



# Status Report on the Activities of the Panel on Mars

## National Academies' Decadal Survey on Planetary Science and Astrobiology

**Chair: Vicky Hamilton, SwRI**  
**Vice Chair: Bethany Ehlmann, Caltech**

**MEPAG VM11**  
**27 January 2021**

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# Overview

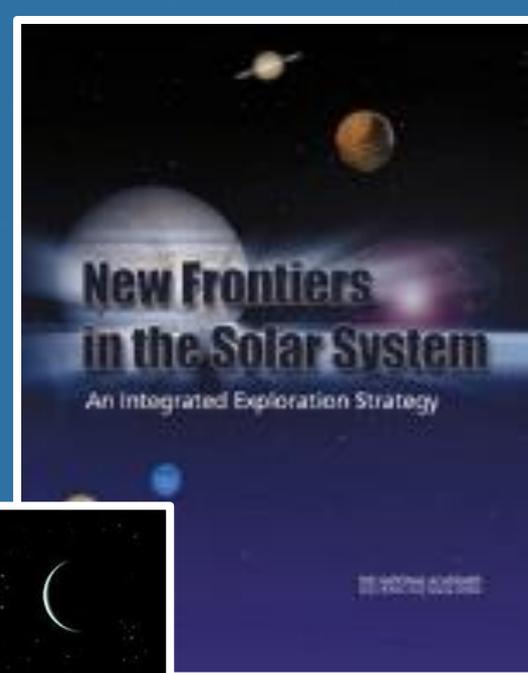
- Purpose of the Decadal Survey
- Statement of Task
- Differences in report style from “*Vision and Voyages...*” (2013-2022)
- Survey process & schedule
- Panel on Mars membership
- Past meeting presentation topics
- Future meeting dates



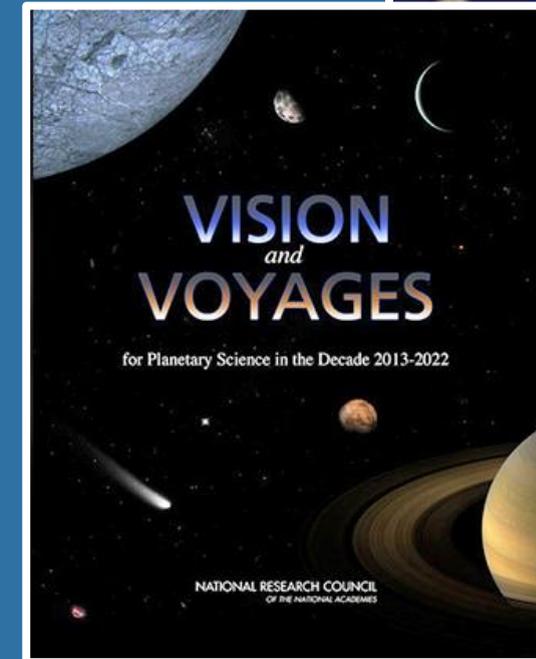
# What is a Decadal Survey?

1. Assesses the current status of an entire scientific discipline
2. Defines and prioritizes key scientific questions to be addressed in the next decade
3. Prioritizes the most important initiatives to address these questions
4. Conducted by the National Academies, independently of sponsoring agencies
5. NASA Authorization Acts of 2005 and 2008 require decadal surveys in each NASA science area
6. Surveys are required to provide independent cost and technical evaluations of recommended projects/missions

Sponsoring agencies and Congress view surveys as the formal statement of priority by the US space science community, and have repeatedly stated their intent to give highest priority to the missions identified in the survey



2003-2012



2013-2022

# Process is Driven by the Statement of Task

- Posted on the survey's website: <https://www.nas.edu/planetarydecadal>
- Outlines exactly what the sponsors—NASA and NSF—and the National Academies want the survey committee to do
- The National Academies commits to do no more and no less than that specified in the statement of task
- The website contains additional information (e.g., scope, considerations, and approach) and suggestions to make the survey most useful to NASA and NSF, but these items are not binding on the survey committee

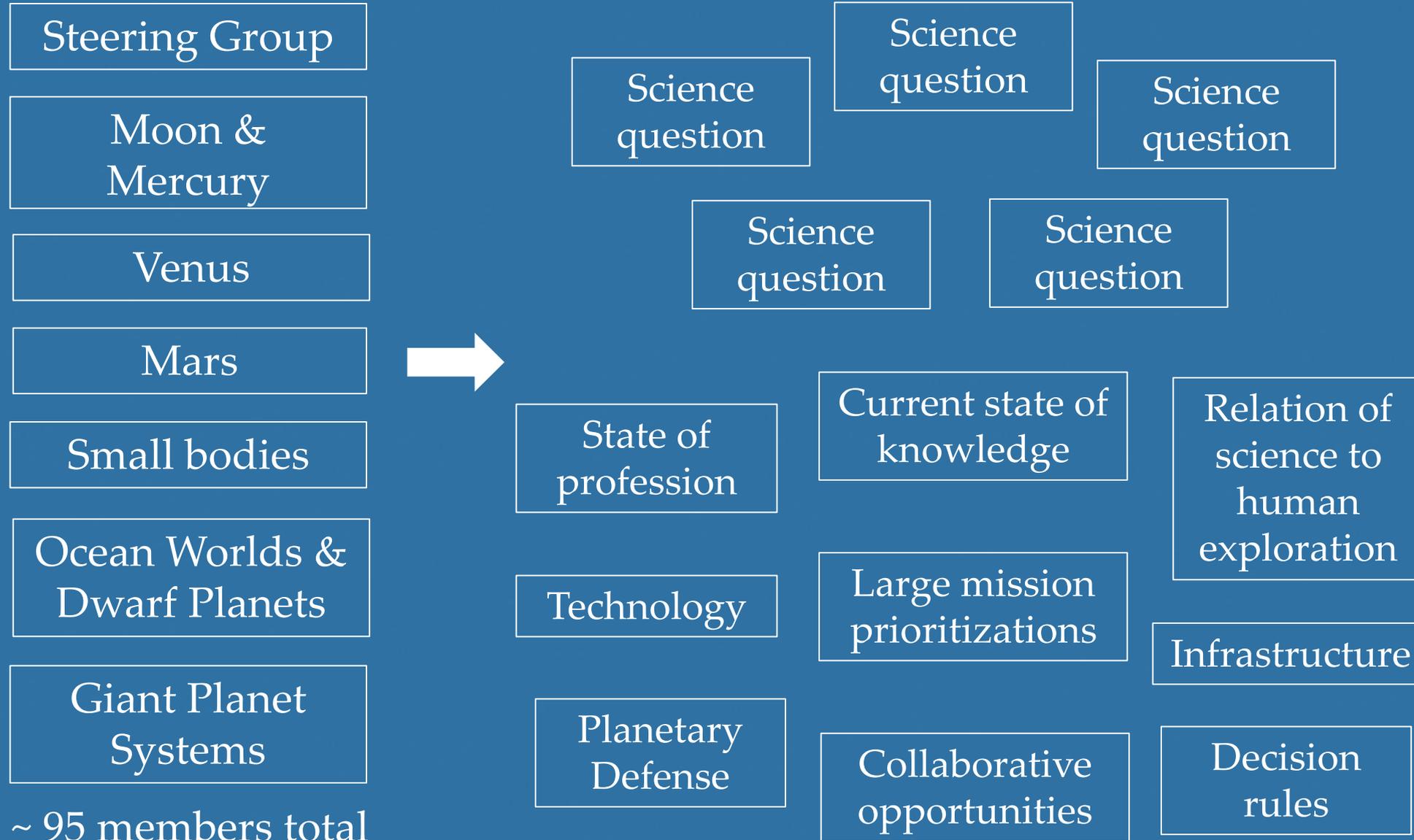


# What will be Different?

- Survey report will be organized thematically, rather than by destinations
- Survey report will not have individual chapters devoted to particular planetary bodies
- Instead, the report chapters will be organized around cross-cutting science questions and other topics as needed to address the statement of task
- Each chapter will have an associated working group, with members drawn from across the panels and steering group



# Report Organized by Science Questions and Key Topics



- Cross-cutting science questions and recommended research activities
- Additional topics needed to address statement of task
- Each question/topic to be addressed by panel and SG members with related expertise



# Decadal Survey Process

1. Solicit community whitepapers → **MORE THAN 500 RECEIVED**
2. Determine cross-cutting themes/priority topical questions
3. Identify additional mission studies that are needed and complete studies
4. Assess how progress will be made in next decade to address priority science questions and additional specific topics in statement of task
5. Assess all mission studies to determine those best able to address cross-cutting themes/priority questions
6. Most promising concepts assessed for cost and technical realism by independent contractor
7. Prioritize missions and overall recommendations
8. Report external review, respond to reviewer comments, final report approval
9. Release report to NASA, NSF, and public spring 2022



# Draft Schedule for Decadal Survey

- Steering group meeting 1—30 September 2020
- All panel meetings begin—October 2020
- Deadline for additional mission study requests to NASA—December 2020
- Deliver priority missions to external contractor for cost/technical evaluation—Summer 2021
- Determine final findings and recommendations—September 2021
- Complete draft of report assembled—early/mid-October 2021
- Report sent to external reviewers—late-October/early-November 2021
- Reviewer comments received and revision of report begins—mid/late-November 2021
- Fully revised report returned to RRC for final adjudication—early/mid-January 2022
- Report approved for release by RRC—early/mid-February 2022
- Deliver report (prepublication format) to NASA and NSF—early-March 2022
- Report released at LPSC—mid/late-March 2022



# Panel on Mars

Vicky Hamilton, Chair

Bethany Ehlmann, Vice-chair

Will Brinckerhoff

Tracy Gregg

Jack Holt

Jasper Halekas

Joel Hurowitz

Bruce Jakosky

Michael Manga, NAS

Hap McSween

Claire Newman

Miguel San Martin, NAE

Kirsten Siebach

Amy Williams

Robin Wordsworth

Southwest Research Institute

California Institute of Technology

Goddard Space Flight Center

University at Buffalo

University of Arizona

University of Iowa

Stony Brook University

University of Colorado at Boulder

University of California, Berkeley

University of Tennessee, Knoxville

Aeolis Research

Jet Propulsion Laboratory

Rice University

University of Florida

Harvard University



# Presentations to Date (1/3)

- Most meetings have been ½ day for convenience of panel during pandemic
- Meetings comprised of both individual and panel presentations with Q&A/discussion periods
  - e.g., presentations on state of the science topic, followed by mission/instrument concepts
- Some invited speakers are authors of white papers, others are invited at the suggestion of panel members based on relevant expertise
- Attempting to cover as much ground as possible; here we summarize meetings to-date – cannot comment on future meeting topics/presenters
- All presentations are given in open session viewable by livestream



# Presentations to Date (2/3)

- 2 Nov 2020: Planetary Science Division overview; MEP programmatic and scientific overviews; update on MSR
- 17 Nov 2020: MSR Independent Review Board; Mars Architecture Strategy Working Group (MASWG); ancient dynamo and crustal remnant magnetism on Mars
- 23 Nov 2020: Panel presentations on ice and climate science from orbital and landed platforms, incl. mission concepts; NASA-HQ perspective and panel on Mars Ice Mapper



# Presentations to Date (3/3)

- 30 Nov 2020: Returned Mars sample curation; Mars atmospheric science and mission concepts; NASA perspective on planetary protection and extant life searches; scientific motivation/strategic gaps in the search for extant life
- 15 Dec 2020: Panel on geochronology and cratering studies; geochronology mission concept
- 5 Jan 2021: Technology development and surface access; commercial perspective on Mars exploration technology and commercial partnerships; perspective on managing flagship missions



# Upcoming Meeting Dates

- 29 January – Community and commercial perspectives on the human exploration of Mars
  - 12:00 pm – 1:50 pm EST
- 9 February – Agenda in progress
- 16 February – Agenda in progress
- Open sessions are livestreamed – see NAS website for links



Thank You

<https://www.nas.edu/planetarydecadal>

<https://www.nationalacademies.org/our-work/planetary-science-and-astrobiology-decadal-survey-2023-2032-panel-on-mars>

