Supporting Research and Technology (SR&T) activities are critical in enabling the strategic goals of the Planetary Science Division (PSD) to be met.

The NAC Planetary Sciences Subcommittee (PSS) has initiated a study of the SR&T and related activities to assess program relevance and effectiveness, and to suggest possible improvements in program management.

The study results will lead to recommendations to the PSD Director through the NAC Science Committee in late summer 2011.
NASA PLANETARY SCIENCE DIVISION “SR&T” ACTIVITIES
A Study by the NAC Planetary Science Subcommittee

• Who, What, When, Where, Why?

• "WHY?" Motivated by:
  • PSS recommendations in 2009 to address concerns relating to individual research grants, etc.
  • The NRC Fisk report (2010) "An Enabling Foundation for NASA's Earth and Space Science Missions" (www.nap.edu) recommends a review of the R&A activities that contribute to PSD goals and how the activities might be improved.

Thus, the Study is driven from "grass-roots" by community concerns for specific activities and implementation (e.g., program balances; grant sizes, durations) and from the top-down by upper administration that must address the broad programmatic issues and priorities recommended, for example, by the NRC Decadal Survey.
NASA PLANETARY SCIENCE DIVISION “SR&T” ACTIVITIES
A Study by the NAC Planetary Science Subcommittee

“What?” The Study will:

• Map the activities through "traceability paths" from PSD goals to specific programs for relevance, results, and worth; GOALS:
  • Inventory solar system objects and processes
  • Understand origin and evolution of objects
  • Understand habitability of Mars and other bodies
  • Understand origin and evolution of life on Earth and potentially elsewhere
  • Study small bodies as threats/resources

• Current activities to support these goals (excluding flight programs and technology development) are
  • ROSES programs (most)
  • SALMON: Participating Scientists
  • Planetary Data System
  • Astromaterials Curation (JSC)
  • Astrobiology Institute (ARC)
  • Lunar Science Institute (ARC)
  • Infrastructure (e.g., Planetary Cartography, USGS)

• Derive recommendations regarding "active portfolio management" to meet PSD goals
### CATEGORIES OF THE SR&T PROGRAM

<table>
<thead>
<tr>
<th>Basic Research</th>
<th>Focused Research</th>
<th>Mission Data Analysis and Participating Scientists</th>
<th>Technology Development*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planetary Geology &amp; Geophysics</td>
<td>Planetary Protection</td>
<td>Planetary Mission Data Analysis</td>
<td>Propulsion and Power</td>
</tr>
<tr>
<td>Cosmochemistry</td>
<td>Planetary Major Equipment</td>
<td>Lab Analysis of Returned Samples</td>
<td>Planetary Instruments</td>
</tr>
<tr>
<td>Planetary Atmospheres</td>
<td>Mars Fundamental</td>
<td>Mars Data Analysis &amp; Mars PS</td>
<td>Mars Instrument &amp; Technology</td>
</tr>
<tr>
<td>Planetary Astronomy</td>
<td>Near-Earth Objects</td>
<td>MESSENGER, Dawn &amp; Venus PS</td>
<td>Astrobiology Instruments and Analogs</td>
</tr>
<tr>
<td>Astrobiology-Exobiology &amp; NASA Astrobiology Institute</td>
<td>Outer Planets</td>
<td>Jupiter and Cassini Data Analysis</td>
<td></td>
</tr>
<tr>
<td>Research programs for post docs, graduate &amp; undergrad students</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Not included in study
2010 ROSES OPPORTUNITIES

Cosmochemistry
Laboratory Analysis of Returned Samples
Planetary Geology and Geophysics
Planetary Astronomy
Planetary Atmospheres
Outer Planets Research
Lunar Advanced Science & Exploration Research
Near Earth Object Observations
Cassini Data Analysis
Planetary Mission Data Analysis
Mars Data Analysis
Mars Fundamental Research
Mars Instrument Development Project*
Mars Technology Project
*consider for completeness

Planetary Instrument Definition and Development*
Astrobiology: Exobiology, and Evolutionary Biology
Planetary Protection Research
Astrobiology Science and Technology for Instrument Development*
Astrobiology Science and Technology for Exploring Planets
In Space Propulsion
Fellowships for Early Career Researchers (new applicants)
Fellowships for Early Career Researchers (current fellows)
Planetary Major Equipment
Moon and Mars Analog Missions Activities
Venus Climate Orbiter Participating Scientist Program
OTHER PSD-FUNDED INFRASTRUCTURE

• NASA supercomputing (an annual tax)
• Infra Red Telescope Facility (IRTF, Hawaii)
• Planetary Cartography (USGS, Flagstaff)
• RELAB (reflectance spectroscopy, Brown U.)
• Vertical Gun Lab (ARC)
• Planetary Aeolian Lab (ARC)
• Venus Chamber (GSFC)

Possible future:
  • Mars Climate Modeling Center
“WHEN, WHERE?” The study will be done in:

Phase I (summer 2010) Define study scope; derive official "Terms of Reference" as a FACA activity; identify working group; develop plan of action

Phase II (fall 2010) Collect data via: (1) online poll on specific questions about SR&T programs; (2) Community definition of research activities supporting PSD goals through a web form, "Town Halls" (e.g., DPS, AGU), planetary assessment groups, and directly from individuals; input from NASA PSD Program Officers (13 Oct. 2010); grant statistics from RAPTOR and other data bases

Phase III (winter 2010-11) Derive traceability matrixes extending from PSD goals to specific activities; assess issues raised by the Community and Program Officers; evaluate results

Phase IV (spring 2011) Iterate emerging Study results with the community, PSD, and NAC Science Committee

Phase V (summer 2011) Formulate PSS recommendations; present to NAC Science Committee; review with PSD Directors
NASA PLANETARY SCIENCE DIVISION “SR&T” ACTIVITIES
A Study by the NAC Planetary Science Subcommittee

“WHO?” Will do the study:

Ron Greeley (Chair PSS)*
    Study Working Group Chair
Jim Bell*
Julie Castillo
Tom Cravens*
Dave DesMarais (MEPAG Chr)
John Grant*
Will Grundy
Greg Herzog
Jeff Johnson
Sanjay Limaye (VExAG Chr)*

Bill McKinnon (OPAG Chr)
Louise Prockter
Anna Louise Reysenbach
Chip Shearer (LEAG Chr)
James Slavin
Paul Steffes
Dawn Sumner*
Jessica Sunshine
Mark Sykes (SBAG Chr)*
Mini Wadhwa (CAPTEM Chr)*

Ariz. State Univ.
Cornell
Univ. Kansas
NASA-Ames
NASM
Lowell Obs.
Rutgers
USGS Flagstaff
Univ. Wisc.
Wash. Univ.
APL
Portland State U.
Univ. N. Mex.
NASA-Goddard
Georgia Tech
Univ. Calif. Davis
Univ. Maryland
Ariz. State Univ.

*Working Group members

Plus ex officio and executive secretary members provided from PSD
Plus possible community members
“WHAT YOU CAN DO” as an integral part of the Study:

- Go to http://www.surveymonkey.com/s/nasa_planetary_research and participate in the community survey on SR&T programs (providing input on desired grant sizes, duration, proposal success rates, the review process, and restructuring programs). This poll will close at 5 pm Eastern, October 11.

- Go to http://www.psi.edu/nasa_pss and identify all research activities needed to support PSD strategic goals. Responses will be visible until the end of the collection period (~spring 2011).

- Participate in Town Hall meetings at the DPS, AGU, and in “Analysis Groups.”

- Discuss the issues with members of the Study and articulate your thoughts on the problems and possible solutions identified on the above websites; copy via e-mail to greeley@asu.edu for input to the study.
NASA PLANETARY SCIENCE DIVISION “SR&T” ACTIVITIES

Study by the Planetary Science Subcommittee, NAC Science Committee

• The Study is rather broad and can significantly impact the Planetary Science Community. The successes and failures of the Planetary Science Division are functions of how well we address the goals of the Division.

• Resources are, and always will be, limited. We need to ensure that the resources are applied efficiently to relevant activities to meet PSD goals and according to priorities set by the Community and NASA.

• At this time, the study is to determine the metrics used for program evaluation, apply the metrics to existing programs, identify strengths and weaknesses, and make recommendations for improvement. The Study does not prioritize activities, recommend premature termination of activities, or duplicate the efforts of the Planetary Science Technology Review Panel.

• A follow-on activity (i.e., Phase VI) could be to recommend specific priorities derived from the 2011 NRC Decadal Survey results and relevant NASA "Roadmaps
All information from the community, Program Officers, and relevant parties will be read, reviewed and discussed by the PSS SR&T Study Working Group.

As a FACA activity, the Working Group sessions will be open and transparent.

Emerging recommendations will be iterated with the community, PSD, and NAC Science Committee.

Final recommendations on how the “enabling activities” can be improved will be made to PSD Director Jim Green through the NAC Science Committee.

Responses by PSD to the recommendations will be held at subsequent PSS meeting (open to all).