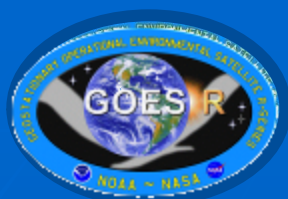# GOES-R Update

Greg Mandt
System Program Director
GOES User Conference
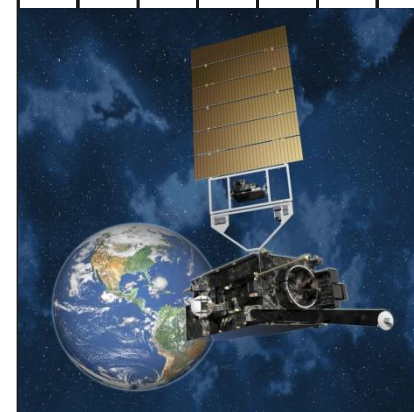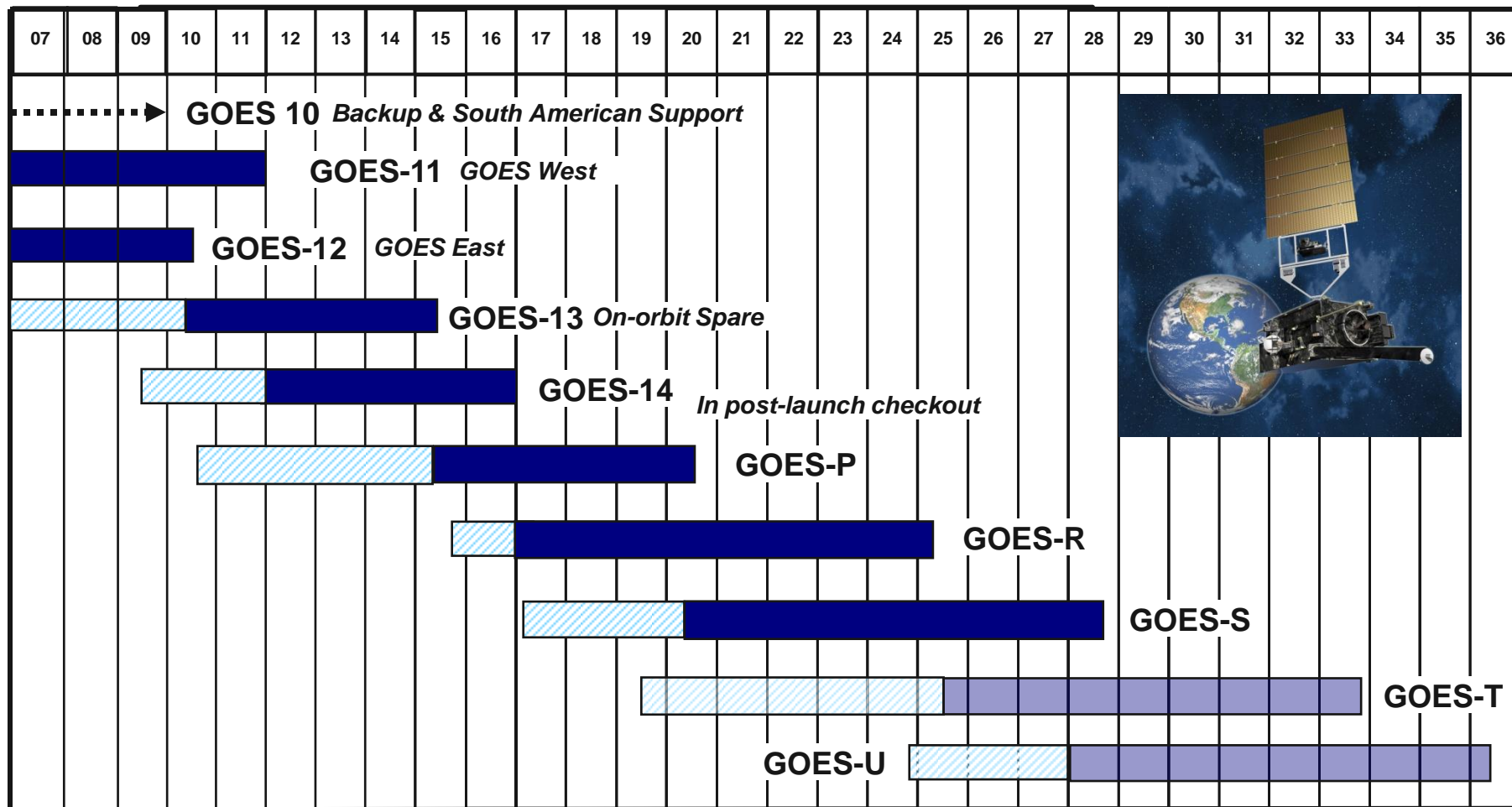3 Nov 2009

Continuity of Geostationary Operational Satellite Programs

As of October 30, 2009

Calendar Year

| 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 |

GOES 10 *Backup & South American Support*

GOES-11 *GOES West*

GOES-12 *GOES East*

GOES-13 *On-orbit Spare*

GOES-14 *In post-launch checkout*

GOES-P

GOES-R

GOES-S

GOES-T

GOES-U

Legend:
- ·······► Satellite is operational beyond design life
- ▨ On-orbit GOES storage
- ■ Operational
- ▨ Future Options

GOES-R Series Overview

GOES-West
137° W

Storage
105° W

Checkout/Post Launch Test
90° W

GOES-East
75° W

GRB, eGVAR

Command control & telemetry, data, GRB, eGVAR

Unique Payload Services

GRB, eGVAR

Command control & telemetry, data, GRB, eGVAR

Unique Payload Services

Other Users

Remote Backup Facility Fairmont WV

NOAA Satellite Operations Facility Suitland, MD

DCS

HRIT/EMWIN Users

SARSAT

Command and Data Acquisition Station Wallops, VA

GOES-R Program Funding

Based on 2010 Approved President's Budget

FY 09 & Prior	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	TC	Total
1,501	737	848	826	816	836	780	1,328	7,672

GOES-R Program Master Schedule
As of September 30, 2009

	FY09	FY10	FY11	FY12	FY13	FY14	FY15
Spacecraft (Lockheed)*	CA		CDR				
ABI (ITT)		PTM Delta CDR					
SEISS (ATC)		CDR					
EXIS (LASP)		CDR					
SUVI (LM)		CDR					
GLM (LM)		CDR	PTM				
Ground Segment Prime Contract: MM, PG, PD, EM (Harris)*	CA	IBR	PDR	CDR			GRD
CLASS Upgrades (OSD)*		Requirements Complete					
Antennas (TBD)*		CA PDR CDR					
ESPDS / GAS (OSD)*		CA IBR PDR CDR					
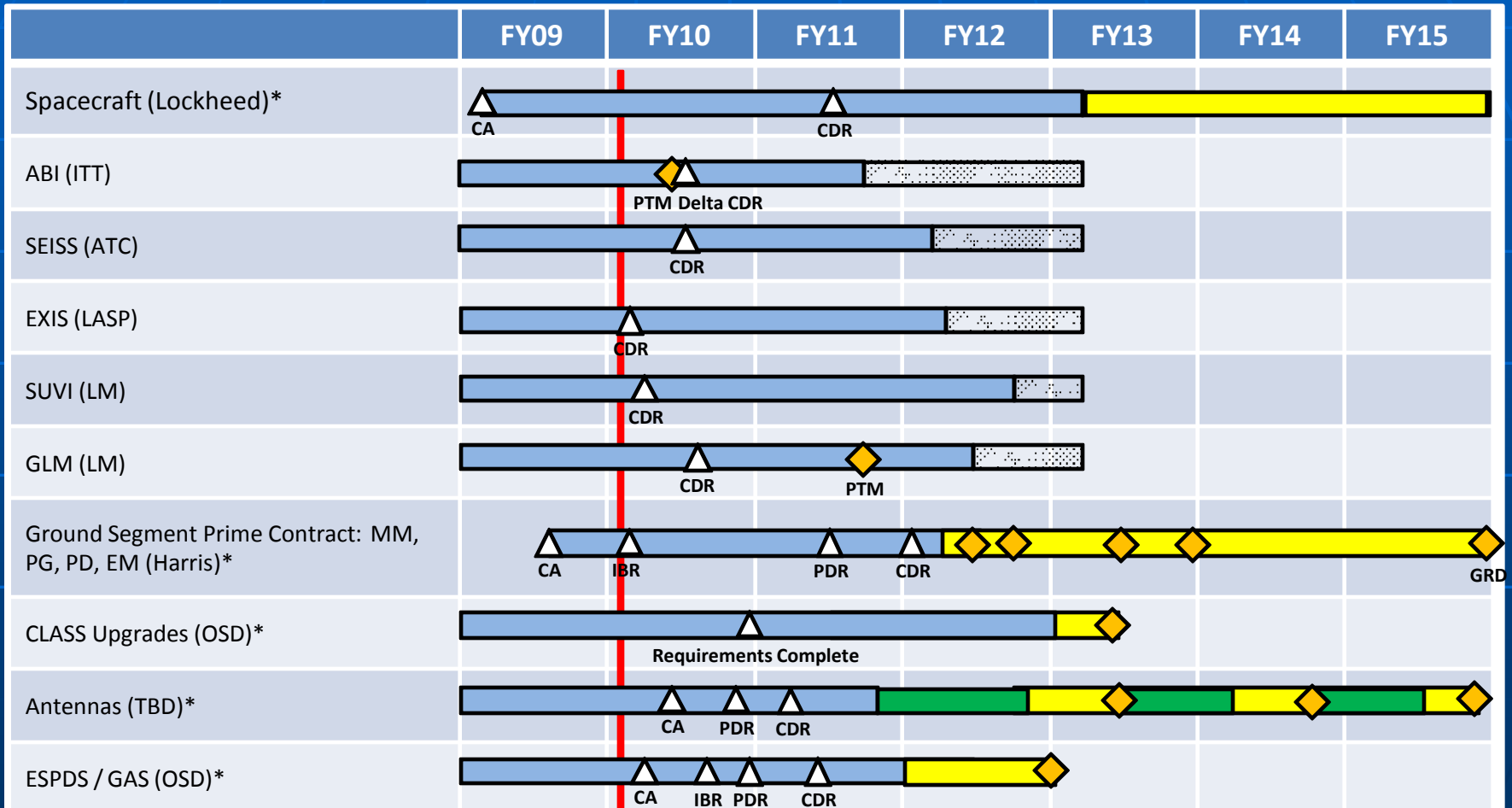
*Schedule is notional until Integrated Baseline Review

Legend: △ Milestone ◆ Deliverable ▬ Design/Development ▬ Construction ▬ Integration/Testing
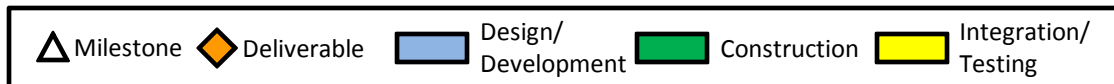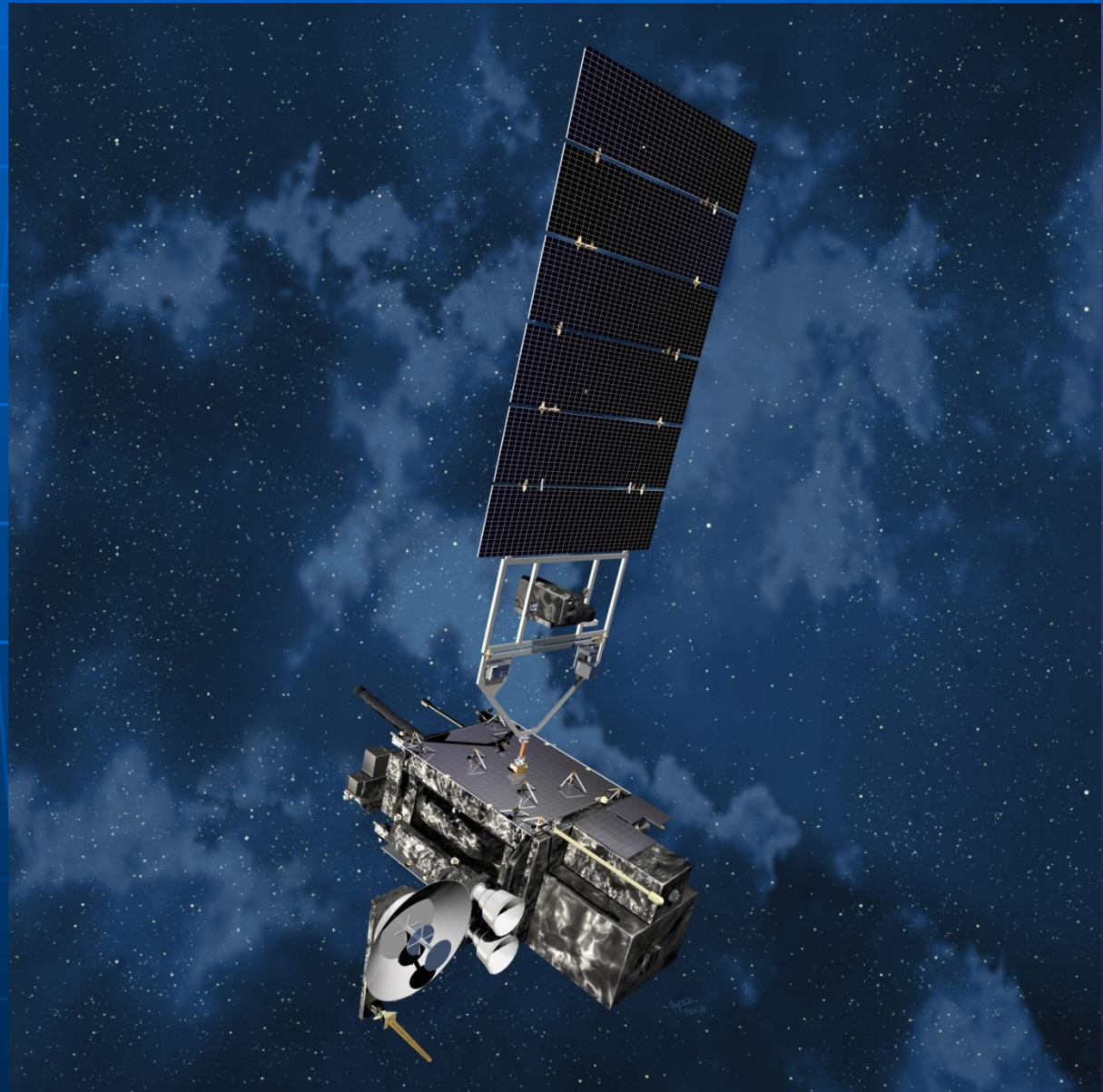
GOES-R Spacecraft

Lockheed-Martin Space Systems Co (LMSSC) began work on July 22, 2009.

Spacecraft kick-off meeting held at the end of September.

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

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

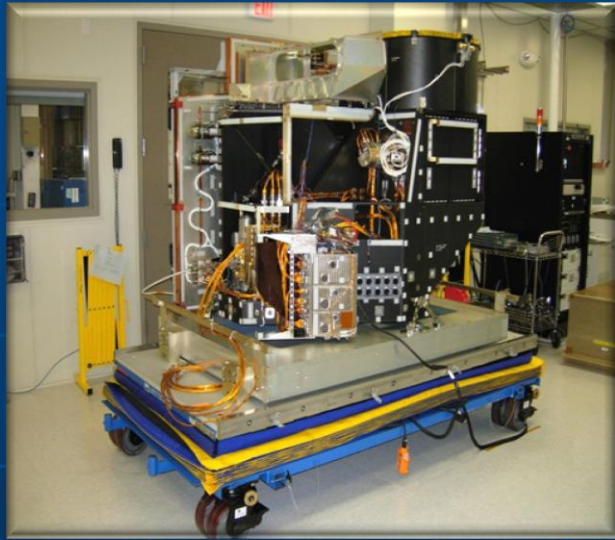Power Capacity: > 4000W at end-of-life (includes accounting for limited array degredation)
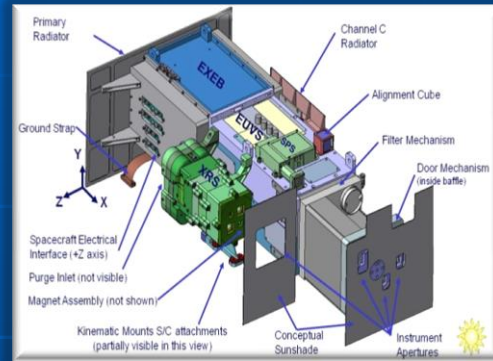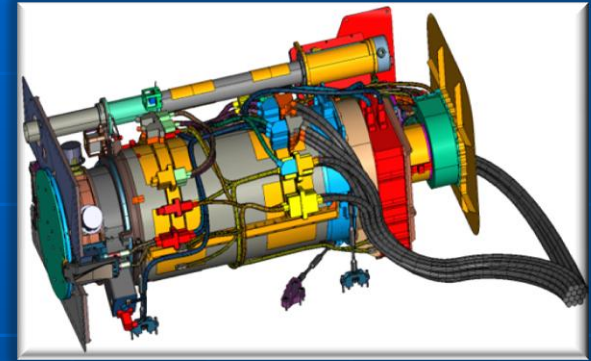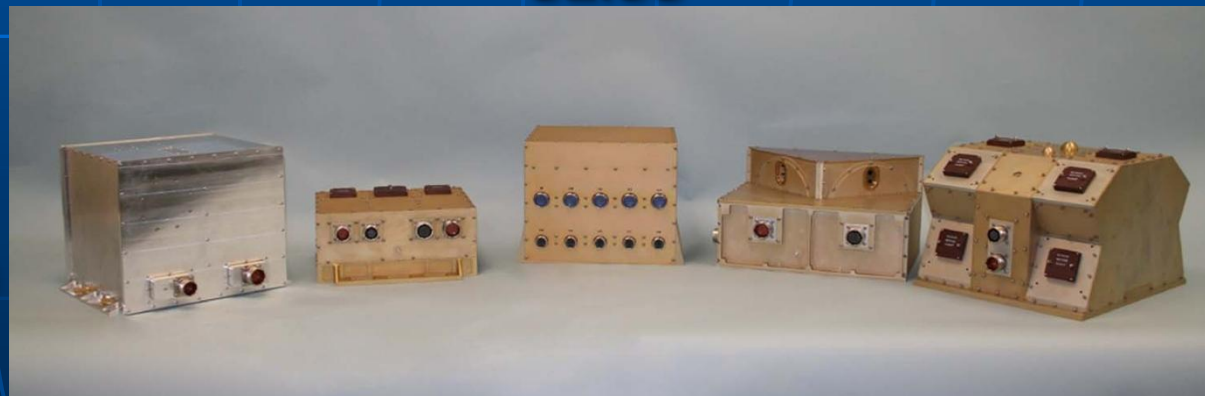
Flight Technical Status

ABI Prototype Model (PTM)

EXIS

SUVI

GLM

SEISS

GOES-R System Description

GOES-R Program Office
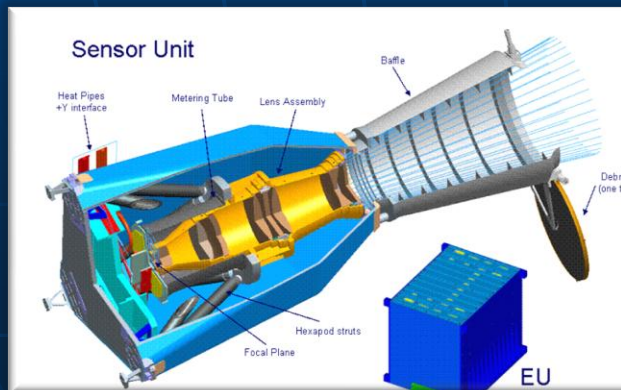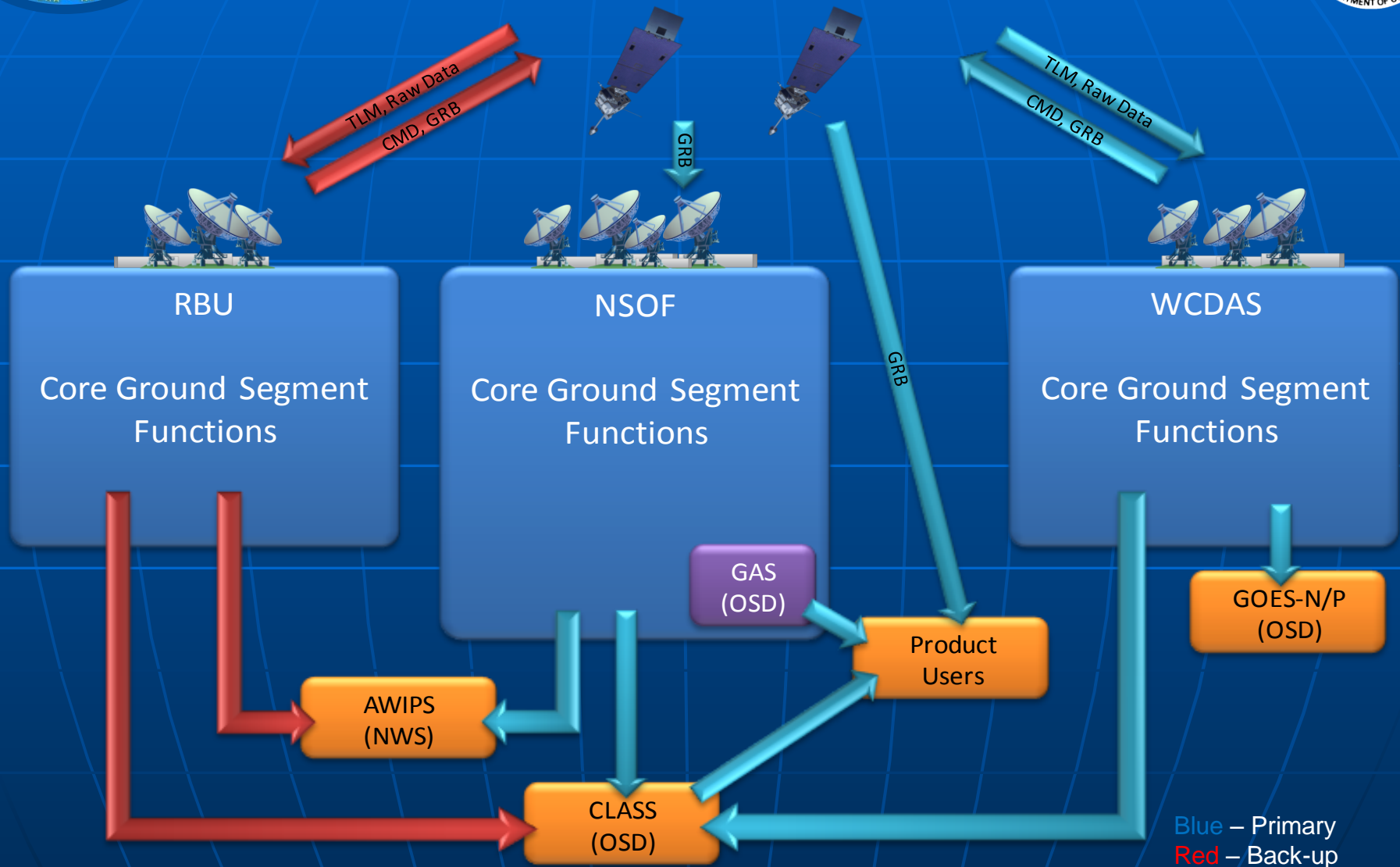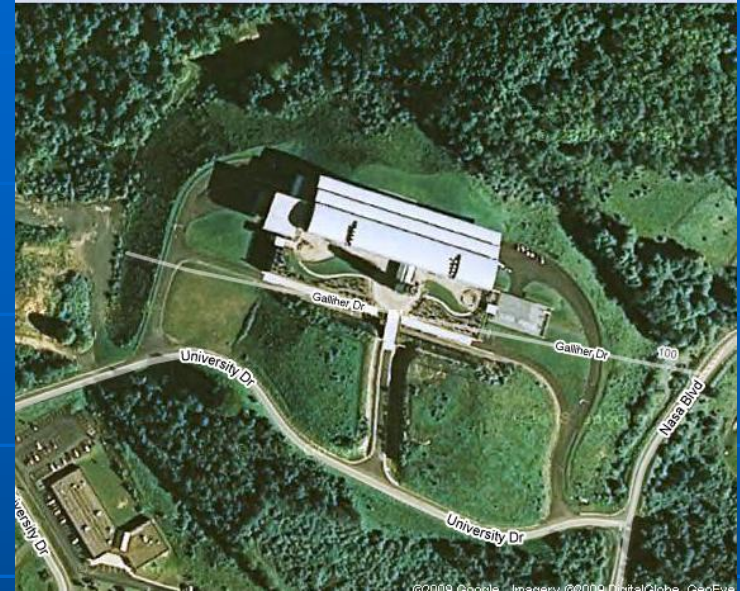
Antenna System Sites

NOAA Satellite Operations Facility

Remote Backup Facility – possible site

Wallops Command & Data Acquisition Station

Algorithm Working Group

Algorithm Development

Requirements Analysis

Develop Standards and Documentation Templates

Develop Proxy Data

Algorithm Design Reviews and Designate Competitive Algorithms

Algorithm Selection

Algorithm Integration

Algorithm Testing

Algorithm Validation

Develop ATBDs

DAP Documentation

Deliver ATBD & DAP to GPO

IV&V

Support A&O Contractor

Calibration, Validation and Verification

Form Teams

Kick-off Meeting

Initial Requirements Analysis

Final Requirements Analysis

Develop Software Tools

Documentation

Monitoring and Validation Tools

Algorithm Sustainment & Product Tailoring
(Joint AWG & OSDPD)

AWG Provides Science Support for:

Initial Requirements Analysis

Final Requirements Analysis

Develop Coding Standards

Design Reviews

Develop Tools

Select Tools

Tool Integration

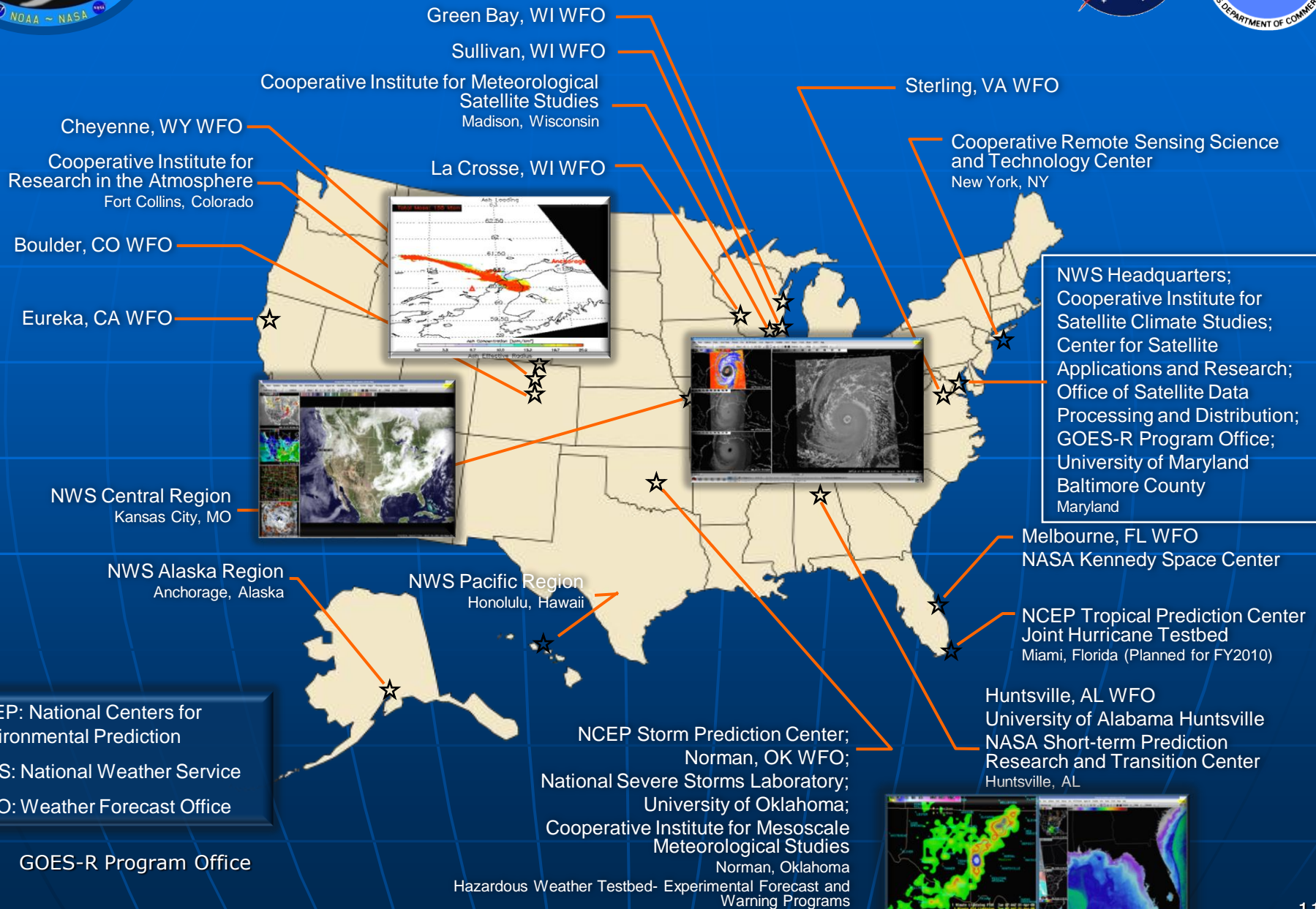**Tool Testing**

Tool Validation

Tool Documentation

Deliver to OSDPD

Satellite Products & Services Review Board Approval Required

Goal: Follow Repeatable Processes to Reduce Program Risks

GOES-R Proving Ground Partners

Green Bay, WI WFO

Sullivan, WI WFO

Cooperative Institute for Meteorological Satellite Studies
Madison, Wisconsin

Sterling, VA WFO

Cheyenne, WY WFO

Cooperative Remote Sensing Science and Technology Center
New York, NY

Cooperative Institute for Research in the Atmosphere
Fort Collins, Colorado

La Crosse, WI WFO

Boulder, CO WFO

Eureka, CA WFO

NWS Headquarters;
Cooperative Institute for Satellite Climate Studies;
Center for Satellite Applications and Research;
Office of Satellite Data Processing and Distribution;
GOES-R Program Office;
University of Maryland Baltimore County
Maryland

NWS Central Region
Kansas City, MO

Melbourne, FL WFO
NASA Kennedy Space Center

NWS Alaska Region
Anchorage, Alaska

NWS Pacific Region
Honolulu, Hawaii

NCEP Tropical Prediction Center
Joint Hurricane Testbed
Miami, Florida (Planned for FY2010)

Huntsville, AL WFO
University of Alabama Huntsville
NASA Short-term Prediction Research and Transition Center
Huntsville, AL

NCEP: National Centers for Environmental Prediction

NWS: National Weather Service

WFO: Weather Forecast Office

GOES-R Program Office

NCEP Storm Prediction Center;
Norman, OK WFO;
National Severe Storms Laboratory;
University of Oklahoma;
Cooperative Institute for Mesoscale Meteorological Studies
Norman, Oklahoma
Hazardous Weather Testbed- Experimental Forecast and Warning Programs

GOES-R Training Series

Summary

- GOES-R Sensors making great progress
  - ABI Prototype model in test
  - Other sensors heading towards Critical Design Review (CDR)
- Spacecraft development underway
  - Working toward System Design Review
- GOES-R Ground Segment development under way
  - Major Contractor onboard and working towards Integrated Baseline Review and Preliminary Design.
  - Government Algorithm team making Great Progress on developing Mature ATBD
  - Starting some initial Cal/Val experiments
- GOES-R Proving Ground activities ensuring GOES-R readiness