THE DECADAL SURVEYS

Astronomy and Astrophysics in the New Millennium

New Frontiers in the Solar System
An Integrated Exploration Strategy

The Sun to the Earth—and Beyond
A Decadal Research Strategy in Solar and Space Physics

Earth Science and Applications from Space
National Imperatives for the Next Decade and Beyond

Microgravity Life and Physical Sciences (FORTHCOMING)
Key Features of a Decadal Survey

- Community-based priority setting exercises
- Done approximately once a decade looking forward to the next decade in a specific area such as solar system exploration
- Broad community involvement and consensus are keys to success
New Requirements

- Congress has directed (H.R. 6063) that future decadal surveys include --
  - Independent estimates of the life cycle costs and technical readiness of missions assessed in the survey
  - Identification of any conditions or events, such as significant cost growth or scientific or technological advances, that would warrant NASA asking for a reexamination of the priorities ("trip-wires")
A New Astrophysics Decadal Survey is Just Beginning, and

It’s Time for a New Solar System Decadal Survey, Too
What will the Report Address?

The likely topics include the following:

1. Overview of planetary science—what it is, its relationship to other scientific endeavors, and why it is a compelling undertaking;
2. Broad survey of the current state of knowledge of the solar system;
3. Inventory of the key scientific questions that should guide flight programs and supporting research programs;
4. Recommendations on the optimum balance among small, medium, and large missions and supporting activities;
5. Technology development needs and opportunities;
6. Prioritized recommendations for major flight investigations in the New Frontiers, and flagship classes for initiation in the period 2011-2020; and
7. Recommendations for supporting research required to maximize the science return from the flight investigations.

Other major topics?
Organization
Decadal Survey Committee
2001-2003

Steering Group
Chair, Vice-chair
Vice-chairs of Panels
plus 8 others

Mars
Chair
Vice-chair
plus 12 others

Astrobiology
Co-chairs
plus 10 others

Inner Planets
Chair
Vice-chair
plus 4 others

Giant Planets
Chair
Vice-chair
plus 4 others

Large Satellites
Chair
Vice-chair
plus 4 others

Primative Bodies
Chair
Vice-chair
plus 4 others
Notional Organization
Decadal Survey Committee
2009-2011

Steering Group
Chair, Vice-chair
Vice-chairs of Panels
plus 9-13 others

Topical Panel 1
Chair
Vice-chair
plus 10-12 others

Topical Panel 2
Chair
Vice-chair
plus 10-12 others

Topical Panel 3
Chair
Vice-chair
plus 10-12 others

Topical Panel 4
Chair
Vice-chair
plus 10-12 others

How should the topical panels be organized?
# Optimum Schedule 2008-2011

<table>
<thead>
<tr>
<th>Year</th>
<th>Quarter</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>2008</td>
<td>4th Quarter</td>
<td>Informal request received, NRC approves initiation, Proposal to NASA (and others?)</td>
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<tr>
<td>2009</td>
<td>1st Quarter</td>
<td>Funding received, Membership appointed</td>
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<td></td>
<td>2nd Quarter</td>
<td>Steering group and panel meetings begin</td>
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<td></td>
<td>3-4th Quarter</td>
<td>Panels' period of peak active</td>
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<tr>
<td>2010</td>
<td>1st Quarter</td>
<td>Panel reports finalized</td>
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<td></td>
<td>2-3rd Quarter</td>
<td>Prioritization and drafting of survey report</td>
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<td></td>
<td>4th Quarter</td>
<td>Draft survey report to reviewers, Report revised</td>
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<tr>
<td>2011</td>
<td>1st Quarter</td>
<td>Report approved, NASA briefed and prepub. released</td>
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<tr>
<td></td>
<td>3rd Quarter</td>
<td>Printed report released</td>
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Community Involvement

SSE Survey Panels

Part I

SSE Survey Steering Group

Part II

Decadal Survey Report
Community Interactions 2000-2003

- Through town hall meetings at multiple venues: such as scientific conferences, specially arranged meetings, in conjunction with panel and steering-group meetings, and professional meetings.

- Stimulation of written input from ad hoc community panels
  - Web page sponsored by the DPS/AAS in conjunction with PGD/GSA, PSS/AGU and Meteoritical Soc.
  - 24 panels formed (3 to 61 members each) involving >308 individuals
  - Community ad hoc reports used by panels and steering group

- Independent DPS and Planetary Society polls on some key issues

- NRC Report review process solicited comments from 13 reviewers who supplied more that 450 specific comments, response to which immeasurably improved the quality of the report.
# Topics of Community Panels

<table>
<thead>
<tr>
<th>Mercury</th>
<th>Interplanetary Dust</th>
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<tbody>
<tr>
<td>Venus</td>
<td>Planetary Rings</td>
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<td>Mars</td>
<td>Sub-orbital Program</td>
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<td>Asteroids</td>
<td>Education and Outreach</td>
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<td>Io</td>
<td>Terrestrial Analogs to Mars</td>
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<tr>
<td>Europa</td>
<td>Radio Science and the DSN</td>
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<tr>
<td>Titan</td>
<td>Extraterrestrial Mineralogy</td>
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<tr>
<td>Neptune System</td>
<td>Instrument Technology</td>
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<tr>
<td>Kuiper Belt Objects</td>
<td>Solar System Astrometry</td>
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<td>NEOs: Sample Return</td>
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<tr>
<td>NEOs: Human Exploration and Utilization</td>
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<tr>
<td>NEOs: Discovery, Tracking and Characterization</td>
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<tr>
<td>Lunar Exploration: Robotic and Human</td>
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But, what about the Big Picture! Was nobody other than the decadal survey committee interested in an integrated strategy for solar system exploration?
Optimizing Community Interactions

How to stimulate broad community input?

- Town hall and open meetings as early as possible (e.g., DPS, AGU and LPSC). The schedule last time was suboptimal for engaging in outreach at major community meetings.

- Coordinate with other groups that have overlapping interests.

- Early stimulation of ad hoc community reports. (The DPS committee was very proactive and successful in generating inputs to the 2000-2003 decadal survey). Last time, the community reports could have had a greater impact on the formulation of panel positions if they had arrived earlier.

Other actions?
Summary

Issues to consider:

1. What specific major topics should the decadal survey address?

2. How should the decadal survey’s topical panels be organized?
   Who should chair the survey?
   Who should chair the panels?
   Who should serve on the steering group and panels?

3. How can community interactions and input be optimized given the decadal survey’s likely schedule.

4. What can the survey committee do to facilitate input from the community and vice versa?

Written input is encouraged and preferred. A decadal survey website will go on-line soon. Watch out at www.nas.edu/ssb.