

National Aeronautics and Space Administration



# R&A and EPO Update

**Dr. Yvonne Pendleton**

**Senior Advisor for Research and Analysis (SARA)**

**March 10, 2008 LPSC**

# It Takes Teamwork



In the audience today are several others from SMD.  
SMD FOLKS-PLEASE STAND.

The entire SMD Team is hard at work for NASA Science!

Thank you, teammates here, and those back home working the issues,  
especially Max Bernstein, Deputy SARA.

Please note:

Mike Griffin, Today (5:30) Crystal A

Alan Stern, Wednesday (12:10 -1:30) Crystal A

Jim Green, Wednesday (5:30) Crystal A

R&A Reception, Tuesday (noon-1:30) Harbour Club

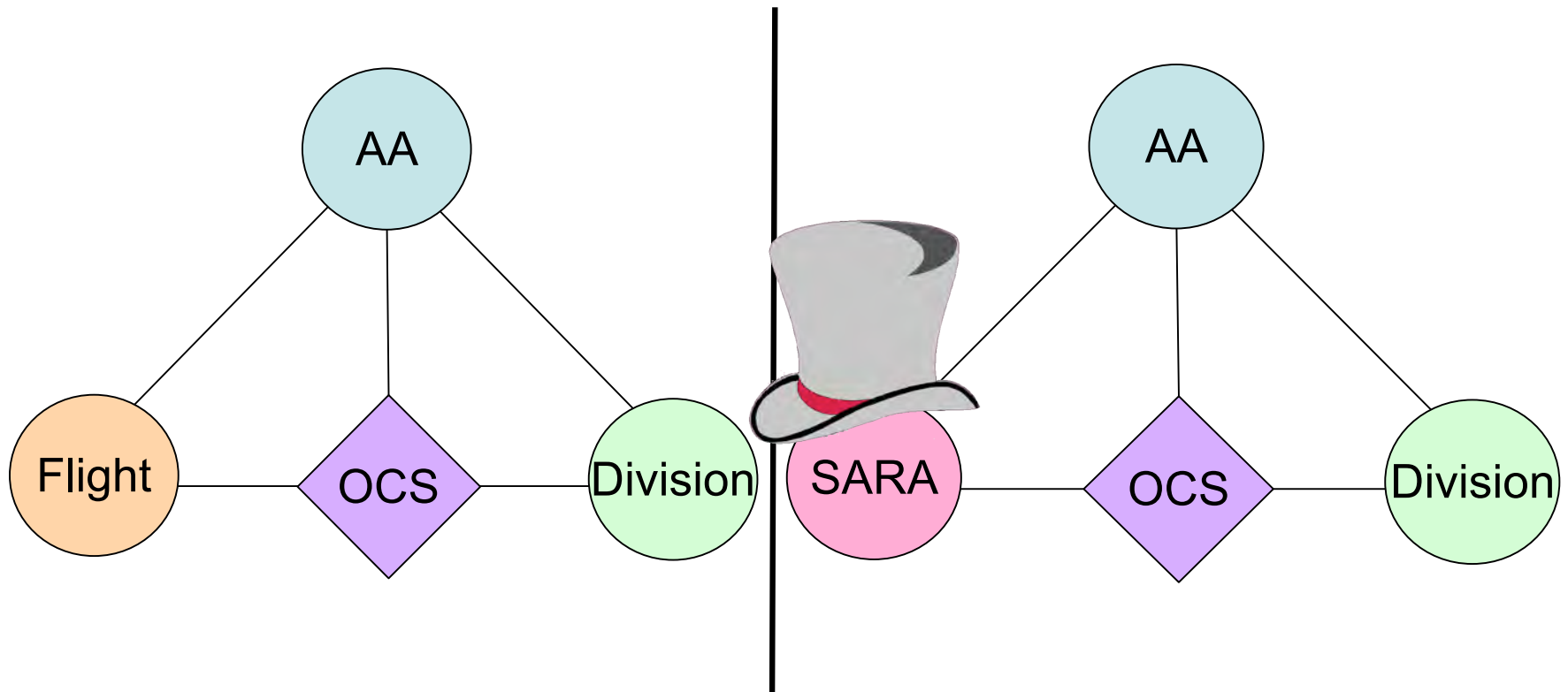
AO Simplification, Paul Hertz, Thursday (12:10-1:30) Marina

We welcome the conversation you want to have with us.

Please call 202-358-1588 any time, day or night.

(That's Jim Green's Number, by the way)

# Strategic Planning for Flight Project and R&A Decisions



SARA also = EPO Lead for SMD

# Some SMD Actions Since April 2007



**AVOIDED >\$150M IN OVERRUNS.**

**FUNDED FOUR NEW SMEX  
EXPLORER MISSIONS,  
REPLACING ONE MIDEX.**

**INCREASED SUBORBITAL ROCKET  
AND BALLOON FLIGHT RATES.**

**ENTERED INTO PARTNERSHIPS  
FOR BOTH AN OUTER PLANET  
FLAGSHIP AND SOLAR ORBITER.**



**❑ TAKEN R&A OFF THE TABLE FOR CUTS.**

**❑ AND INITIATED AN EFFORT TO SIMPLIFY AOs.**

# R&A CHANGES HAVE BEEN MADE



**SARA position established within SMD:**

<http://science.hq.nasa.gov/research/sara.html>

**or Google: NASA SARA**

**Confidential mailbox for feedback about R&A programs:**

[sara@nasa.gov](mailto:sara@nasa.gov)

**Adopted widespread funding of 4-yr grants.**

**Budgets completely revealed to review panels in ROSES-08.**

**Grant win/loss notifications accelerated, from months to weeks.**

**Resolved ~300 stalled funding issues.**

**Eliminated backlog of hundreds of no-cost extension requests.**

## What Brought You Here?

- will the program you care about be offered?
- will it have adequate funding?
- will the proposals be evaluated fairly and quickly?
- will decisions be communicated quickly?
- will the money get to you any faster now so you can get on with the work?
- If not immediately successful, will progress be communicated to you, and can you reach the relevant parties when you need them?
- will SMD offer more support for grad students and post docs?

# **SMD'S CROSS-CUTTING FY09 BUDGET OBJECTIVES**

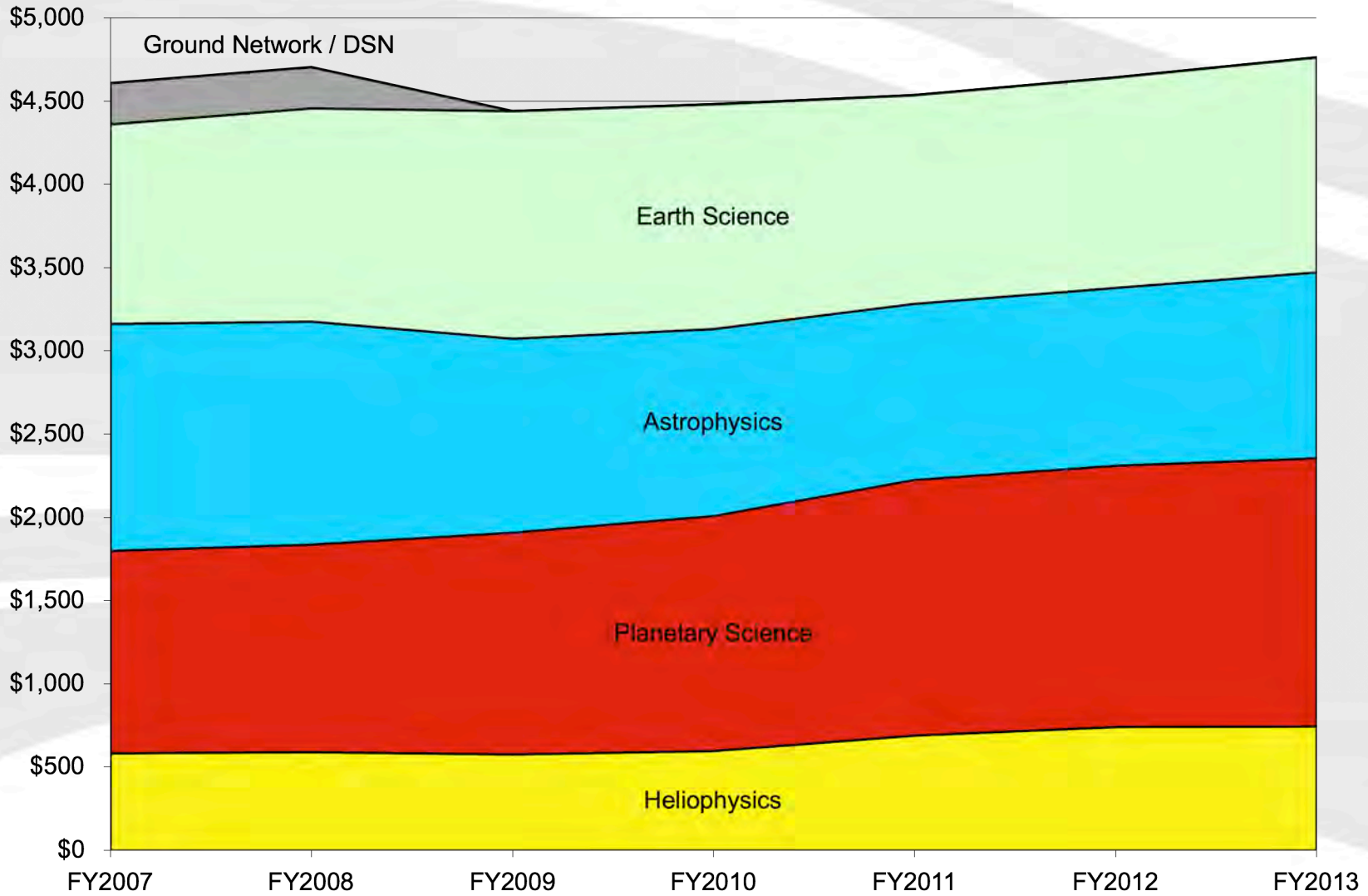


- Focus a larger amount of SMD's resources on Earth Science.**
- Increase space science R&A/MO&DA to get better value from our flight missions.**
- Increase space science suborbital research programs to foster PI training, technology demonstration, and accomplish more science.**
- Accelerate the execution of mission queues in all four of SMD's science theme areas.**
- Support NRC Decadal Survey priorities.**
- Initiate an SMD lunar robotic science program.**





# BUDGET BY SCIENCE THEME







# Progress in R&A:

- **Manage R&A programs to eliminate extreme win and loss ratios**  
**Funding increase to programs or redistribution within a division**
- **Strengthen Panel Review Process:**  
**Define, Document, & Distribute SMD Best Practices**
- **Transparent and Accessible Communication Channels**  
**Responsive SMD at all levels**
- **Continue to improve time from proposal to funding**  
**(Time to Selection; Time to Fund)**
- **Establish R&A MOWG to study cross directorate community needs:**  
**Community Survey Coming Soon**
- **Create larger funding opportunities (PI teams, Institutes such as Lunar Science, etc. )**



# Progress in E/PO:

- **EPO Working Group to Provide Input on New Ideas**
- **Decide Course of Action and Support Sufficiently**
- **Increase Scientific Outreach**
  - Establish easier E/PO funding mechanisms for PIs**
  - Create Both Small and Substantial Platforms**
- **Feed and Build the Pipeline**
  - **Baby-docs to Post-docs**
  - **Student Collaborations**
  - **Research Support**
  - **Go Get Gen Y**
- **Build Bridges to Do More With the Budget We Have**
  - Office of Education, OMB, Other Agencies**



## ROSES 2008

- Released on February 15 (see SARA Website or NSPIRES)
  - 66 program elements
    - 45 Announced due dates (5/9/08 – 3/27/09)
    - 4 TBD due dates
  - >\$150M for new awards (incomplete tally)

## NEW:

- Budget Data Now Shown to Reviewers
- New Program Offerings  
(including Moon and Mars Analog Mission Activities)
- Four Year Awards (for most programs)

## BEING CONSIDERED:

- new fellowship programs
- new large grant opportunities (i.e., institutes)
- easier outreach mechanisms for scientists

# Planetary R&A Overview

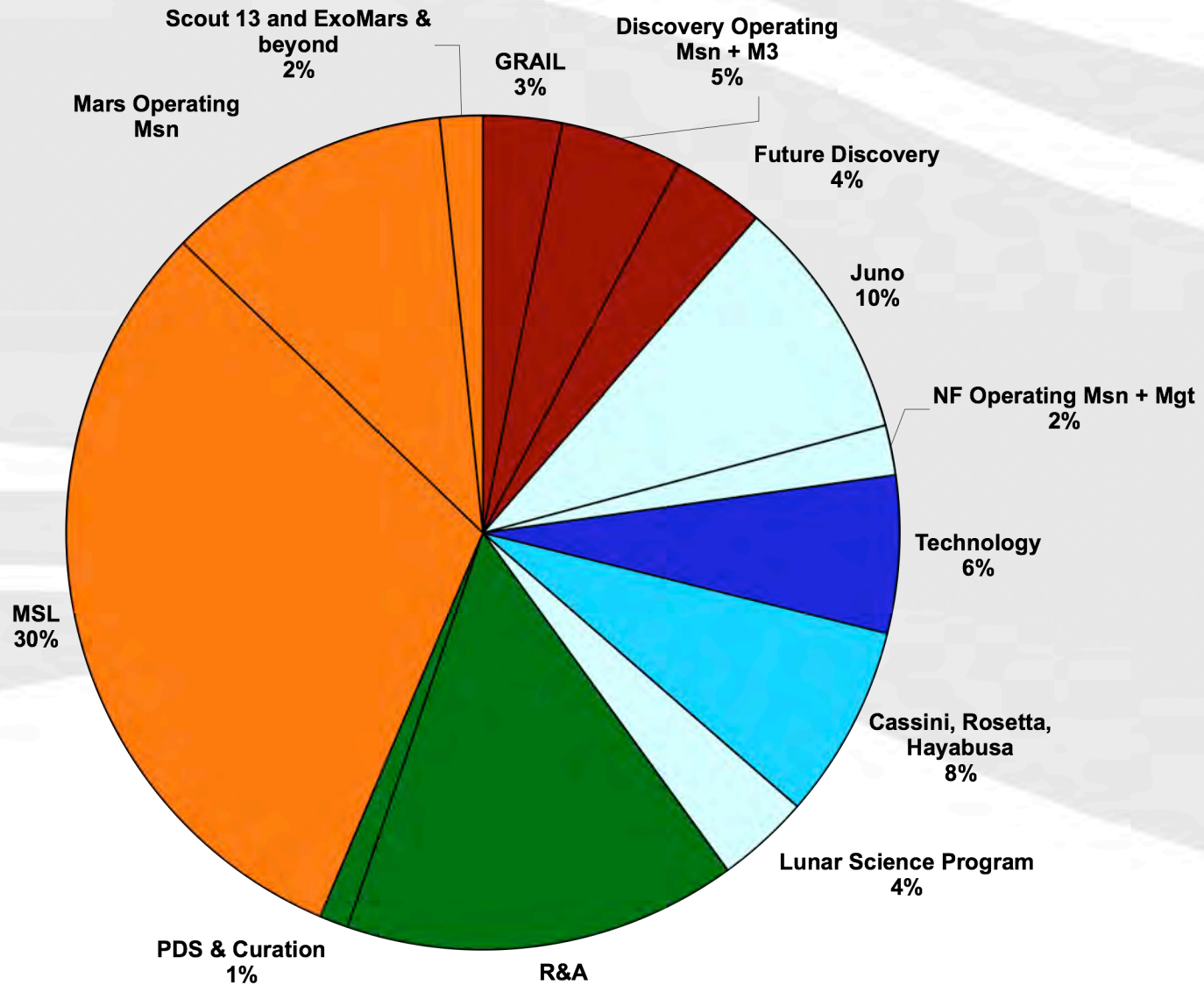


	Spent	Planned	Presidents
ROSES	FY07	FY08	FY09
<b>Mars R&amp;A</b>	<b>\$14,158</b>	<b>\$23,333</b>	<b>\$24,938</b>
Mars Fundamental Research			
Mars DAP			
<b>Discovery Research</b>	<b>\$11,881</b>	<b>\$16,898</b>	<b>\$18,816</b>
Sample Return Lab Inst &DAP			
Discovery DAP & Stardust DAP			
MESSENGER Participating Scientists Prog			
<b>Planetary R&amp;A</b>	<b>\$79,256</b>	<b>\$101,367</b>	<b>\$101,223</b>
PG&G			
Cosmochemistry			
Planetary Astronomy			
Planetary Atmospheres			
Planetary Instruments			
Origins of Solar Systems			
Planetary Protection			
Outer Planets Research			
New Horizons & Jupiter DAP			
Cassini Data Analysis Program (OPF)			
<b>Astrobiology</b>	<b>\$32,414</b>	<b>\$40,283</b>	<b>\$49,258</b>
ASTEP			
ASTID			
NASA Astrobiology Institute			
Astrobiology: Exo and Evo			
<b>Lunar Research</b>	<b>\$3,800</b>	<b>\$18,700</b>	<b>\$25,000</b>
Lunar Sortie Science Opportunity			
LRO- Participating Scientist Program			
Lunar Science & Exploration Research			
NASA Lunar Science Institute & Nodes			
<b>Total Planetary Research</b>	<b>\$141,508</b>	<b>\$200,581</b>	<b>\$219,235</b>

# Planetary Division



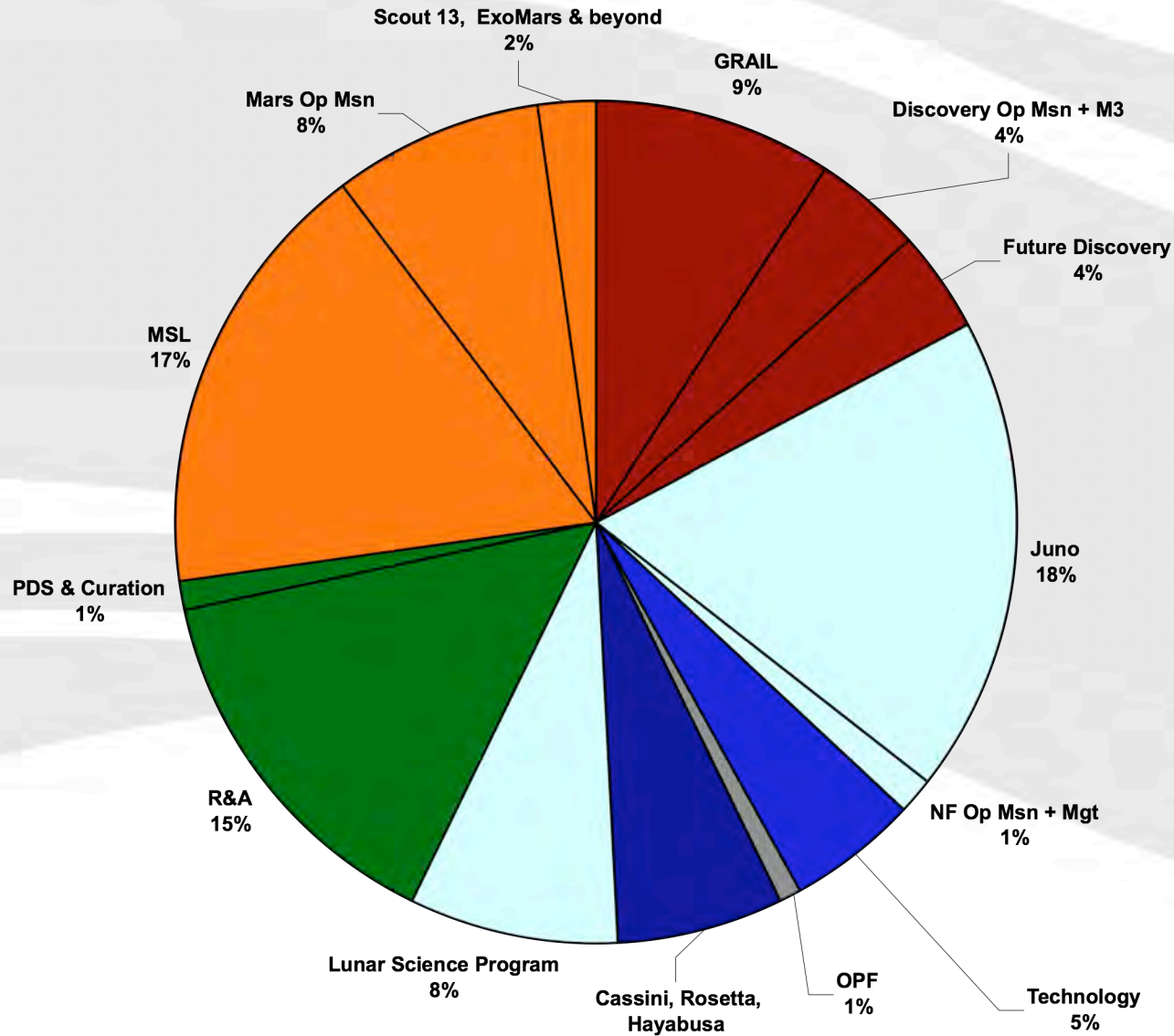
## FY 2008 "Enacted" Budget, \$1158M



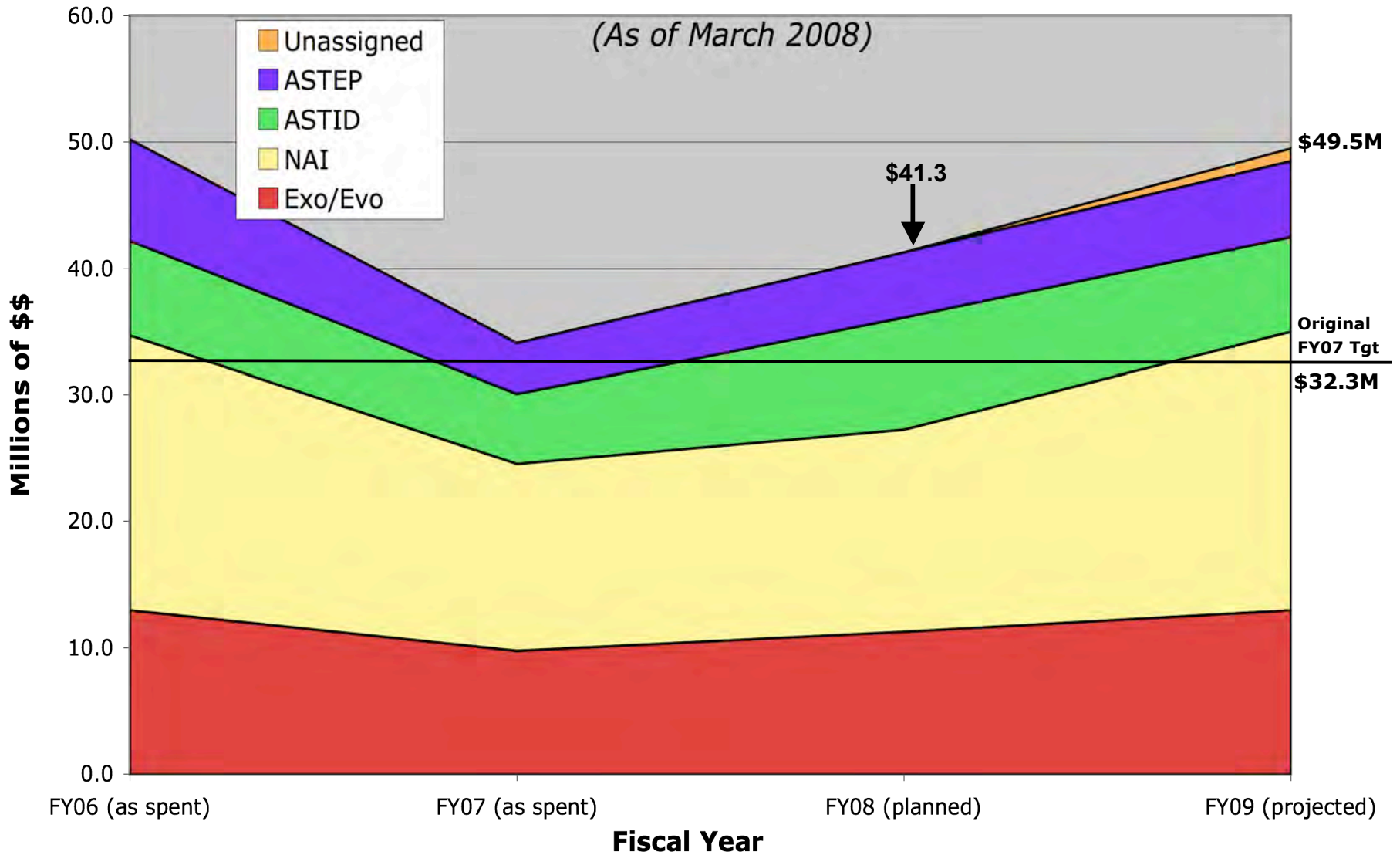


# Planetary Division

## FY09 President's Budget, \$1330M



# Astrobiology Budget Past & Future Plans





## Lunar Advanced Science & Exploration Research program (LASER)

- Joint SMD/ESMD sponsored
- Basic & Applied lunar research
- Received ~160 received; selection in March
- Up to 4-yr awards, ~ \$100K/yr average

## Moon and Mars Analog Mission Activities Program (MMAMA)

- Established to enhance science integration into VSE architecture and technology development process
- Small pilot program, 1-yr awards ~15-50K/yr average
- Proposals due March 14, 2008



# NASA Lunar Science Institute



## Purpose:

- Address basic lunar science, lunar sorties and outpost applications (e.g., lunar astronomy), exploration & science needs (e.g., lunar dust).
- Quick response capability for VSE lunar science support
- Grow and foster a Lunar science research community
- Support NASA lunar flight missions
- Train the next generation of lunar scientists, and communicate lunar science with educators and the public

Modeled after the successful NASA Astrobiology Institute (NAI)

Structure: Central node at AMES and distributed remote nodes

- Provide for large focused research teams 8-15 FTEs each
- Distributed nodes to be competed: Universities, other Centers, non-Profits, and international partners
- Expect to fund 5-7 nodes at \$750k-\$2M/yr(SMD 4-5, ESMD 1-2)

## International Partnerships

- Non-U.S. lunar science organizations can propose to become either Associate or Affiliate Members of the NLSI on a no-exchange-of-funds basis.
- Requires long-term commitment with tangible and specific plans for scientific interaction that will produce results of mutual benefit



# Technology and Instrumentation

## Lunar Sortie Science Opportunities (LSSO)

- One-year concept studies (may be considered again in FY09)
- Selected 14 studies at ~\$100K average/proposal
- Spans geology, geophysics, physics, astronomy, & astrophysics

## Planetary Instrument Definition & Development Program (PIDDP)

- Several lunar-focused instruments selected in 2007
- Augmented in 2008 for add'l lunar instrument development
- Up to 4-yr awards, ~\$250K/yr average

## Stand-Alone Mission of Opportunity Notification (SALMON)

- Call for instruments will include Lunar missions
- Draft to be released in February

## Discovery and Mars Scout Mission Concept Studies

- New concepts using a GFE - Radioisotope Power System
- Received 41 proposals - 14 Lunar mission concepts
- Evaluation in February with selection in March



## **How Can We Balance Needs Within a Community and Address Different Needs Across Communities to Best Advance NASA's Science Goals?**

- Guenter Riegler, Chair (Astrophysics)
- Steve Bougher, Michigan, Co-Chair (Planetary Science)
- Spiro Antiochos, GSFC (Heliophysics)
- Josh Grindlay, Harvard (Astrophysics)
- Lynn Hillenbrand, Caltech (Astrophysics)
- Everette Joseph, Howard (Earth Science)
- Jim Kasting, Penn State (Earth Science)
- Adam Showman, Arizona (Planetary Science)
- Hal Levison, SwRI (Planetary Science)
- Maggie Tolbert, Colorado (Earth Science)
- Prased Gogineni, Kansas (Earth Science)



# SMD Research & Data Analysis Info Website

<http://science.hq.nasa.gov/research/sara.html>

- The new SARA (“Senior Advisor for R&A”) website is your one-stop-shop for issues and information about SMD’s R&A programs:
  - Information related to SMD Grant Programs
  - “How To” Guide for Proposers plus other PI issues
  - Bi-Weekly Updates on R&A Process Improvements (subscribe on website)
  - Grant Stats for every R&A program
  - Contact Info for each Program Officer
  - Research Highlights Across SMD’s R&A Programs
  - Direct Communication with NASA for anything R&A related

Please Send Us Your Ideas and Concerns. We are listening.

Email: [sara@nasa.gov](mailto:sara@nasa.gov)

# Division Corners:

**SARA**

[Home](#) | [Earth](#) | [Sun](#) |  
[Solar System](#) | [Universe](#)

## Division Corner - Planetary Science

Site Search:

<a href="#">SARA Home</a>	<a href="#">Letters From SARA</a>	<a href="#">Grant Stats</a>
<a href="#">Program Officer List</a>	<a href="#">Science Matters</a>	<a href="#">Grant Solicitations</a>
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<a href="#">How To Guide</a>	<a href="#">R&amp;A MOWG</a>	<a href="#">Advisory Committees</a>
<a href="#">What's New</a>	<a href="#">Acronyms/Dictionary</a>	

### Related Links...

- Comments on the content of this page should be sent to SARA [[+ contact SARA](#)]
- Planetary Science Program Officers [[+ more](#)]
- McKay Fund Update [[+ more](#)]



[Astrophysics](#) | [Earth Science](#) | [Heliophysics](#) | **Planetary Science**

### **The Real Scoop on the Planetary R&A Science budget** **James Green, Planetary Science Division**

With the passage of the NASA budget it is now possible to provide you with some of the good news in the R&A portion of Planetary's budget. In a recent PEN Mark Sykes posted a high level overview of the FY08 Planetary Science Division's budget. The funds in the FY08 budget line stated as Planetary Science Research and Analysis (\$146.6M) are not all the funds that are used in our ROSES call. This is because a number of elements (ie: the mission data analysis calls such as Cassini, Mars, Lunar, and the Discovery) actually come out of the mission budget lines. So in order to make a fair yearly comparison we just need to look at all the money that "goes out the door" for R&A before we can really get a sense of the trends. In addition, there were

National Aeronautics and Space Administration



# Education and Public Outreach

Science Mission Directorate

# EPO Challenges

Outreach opportunities for scientists are more burdensome than need be.

Diverse education portfolio is vulnerable and unsustainable in the current funding climate.

Increased professionalism of E/PO personnel across the country means that the kinds of support infrastructure needed by SMD E/PO is shifting.

# EPO MOWG Charter

- Evaluate the fiscal viability of SMD E/PO programs and support structures.
- Balance the SMD E/PO portfolio to meet the needs of NASA and the SMD directorate.
- Generate pathways to long-term SMD E/PO stability
- Establish more accessible outreach mechanisms for researchers
- Evaluate the model of the SMD Support Groups.





Emily CoBabe-Ammann (CHAIR)	UC-Boulder
Edna DeVore	SETI
Jennifer Grier	PSI
Mario Livio	STScI
Leslie Lowes	JPL
Mike Newchurch	UA-Huntsville
Patricia Reiff	Rice University
Stephanie Stockman	GSFC

# SMD EPO Budget in 2007: (A) + (B) ~50M



## (A) Mission E/PO ~30M

Area	Examples
Higher Education	* HST -- Pre-Service Teacher Professional Development * Multi-Mission -- Center for Astronomy Education – College Teachers
E & S Education	* Spitzer Student and Teachers Observations Program
Informal Education	* Multi-Mission – Alien Earths Traveling Exhibit
Outreach	* Multi-Mission – Night Sky Network

## (B) Non-Mission E/PO ~20M

\* Mid-Size Grants Program, GLOBE, Support Groups, Supplemental Grants

# Another way to look at it: (C)+ (D) ~50M



## **(C) Education** (Mission + Non-Mission) ~25M

Area	Examples
Higher Education	* HST -- Pre-Service Teacher Professional Development * Multi-Mission -- Center for Astronomy Education – College Teachers
E & S Education	* Spitzer Student and Teachers Observations Program
Informal Education	* Multi-Mission – Alien Earths Traveling Exhibit

## **(D) Public Outreach** (Mission + Non-Mission) ~25M

- Night Sky Network
- NASA Family Science Nights



~300 education projects embedded in 56 SMD missions.

15 competitively selected education projects.  
Mid-sized projects, ~150K/year grants  
(selected in Nov 2007)

GLOBE (Hands-on Earth Science Projects)

# Actions Taken Since November 2007



Suspended EPO supplements to ROSES R&A science awards.

Postponed CAN for Division Support Groups.

Selected Mid-sized E/PO Projects

Extended Forums (these connect communities) through calendar year

EPO MOWG Formed

Weekly telecons started January 14

In person meeting March 7 in DC

# NASA Earth and Space Science Fellowship (NESSF) Program



SMD established NESSF in 2007

- Call for applications November 1; proposals due February 1; announcement of selections in mid May
- \$30K/year beginning in 2008 (\$24K/year in prior years); renewable up to 3 years

## Statistics from 2007

- Astrophysics 7 out of 56 (12.5%)
- Earth Science 57 out of 250 (22.8%)
- Heliophysics 5 out of 21 (23.8%)
- Planetary Science 16 out of 64 (25.0%)

# Our Growing Vision for NASA's Research & Data Analysis Programs



## **Commitment to:**

- **Increase R&A funds and support data analysis**
- **Get more science from our budget through process improvements**
- **Provide responsive science leadership at all levels**
- **Increase funding stability**
- **Increase time researchers spend making discoveries**

# How Are We Doing So Far?



**The woods are lovely, dark and deep,  
But I have promises to keep,  
And miles to go before I sleep,  
And miles to go before I sleep.**

**-Robert Frost**