

An Overview of the GOES-R Program



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GOES-R System Program Director

2011 OCONUS MEETING
July 26, 2011





GOES-R Mission Overview



GOES-R is the next generation of GOES satellites that will provide a major improvement in quality, quantity, and timeliness of data collected.

Earth Pointing



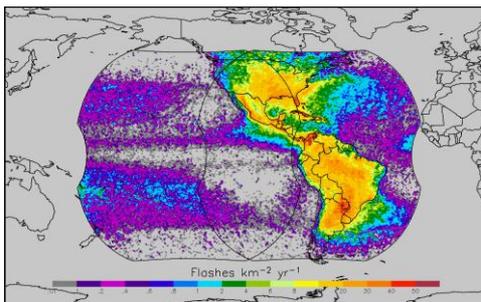
Visual & IR Imagery



- Advanced Baseline Imager (ABI)



Lightning Mapping

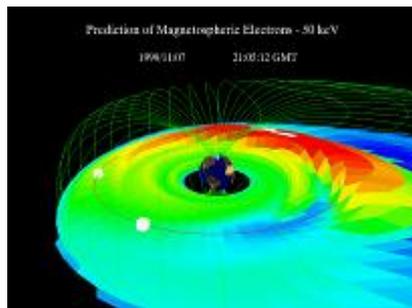


- Geostationary Lightning Mapper (GLM)

In-Situ



Space Weather Monitoring



- Space Environment in-Situ Sensor Suite (SEISS)
- Magnetometer

Sun Pointing



Solar Imaging



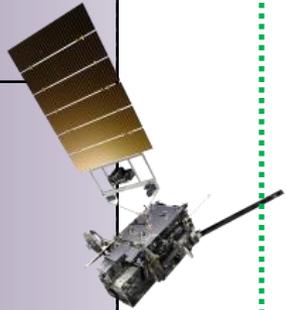
- Solar Ultra-Violet Imager (SUVI)
- Extreme UV/X-Ray Irradiance Sensors (EXIS)

New and improved capabilities for:

- Increased lead times for severe weather warnings
- Better storm tracking capabilities
- Solar, space weather, and climate analyses
- Advanced products for aviation, transportation, commerce

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Program/ System		System Design Review complete ✓			Working to Mission PDR in August 2011				
Flight Segment	Spacecraft		Spacecraft SDR complete ✓		✓ PDR held January 2011				
	Instruments	✓ 5 Instrument contracts underway	All instruments have passed CDR ✓		✓ ABI delta CDR complete				
Ground Segment	Core contract awarded to Harris Corp. ✓	Core SRR complete ✓	80% delivery of baseline product algorithms ✓	RBU lease awarded ✓	✓ Core GS PDR complete	✓ Antenna System PDR completed April 2011	✓ GS Project PDR competed in June 2011		

Launch Readiness Oct. 2015





Budget Situation

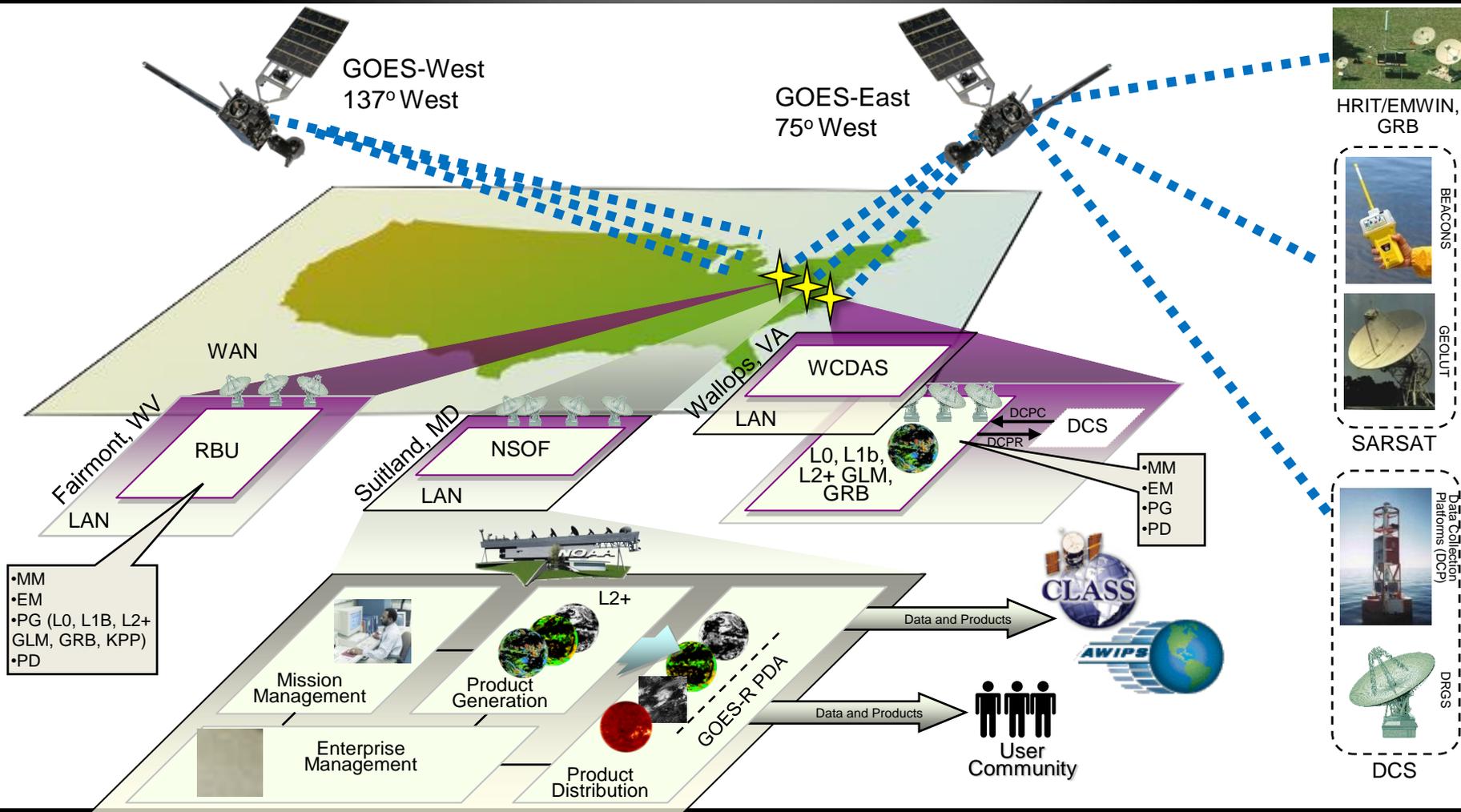
	<u>FY10</u>	<u>FY11</u>	<u>FY12</u>
Last Year	\$664M	\$730M	\$774M
Current	\$641M	\$662M	\$615M

Impact of Reductions:

- Remove Option 1 latency and Option 2 products from Harris contract
- Reduce some IT Security features
- Move some hardware purchases out of FY12



Ground Segment System Architecture





GOES-R Proving Ground



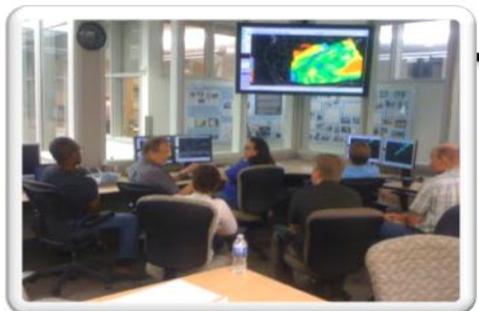
- Collaborative effort between the GOES-R Program Office, selected NOAA/ NASA Cooperative Institutes, NWS forecast offices, NCEP National Centers, JCSDA, and NOAA Testbeds.
- Where proxy and simulated GOES-R products are tested, evaluated and integrated into operations before the GOES-R launch
- A key element of GOES-R User Readiness (Risk Mitigation)
- Proving Ground activities are having an impact **NOW!**



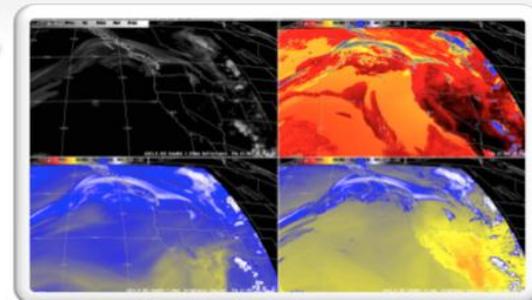
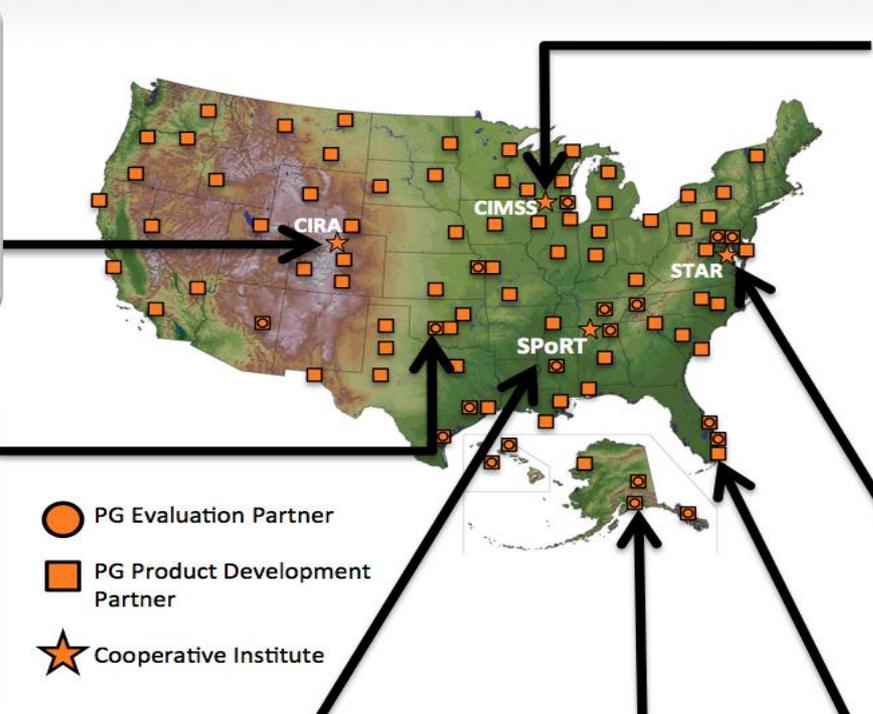
GOES-R Proving Ground



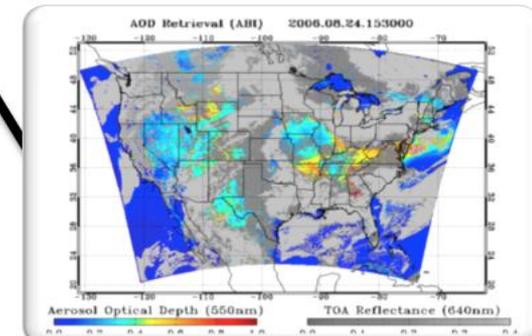
CIRA - Ft. Collins, CO
ABI Simulated Natural Color



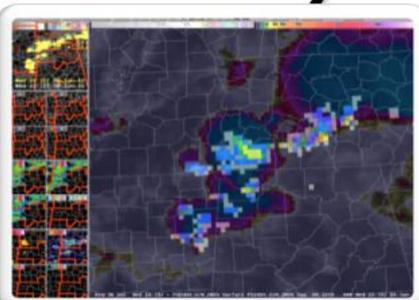
SPC - Oklahoma City, OK
Nearcast Training at the Hazardous Weather Testbed



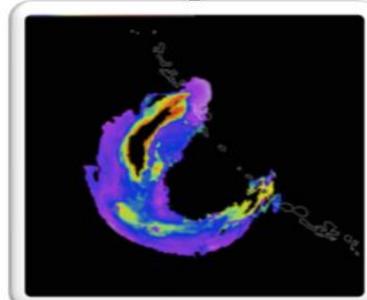
CIMSS - Madison, WI
Simulated ABI Bands



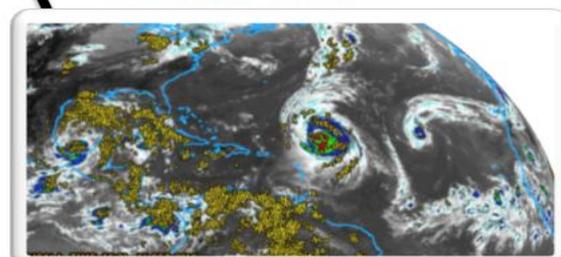
STAR - Camp Springs, MD
Aerosol Optical Depth Product



SPoRT - Huntsville, AL
GLM Lightning Flash Density



AFC - Anchorage, AK
Volcanic Ash Product



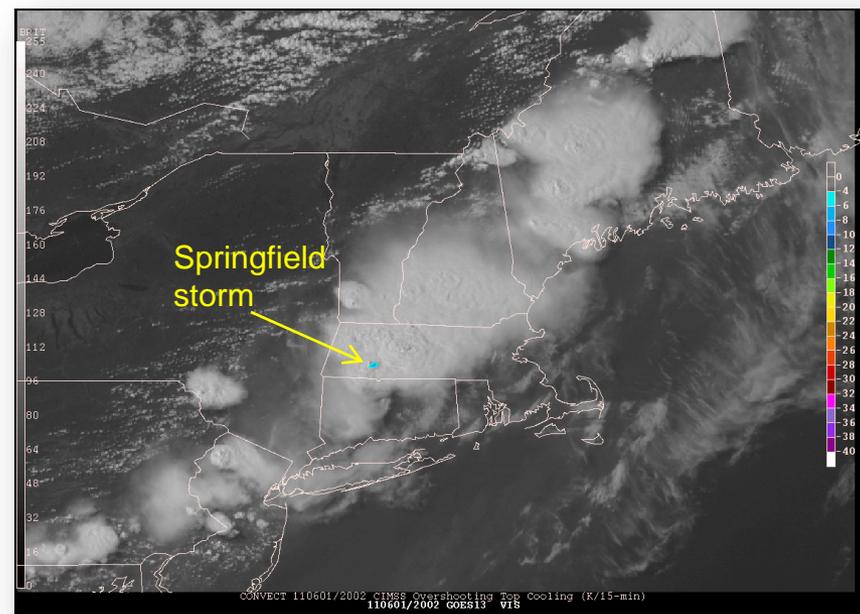
NHC - Miami, FL Rapid Intensification Index



Overshooting Top Detection



- The GOES-R Overshooting Top Detection (OTD) algorithm identified an overshooting top at NOAA's Hazardous Weather Testbed with the severe thunderstorm and tornado that in Springfield, MA on June 1, 2011
- The OTD singled out the most intense thunderstorm cell out of a very large storm complex over Southern and Central New England.
- At the HWT Experimental Warning Program and Convective Initiation desk the NWS forecasters were alerted to a developing severe storm with 28 minute lead time before the first tornado report.

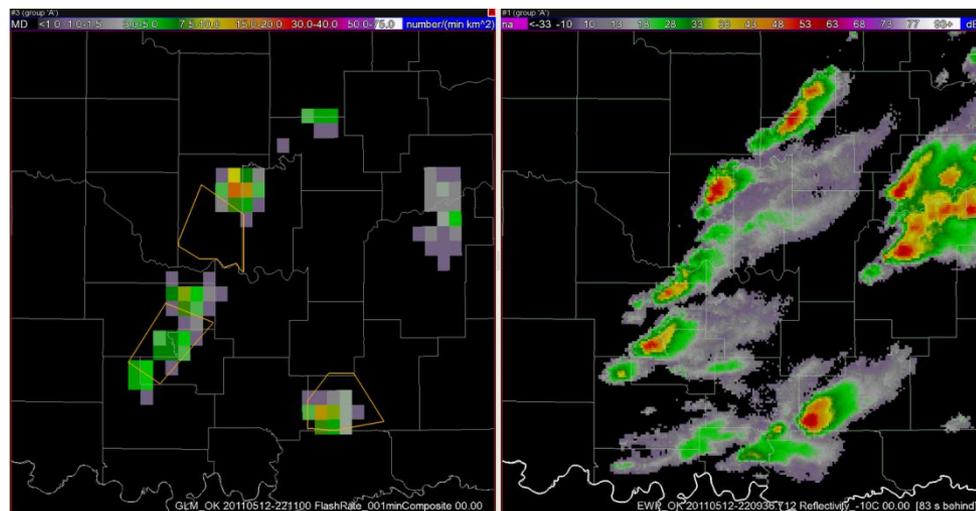




Lightning Detection with the Geostationary Lightning Mapper (GLM)



- A Pseudo GLM (PGLM) total lightning product assisted in a severe thunderstorm warning at NOAA's Hazardous Weather Testbed on May 12, 2011 in Norman, Oklahoma. A rapid increase of the total lightning rate, along with the forecaster's interrogation of radar data, led to a severe thunderstorm warning, later verified with several severe hail reports.
- The PGLM flash extent density was a useful precursor in identifying when the first cloud-to-ground strikes would occur. The PGLM preceded the first cloud-to-ground strike by approximately 30 minutes.
- GLM's ability to detect in-cloud lightning before the first ground strike provides a valuable early warning indicator to enhance lightning safety
- Research using total lightning trends to diagnose severe storm intensification indicates the potential to increase warning lead-time to 20 minutes or more



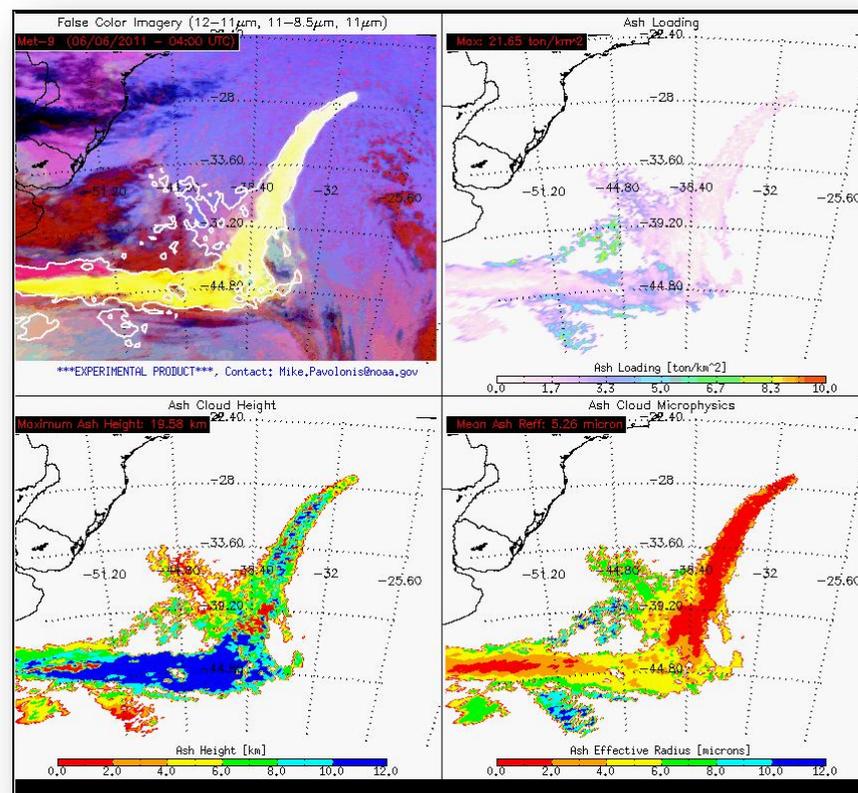
The PGLM flash extent density is on the left with the corresponding radar reflectivity on the right.



Volcanic Ash Products



- Chile's Puyehue-Cordón Caulle Volcano erupted on June 4, 2011, forming a tall ash plume above the Andes Mountains
- The GOES-R Proving Ground provides near real-time volcanic ash retrieval products (using Meteosat SEVIRI data as a proxy for the GOES-R Advanced Baseline Imager) to identify a significant volcanic ash plume emerging over the Atlantic Ocean impacting aviation operations with many cancelled flights.
- Similar data was provided by STAR to the London Volcanic Ash Advisory Center (VAAC) during the eruption of Eyjafjallajökull in Iceland in May 2010.





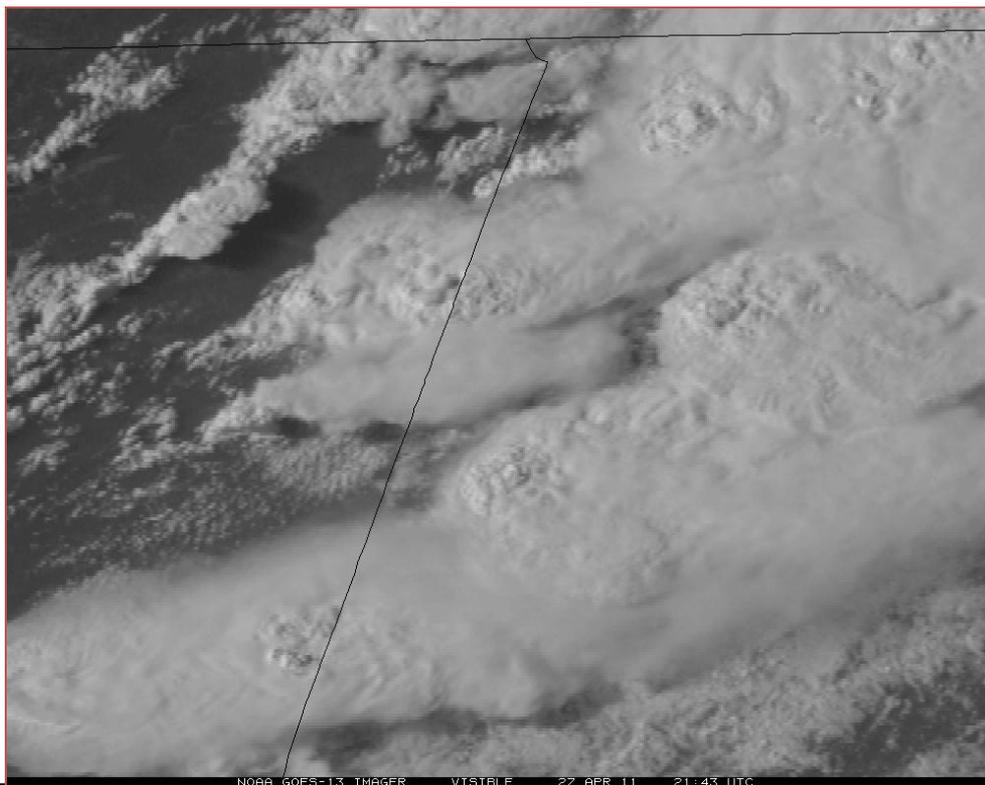
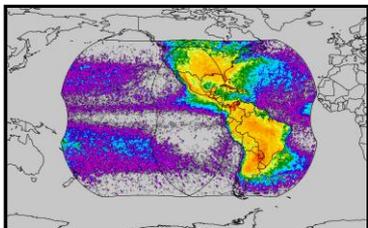
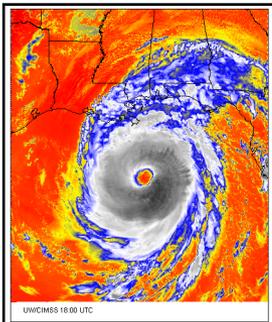
7th GOES Users' Conference

20-21 October 2011

The Wynfrey Hotel - Birmingham, AL



To be held in conjunction with the 15-20 October 2011
36th National Weather Association Annual Meeting:
<http://www.nwas.org/meetings/nwa2011>



The Wynfrey Hotel

http://directreadout.noaa.gov/GUC_VII/index.htm



Thank you!

Any ????