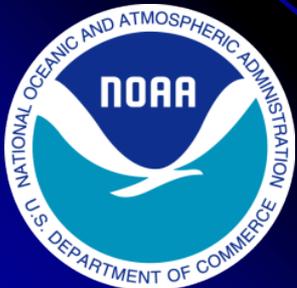
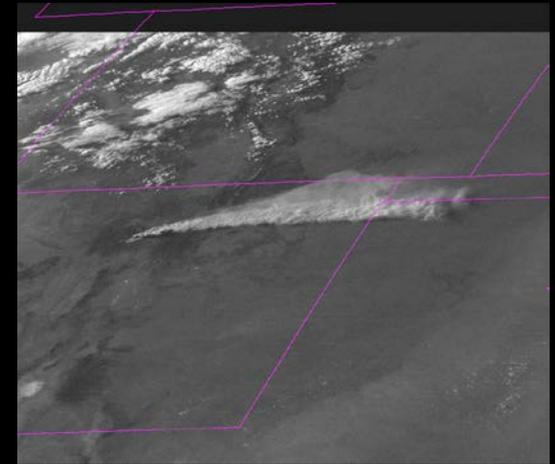
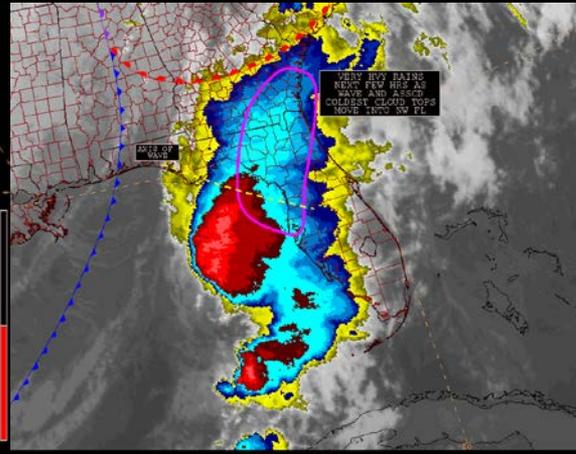
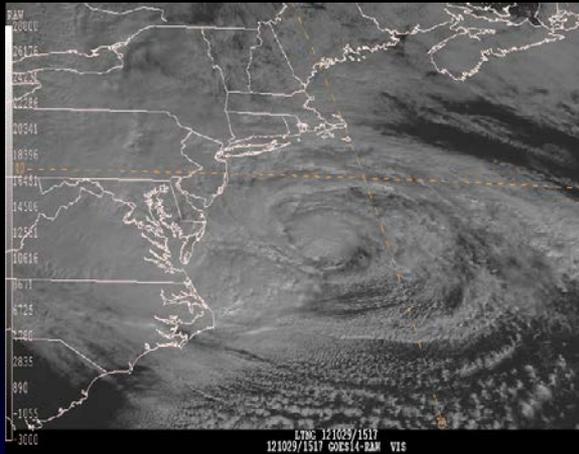


Satellite Analysis Branch Proving Ground Activities

NOAA Satellite Proving Ground/User-Readiness Meeting June 05, 2014



**Jamie Kibler, Meteorologist/User Service Lead and
Satellite Focal Point of the Satellite Analysis Branch**

NESDIS/OSPO/SPSD/Satellite Analysis Branch

Jamie.Kibler@noaa.gov

(301) 683-1400 or SABSupervisor@noaa.gov

Goals of the Satellite Analysis Branch

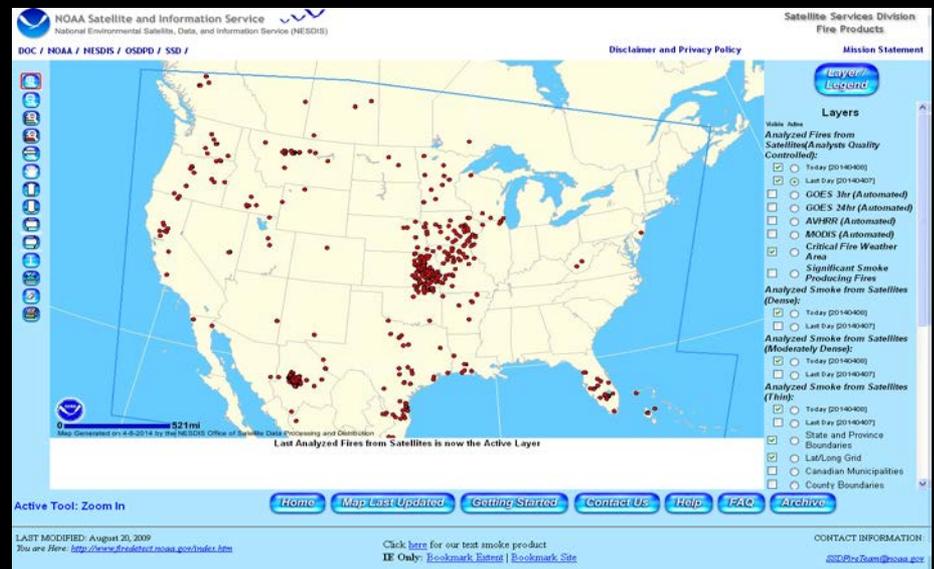
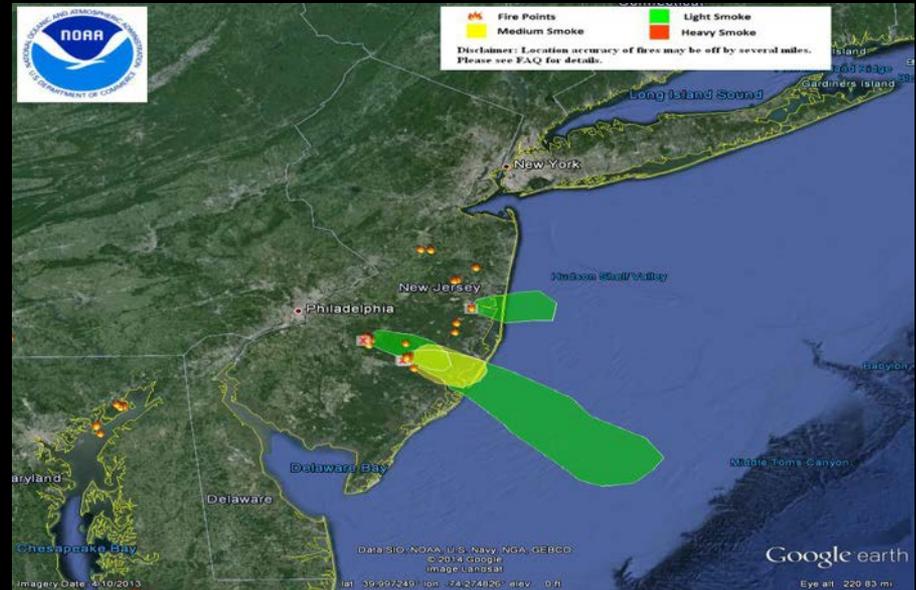
Proving Ground Activities

- **Introduce and train SAB analyst on experimental satellite imagery and products in relation to SAB programs.**
- **Use experimental imagery and products in operations**
- **Evaluate and provide feedback to Satellite Liaison.**
- **Continue to use experimental satellite data and products after evaluation until launch of GOES-R and JPSS. Don't lose the knowledge!**
- **Overall.....be ready for the flow of data/products in AWIPS-II and Mcidas**

Fire and Smoke Monitoring Program

- The Fire and Smoke Analysis is performed for the Continental US, Hawaii, and Central America year around:

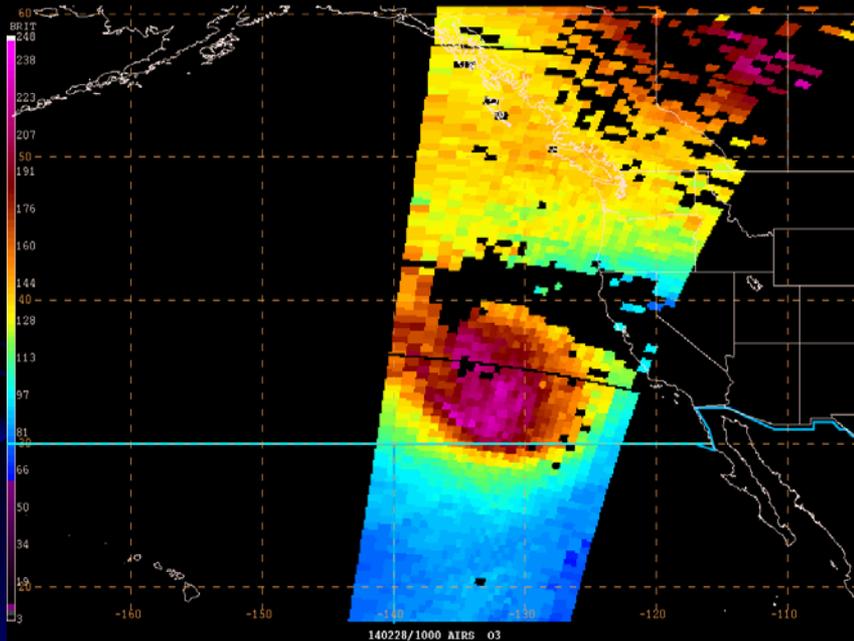
- Seasonal analysis performed for Puerto Rico, Alaska and Canada from May through November



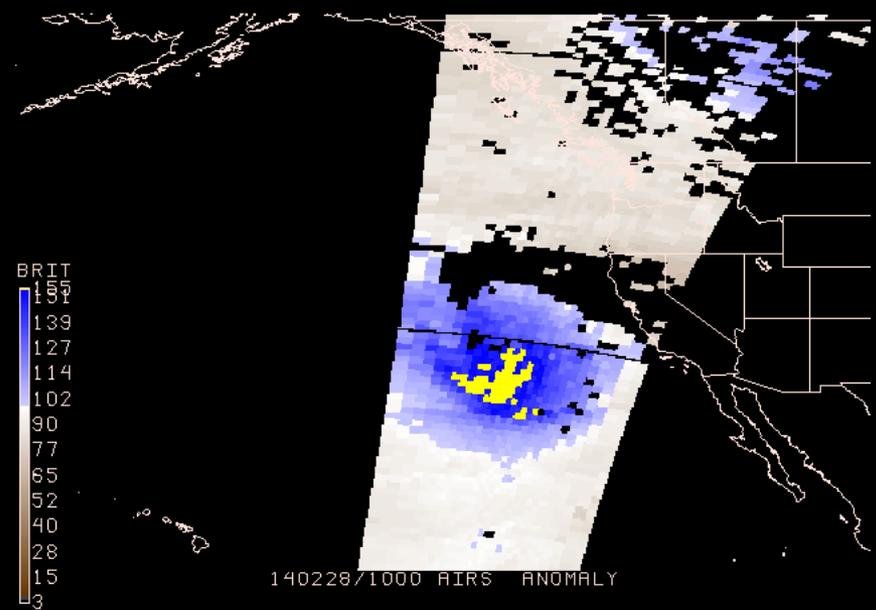
www.ospo.noaa.gov/Products/land/hms.html

AIRS Ozone Products

Total Column Ozone



Ozone Anomaly



The data above provided the fire and smoke analyst the ability to confirm what was moving toward the West Coast of the US.

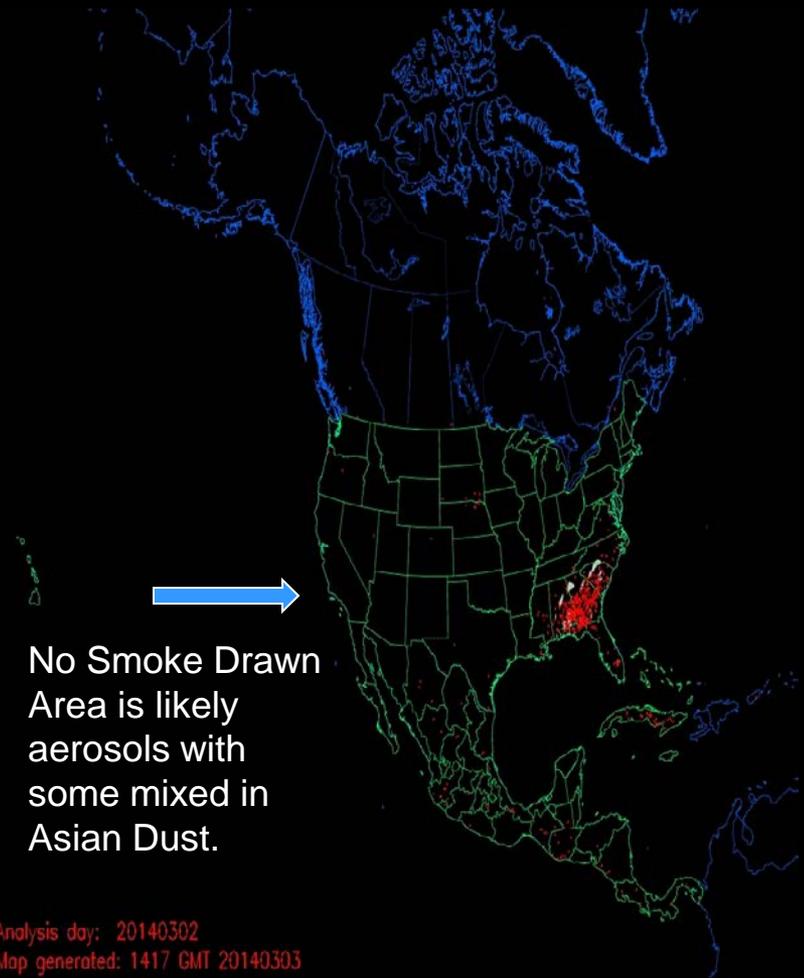
Fire and Smoke Monitoring Program

Friday, February 28, 2014 DESCRIPTIVE TEXT
NARRATIVE FOR SMOKE/DUST OBSERVED IN
SATELLITE IMAGERY
THROUGH 0400Z March 1, 2014

Texas: An area of optically thick blowing dust could be seen progressing eastward across northwest and north central Texas this evening from about 1900Z until sunset at about 0030Z. This dust was observed earlier today as it was kicked up over New Mexico and the Texas Panhandle. Northern Gulf of Mexico: Two separate plumes of unknown aerosols continued to be observed from morning to evening over the northeast Gulf of Mexico. The origins of these aerosol plume are unknown based on satellite imagery. One was moving slowly west from Florida's Apalachicola Bay and the other had started to move onshore across the southernmost portions of Mississippi and Alabama. In addition, a thin plume of unknown aerosol also extended northward from Mexico and across the western Gulf.

California: Areas of aerosol could be seen moving into southern and central California this evening as a very strong upper level low moves across the eastern Pacific towards the coast. Aerosol models indicate that this could contain a large quantity of Asian dust.

Sheffler



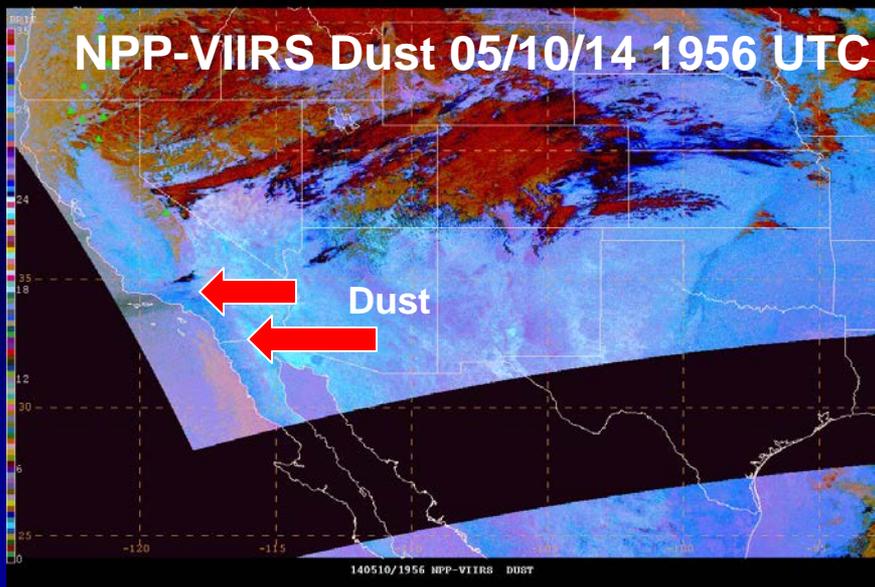
Fire and Smoke Monitoring Program

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY THROUGH 0130Z May 11, 2014

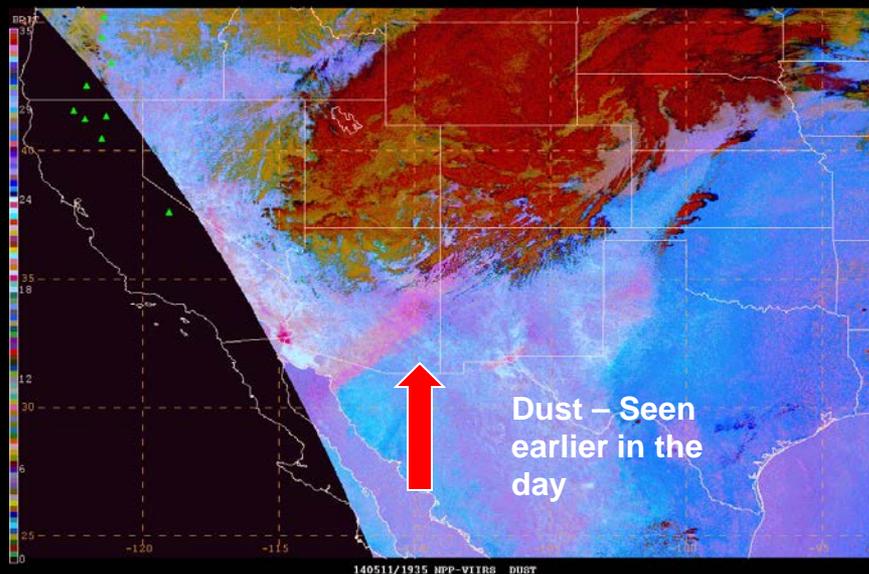
Blowing Dust: California/Nevada: Numerous areas of blowing dust originate in southern California with the dust moving to the east. The Inyo Mountains Wilderness Resort, the Grass Valley Wilderness Area and the Anza-Borrego Desert State Park are some of the more significant areas of origin for this blowing dust. There was also an area of blowing dust sweeping southward through southern Nevada behind a strong frontal boundary. New Mexico: An area of blowing dust originates in Chaves County and is moving to the northeast. Texas: Blowing dust appears to originate in the Brownfield/Lubbock area of northwestern Texas. This blowing dust is moving to the northeast. Aerosols: A large area of unknown composition is located off the coast of southern California. The area is moving to the south and may contain blowing dust from southern California.

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY THROUGH 0115Z May 12, 2014

Blowing Dust: Southwest and South Central US: A large area of blowing dust extends from the Pacific Coast of southern California and the Baja Peninsula of Mexico northeast through Arizona, New Mexico, Texas, Oklahoma and Kansas. The dust originates from numerous sources in southern California, Arizona, New Mexico and northwestern Texas.



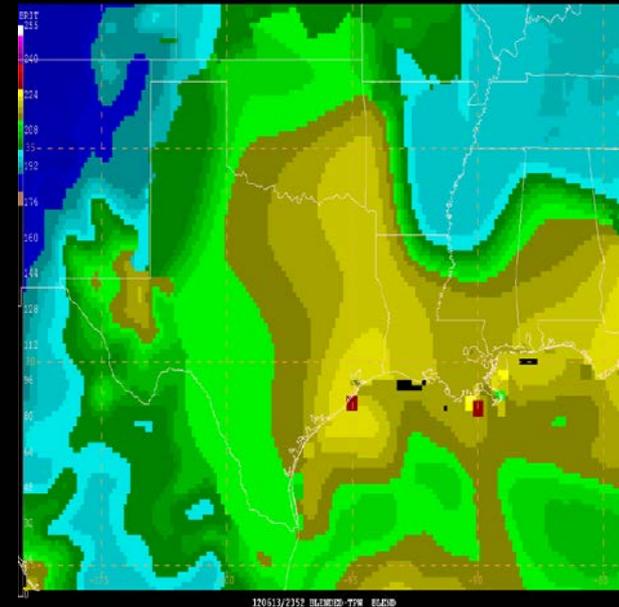
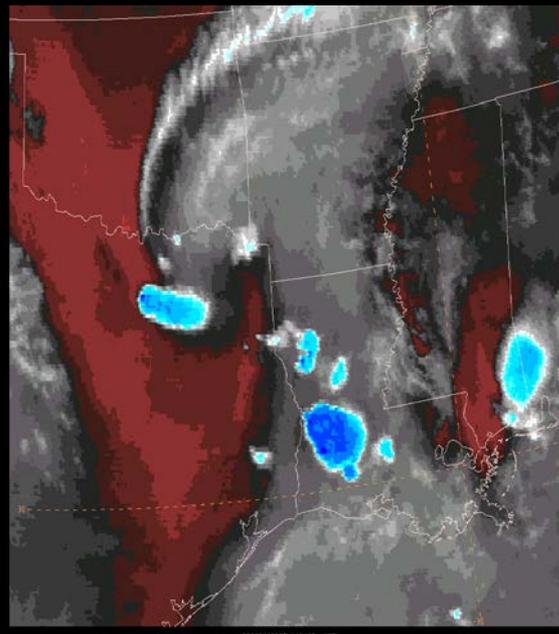
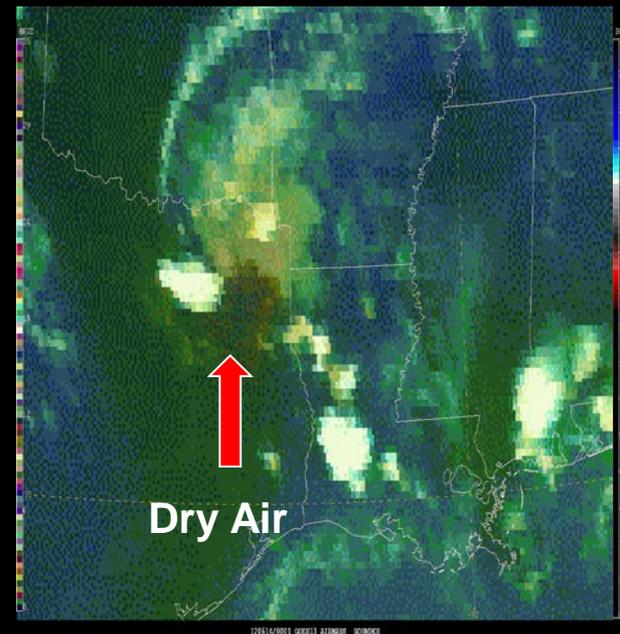
NPP-VIIRS Dust 05/11/14 1935 UTC



Precipitation Program

- NWS Field Support (including PR and HI)
 - Satellite Messages and annotated graphics
 - 12 Planet Chat (NESDIS)
 - NWS CHAT (nesdissatelliteprecip)
- Weather Prediction Center (WPC) briefings
 - 6 hour QPF for Lower 48
 - Coordination with MetWatch Desk

Precipitation Program



GOES RGB Airmass

GOES-13 WV

Blended TPW

Experimental GOES RGB Airmass product showed the drier mid-lvl air being entrained into the MCV very nicely when compared to WV imagery. Several supercells developed in northeast Texas as a result of this dry air moving across the area toward northwest LA and southwest AR.

At 00z, the core of the dry air was just northeast of DAL/FTW and just northwest of SHV. Even so, both the SHV and FTW 00z Raobs clearly showed drier air around 700mb. Solely looking at WV and the PW field and not the Raobs or RGB products, this pocket of dry air would have most likely been missed.

Precipitation Program

ZCZC NFDSPENES ALL
 SPENES
 LAZ000-ARZ000-TXZ000-

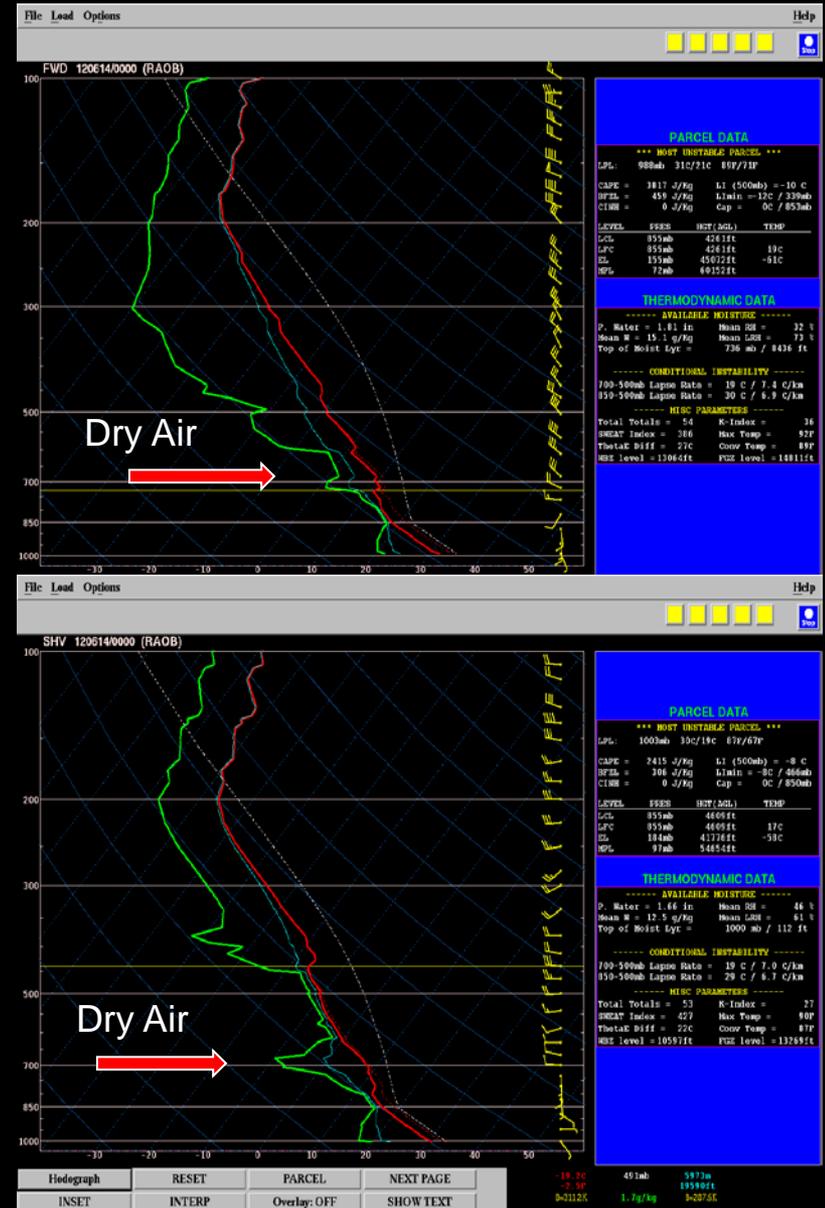
SATELLITE PRECIPITATION ESTIMATES..DATE/TIME 06/14/12 0200Z
 SATELLITE ANALYSIS BRANCH/NESDIS---NPPU---TEL.301-763-8678
 LATEST DATA USED: GOES-13: 0145Z DS

LOCATION...W LOUISIANA...SW ARKANSAS...NE TEXAS...

ATTN WFOS...JAN...LIX...LCH...SHV...FWD...
 ATTN RFCS...LMRFC...ABRFC...WGRFC...

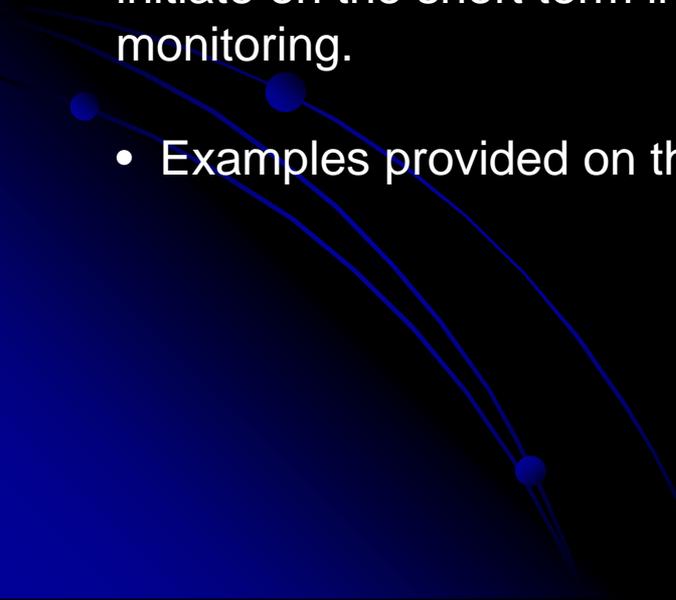
EVENT...HVY RAINFALL

SATELLITE ANALYSIS AND TRENDS...MCV OVER NE TX HAS STARTED TO TAKE ON MORE OF A MID-LVL VORT SIGNATURE AS IT CLOSES OFF IN WV IMAGERY. LIFT AND INSTABILITY CAUSED BY THIS FEATURE HAS LED TO STRONG TSTORM DVLPMNT OVER WRN LA THAT IS SLOWLY LIFTING NWD/NWWD. A BNDRY..WHICH MAY BE THE REMNANTS OF THE SEABREEZE..CAN BE SEEN MOVING INLAND THROUGH SE TX/SW LA AND MOST OF THE NEW STORM DVLPMNT IN W LA SEEMS TO BE OCCURRING RIGHT ALONG THIS BNDRY OR MOVING NWD WITH IT. A POCKET OF DRY MID LVL AIR CAN BE SEEN IN **EXPRMTL GOES RGB AIRMASS PRODUCT** OVER NE TX WRAPPING INTO THE MCV..PART OF THE REASON FOR THE SVR SUPERCELLS NR AND NE OF DAL. THIS POCKET OF DRY AIR WILL BE MOVING ACROSS NWRN LA OVER THE NEXT 3-4 HRS LIKELY LEADING TO A BETTER CHC OF SVR WX RATHER THAN HVY RAINFALL WITH ANY CELLS THAT STILL EXIST THERE. THE ERN EDGE OF THIS DRY MID LVL AIR COULD ALREADY BE SEEN IN SHV 00Z RAOB AROUND 700MB. 1.8" PW PLUME EXTENDS NW AT LOWER LVLS FROM SW LA TO SE OK THOUGH AND DEEPER LAYER OF MOISTURE OVER SW AND W CENTRAL LA WILL LEAD TO GREATER PRECIPITATION EFFICIENCY/BETTER CHC OF HVY RAINS. LOW LVL FLOW PER VWP DATA HAS SHIFTED TO SERLY OVER THE LAST HR ACROSS W LA BECOMING ALIGNED WITH THE ABOVE MENTIONED PW PLUME ALLOWING FOR NWWD MOISTURE TRANSPORT.



Precipitation Program

GOES-R Convective Initiation Algorithm

- SAB analyst use the GOES-R Convective Initiation Algorithm in operations as tool to see convection developing upstream that could feed into an existing area of convection
 - It also provides the satellite analyst an idea what is likely to initiate on the short term in the particular region they are monitoring.
 - Examples provided on the next two slides.
- 

Precipitation Program

- ZCZC NFDSPENES ALL
SPENES
OHZ000-KYZ000-INZ000-

SATELLITE PRECIPITATION ESTIMATES..DATE/TIME 05/21/14 1939Z
SATELLITE ANALYSIS BRANCH/NESDIS---NPPU---TEL.301-683-1404
LATEST DATA USED: GOES-13 1930Z HANNA

LOCATION...OHIO...KENTUCKY...INDIANA...

ATTN WFOS...JKL...ILN...LMK...IND...
ATTN RFCS...OHRFC...

EVENT...SATELLITE FEATURES FOR LOCALIZED HEAVY RAIN THREAT THIS EVENING
AND TONIGHT

SATELLITE ANALYSIS AND TRENDS...LATEST VIS IMAGERY SHOWS THAT CAP IS
BEGINNING TO BREAK ROUGHLY ALONG SYNOPTIC BOUNDARY FROM PORTIONS OF
CNTRL OH EXTENDING W TOWARDS E IL. THE MOST ORGANIZED AREA APPEARS TO
BE JUST S OF LAF WHILE UPSTREAM CU FIELD APPEARS TO BE DEEPENING WITH
**GOES-R DEVELOPMENTAL CONVECTIVE INITIATION ALGORITHM INDICATING THAT
INITIATION WAS LIKELY TO OCCUR OVER PORTIONS OF CNTRL IL ON THE SHORT
TERM. CONVECTION APPEARED TO BE AIDED BY AREA OF ISENTROPIC ASCENT
AHEAD OF SHORTWAVE TROF NOW CRESTING SUBTROPICAL RIGE AXIS OVER IL/IN.**

12Z SOUNDINGS WERE SHOWING AN ENVIRONMENT CONDUCIVE TO COLD
POOL DEVELOPMENT WITH UNIDIRECTIONAL WIND PROFILES SUGGESTING A SE
ELONGATED OUTFLOW BOUNDARY AND FORWARD PROPAGATING ORGANIZED
CONVECTION.

THE CONCERN FROM THERE IS THAT ELONGATED OUTFLOW BOUNDARIES WOULD NEARLY
PARALLEL DEEP LAYER FLOW WITH UPSTREAM INSTABILITY AXIS ON GOES SOUNDER
OVER CNTRL IL AND IN IMPLYING THE THREAT FOR SOME UPWIND REDEVELOPMENT
LATER THIS EVENING OR OVERNIGHT.

The Science Operations Officer of the Wilmington (Ohio) NWS Weather Forecast Office emailed the SAB Precipitation Team to thank them for their very "timely and effective" May 21st Satellite Precipitation Guidance Message -- The Satellite message provided valuable guidance prior to flash flooding which occurred near Dayton, OH resulting in a flooded interstate and water rescues.

Precipitation Program

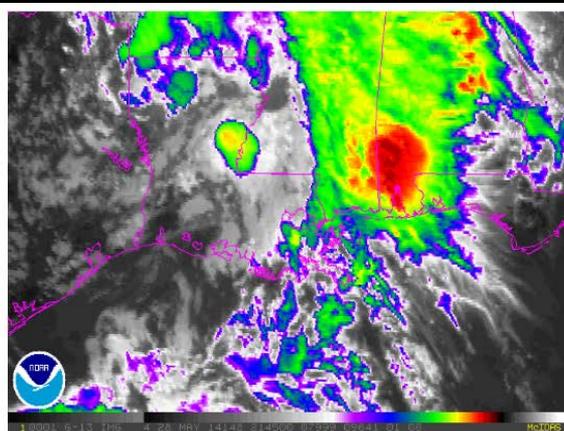
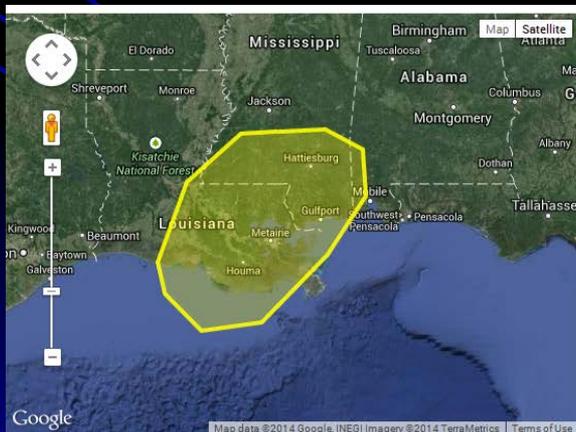
SATELLITE PRECIPITATION ESTIMATES..DATE/TIME 05/29/14 0117Z
SATELLITE ANALYSIS BRANCH/NESDIS---NPPU---TEL.301-683-1404
LATEST DATA USED: GOES-13 0045Z HANNA

LOCATION...ALABAMA...MISSISSIPPI...LOUISIANA...

ATTN WFOS...MOB...JAN...LIX...LCH... ATTN RFCS...SERFC...LMRFC...

EVENT...SATELLITE FEATURES FOR POTENTIAL OVERNIGHT HEAVY RAIN EVENT

SATELLITE ANALYSIS AND TRENDS...LATEST WV IMAGERY SHOWS NEARLY STATIONARY UPPER LOW OVER PORTIONS OF N LA WHILE A MODEST SHORTWAVE TROF WAS DROPPING TOWARDS THE BASE OF UL LOW/TROF AXIS INTO PORTIONS OF SE TX. LOCAL AREA VWPS SUGGESTS THAT THIS APPEARS TO BE BEGINNING TO BACK THE LOW LEVEL FLOW SLIGHTLY OVER PORTIONS OF LA AND WOULD EXPECT THIS TO CONTINUE THROUGHOUT THE NEXT SEVERAL HOURS. BLENDED PW ANALYSIS CONTINUED TO SHOW MERGING MOISTURE PLUMES OVER CNTRL PORTIONS OF THE GULF OF MEXICO TO ENHANCE ALREADY ANOMALOUS MOISTURE TRANSPORT INTO THE AREA. CONFLUENT LOW LEVEL WIND FIELD EXTENDING FROM SE LA TO PORTIONS OF THE NW GULF HAS SHOW INCREASING TCU/CB OVER THE LAST SEVERAL HOURS WITH **GOES-R CONVECTIVE INITIATION ALGORITHM SUGGESTING ADDITIONAL INITIATION A GOOD POSSIBILITY UPSTREAM WITH INCREASING CU FIELD TOWARDS OBJECTIVELY ANALYZED MOISTURE CONVERGENCE MAXIMUM.**



Precipitation Program

Overshooting Top Detection Algorithm

- Analyst use the algorithm to locate areas of strengthening convection indicated by the increased number of overshooting tops.
- Analyst use the algorithm when visible imagery is not available at night to show possible areas of heavy precipitation.

SATELLITE PRECIPITATION ESTIMATES..DATE/TIME 05/08/14 0642Z
SATELLITE ANALYSIS BRANCH/NESDIS---NPPU---TEL.301-683-1404
LATEST DATA USED: GOES-13: 0630Z VOGT MILLER
LATEST BLENDED TPW: 0455Z

.
LOCATION...UPPER MICHIGAN...WISCONSIN...E MINNESOTA...W IOWA...
LOCATION...NEBRASKA...SE SOUTH DAKOTA...

.
ATTN WFOS...MQT...GRB...DLH...ARX...MPX...DMX...FSD...OAX...LBF...
ATTN RFCS...NCRFC...MBRFC...

.
EVENT... TRAINING OF HVY RAIN/CONVECTION

.
SATELLITE ANALYSIS AND TRENDS... A PERSISTENT AREA OF CONVECTION HAS CONTINUED TO STREAM NEWD FROM ERN NE INTO MN WRN WI. THIS IS DUE IN PART TO THE UPPER LEVEL FLOW FROM THE PACIFIC, USHERING IN HIGH AMOUNTS OF MOISTURE FOR THE CONVECTION TO FEED ON. LATEST BLENDED TPW PRODUCT INDICATES VALUES AROUND 1.0". HOWEVER, TRENDS SHOW THAT ADDITIONAL MOISTURE IS SURGING NEWD INTO THE REGION. UL ENERGY/DIFFLUENCE IS ALSO AIDING IN THE PERSISTENT CONVECTION/HVY RAIN AS THE NOSE OF A 55 KT EDGES INTO CNTRL NE, PER LATEST SATELLITE-DERIVED WIND PRODUCT. THE **GOES-R EXPERIMENTAL RGB AIRMASS PRODUCT** SHOWS A STRONG AREA OF PV ANOMALIES, AS INDICATED BY THE RED HUES, SURGING INTO NE/SD/WRN IA RIDING ALONG THE UL JET.

.
SHORT TERM OUTLOOK VALID 0645-1045Z... MEDIUM-HIGH CONFIDENCE FACTOR IN SHORT TERM OUTLOOK... EXPECT CONVECTION TO CONTINUE TO EXPAND FROM NE AND TRAIN NEWD INTO MN/WRN WI FOR AT LEAST THE NEXT 3-4 HRS. **EXPERIMENTAL OVERSHOOTING TOP DETECTION ALGORITHM SHOWS AN INCREASE IN OVERSHOOTING TOPS, MATCHING UP WELL WITH WHAT IS SEEN IN RADAR TRENDS.** THAT BEING SAID, TRAINING OF THE HVY RAIN/CONVECTION IS LIKELY ACROSS ERN NE/WRN IA/MN/WI. RAIN RATES COULD APPROACH 1-2"/HR IN REGIONS OF TRAINING CELLS AS THINGS BECOME BETTER ORGANIZED. WILL CONTINUE TO MONITOR.

NOAA Satellite Proving Ground/User- Readiness Meeting 2014

Thank you!

For additional information please contact

Jamie.Kibler@noaa.gov
michael.folmer@noaa.gov - for more
information on SAB PG activities.