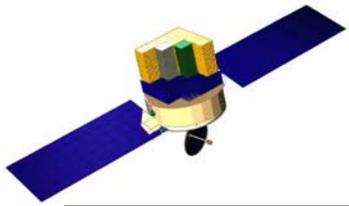


GLAST Collaboration Meeting

March 20-22, 2000

Scott Lambros
GLAST Project Formulation Manager
NASA/Goddard Space Flight Center

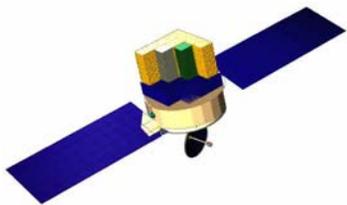


GLAST Instrument Selected

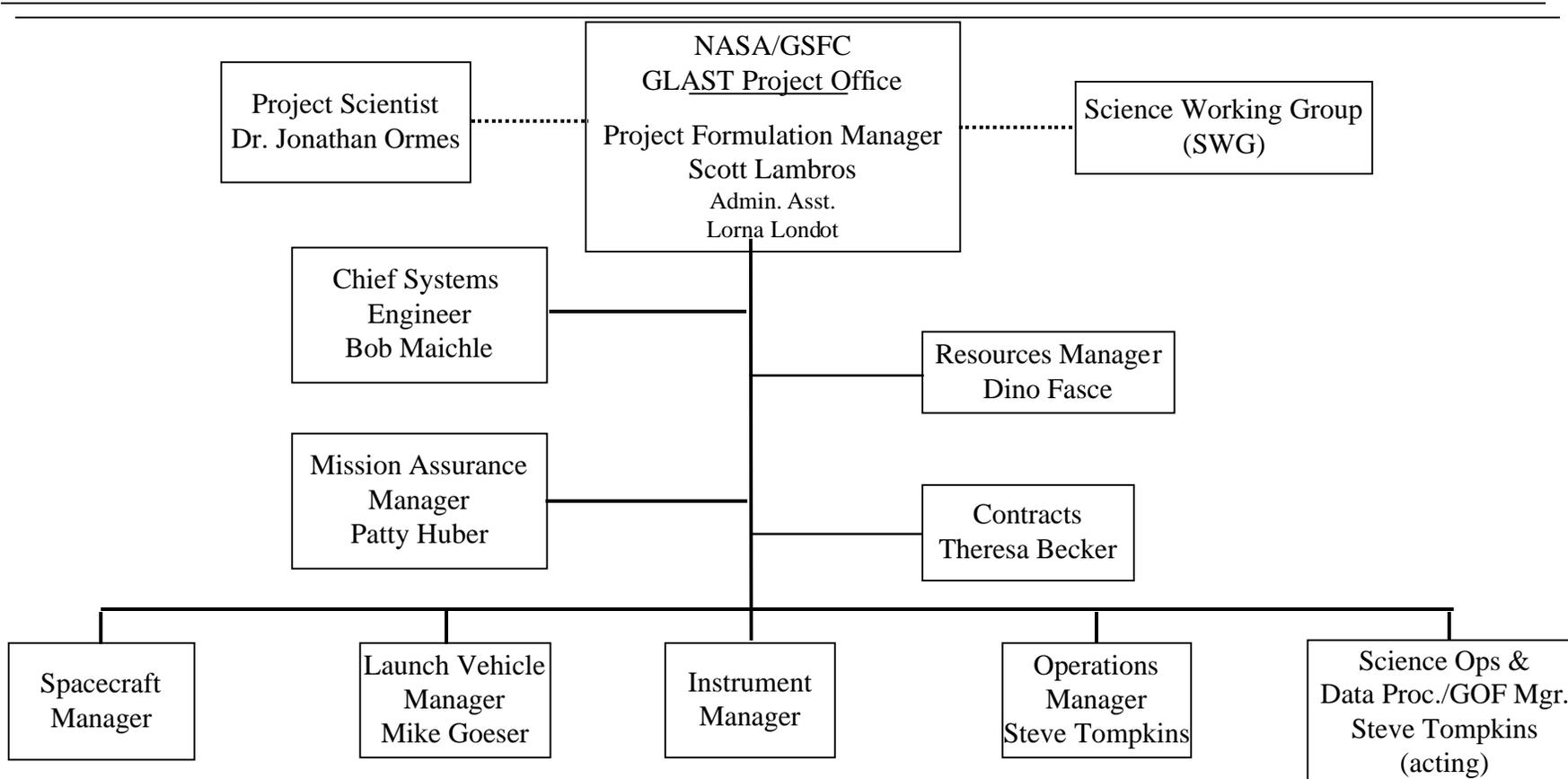
February 25, 2000

- GLAST Large Area Space Telescope, P.I. Dr. Peter Michelson, Stanford University.
- Gamma-ray Burst Monitor, P.I. Dr. Charles Meegan, NASA/MSFC.
- IDS Investigators selected:
 - Dr. Chuck Dermer, NRL
 - Dr. Brenda Dingus, UW
 - Dr. Martin Pohl, U. of Bochum, Germany
 - Dr. Stephen Thorsett, UCSC

CONGRATULATIONS!!

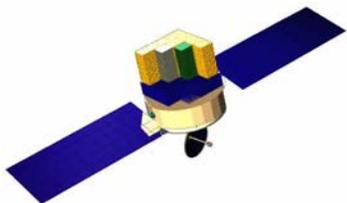


GLAST Project Structure

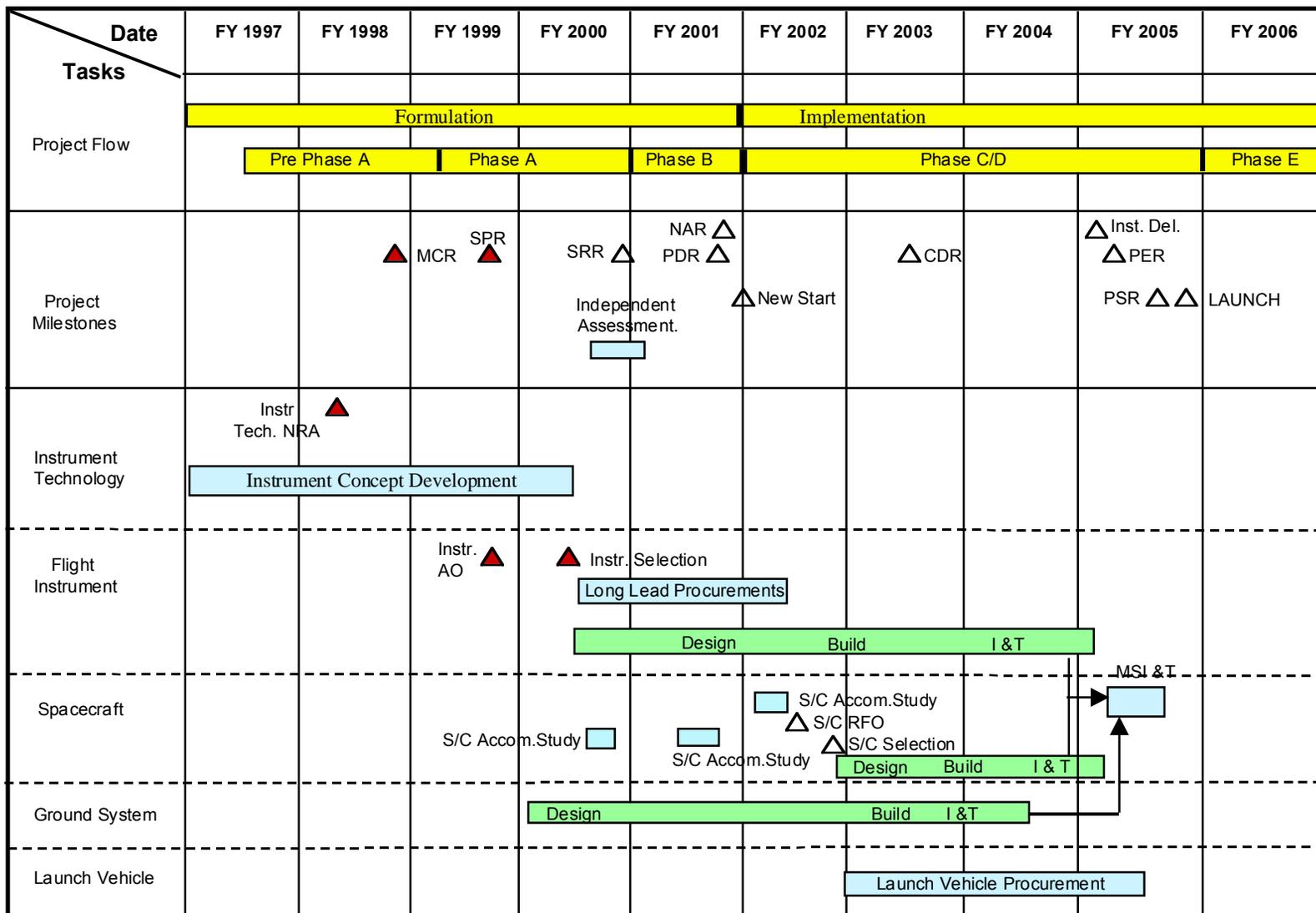


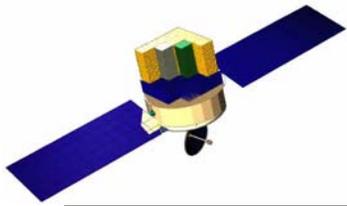
S/C Engineering Team:

- Electrical - Fred Blanchette
- Thermal - Lou Fantano
- Power - Vickie Moran
- Mechanical - Matt Fenske
- ACS - Jennifer Bracken
- C& DH - Bill Anderson
- Communications - Ben Bernstein



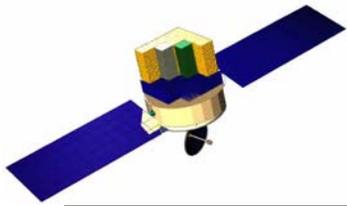
GLAST Long-Term Schedule





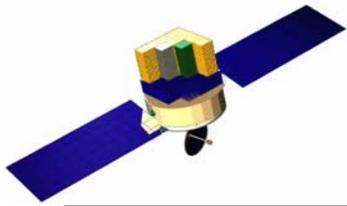
Schedule: Changes/Issues

- SRR moved from April to September 2000.
- Independent Assessment: moved to April 1 through October 15, 2000 (straddles SRR).
- Phase B start moved to October 1, 2000.
- Mission PDR moved from April 2002 to August 2001, just prior to NAR.
- Spacecraft Procurement moved from Sept. 2001 to September 1, 2002; Accommodation Studies done once per year before then.



Completed Project Activities

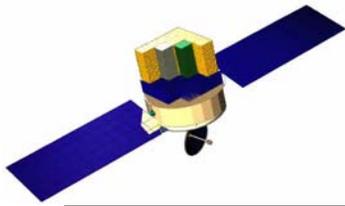
- System Peer Review, June, 1999.
 - Independent Review Panel within GSFC.
- Completed draft Mission System Specification.
 - Specifies requirements for complete mission.
 - Flowed down from Science Requirements.
 - Expands on some requirements.
 - Needs to be reviewed by instrument teams and Science Working Group (SWG).
- Updated Operations Concept Document.
 - Needs to be reviewed by instrument teams and SWG.
 - Includes list of issues to be resolved.
- Updated Interface Requirements Document (IRD) for AO: next update at this meeting.



Completed Project Activities

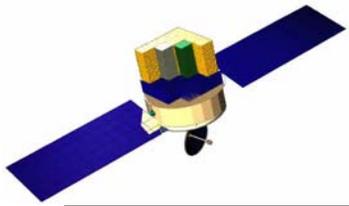
(continued)

- Launch Vehicle/Inclination trade study: baseline remains the same, Delta 7920, 28° inclination.
- Spacecraft Procurement Trade Study.
- Independent Science Operations Center configuration study.
- Mission Operations Center: investigated (including initial cost estimates) CSOC and industry options. This will be an ongoing activity.
- Completed Spacecraft Specification: to be used in Spacecraft Accommodation studies.
- Implemented requirements database tracking system, using DOORS software.
 - Possible to expand to multiple organizations.



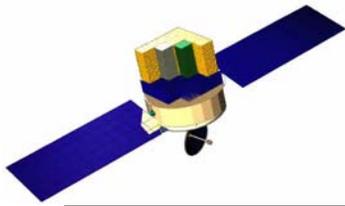
GSFC Contracts

- Letter contract with Stanford being implemented; goal for full contract June 15, 2000.
 - P.I. Responsible for entire instrument development.
- Inter-agency agreement with NRL; funds transfer to GSFC code 600.
 - Per P.I.'s instructions.
 - Statement of work developed by Stanford.
- List of deliverables being negotiated.
- Items in selection letter must be negotiated.
- Individual contracts with Interdisciplinary Scientists (IDS).
- Contract has basic period for Formulation Phase. Option for Implementation Phase contingent on successful completion of NAR and HQ approval for new start.
- Foreign participants on a no-exchange-of-funds basis, but *ITAR*.



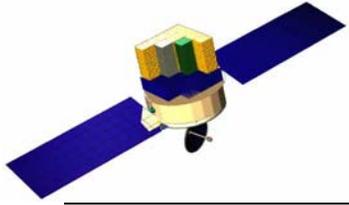
International Traffic in Arms Regulation (ITAR)

- U.S. Law.
- All spaceflight activities and activities leading to a space flight are included in the ITAR list.
- Governs control of technical data exported to foreign countries.
- NASA agreements/exemptions do **NOT** cover contractors.
- Will need a NASA agreement (e.g., MOU) with each foreign partner.



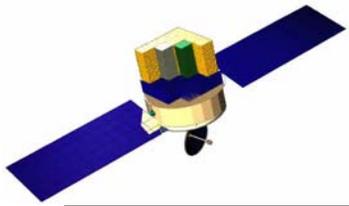
Spacecraft

- Using Goddard's Rapid Spacecraft Development Office (RSDO) "catalog" spacecraft.
- Developer under contract 09/01/02 (3 years before launch).
- "Accommodation Studies" performed each year for the next three (3) years.
 - To help define interfaces to instrument, ground system.
 - Each succeeding year supplies more detail; concentrates on specific interface problems.
 - Approximately 2-3 vendors selected each year: for 3-5 month study used to bound the configuration possibilities.
- Project determines interface requirements to instrument and to spacecraft, using inputs from both, and engineering team.



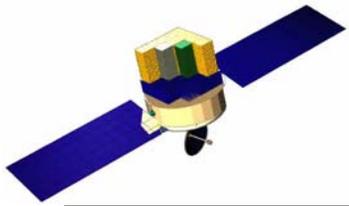
Accommodation Study - 2000

- Preparations underway (see schedule).
- ATD final report used as instrument background information.
- Controlling documents to the spacecraft are the IRD, Spacecraft Specification, and Mission system Specification.
- Request list of instrument major components and materials, with mass and dimensions, for re-entry analysis.
- Communication with study contractors will be blacked out during proposal stage, then after winners selected, through GSFC Project to alleviate confusion and conflicting direction.
- Spacecraft Accommodations study web page on Project website:
<http://glastproject.gsfc.nasa.gov/scaccom.htm>



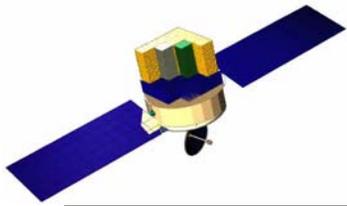
Science Operations Center

- Independent study @ GSFC defined strawman SOC configuration.
 - Assumed long-term archive at HEASARC.
- Differences between SOC Study and Instrument Proposal.
 - Need to negotiate an agreed upon architecture.
 - Both documents can be used as a starting point for discussion.
 - Needs to include Science Working Group.
- Forming team to resolve issues and recommend a Ground System configuration
 - Some issues resolved before contract signing, others before SRR.
 - Timeframe is now through July; longer if lingering issues.
 - Chairperson is Steve Tompkins.
 - Needs approval from SWG.



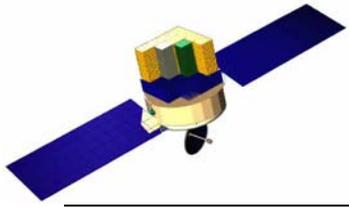
Reviews

- Working on agreed plan with the Project, Instrument Team, GSFC Code 300 (Systems Review Office), and DOE.
- To cover:
 - Major reviews (PDR, CDR, Operations & Readiness Review, Independent reviews, etc.).
 - Instrument vs Mission Reviews.
 - Instrument quarterly reviews.
 - Technical working meetings.
 - Reporting requirements.
- An attempt will be made to combine reviews wherever possible.



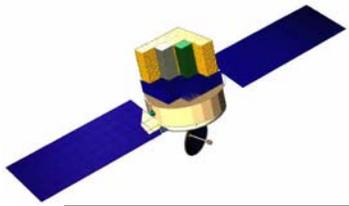
Upcoming Reviews

- System Requirements Review (SRR): will probably be a combined instrument and mission review.
- Independent Assessment: long-term (April - October, 2000) assessment of project preparedness. Instrument team participation is unclear. Review performed by independent team from Langley Research Center. Chair is also NAR Chair.
- Preliminary Design Review (PDR): instrument and mission reviews at about the same time (August, 2001), so probably will be combined.
- Non-Advocate Review (NAR), August, 2001: gateway to “New Start” and continuation of contract option. Usually same week as PDR.
- Other:
 - NASA Red Team Review.
 - Timing is TBD.



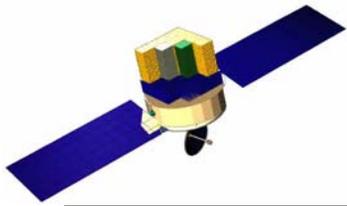
Planned Activities

- Systems Engineering Integrated Product Team.
- Schedule audit.
 - 1 - 2 week activity reviewing all schedules.
 - Product is an indication of schedule mis-matches and potential problems.
 - Probably in April - May timeframe.
- Technical Resource Management.
 - Need a formalized process for managing (tracking, controlling, and reviewing) technical resources such as mass properties, power, volume, and data rate.



Near-Term Plans

- Negotiate and complete Flight Instruments and IDS contracts.
- Update IRD and MSS.
- Spacecraft Accommodation Studies.
- Prepare for SRR.
- Initiate Ground System Team activities.
- Independent Assessment.
- Negotiate Mission Assurance Requirements.
- NASA - DOE MOU.



Near Term Schedule

(Continued)

ID	Task Name	Duration	Start	9/99	10/99	11/99	12/99	1/00	2/00	3/00	4/00	5/00	6/00	7/00	8/00	9/00	10/00	11/00
24	S/C Accom Study	143d	Wed 2/16/00															
25	Develop S/C Spec	19d	Wed 2/16/00															
26	Heads Up Notice	1d	Wed 2/23/00															
27	Release Draft RFO for Comment	1d	Fri 3/3/00															
28	Comments Due	1d	Fri 3/17/00															
29	Release Final RFO for Study	1d	Fri 3/24/00															
30	Proposals Due	1d	Fri 4/14/00															
31	Selections Awarded	1d	Fri 4/28/00															
32	Kickoff/Accom Studies	67d	Mon 5/1/00															
33	Rev S/C Accom Stdy	25d	Mon 7/31/00															
34	Update IRD	118d	Tue 3/21/00															
35	Update IRD	19d	Tue 3/21/00															
36	Update IRD	23d	Tue 8/1/00															
37	Prepare for SRR	33d	Tue 8/1/00															