Planetary Science
Decadal Survey
2009-2011

Steve Squyres
Chairman, 2009-2011 Planetary Science Decadal Survey

Lunar and Planetary Science Conference
Houston, Texas, 25 March, 2009
What is a Decadal Survey?

- **Origin:**
  - Astronomy community in the ‘60s.

- **Purpose:**
  - Identify the most important scientific questions for the next decade.
  - Prioritize the missions that can address these questions.

- **Organization:**
  - Steering Committee
  - Topical Panels
  - Extensive community input

- **1st Planetary Survey:** 2001/2002

- **Other Surveys:**
  - Solar and Space Physics (2002)
  - Earth Observation from Space (2007)
  - Life and Microgravity Sciences (in progress)
What will the Report Address?

- **Major Tasks:**
  - Overview of planetary science and current state of knowledge
  - Inventory of the key scientific questions
  - Assessment of NSF-funded infrastructure
  - Recommendations on program balance:
    - Mix of mission targets
    - Mix of mission sizes
    - Research activities
  - Prioritized recommendations for New Frontiers and flagship missions for the next decade
  - Recommendations for NASA-funded research activities
  - Recommendations for technology development

- **Scope**
  - Ground- and space-based planetary science
  - Astrobiology
  - Comparative planetology of extrasolar planets
2009-2011 Decadal Survey Committee Organization

Steering Committee
Steve Squyres, Chair
Larry Soderblom Vice Chair
Vice Chairs of Panels
~8 others

Inner Planets Panel
TBD Chair
TBD Vice Chair
~9 others

Outer Planets Panel
TBD Chair
TBD Vice Chair
~9 others

Primitive Bodies Panel
TBD Chair
TBD Vice Chair
~9 others

Mars Panel
TBD Chair
TBD Vice Chair
~9 others

Outer Planet Satellites Panel
TBD Chair
TBD Vice Chair
~9 others
# Schedule

<table>
<thead>
<tr>
<th>Year</th>
<th>Quarter</th>
<th>Events</th>
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<tbody>
<tr>
<td>2008</td>
<td>4&lt;sup&gt;th&lt;/sup&gt; Quarter</td>
<td>Informal request received, NRC approves initiation, Formal request received, Proposal to NASA.</td>
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<tr>
<td>2009</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Quarter</td>
<td>Funding received, Chair and Vice Chair identified, Chair and Vice Chair appointed</td>
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<tr>
<td></td>
<td>2&lt;sup&gt;nd&lt;/sup&gt; Quarter</td>
<td>Steering Committee and Panel members appointed, meetings begin</td>
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<tr>
<td></td>
<td>3-4&lt;sup&gt;th&lt;/sup&gt; Quarter</td>
<td>Period of peak Panel activity</td>
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<td>2010</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Quarter</td>
<td>Panel reports finalized</td>
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<tr>
<td></td>
<td>2-3&lt;sup&gt;rd&lt;/sup&gt; Quarter</td>
<td>Prioritization and drafting of report</td>
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<tr>
<td></td>
<td>4&lt;sup&gt;th&lt;/sup&gt; Quarter</td>
<td>Draft report to reviewers, Report revised</td>
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<tr>
<td>2011</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Quarter</td>
<td>Report approved, NASA briefed and prepublication report released</td>
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<tr>
<td></td>
<td>3&lt;sup&gt;rd&lt;/sup&gt; Quarter</td>
<td>Printed report released</td>
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New Frontiers in the Solar System
Decadal Survey Report

Community Involvement

Outreach Sessions
Science Presentations
Agency Presentations
Individual Inputs
Community White Papers

Panels

Steering Committee

Part I

Part II

Decadal Survey Report
Community Interactions 2000-2003

- Town hall meetings:
  - Scientific conferences
  - Specially arranged meetings
  - In conjunction with Panel and Steering Committee meetings

- Written input from ad hoc community panels:
  - DPS-sponsored web page
  - 24 ad hoc panels involving >308 individuals

- Independent DPS and Planetary Society polls on key issues

- NRC review process solicited comments from 13 reviewers who supplied more that 450 specific comments.
Topics of Community Panels
2000-2003

Mercury  Comets
Venus     Interplanetary Dust
Mars      Planetary Rings
Asteroids Sub-orbital Program
Io        Education and Outreach
Europa    Terrestrial Analogs to Mars
Titan     Radio Science and the DSN
Neptune System Extraterrestrial Mineralogy
Kuiper Belt Objects Instrument Technology
NEOs: Sample Return Solar System Astrometry

NEOs: Human Exploration and Utilization
NEOs: Discovery, Tracking and Characterization
Lunar Exploration: Robotic and Human

What other topics should be addressed by the community?
Community Interactions
2009-2011

Broad community input is a defining feature of a decadal survey

- Town hall meetings as early as possible:
  - Community gatherings: (e.g., DPS, AGU, VEXAG, MEPAG, OPAG, RAS, LPSC, CAPTEM)
  - In conjunction with Steering Committee and Panel meetings
  - At key universities

- Early stimulation of ad hoc community reports.

- Encourage inputs from all sectors of the community (including students).

- Newsletters to the community from the Chair.

- Decadal Survey web site at www.nas.edu/ssb

- Open access to Decadal Survey activities (e.g., try to provide live webcasts of all open sessions of sub-panel and Steering Group meetings).
Evaluation of Candidate Missions

2009-2011

- Compared to previous decadal surveys, this one will place much greater emphasis on evaluation of the technical maturity and probable costs of candidate missions.

- The Panels and the Steering Committee will include members who are expert in engineering, project management, and cost estimation.

- Resources are available to do moderate-fidelity (and conservative!) cost estimates for a limited number of high-priority candidate missions.

- The objective is to produce a realistic (i.e., not heavily over-subscribed) set of candidate missions for NASA to carry out in the coming decade.
Mars missions will be considered on an equal basis with all other missions. No “set aside” for Mars exploration will be assumed *a priori*. 
Summary

The Decadal Survey will set priorities for the next ten years of solar system exploration. Community involvement is the key to success.

- Who should chair the Panels? Who should serve on the Steering Committee and Panels?
- How can community interactions and input be optimized?
- What can the survey committees do to facilitate input from the community?

Written input is encouraged (and preferred).
Decadal Survey website on-line at [www.nas.edu/ssb](http://www.nas.edu/ssb).