



DIVISION ON ENGINEERING AND PHYSICAL SCIENCES

# Decadal Survey on Solar and Space Physics

## 2023-2032

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**Space Studies Board**

**The National Academies of Sciences, Engineering,  
and Medicine**

# How the Academies Works

## Charter signed by President Lincoln, 1863

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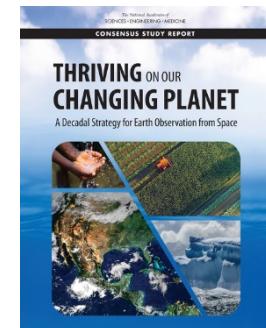
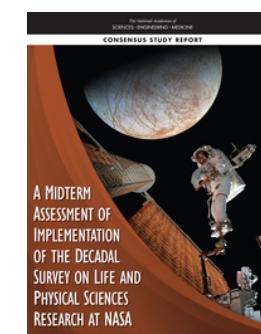
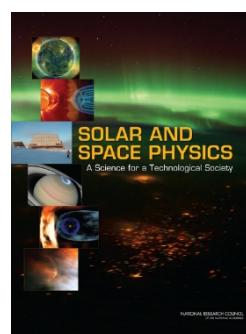
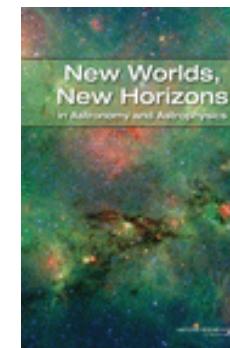
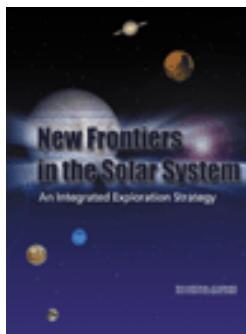
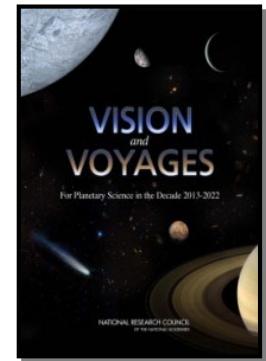
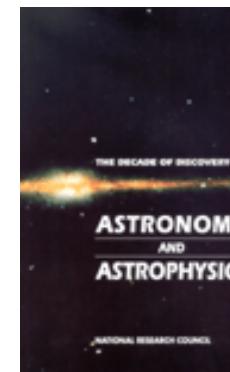
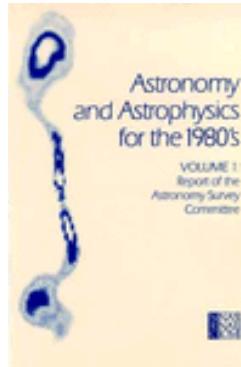
The Academies has many different activities underway every day (now virtual).

Over 500 expert committees are active at any given time.



# Space Science Decadal Surveys

- Astronomy and Astrophysics  
1963, 1973, 1982, 1991,  
2001, 2010, (2021)
- Planetary Science  
2003, 2011, (2022)
- Solar and Space Physics  
2003, 2013, (2024)
- Earth Science and Applications from Space  
2007, 2018, (2029)
- Biological and Physical Research in Space  
2011, (2023)



# What is a Decadal Survey?



Assesses an entire scientific space science discipline



Prioritizes key scientific questions



Prioritizes associated missions, research, engineering, & facilities



Performed entirely independently of sponsoring organizations



# *Decadal Survey Goals*

- **The Decadal Survey report presents a compelling program for the coming decade that represents the prioritized activities for the relevant U.S. space science community.**
- **Community participation is strongly encouraged and all fact-gathering meetings are open to the public.**
- **Deliberations are held in closed session in order to ensure independence from external influence.**
- **The distinguishing features of the process are: inclusiveness through white papers, independence from external influence, and transparency wherever possible.**

## ***Who Charters a Decadal Survey?***

- **Agencies such as NASA, NOAA, and NSF negotiate the Statement of Task with the National Academy.**

## ***Who Uses a Decadal Survey?***

- **Congress, the science community, and federal agencies rely on Decadal Surveys for guidance on prioritizations.**
- **Agencies and Congress consider Decadal Surveys the formal prioritization document from the relevant community, and have repeatedly stated their intent to give the highest priority to the missions or objectives ranked in a Decadal Survey.**

**Why do we care about the decadal surveys?**

**They are both swords and shields.**

**They are swords for a highly ranked new program by providing a manager with arguments supporting a new activity.**

**They are shields because they protect highly ranked programs.**

**The changing environment over a decade is inherently difficult to map, but decision rules can allow for more relevant advice with changing budgets, mission costs, and unanticipated technology breakthroughs.**

## ***Selection of Decadal Survey Participants***

- An open call to all sources seeks nominations, including self-nominations, so as not to overlook any excellent candidates.
- Composition is intended to cover the range of expertise.
- Diversity is emphasized across multiple axes.
- Choice of co-chairs
  - Experienced, strong committee leader, familiar with the NASEM process and not perceived to be conflicted on critical decisions.
- Choice of panel members
  - Scientifically respected, broad view of the field, perceived as fair and unbiased, and representative.

*A Decadal Survey member is charged with representing the interests of SSP, not of their institution or subfield.*

## **Community Outreach**

- The National Academies arranges Town Hall meetings with the Decadal Survey Chairs and members, requests white papers from the community at large, and events to engage scientists who will see the fruition of this Decadal Survey and play key roles in its implementation.
- The scientific community white papers contribute immensely to the process. Every white paper is read by at least one member of the Decadal Survey.

## **Technical, Risk and Cost Evaluation**

- The Steering Committee provides direction to contractor to utilize the Technical Risk and Cost Evaluation (TRACE) process on large recommended spaceflight projects and on any other projects selected by the committee.

# *Typical Elements of a Survey Report*

- **Overview of relevant discipline.**
- **Broad survey of the current state of knowledge.**
- **Inventory of the top-level science questions and the impact of addressing them.**
- **Recommendations on optimum balance between fields, large/medium/small projects, ground versus space, etc.**
- **Consideration of infrastructure.**
- **Discussion of strategic capability needs and the requirements for a healthy community.**
- **Strategy for accomplishing recommended research objectives, programs, and supporting capability development.**

## ***Putting it all together***

**A Steering Committee (SC) of experts assembled by the National Academy is responsible for the overall conduct of the decadal survey –**

- **Collecting input from the SC panels;**
- **Requesting and analyzing input from the Technical, Risk, and Cost Analysis (TRACE) contractor;**
- **Drafting a report of top-level conclusions and recommendations;**
- **Responding to comments collected from the NASEM extensive report review analysis and modifying the draft report, as appropriate;**
- **After NASEM releases the Decadal Survey Report, the co-chairs will lead community briefings of the report with Steering Committee help over the coming decade!**

**For a description of the entire study process, go to:**

<https://www.nationalacademies.org/about/our-study-process>

# SSP Decadal Survey Draft Major Milestones

2021

- Study Start (CY 2021)
- Town Hall at Fall AGU, December 9, 2021

2022

- Full Steering Committee (SC) Appointed (early CY 2022)
  - First meeting of the steering committee
  - SC issues call for community white papers
- Panels Appointed (early Spring 2022)
  - Panels hold first meeting
  - Start of review of white papers

2023

- Panels report back to steering committee (2023)
- SC report draft enters Academy external review process (Fall 2023)
- Report approved and released

SPACE STUDIES BOARD AND AERONAUTICS AND SPACE ENGINEERING BOARD

**Thank You!**

**Please Participate!**

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