

Planning for the Next Decadal Survey for Earth Science and Applications from Space

*The Next National Academies Decadal Survey in Earth Science and Applications from
Space: A Dialogue with Private Sector Leaders and End-Users*

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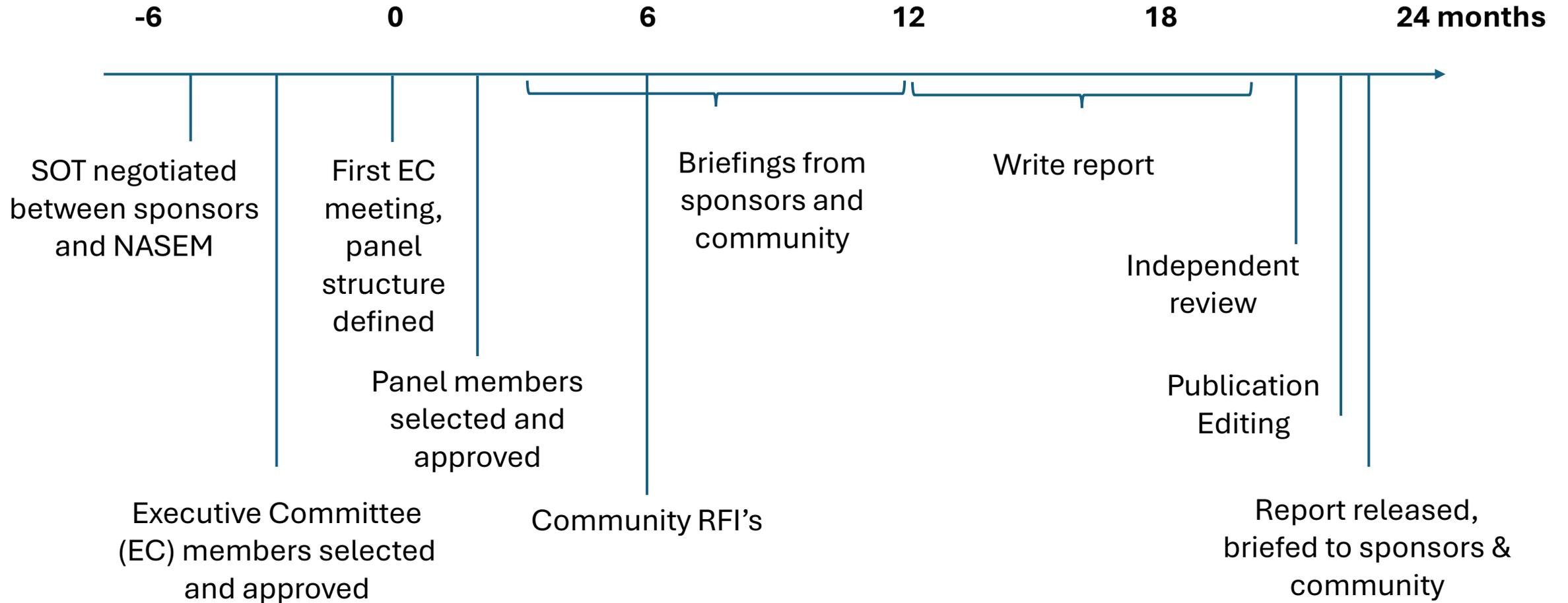
Co-Chair, 2017 Earth Science and Applications Decadal Survey

Former Private Sector Affiliations: Aerospace Corp, Ball Aerospace, Vexcel, Microsoft, Global
Weather Corp, Google

Status

- The third Earth Decadal is in the process of getting started, with a Statement of Task expected soon
- No formal sponsor or NASEM plans have been released
- We do have *community guidance* and experience that can help us understand what to expect

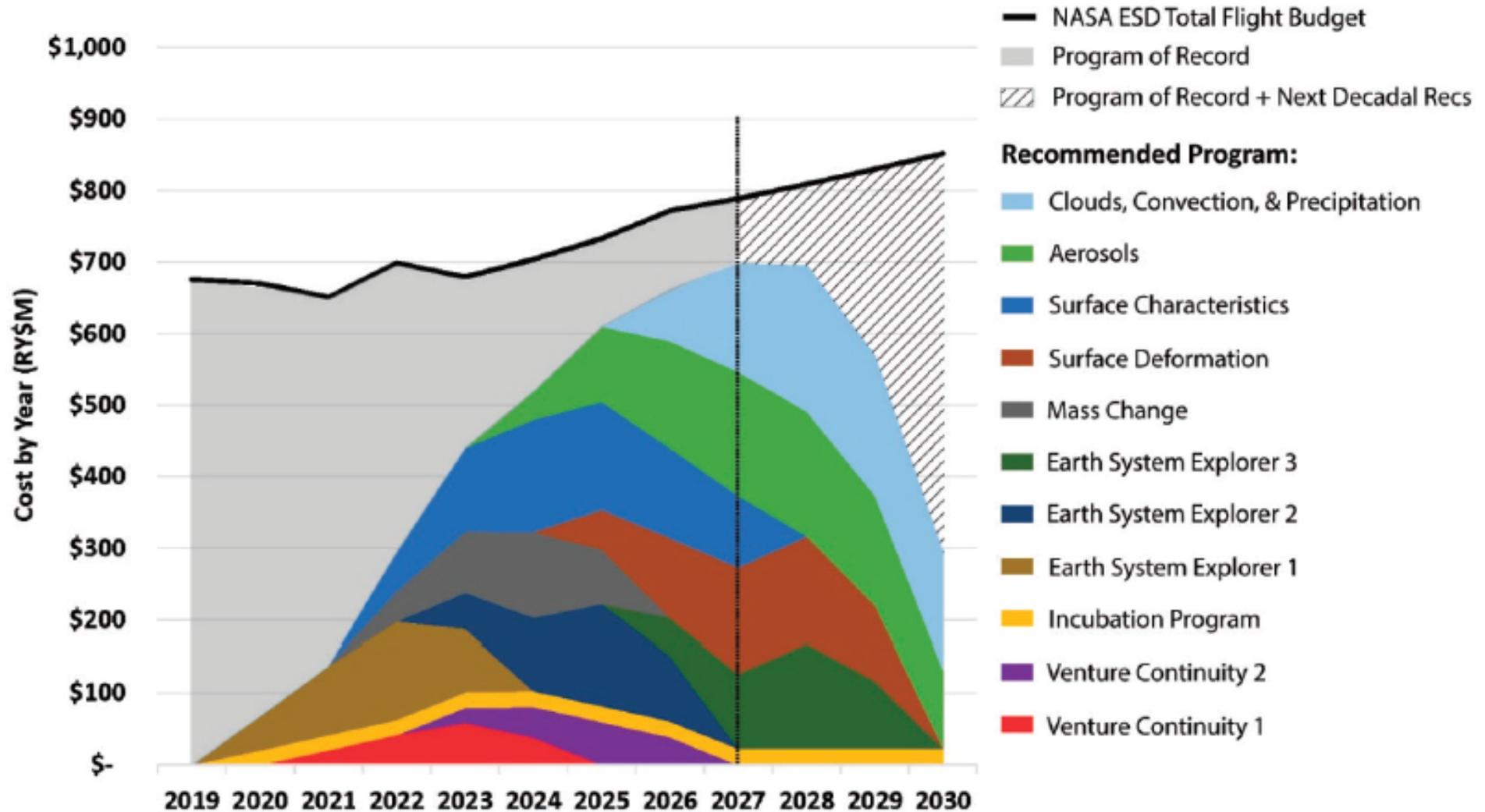
Timeline



Evolution of Approach

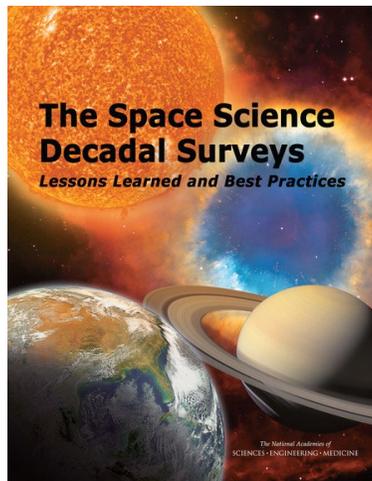
CHARACTERISTIC	ESAS 2007	ESAS 2017
Prioritization approach	Missions	Science & observables
Roles of science & applications	On equal terms	Fully integrated
Decision rules, especially to guide unanticipated budget shortfalls	Included in general terms	Expanded and systematized the decision rules into a more structured decision framework
Organizational structure	Thematic panels and a steering committee with liaison to each panel	Thematic panels and a steering committee with liaison to each panel
Costing constraints	Build an aspirational budget	Build to an inflation-only growth budget, and cap mission costs
Community input	Single Request for Information (RFI)	Two-stage RFI
Priority of Program of Record	Pre-Decadal missions	Highest priority for completion

Budget

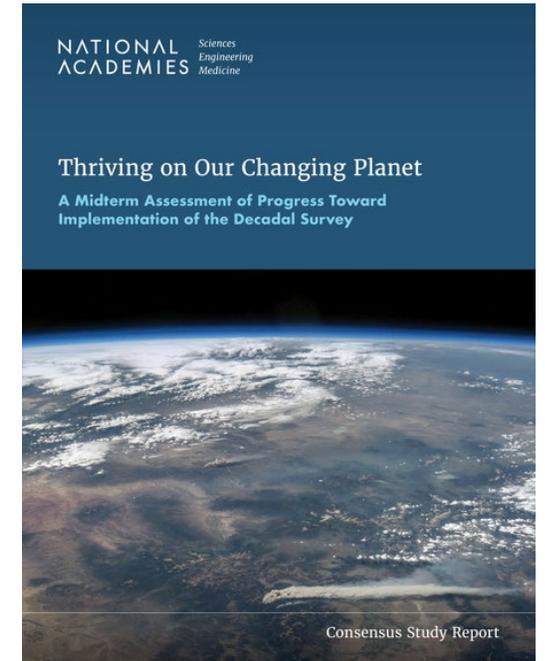


Community Guidance

The Space Science Decadal Surveys: Lessons Learned and Best Practices (2015)



Thriving on Our Changing Planet: A Midterm Assessment of Progress Toward Implementation of the Decadal Survey 2024



CESAS Guidance

(see CESAS website)

- Community Questionnaire (2025)
- Meeting Presentations

Context – The Field

- Growing **backlog of scientific discovery** motivating sustained science or operational use
- Increasing **reliance on modeling** to extend observations & provide forecasting
- **New tools** are available for science & applications, notably AI
- Our **changing Earth** is driving need for new discovery & ongoing characterization
- **Society's prosperity** increasingly depends on Earth information

Context – Sponsors & Government Funders

- Increased **budget uncertainty**
- Varying **priority of our field**
- **Evolving observations portfolio** from government and non-government sources
- Continued importance of **international partnerships** & capability
- Growing **breadth of collaboration**, including defense & intelligence, NGO's, commercial providers, and more
- Continued insufficient strategic **alignment of research & operations** for Earth observation as a whole
- Strategic **gaps in national agency roles**, such as for non-operational applications

Context - External

- Rapidly growing **end-user pull**, with expanding range of end-use benefits
- Growing range and quality of **data & science** offerings from NGOs and commercial providers
- Reduced **launch cost** through innovative commercial providers
- Challenging to optimize the **alignment of research, operations, and user** capabilities across government and non-government to meet nations' needs for integrated Earth observation
- **Emerging technologies**, particularly AI-based, present opportunity but with considerable uncertainty

Implications

1. New ways of doing **costing & managing budgets** will be a big driver – agility is key
2. Addressing the commitment to **legacy projects** will be important
3. The priority of **extended missions** could be reevaluated
4. The Decadal **prioritization methodology and report process** could evolve further
5. **Decision rules** will need to be more comprehensive & responsive
6. Changes in how the Decadal project is **reviewed** (e.g., Mid-Term) may be of interest
7. Greater **leveraging of external capabilities** could play a central role
8. The importance of **commercial and end users** will be much larger
9. Broader **community participation** in the Decadal process is likely

Participation

TRADITIONAL ROLES

- Agency Sponsors
- National Academies
- Executive Committee (20 people)
- Panels (80 people)
- RFI Participants (300 received)
- Meeting Speakers (20-30)
- Reviewers (15)

EMERGING PARTICIPANTS

- Commercial providers
- End users
- Defense and Intelligence

Thank You