NASA News

New Administrator:

Dr. Michael Griffin

NASA Town Meeting

206th American Astronomical Society Meeting

Minneapolis, MN
May 31, 2005

Agenda

Welcome and Announcements

Universe Division Highlights
-- Dr. Jennifer Wiseman, Program Scientist

NASA and the Science Mission Directorate
-- Dr. Paul Hertz, Assistant Associate Administrator for Science

Universe Division Key Issues

HST optimization:

- Extend operating life of HST
- Optimize science program

HST SM4 with deorbit module included

SOFIA flight operations beginning

GLAST potential delay due to tower production rate

JWST Cost Growth

SIM, TPF funding

Universe Division Future Activities

Comparative Review of the Science Centers

SOFIA Engineering Flights (Nov 05)

Strategic Planning Conclusion and completion of Universe Division Roadmap

Nat'l Academy Review of Roadmap

JWST Level 1 Review

Deep Impact mission to impact Comet Tempel 1 on July 4th -- HST will track!

Division Personnel Changes

Leaving:

- Phil Crane, Dartmouth
- Lou Kaluzienski (1 year detail to GSFC)
- Paul Hertz, SMD AAA for Science
- Carl Pilcher, Solar System Division; Senior E/PO Official for Science Mission Directorate
- Don Kniffen, GSFC
- Michael Salamon (3 year detail to OSTP)

Joining:

- Steve Ridgway, from NOAO
- Pamela Marcum, from TCU
- Ron Helling, from Montana U
- Wilton Sanders, from Wisconsin
- Rick Harnden, from SAO

Challenges for NASA Astronomy

Challenges to the NASA Science Budget and the Universe Division Budget

- Return to Flight
- Congressionally Directed Funding
- Hubble Space Telescope
  - Extend operating life of HST
  - Optimize science program
  - SM-4 with deorbit module included
- Near Term Launches
  - SOFIA flight operations beginning
  - GLAST potential delay due to tower production rate
- James Webb Space Telescope cost growth
- SIM, TPF funding
- LISA, Con-X funding

NASA Budget and Plans

NASA Budget

- The President has reaffirmed his commitment to NASA … the $16.46B requested for NASA in FY 2006 reflects an increase of 2.4% over FY 2005
- By FY 2010, the NASA Science budget will increase by 23% over current levels
- Several missions will have to be “delayed, deferred, or cancelled” in order to pay for the missions where the priorities were set by the President and Congress
- FY 2005 Congressional “earmarks” to NASA total $426M; Space Science budget reduced by $76M, Earth Science by $89M to support these
  - Does not include Congressional direction for spending $291M on Hubble servicing in FY 2005

http://www.nasa.gov/about/budget

Decadal Report Scorecard

The Decade of Discovery (1991)

- ✓ Spitzer
- ✓ FUSE
- ▪ SOFIA (2006)
- ✓ Delta-class Explorers
- ▪ Astrometric Interferometry Mission aka SIM (2012)
- ▪ International collaboration in space instruments (e.g., *Herschel, Planck*) (2007)
- ▪ Small Explorer Acceleration
- ▪ Orbiting Planetary Telescope
- ▪ RadioAstron (cancelled)
- ✓ Laboratory Astrophysics

Astronomy & Astrophysics in the New Millennium (2001)

- ▪ JWST (2011)
- ▪ Con-X (c. 2016)
- ▪ TPF (c. 2015)
- ▪ SAFIR (c. 2025)
- ▪ GLAST (2007)
- ▪ LISA (2013)
- ▪ EXIST (no projected launch date)
- ▪ ARISE (no projected launch date)
- ▪ ACCESS (no projected launch date)
- ✓ NVO
- ✓ Augmentation of Theory
- ▪ HST SM4 (pending successful RTF)

President's FY06 Budget

($ in Millions)	FY 2006	FY2007	FY2008	FY2009	FY2010
SCIENCE	5,476	5,960	6,503	6,853	6,798
EXPLORATION SYSTEMS	3,165	3,707	3,826	4,474	5,125
AERONAUTICS RESEARCH	852	728	731	728	718
SPACE OPERATIONS	6,763	6,379	6,057	5,367	5,194

SCIENCE

•Supports 55 missions in orbit, 26 in development, and 34 in design phase

•Includes $858m, a 17% increase, for Mars/Lunar robotic exploration

EXPLORATION SYSTEMS

•$753m for the Crew Exploration Vehicle, with resources to pursue a timely flight demo in 2008

•$919m, a 27% increase, for Exploration Systems R&T that will enable designs for sustainable exploration

SPACE OPERATIONS

•$4.5b to return Shuttle to flight as a top priority and resume flight operations

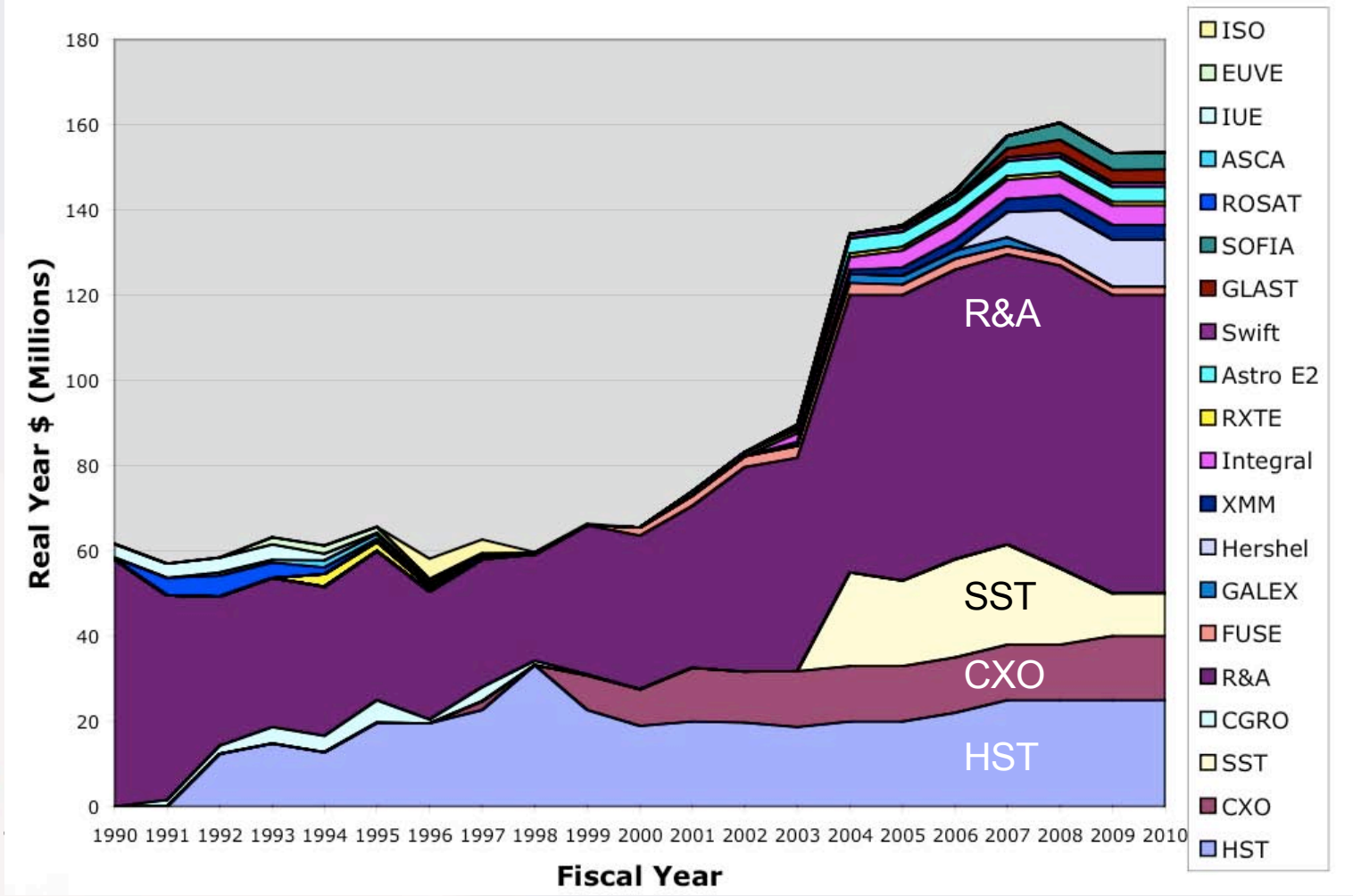
•$1. 9 billion for the Space Station to examine configurations that meet the needs of both the Space Exploration Vision and our international partners while using as few Shuttle flights as possible to complete Station assembly

AERONAUTICS

•Maintains top priorities in aeronautics research

- •$193m, a 4% increase, for Aviation Safety & Security
- •$200m, a 32% increase, for Airspace Systems

R&A plus GO Funding



Universe Exploration Mission Set

1. ***Strategic Observatories*** **providing breakthrough capabilities**
   - GLAST (2007): Jets from Black Holes and Dark Matter decay signatures
   - JWST (2011): First Galaxies and stars
   - LISA (2014): Gravitational Waves from many sources, how space and time behave around black holes and constrain Dark Energy
   - Constellation-X (2017): Observe matter falling into Black Holes & address the mysteries of Dark Matter and Dark Energy

2. ***Competed Missions*** **that address focused science questions through scientist-led investigations with a range of sizes, up to a strict cost cap of $600M**
   - Explorers: Missions linked to Universe strategic goals
   - Einstein Probe: Joint Dark Energy Mission (JDEM)
   - Einstein Probe: Black Hole Finder Probe (BHFP)
   - Einstein Probe: Inflation Probe (IP)

3. ***Vision Missions*** **that result from long term objectives**
   - Big Bang Observer (BBO)
   - Black Hole Imager (BHI)
   - Pathways to Life Observatories

Red – Beyond Einstein

Blue – Pathways to Life

Roadmapping and Strategic Planning

http://www.hq.nasa.gov/office/apio/science_roadmaps.htm

Roadmapping Rules

Any player may declare a new rule at any point in the game (see Figure 1.2). The player may do this audibly or silently depending on what zone the player is in.

Figure 1.2


BEYOND EINSTEIN
ORIGINS
2010
2020

GLAST
Independent Review Team Report

Presentation to Science Management Directorate
Program Management Council
May 16, 2005
Art Fuchs, Chairman

GLAST IRT Review Schedule

NAR Confirmation	*December 3, 2003*
GLAST Spacecraft CDR	*May 24-27, 2004*
GLAST Mission CDR	*September 21-22, 2004*
Goddard Management MCDR Review	*November 29, 2004*
NASA Science Directorate Rebaseline Review	*May 16, 2005*

Summary from MCDR – Fall, 2004

The GLAST Project has made excellent progress since the PDR/NAR and has completed an excellent CDR.

The LAT instrument remains the most significant challenge to cost, schedule and mission success.

The IRT has identified a number of issues to the GLAST Program that should be addressed.

It is the IRT's opinion that the GLAST Program has conducted a successful CDR

IRT Findings on Rebaseline Package – Page 1

Project Management is of high quality and they are on top of the issues

The potential for LAT production problems was forecasted by the review team at the MCDR

- The IRT was not requested to investigate the potential cost growth or schedule effects
- The IRT cautioned the Project on flight production problems, although specific problems, e.g. MCM delamination could not be predicted

At this point the KNOWN problems either have been or are being addressed.

- There are likely to be some problems that are unknown at this point, but they should not be big money problems

The problems that occurred, cost more to address than would have been expected at the MCDR

- A more detailed risk assessment and identification of threats against LAT contingency could have provided earlier warning of the problems

IRT Findings on Rebaseline Package – Page 2

Some key risks are not identified on the liens list and are not even quantified as threats

- Examples are Quicknuts, Solar arrays
- There is 13.7% contingency through liens

Other potential threats are numerous:

- e.g. LAT parts failures, environmental failures, instrument parts; thermal, software, mechanical interference, noise, ASIC programming problems, etc.
- S/C – Instrument I/F problems require rework, software incompatibilities, end-to-end testing problems
- Would the amount of contingency cover the highly probable threats?
- A comprehensive risk assessment of each remaining activity is in order

It is strongly advised that the Project pursue workarounds such that the planned LAT test program is maintained

- The LAT environmental test program be impacted only as a last resort

Significant Accomplishments & Issues

Significant Accomplishments (as presented at recent GSFC MSR):

Large Area Telescope (LAT)

- Successfully collecting two-tower cosmic particle data on LAT.
- All 18 calorimeters completed environmental test.
- Continue to successfully produce flight tracker multi-chip modules at Teledyne.
- Delivered 4th and 5th flight trackers to Stanford. 6th and 7th trackers preparing for environmental test.
- Nearing completion of electronics and tile integration onto ACD.

GLAST Burst Monitor (GBM)

- GBM qual units delivered by DJO to MPE for calibration testing.

Spacecraft

- Spacecraft structure qualification complete.
- Installed harness on spacecraft.

Project

- Rebaselined GLAST cost and schedule on 5/16/05.

GLAST
Problem and Concern Status

ISSUE

None