

# GOES-R Program Update

Greg Mandt  
System Program Director



2010 GOES-R Algorithm Working Group Annual Meeting  
June 7, 2010 - Madison, WI

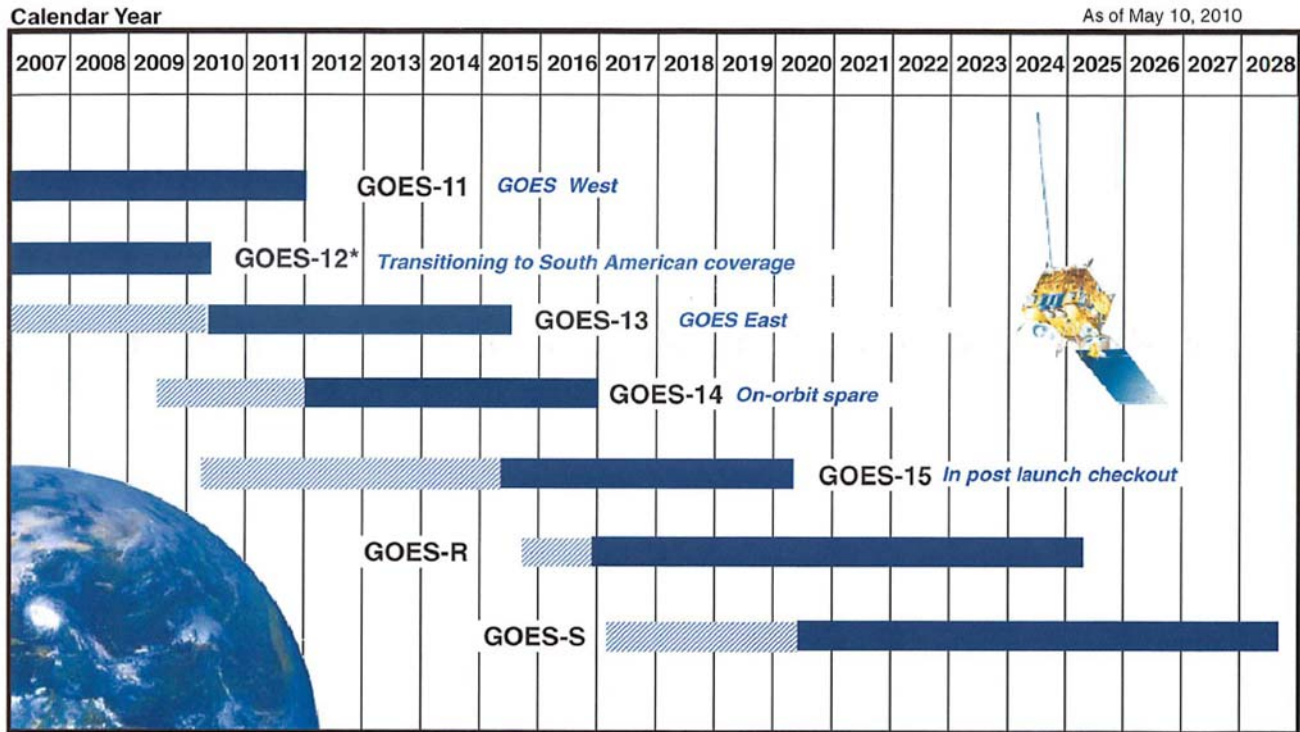


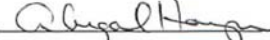


# Current GOES Launch Schedule



## Continuity of GOES Operational Satellite Program

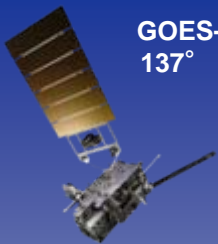


Approved:   
 Deputy Assistant Administrator  
 for Systems

\*Backup and South American Coverage  
 beginning June 2010

-  Satellite is operational beyond design life
-  On-orbit GOES storage
-  Operational

SENSITIVE AND PRIVILEGED: FOR OFFICIAL USE ONLY



GOES-West  
137° West

# GOES-R System Configuration



GOES-East  
75° West

Other Users



Remote Backup Facility  
Fairmont, WV



NOAA  
Satellite Operations Facility  
Suitland, MD



Command and Data Acquisition Station  
Wallops, VA



Command & control, data

Data

Command & control, data

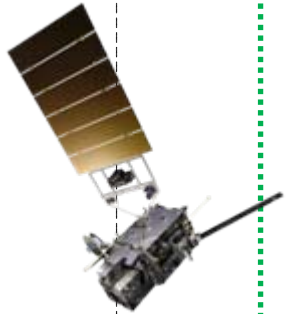






# Overall Budget Success



<u>FY 07</u>	<u>FY 08</u>	<u>FY 09</u>	<u>FY 10</u>	<u>FY 11</u>
\$ 253	\$ 235	\$ 465	\$ 665	\$ 730

	2007	2008	2009	2010	2011	2012	2013	2014	2015	
<b>Program /System</b>		System Rqmts Review complete			System Design Review scheduled					<div data-bbox="1412 237 1676 451" style="border: 1px solid black; border-radius: 15px; background-color: #f4a460; padding: 10px; text-align: center;"> <b>Launch Readiness Oct. 2015</b> </div> 
<b>Flight Segment</b>	Spacecraft	Spacecraft contract u/w Spacecraft SDR Complete			Working towards PDR					
	Instruments	 5 Instrument contracts underway EXIS & SUVI passed CDR			ABI PTM in enviro testing SEISS Suite CDR scheduled GLM CDR set for this fall					
<b>Ground Segment</b>	Core contract awarded to Harris Corp. Core SRR complete 80% delivery of baseline product algorithms GAS draft RFP released RBU lease awarded			Antenna source selection in progress CLASS delta SRR/SDR completed						





# GOES-R Spacecraft



## Specifications

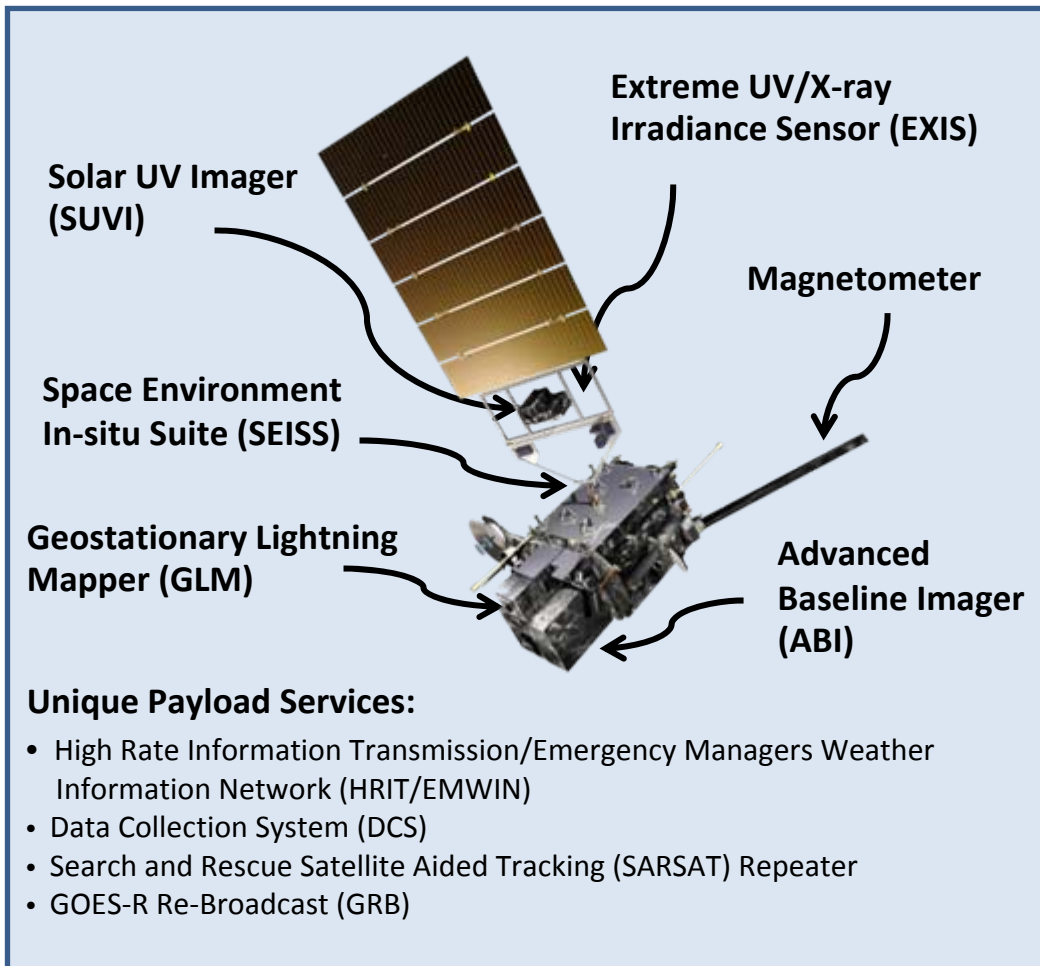
Size: ~5.5 meters (from launch vehicle interface to top of ABI)

Mass: Satellite (spacecraft and payloads) dry mass <2800kg

Power Capacity: >4000W at end-of-life (includes accounting for limited array degradation)

## Current Status

- Lockheed-Martin Space Systems Co (LMSSC) began work on July 22, 2009
- Spacecraft System Definition Review (SDR) completed March 9-10, 2010
- Conducted Integrated Baseline Review (IBR) Apr 27, 2010





# Advanced Baseline Imager (ABI)



## Current Status

- ✓ ABI PTM integration completed
- ✓ Bench testing completed Mar 18, 2010
- Environmental testing underway
  - ✓ Vibration testing completed Apr 10 – May 4, 2010
  - EMI/EMC testing scheduled May 17 – Jun 24, 2010
  - Thermal Vacuum / Balance planned for late July 2010





# ABI Vibration Testing



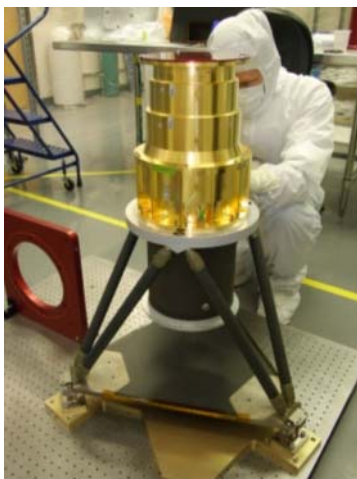


# Geostationary Lightning Mapper (GLM)



## Current Status

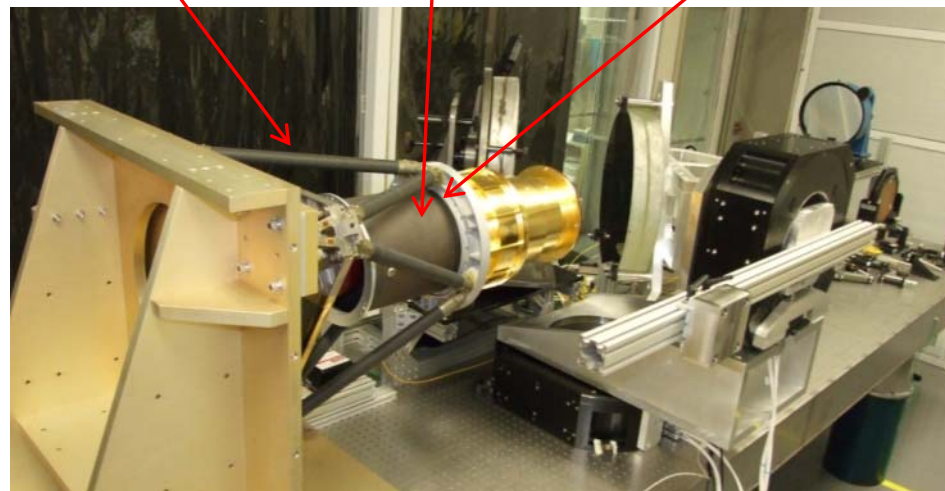
- ✓ PTM changed to Engineering Model to minimize schedule overlap
- ✓ Development hardware completed and tested
- CDR planned for Fall 2010



Sensor Unit  
Mechanical  
Support Structure

Metering tube

Optical Assembly



Alignment GSE with PTM Optical assembly,  
metering tube and SU support structure

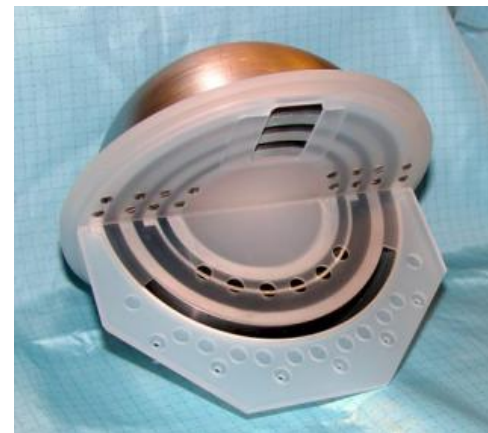


# Space Environment In-Situ Suite (SEISS)

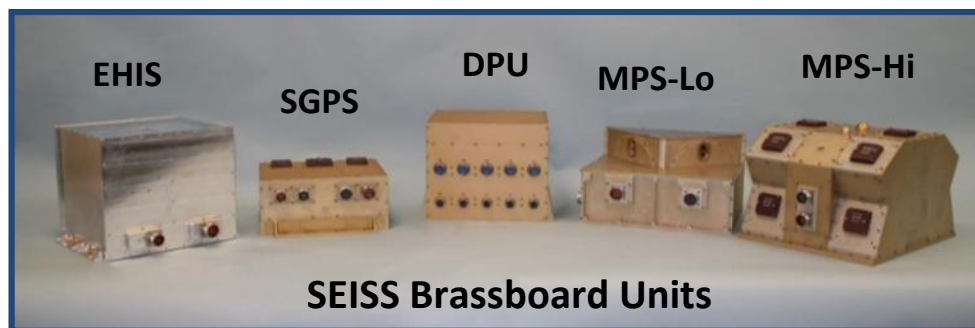


## Current Status

- ✓ Brassboard (EM) telescopes have been developed, functionally tested, and successfully beam tested
- ✓ EM Data Processing Unit (DPU) completed and functionally tested
- ✓ Instrument-level CDRs completed for all sensors, DPU, and S/W
- Suite CDR scheduled for June 15 – 18, 2010



MPS-Lo Triquadrisphere





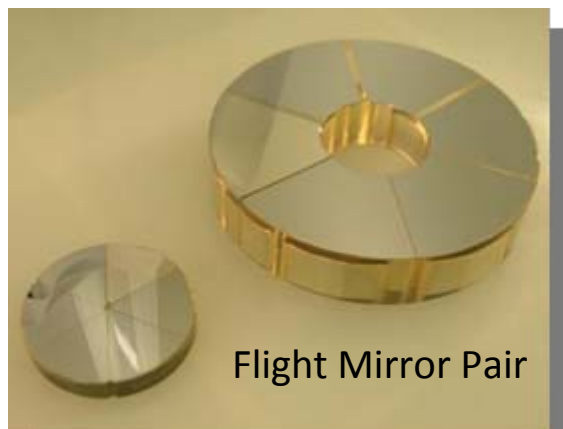
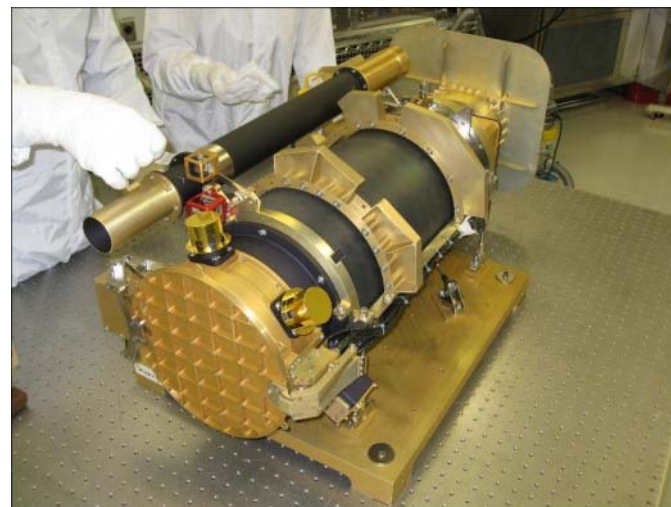
# Solar UV Imager (SUVI)



## Current Status

- ✓ Successfully completed CDR in December 2009
- ✓ Structural Model (SM) mechanical environments testing complete
- EDU integration ongoing
- Flight fabrication underway

SM STS Assembly



Flight Mirror Pair



# Extreme UV/X-ray Irradiance Sensor (EXIS)

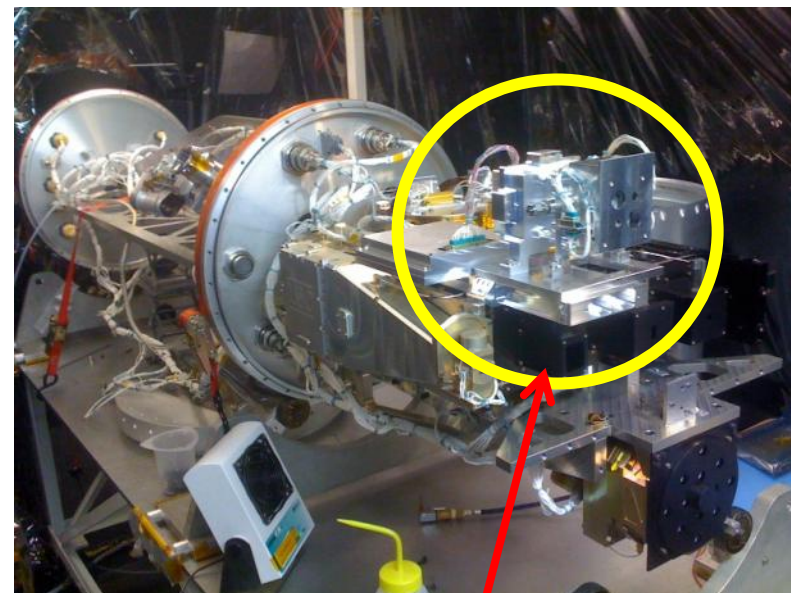


## Current Status

- ✓ Successfully completed CDR in November 2009
- ✓ ASIC electrometer, used in EUVS A/B and XRS, development successful
- ✓ All flight motors (14) received
- XRS detector life testing ongoing
- EXIS has 10 minutes of flight heritage:



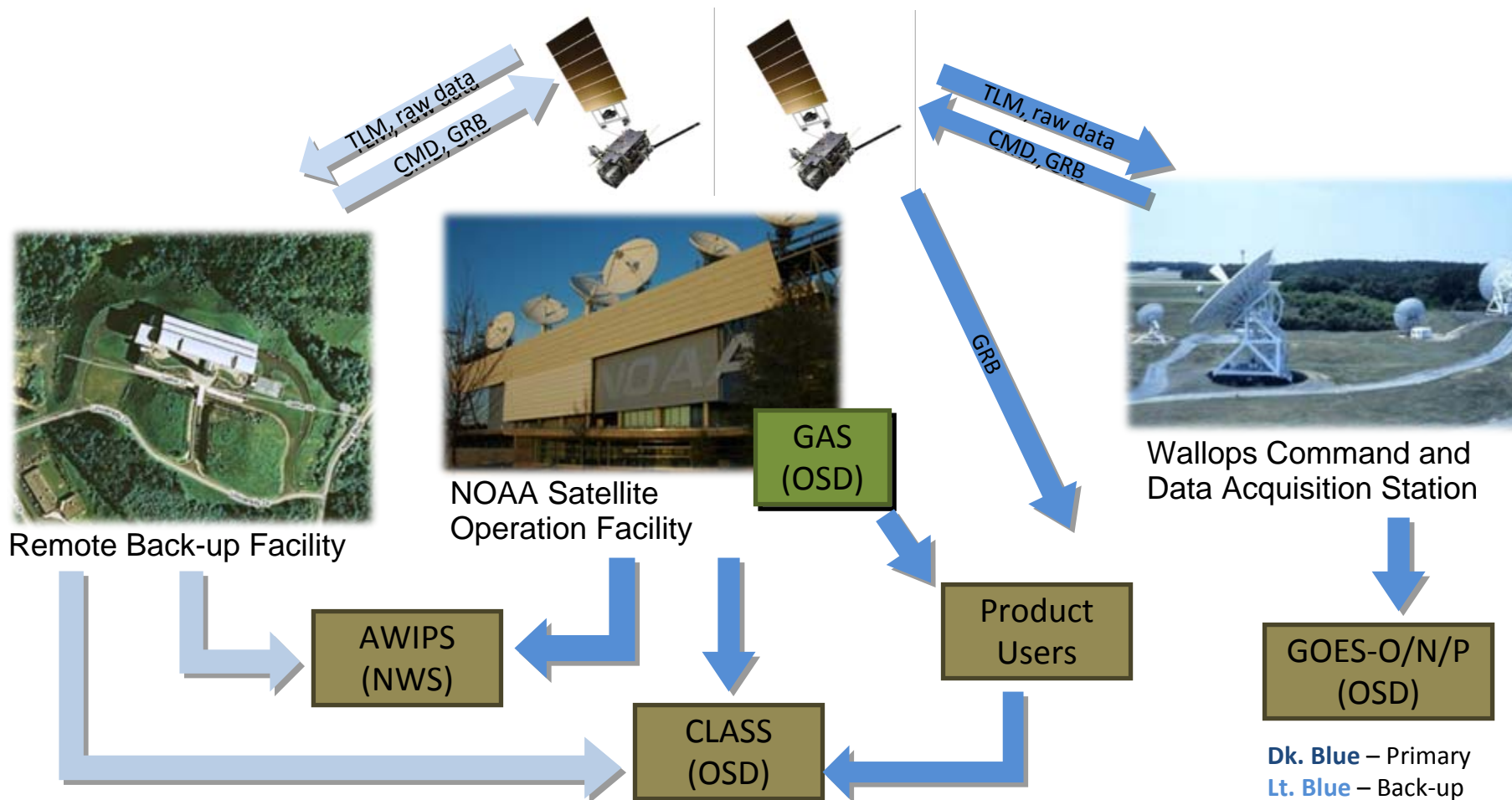
- XRS EM was integrated to SDO calibration rocket
- Launched and recovered on May 3, 2010 from White Sands, NM.
- Initial assessment of data looks good



XRS EM mounted on the SDO  
Calibration Rocket



# Ground System Architecture





# Ground Segment Status



- ✓ Integrated Baseline Review (IBR): Government review of Harris concluded proper integration of planned cost and schedule into the contract baseline (November 2009)
- ✓ Core GS System Definition Review (SDR): Joint Harris/Government SDR passed with “Green” rating in April 2010
  - Core GS Preliminary Design Review (PDR) scheduled for December 2010
  - IV&V effort awarded to NASA Ames
  - Established stakeholder Steering Group
  - Draft GOES-R Metadata plan released





# Affiliated Development Status



## Remote Backup Unit (Fairmont, WV)

- Lease signed
- Site preparation to begin this month



## Antenna System

- Source selection in progress
- Contract award in July

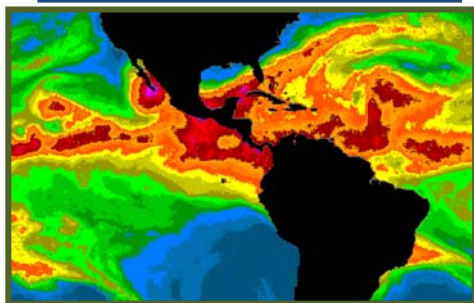
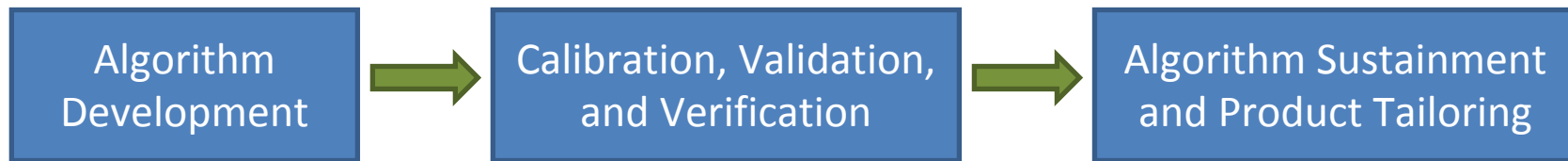


## ESPDS/GAS

- OSPO's ESPDS will provide GOES-R Access System (GAS) requirements
  - Evolution of legacy ESPC systems including data ingest, product processing & distribution
- Source selection in progress (GSA-led)
- Contract award later this month



# Algorithm Working Group

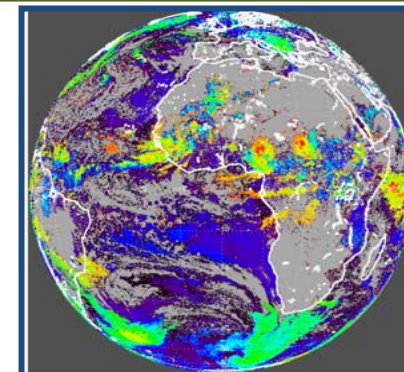
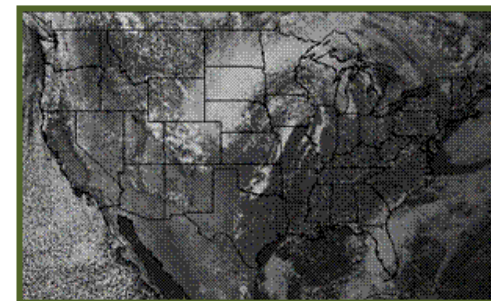


## AWG Achievements:

- 80% Algorithm Packages for Baseline Products completed Sept 2009

## Looking forward to:

- 100% Algorithm Packages for Baseline Products due Sept 2010
- 80% Algorithm Packages for Option Products due Sept 2010



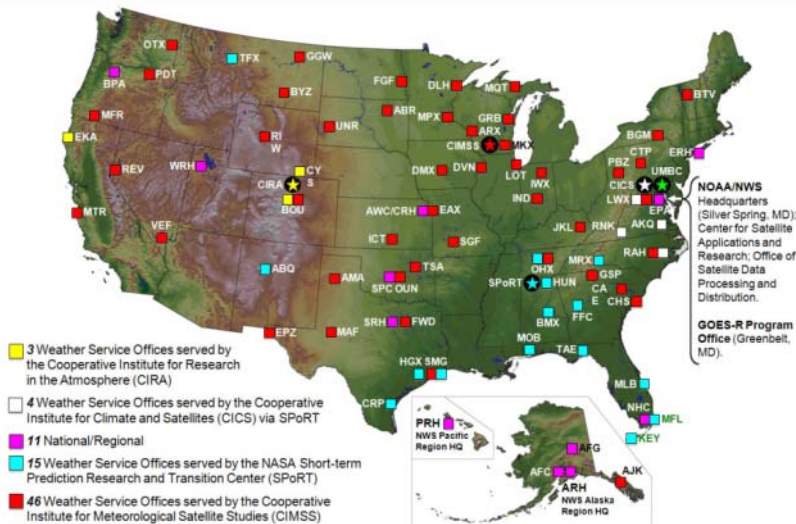


# User Readiness



## Proving Ground

- Working with cooperative institutes, weather forecast offices, NCEP National Centers, and NOAA Testbeds (75+ partners)
- Goal is Day-1 readiness and effective transition to operations



## Training and Education

- Online training modules
- [http://meted.ucar.edu/goes\\_r/envmon/](http://meted.ucar.edu/goes_r/envmon/)
- <http://cimss.ssec.wisc.edu/satmet/>



# GOES-R Team



[www.GOES-R.gov](http://www.GOES-R.gov)





# GOES-R Team



Get your GOES-R gear! [http://www.goes-r.gov/GOES-R Merchandise](http://www.goes-r.gov/GOES-R_Merchandise)

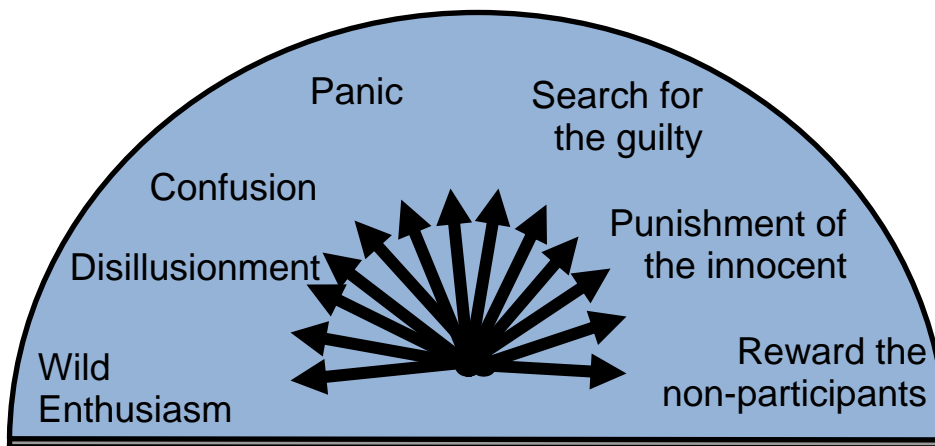
A screenshot of the GOES-R Merchandise Store website. The header features the GOES-R logo on the left, the text 'Geostationary Operational Environmental Satellite R-Series' in the center, and a stylized 'GOES' logo on the right. Below the header is a yellow bar with 'Customer Service . (800)-228-5877 . sales@elltelimageinc.com'. On the left side, there is a navigation menu with 'Apparel' and 'T-Shirts' and right-pointing arrows. The main content area has a 'Welcome to the Merchandise Store' heading, followed by a GOES-R logo, a paragraph of text: 'We know you don't have time to waste, so we have made ordering a snap. Browse through the store and place your order using our secure server.', and a 'Start Shopping &gt;&gt;' link. On the right side, there is a grid of product images showing various items like jackets and shirts in blue, grey, and yellow.



# Summary



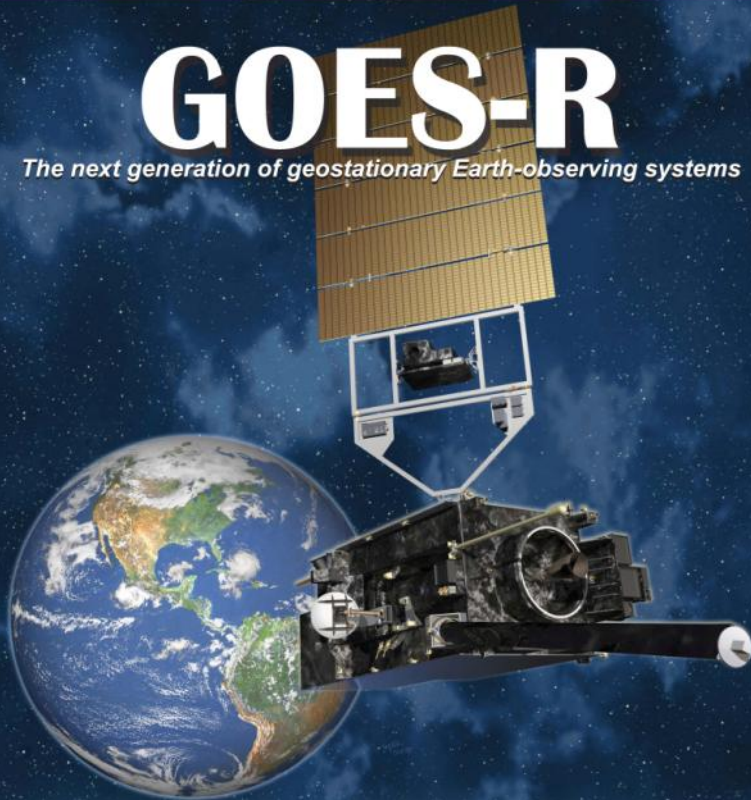
## Stages of Program Management



**NOAA Satellite and Information Service**

# GOES-R

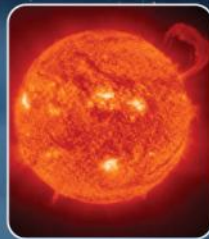
*The next generation of geostationary Earth-observing systems*



**Advanced imaging  
for accurate forecasts**



**Real-time mapping  
of lightning activity**



**Improved monitoring  
of solar activity**

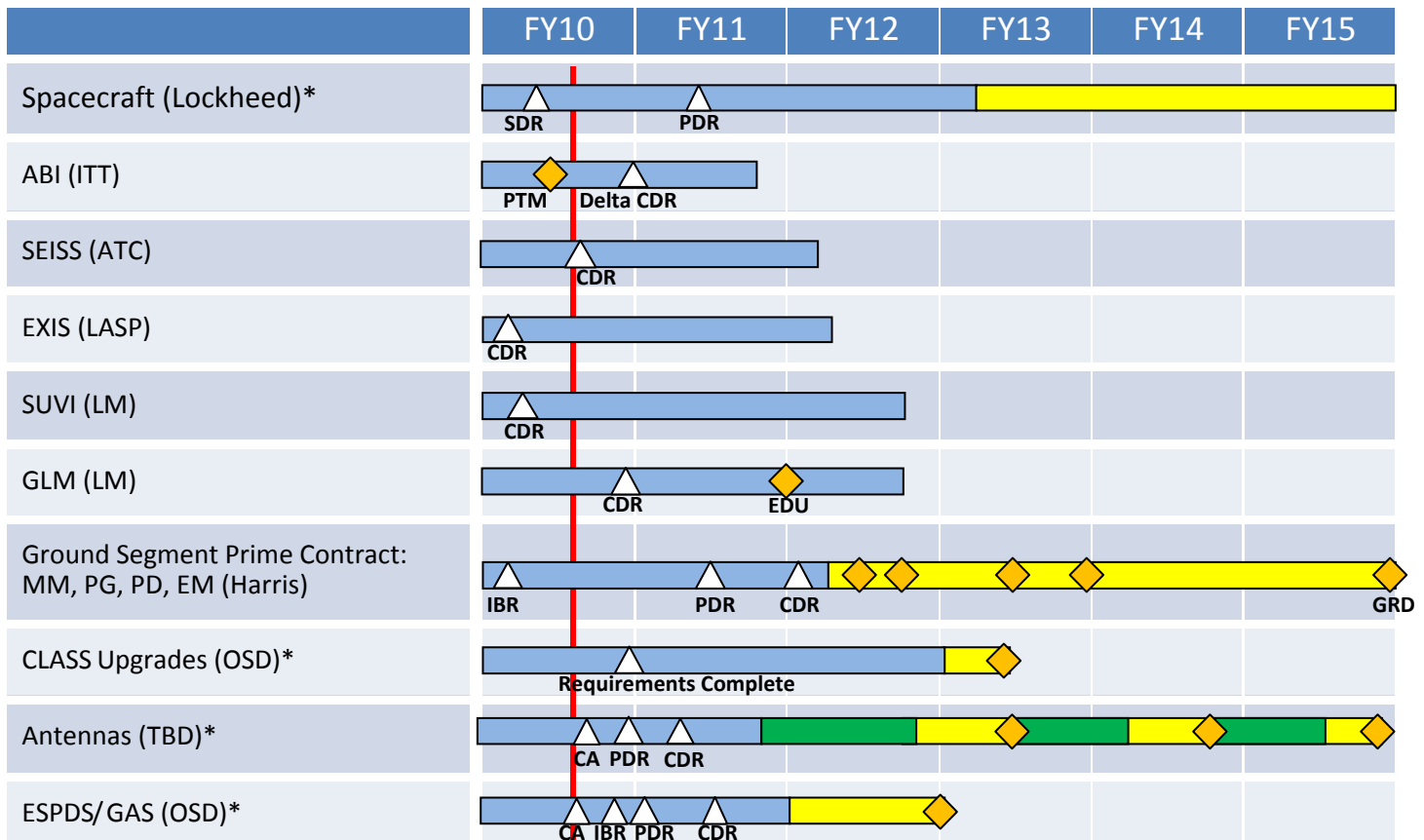
**Thank you!**

**Any ????**



# Program Schedule

As of June 1, 2010



\*Schedule is notional until Integrated Baseline Review

△ Milestone    ◆ Deliverable    ■ Design/Development    ■ Construction    ■ Integration/Testing