

The National Academies of Sciences Engineering and Medicine

Decadal Survey for Biological and Physical Sciences in Space

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Disclaimer: These slides represent a personal assessment of issues discussed by the CBPSS, which is leading the organization of the survey on behalf of the National Academies. The views expressed do not necessarily reflect those of CBPSS; its parent body, the Space Studies Board; or the National Academies. The terms of reference for the study are not finalized.

Key Characteristics of Decadal Surveys

- Decadal surveys are community-driven, **bottom-up studies** that aim to formulate a community consensus on the **most compelling science** questions for the decade ahead in each of the disciplines.
- Involve the appointment of a steering committee and a set of topical panels (no two surveys are the same) involving a total of up to 80-120 volunteers.
- The studies involve **extensive community input** via hundreds of white papers, community forums, and other outreach activities, and often include an independent Cost Assessment and Technical Evaluation of proposed initiatives and recommendations made within defined budget scenarios.

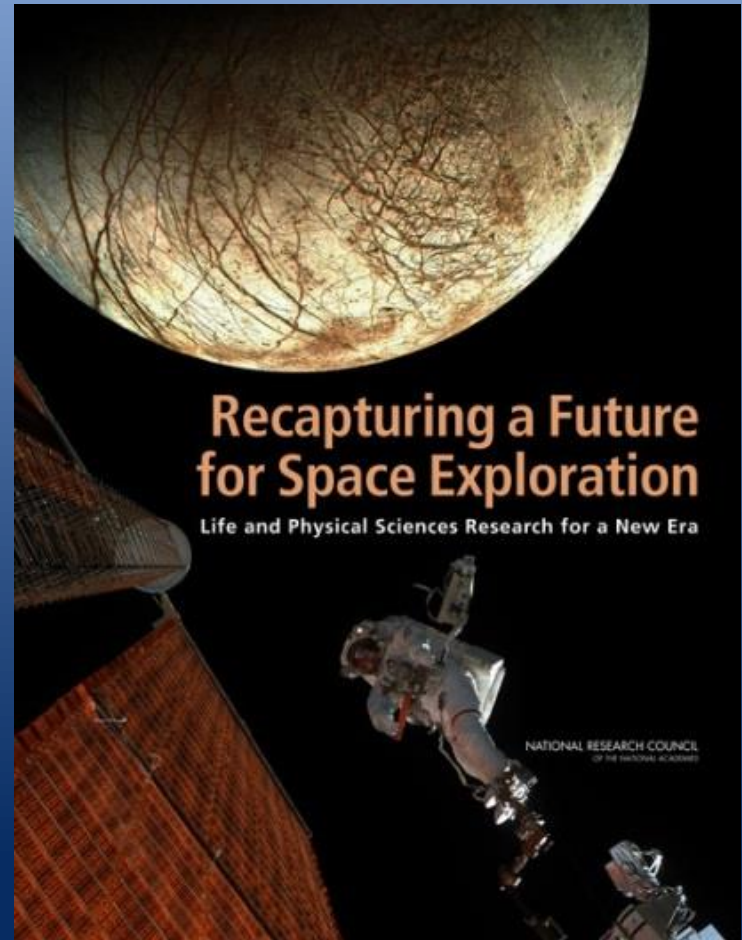
Who Chartered and Uses the Survey?

- **Congress, the science community, and federal agencies that fund science are the groups that rely on Decadal Surveys for science and activity guidance.**
- **Agencies such as NASA fund the Survey and negotiate the Statement of Task with the National Academies.**
- **Sponsoring Agencies and Congress view Surveys as the formal statement of priority by the U.S. space science community, and have repeatedly stated their intent to give highest priority to the missions/objective identified in the survey.**

Vision of the First Decadal Survey

“The goal of this report is to lay out steps whereby NASA can reinvigorate its partnership with the life and physical sciences research community and develop a forward-looking portfolio of research that will provide the basis for recapturing the excitement and value of human spaceflight []”

-- Executive Summary of the Decadal Survey, 2011



2nd NRC Decadal Survey in Biological and Physical Sciences in Space

- Fundamental considerations
 - Consensus recommendations on an integrated approach over the 10-year period starting in 2023
 - Sponsor: NASA
 - Consider
 - Science priorities
 - New technologies and platforms, including commercial platforms
 - Interagency partnerships
 - International partners

Broad Elements of the Charge for the 2nd Decadal Survey in Biological and Physical Sciences in Space

- Review state of knowledge in space biological and physical sciences and identify most compelling challenges
- Develop comprehensive research strategy to advance frontiers of biological and physical sciences in space
- Identify facility and platform capability requirements
- Programmatic approaches for enabling a robust and balanced program
- Proof-of-concept research campaigns with estimated budgets

Status

- A charge has now been finalized with NASA. Institutional approvals are ongoing.
- Earliest formal start for the survey likely to be late 2020/early 2021;
- Decadal pre-planning activities under the auspices of the standing Committee on Biological and Physical Sciences in Space are nearly complete.
 - Informal nominations were received.
 - Community input on study issues has been solicited (e.g., 2019 ASGSR Town Hall, stakeholder discussions)
 - Potential strategies for the study were defined for later steering committee consideration
- Preliminary study plans call for:
 - A call for white papers from the community asking for at least two types of papers.
 1. Focused research proposals, and
 2. Research campaigns.

Notional Decadal Survey Timeline

All Dates Contingent

- Call for Preliminary Community Input, Nov. 2019
- NASA Life and Physical Sciences moved to Science Mission Directorate 2020
- Survey formally initiated, Late 2020/early 2021
- **Call for White Papers – early 2021, due in 5-7 months**
- Survey committee identified & appointed- Summer 2021
- Panels formed – Fall 2021
- Panel review of white papers and deliberations – 2021-2022
- Survey deliberations, public briefings, report writing – CY2021/22
- Public prepub report released–CY2023

How will this survey differ from the inaugural survey?

- Examples of integrated research campaigns, with estimated budget ranges, will be included
- BPS program has moved from human exploration directorate to science directorate
- Need to consider expanded research opportunities offered by commercial research platforms and access to space beyond low earth orbit
- Improved consideration of international partners
- Greater consideration of role of non-NASA science agencies, commercial stakeholders, and NGOs

Your Role in the Decadal



- **Community participation in all aspects of the Decadal Survey is strongly encouraged.**
- **We encourage you to participate in later calls for white papers, nominations of colleagues or yourself to serve on the committee or panels, and public forums that will be announced.**
- **Decadal Survey Website:**
nas.edu/microgravity

Research Campaigns

- Research Campaigns are new to this Decadal
- Research Campaigns are the focus of this meeting
- Purpose of meeting is to give community time to begin developing ideas and/or teams for research campaign white papers

Some Existing Resources on Writing White Papers

- Planetary Science and Astrobiology Decadal Early Career Event on Writing White Papers
- <https://vimeo.com/418576172>
- Astronomy and Astrophysics Decadal Survey
- https://sites.nationalacademies.org/SSB/SSB_185166