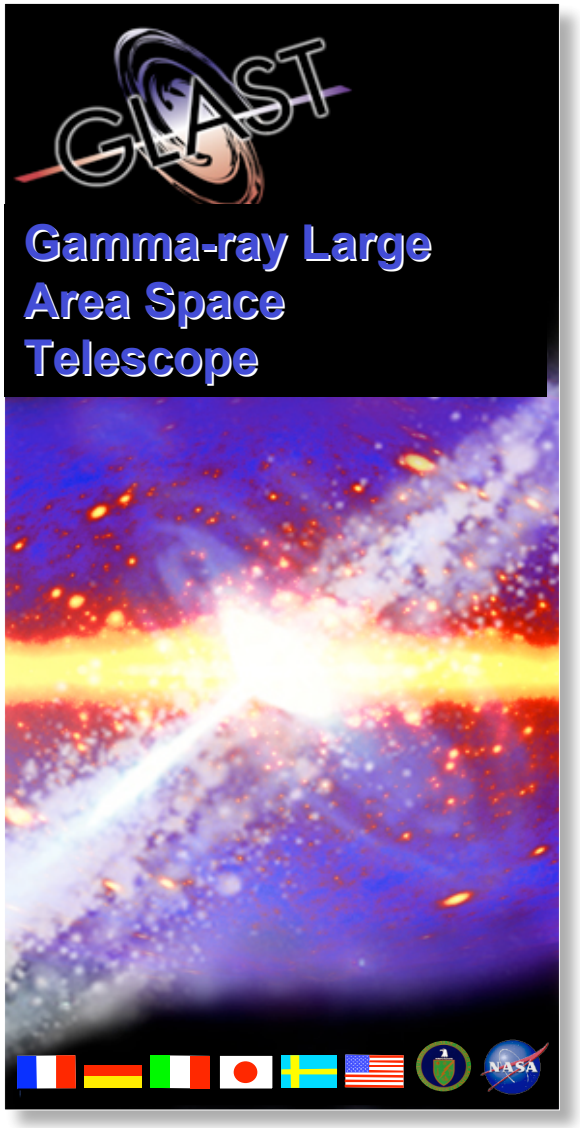


GLAST

The Gamma-ray Large Area Space Telescope

Mission Status
LAT IFC Meeting
13 March 2006

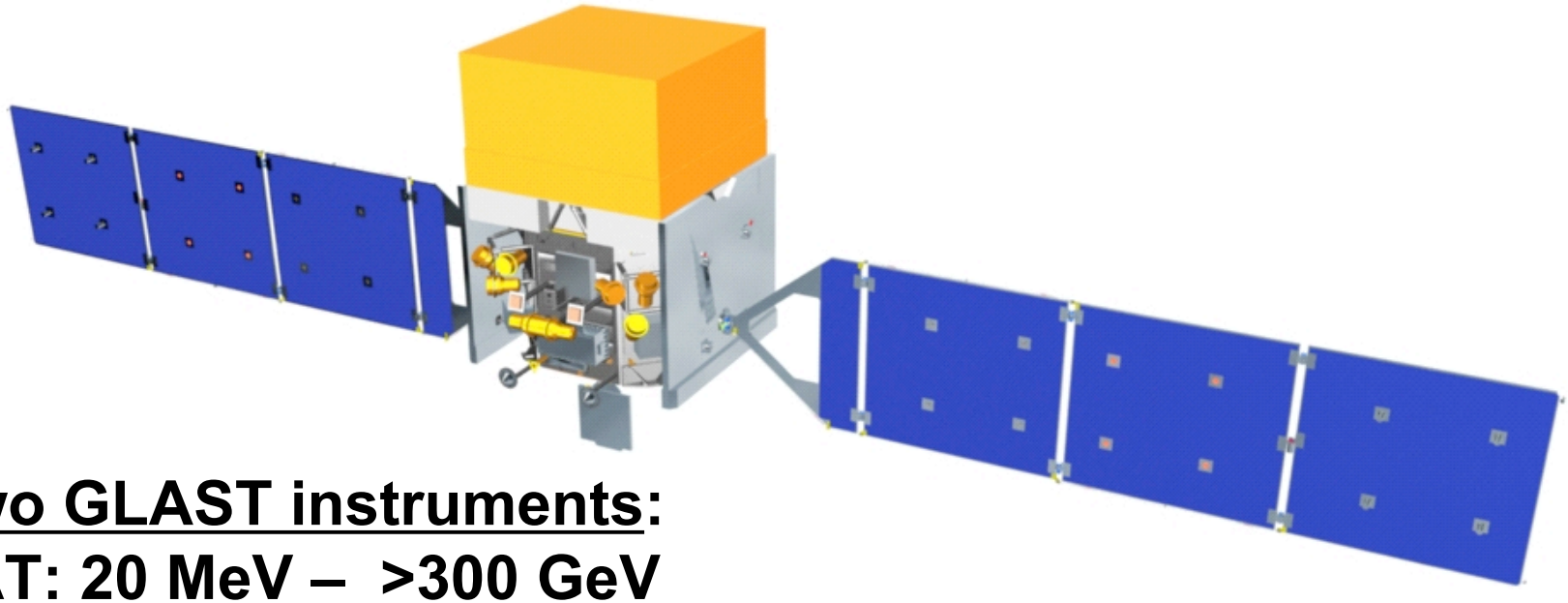
S. Ritz
GLAST Project Scientist

K. Grady
GLAST Project Manager

Topics

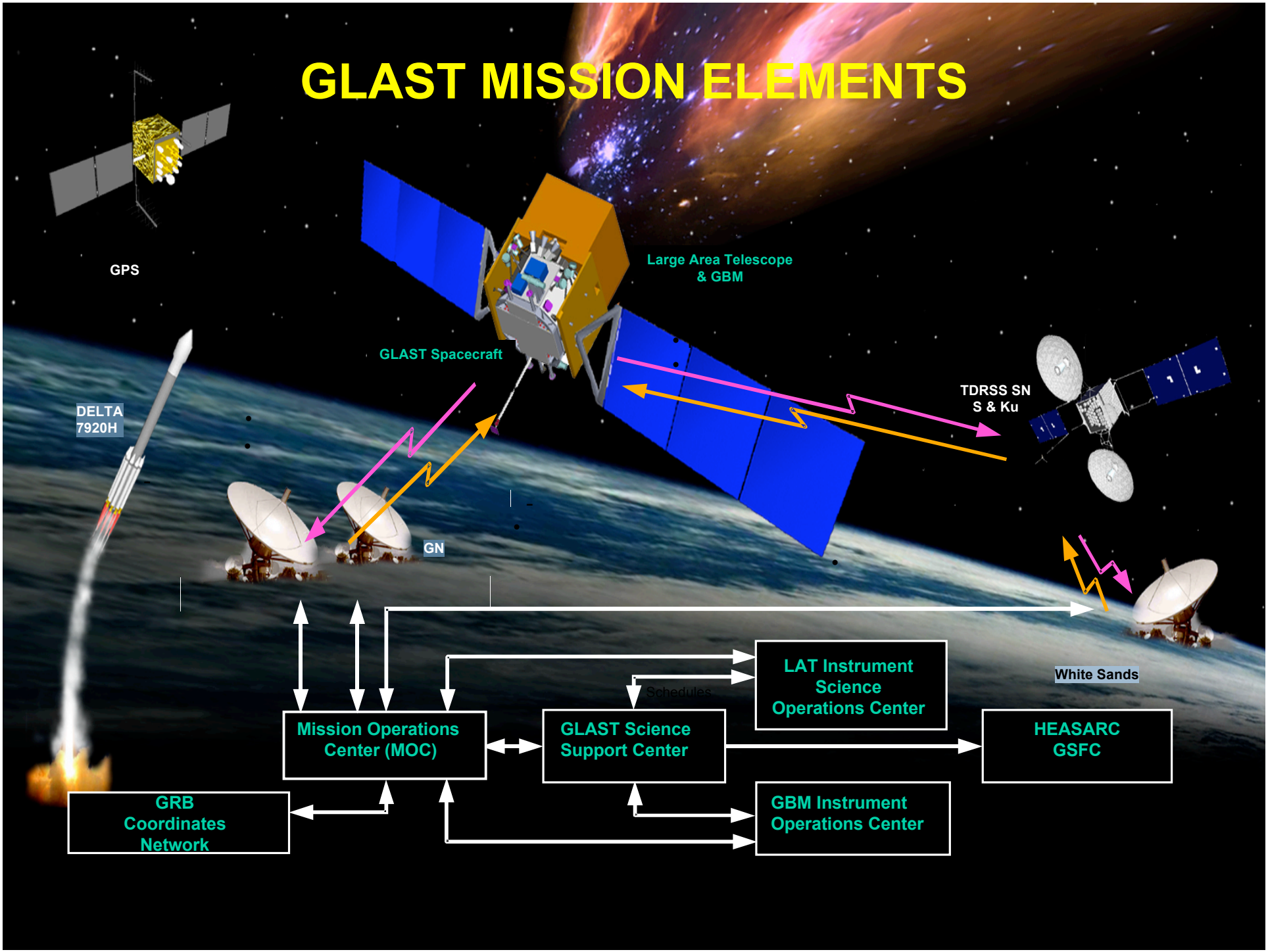
- Context
- GBM
- Spacecraft
- Launch vehicle
- Ground system
- GLAST Science Support Center (GSSC)
- Education/Public Outreach (see separate talk)
- GLAST Users Committee (GUC)
- Summary

Context: GLAST Observatory



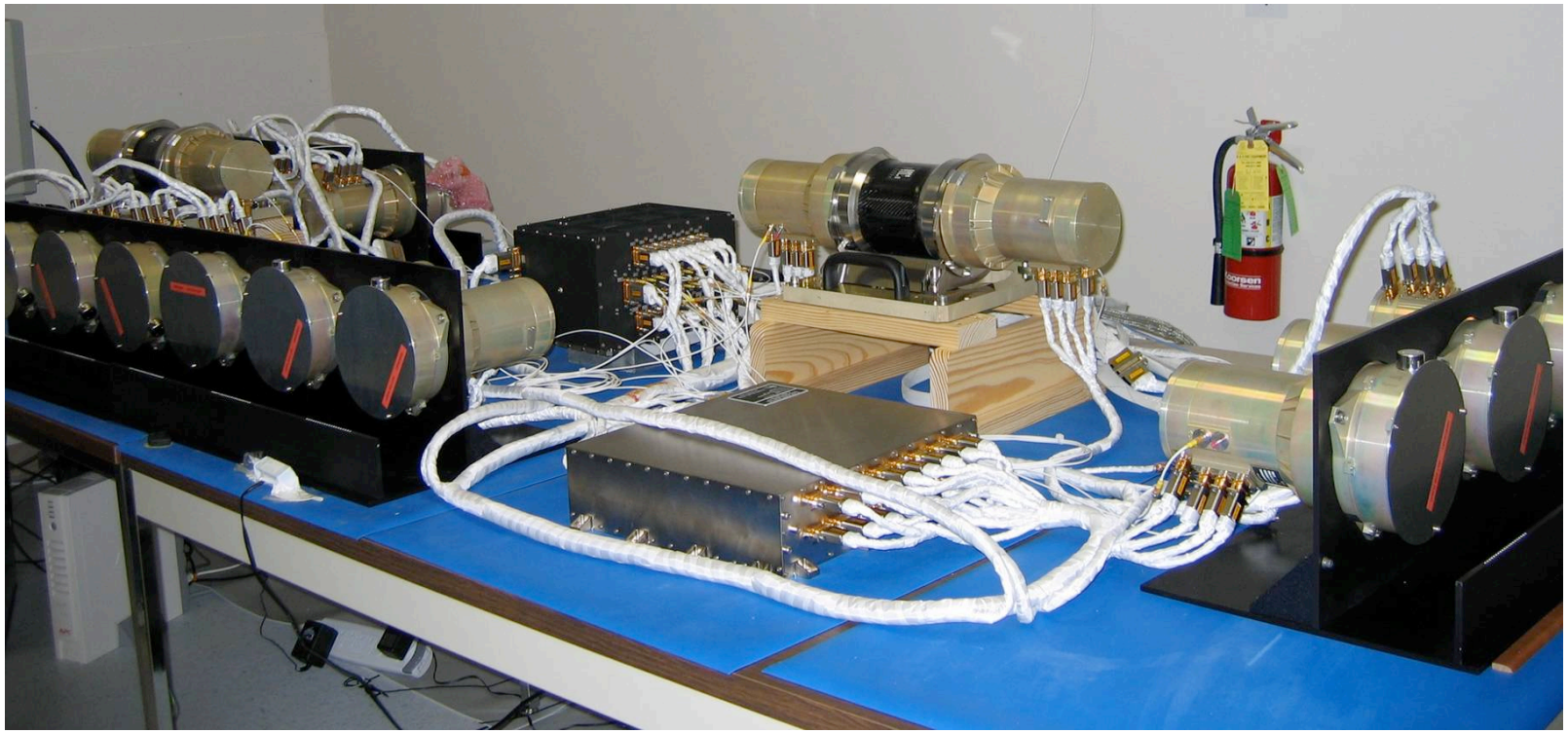
<u>Two GLAST instruments</u>:
LAT: 20 MeV – >300 GeV
GBM: 10 keV – 25 MeV

<u>Spacecraft</u>
General Dynamics C4 Systems (Spectrum Astro)


GLAST MISSION ELEMENTS
GPS
Large Area Telescope
& GBM
GLAST Spacecraft
TDRSS SN
S & Ku
DELTA
7920H
GN
White Sands
LAT Instrument
Science
Operations Center
Schedules
Mission Operations
Center (MOC)
GLAST Science
Support Center
HEASARC
GSFC
GRB
Coordinates
Network
GBM Instrument
Operations Center

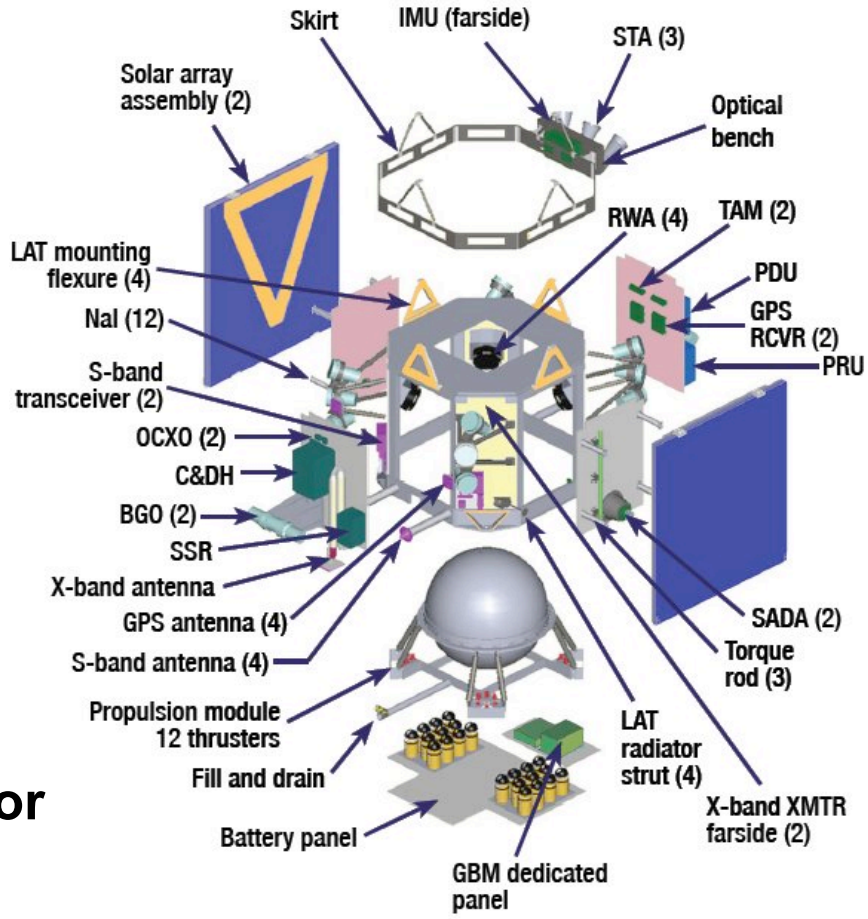
GBM

- All hardware complete. Detectors integrated at MSFC/NSSTC.
- Nagging problem of DPU EMI with GPS appears to be resolved. Power box and DPU in currently in rework, back soon.
- Flight software is in final cleanup. Software for the Burst Alert Processor (BAP) is in the early stages (speed versus accuracy trades).
- GBM delivery to Spectrum Astro in late June.



Spacecraft Status

- Flight structure built and qualified.
- Harness integrated.
- Integration of components into spacecraft ongoing.
- Solar array and power system components work on track.
- C&DH (control and data handling) system schedule a challenge.
- Propulsion system complete, undergoing testing.
- Replacement of critical release mechanisms that had recent test failures on other programs; used for solar arrays and Ku-band antenna. Assessing schedule impacts.



Launch Vehicle

- Procurement (ATP) started!
- Mission Integrated Working Group (MIWG) meetings.
- GLAST Launch site support planning ongoing.
- Mission plans to use excess lift capacity to reduce orbit inclination.
  - Reduces backgrounds and time in SAA slightly
  - Reduces false trigger rate in GBM due to "electron precipitation" events
  - Best guess: 25.3º. Stay tuned.
- Currently a hold on Delta II Heavy launches. Not expected to be a problem for GLAST.

Mars Rover "Opportunity" on the launch pad
Delta II - Heavy

Ground System

- Coordinated activity ramping up across all the elements. Sets of readiness tests, E2E tests and simulations planned (some complete).
- Regular “GOWG” (GLAST Operations Working Group) meetings.
- Mission Operations Center (MOC) facility integration proceeding at GSFC.
- Held Operations Technical Interchange Meeting at SLAC in Sept and at Spectrum Astro in January.
- Mission Operations Review (MOR) March 15-16.

GLAST Science Support Center (GSSC)

- **The GSSC has moved from design to implementation:**
  - **Data Archive**
    - **The server for LAT photons and events is ready and in use for DC2.**
    - **Additional data products are be served via the website.**
  - **Operations**
    - **The scheduling tool (TAKO) is complete.**
    - **Software to support ToOs and to process observing timelines is under development.**
  - **User Support**
    - **Proposers for the GI program will have a series of software tools related to the SAE.**
    - **Timelines, exposure and count maps, and various reports will be posted on the GSSC website.**
- **The GSSC is actively involved in the Science Analysis Environment (SAE), the definition of the data products, and the writing of documentation and workbooks.**

GLAST Users Committee (GUC)

- **Growing community eagerly anticipating GLAST data!**
- **Advises GLAST Project and NASA on NASA-funded Guest Investigator Program.**
- **Next F2F meeting at Goddard, 8-9 May.**
- **Expanding international participation.**

- **See *http://glast.gsfc.nasa.gov/ssc/resources/guc/***

Summary: THE LOOK AHEAD

- All elements of the GLAST mission have largely completed the fabrication phase and are well into integration.
- LAT, GBM, and spacecraft assembly complete by mid 2006.
- Delivery of the instruments for observatory integration spring/summer 2006.
- Observatory integration and test summer 2006 through summer CY07.
- Major conference, first GLAST Symposium, being planned for February 2007 at Stanford. International Organizing Committee formed.
- Launch in September 2007… Science Operations begin within 60 days.