



Decadal Impacts for Public Policy

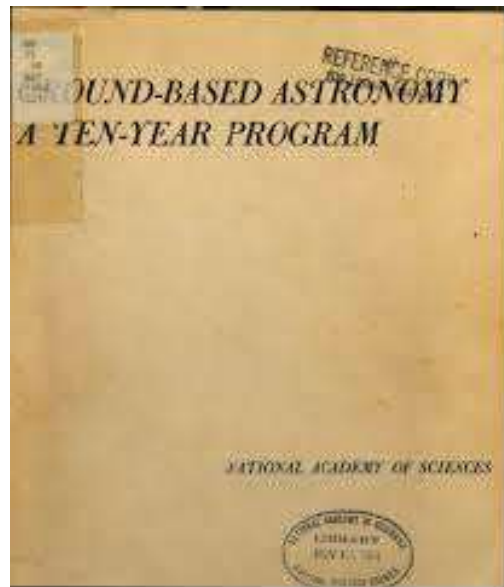
SSP Decadal Early Career Webinar

Joel Parriott

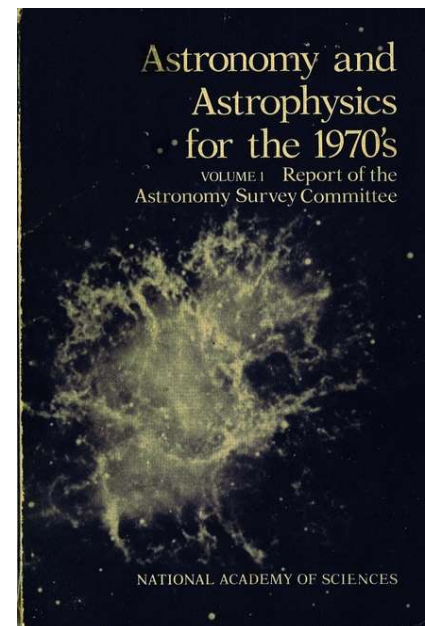
Deputy Executive Officer & Director of Public Policy
30 Sept 2021

AMERICAN ASTRONOMICAL SOCIETY

A long history

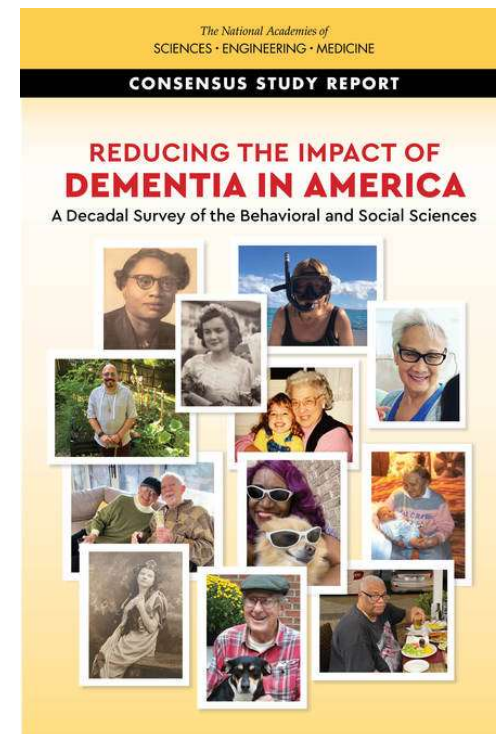
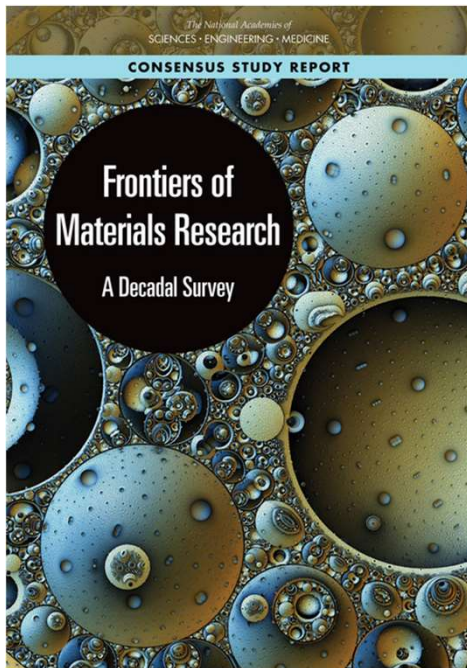


1964

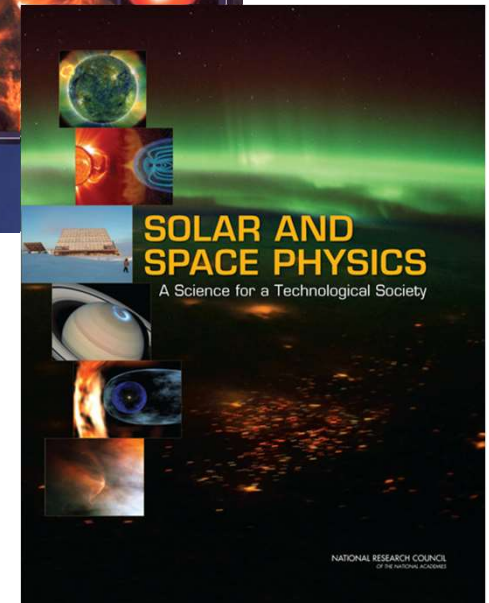
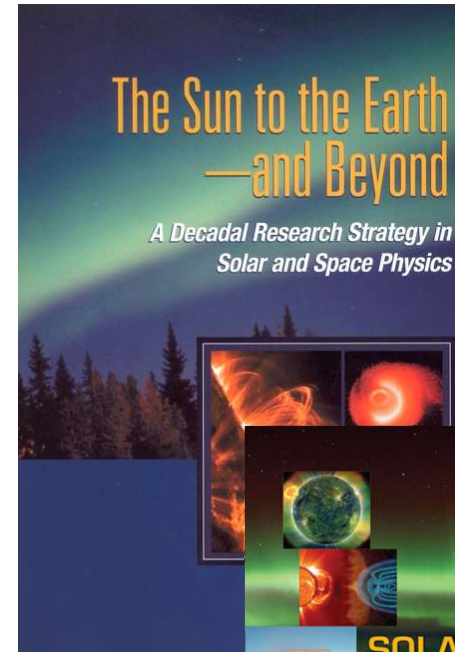
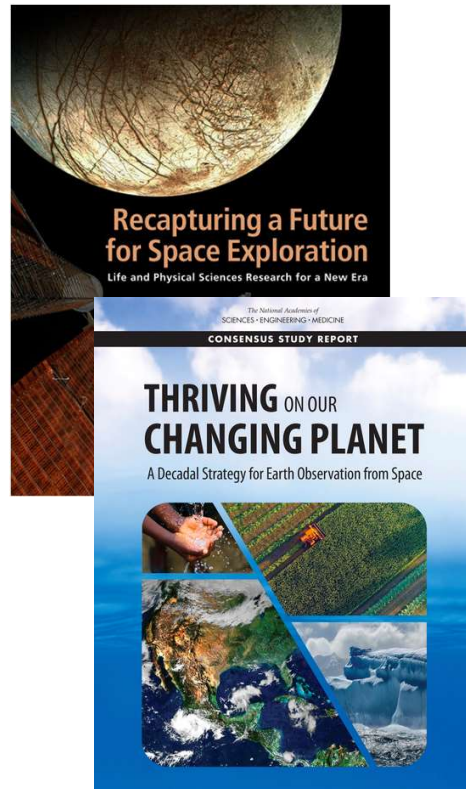
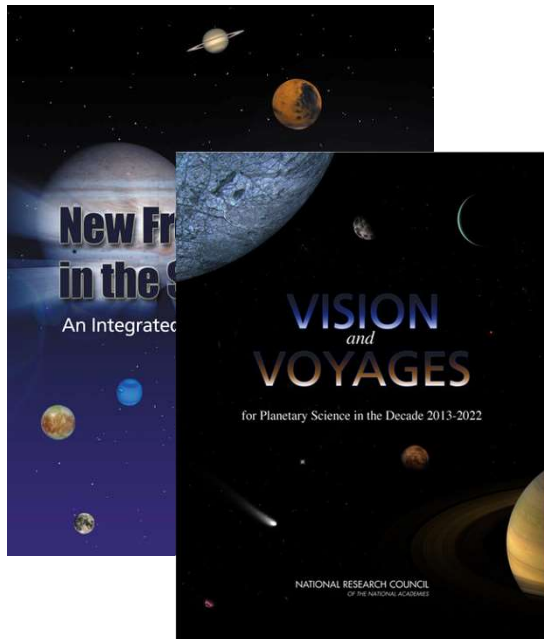


1972

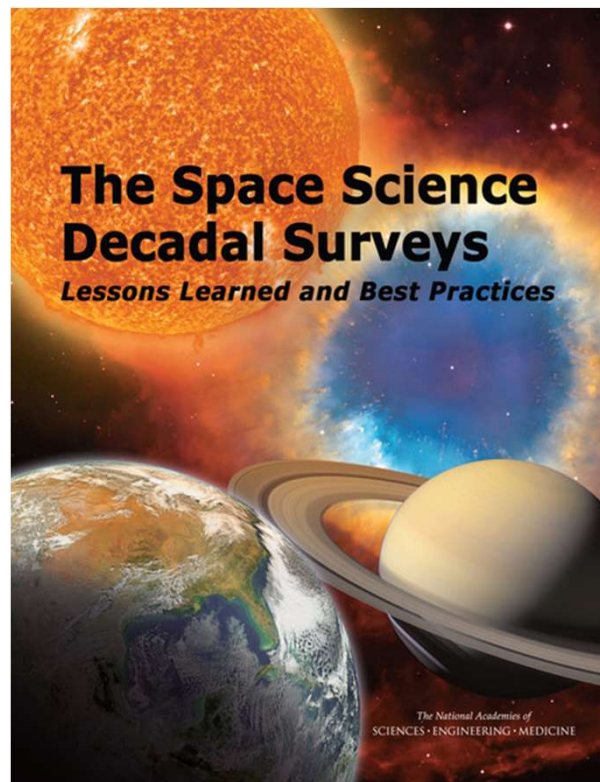
Imitation is the sincerest form of flattery



But especially at NASA



Even a survey of surveys!!!



Written into law

PUBLIC LAW 110–422—OCT. 15, 2008

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SEC. 1104. NATIONAL ACADEMIES DECADAL SURVEYS.

(a) **IN GENERAL.**—The Administrator shall enter into agreements on a periodic basis with the National Academies for independent assessments, also known as decadal surveys, to take stock of the status and opportunities for Earth and space science discipline fields and Aeronautics research and to recommend priorities for research and programmatic areas over the next decade.

(b) **INDEPENDENT COST ESTIMATES.**—The agreements described in subsection(a) shall include independent estimates of the life cycle costs and technical readiness of missions assessed in the decadal surveys whenever possible.

(c) **REEXAMINATION.**—The Administrator shall request that each National Academies decadal survey committee identify any conditions or events, such as significant cost growth or scientific or technological advances, that would warrant NASA asking the National Academies to reexamine the priorities that the decadal survey had established.

SEC. 805. DECADAL RESULTS.

NASA shall take into account the current decadal surveys from the National Academies' Space Studies Board when submitting the President's budget request to the Congress.

NASA Budget Justifications

HELIOPHYSICS

The Sun, a typical small star midway through its life, governs our solar system. The Sun wields its influence through its gravity, radiation, solar wind, and magnetic fields, all of which interact with the Earth and its space environment. These processes are crucial for our understanding of the universe, and they relate directly to our ability to live in space as they produce space weather, which can affect human technological infrastructure and activities in space. Using a fleet of sensors on various spacecraft in Earth orbit and throughout the heliosphere, NASA seeks to understand the fundamental processes of how and why the Sun varies, how Earth and our solar system respond to the Sun, how the Sun and the solar system interact with the interstellar medium, and how human activities are affected by these processes. The science of heliophysics, including space weather, enables the predictions necessary to safeguard life and society on Earth and the outward journeys of human and robotic explorers.

The primary recommendations of the National Academies' 2013 Decadal Survey for Heliophysics were:

- Maintain and complete the current program. The Decadal Survey assumed launch of Van Allen Probes by 2012, Interface Region Imaging Spectrograph (IRIS) by 2013, Magnetospheric Multiscale (MMS) by 2014, Solar Orbiter Collaboration (SOC) by 2017, Parker Solar Probe by 2018, and continued current funding of the research program. Van Allen, IRIS, MMS, Parker Solar Probe, and the ESA-led Solar Orbiter Collaboration have all launched.
- Implement the DRIVE (Diversify, Realize, Integrate, Venture, Educate) initiative, including the incorporation of smaller spacecraft and an increase in the competed research program from 10 percent

SCMD-12

SCIENCE

to about 15 percent of the budget request. This budget request supports competed research budgets of between 13 and 15 percent and invests in the SMD-wide CubeSat/SmallSat initiative.

- Accelerate and expand the Heliophysics Explorer Program, resulting in an increase to the cadence of competed missions to one launch every two to three years. NASA launched IRIS in 2013, Global-Scale Observations of the Limb and Disk (GOLD) in 2018, and ICON in October 2019. The proposed out-year budgets, if realized, would enable launch of Atmospheric Waves Experiment (AWE) mission of opportunity in 2022, Polarimeter to Unify the Corona and Heliosphere (PUNCH) in 2023 and Tandem Reconnection and Cusp Electrodynamics Reconnaissance Satellites (TRACERS) no earlier than 2023. The budget also supports the launch by 2026 of one mission that will be selected through the 2019 MDEX solicitation. NASA plans additional launches approximately every two years thereafter.
- Restructure Solar Terrestrial Probes (STP) as a moderate-scale, principal investigator-led flight program, and implement three mid-scale missions with an eventual recommended four-year cadence. This budget supports launch of the PI-led IMAP mission in 2025. NASA selected the GLIDE SmallSat mission from the most recent STP MO announcement of opportunity and will initiate a competitive selection for the Dynamical Neutral Atmosphere-Ionosphere Coupling (DYNAMIC) mission in FY 2022.
- Implement a large Living with a Star (LWS) mission to study Global Dynamic Coupling with a launch in 2024. In FY 2021 NASA began formulation of the Geospace Dynamics Constellation mission, with a targeted launch date no earlier than 2027.

The Decadal Survey also made recommendations related to space weather applications, addressed collectively to the relevant Government agencies. NASA has implemented the HERMES (Heliophysics Environmental & Radiation Measurement Experiment Suite) space weather instrument destined to operate on the Gateway and maintains funding for space weather applications research. NASA will continue collaborating with other agencies to improve space weather observation and forecasting capabilities.

NASA asks the Heliophysics Advisory Committee for input to ensure that our proposed programs maximize scientific productivity within the general framework established by the National Academies.

FY22

This is A LOT of effort....why go to all the trouble?

A sword and a shield

- Broad community building inside a scientific subdiscipline
- Agency program planning and execution
- Bowling for dollars @ the White House, Capitol Hill, & philanthropies

Bowling for \$\$ with WH & Congressional policy makers

The sword use case

- Review and oversight of agency proposals and programs...they'd better have a good reason for doing something different (and many times they do)
- Advocacy within budget development and appropriations process and wise use of limited taxpayer funding
- Effective at grabbing cash during sudden surpluses

The shield use case

- Efficient and effective screen to identify lone wolf lobbyists/advocates...especially for busy non-expert staffers
- Effective at preventing steep cuts during sudden downturns

They aren't perfect...

Inclusivity challenges (especially for early career voices)

Flagships vs other

Timescales for realizing projects

Cost estimates

...but they're the best thing we've got. And we keep trying to make them better with each iteration. Passing down our customs and rituals to the next generation is an important aspect of the process.

Questions?