Crafting the 2010 SMD Science Plan

Presentation to the NAC Planetary Science Subcommittee
April 9, 2010
NASA publishes a new Strategic Plan every three years; a new plan is now under development.

SMD follows with a Science Plan on the same pace.

This Plan defines the science objectives SMD pursues via ROSES, Mission AOs and other activities.
SMD 2010 Science Plan Schedule

DEC  JAN  FEB  MAR  APR  MAY

Outline/Concept Draft

Draft 0.75 for Internal Review

Draft 1.0 [Front end] for NAC Science Committee Review

NAC Science Committee Mtgs

Drafts of Science Chapters for Subcommittee Review

NAC Subcommittee Mtgs

Draft for 2.0 Final NAC SC Review

Draft 3.0 for Final SMaC Review and Tabletop Review with OMB/OSTP (if needed)

Layout and Editing

Publish On-line and Limited Print Run
Proposed 2010 SMD Science Plan Contents

1. Our Journey of Discovery (Intro)

2. The National Agenda for Science at NASA
   2.1 National Policy Direction
   2.2 Agency-level Goals
   2.3 Recommendations from the U.S. Science Community

3. A Plan for Science at the Frontiers
   3.1 Principles
   3.2 Strategies
   3.3 Challenges

4. Detailed Plans by Science Area (Earth, Helio, Planetary, Astro)

5. Education and Public Outreach

Appendices
SMD Helps Carry Out the National Agenda for Science

• **Leadership in Fundamental Research**
  • NASA is a leading scientific research organization working in and across the fields of Astrophysics, Planetary Science, Heliophysics and Earth Science

• **Enhancing Environmental Stewardship**
  • Climate change is a grand challenge of the 21st century, and NASA provides much of the U.S. global observations and research

• **Educating the Next Generation and Training a World-class Workforce**
  • SMD-sponsored scientists and engineers are engaging students along the full length of the education “pipeline”

• **Driving Technological Innovation**
  • SMD technology programs enable the advanced space missions of the future, and find myriad uses in the national economy, from weather forecasting to advanced medical imaging

• **Extending Partnerships Internationally and Domestically**
  • SMD partners with a dozen other Federal agencies and over 60 different nations to leverage resources and extend the reach of our science results
SMD Principles

Substantial progress on NRC decadal surveys in all four Science areas is the measure of success

Investment choices are based on scientific merit via peer review and open competition

Active participation by the research community outside NASA is critical to success

Effective international and interagency partnerships leverage NASA resources and extend the reach of our science results

A balanced portfolio of space missions and mission-enabling programs sustains progress toward NASA’s science goals

The pace of scientific progress is enhanced by rapid, open access to data from science missions

The NASA mandate includes broad public communication

Accountability, transparent processes, accessible results, and capture of lessons learned are essential features of this Federal science enterprise.
SMD Strategies

Pursue answers to big science questions for which the view from space makes a defining contribution

Design programs that accomplish breakthrough science and applications within the available budget

Partner with other nation’s space and science agencies to pursue common goals

Mature technologies through focused efforts prior to committing to implement missions that need them

Share the story, the science, and the adventure of NASA missions to engage the public and improve STEM education
SMD Challenges

Access to Space
Availability of Pu-238 (Updated for FY11 Budget Request)
Unrealized Expectations
Mission Cost Estimation & Management
Technology Development & Demonstration (Updated for FY11 Budget Request)
National Strategy for Earth Observation (Updated for FY11 Budget Request)
Impediments to International Collaboration on Space Missions
Science Chapters Common Contents

Strategy
  Link to Agency-level goal
  Key science questions
  Program structure

Current Missions (operating)

Missions in Development

Future Missions
  Identify next NRC decadal survey (where applicable)
Questions for the PSS

Will a document so structured serve the needs of NASA’s stakeholders and partners for information on SMD’s strategy and plans?

Do sections 1-3 provide an adequate foundation for the Theme-specific sections (4.1-4.4) that follow?

Are the sets of Principles, Strategies, and Challenges complete (do they capture all the first-order points)?

Does the standard Science chapter outline contain the elements needed to inform current and future participants?

Is it easy to read, or do you find yourself chewing your left arm off to get through it?
Response to Major Comments Already Received (1)

Dissemination of results in open-access journals

Forwarded to SARA. SARA is working this; for example, noting that ApJ has a different practice than ICARUS, SARA is approaching ICARUS to determine if some adaptation of either their practices or ours or both can result in open access.

Current PS questions emphasize history and evolution, but neglect learning what is there today.

Should discuss this in the context of the PS chapter, and feed back to front end as needed.

Outcome of FY11 Budget Request is not yet known; is it premature to publish a Science Plan?

We are watching the progress of the FY11 request closely; indications are favorable for the request for Science. We need to be consistent with the NASA Strategic Plan (to be released by the end of May), which will be consistent with the President’s Budget Request
Response to Major Comments Already Received (2)

Add NEO detection and tracking to list of Congressional mandates
Done.

Consider a presentation of the policy direction info that can be traceable to goals and implementation plans
Under consideration.

Add a table of current Subcommittees, Analysis Groups and Chairs
Added a pointer to a URL containing this info; the URL will be more current than this document, especially on the identification of Chairs.

Update the relevant Challenges (Pu-238, Expectations, Strategy for Earth Obs) to reflect the FY11 Budget Request)
Done.
Response to Major Comments Already Received (3)

*Emphasize that partnerships are driven by science and scientific opportunities*
Done (see pg. 14)

*Add a Principal on accountability, openness, learning from failure, etc.*
Done.

*Add cost considerations to Access to Space challenge*
Done.
Next Steps

Comments we receive from the Science Committee and Subcommittees will be used to produce an integrated Draft 2.0

Draft 2.0 will be provided to the Science Committee for review before the April meeting

SMD plans to publish the 2010 Science Plan on-line in the May time frame, with a limited print run.
Community Participation in Strategic Planning

NRC Decadal Surveys

Community Roadmaps

SMD Science Plan
(Reviewed by the NRC, the NAC, and SMD’s partners)
NRC Decadal Surveys Status


Astrophysics – Last survey in 2001; next survey expected in Sept. 2010

Planetary Science – Last survey in 2002; next survey expected in Spring 2011

Heliophysics – Last survey in 2003; next survey under discussion for early 2012