

Decadal Survey for Earth Science and Applications from Space 2028–2037

Request for Information

The National Academies of Sciences, Engineering, and Medicine is conducting “ESAS 2028,” the Decadal Survey for Earth Science and Applications from Space 2028–2037. This effort will be led by the Aeronautics, Space, and Astronomy program area, which includes the Space Studies Board, in collaboration with the Earth Systems and Resources and Science and Engineering Education and Workforce program areas. This community-based effort will develop a comprehensive strategy that builds on the [2018 decadal survey](#)¹ and identifies an innovative, fiscally realistic path for addressing the highest priority Earth science and applications challenges that can be advanced in the coming decade through space-based and ancillary observations.²

Sponsored by NASA at the request of Earth Science Division (ESD) within NASA’s Science Mission Directorate, the study will provide comprehensive scientific and programmatic guidance for the ESD portfolio, including recommended activities for the 10-year period beginning in approximately 2028. While the survey will focus on NASA’s Earth science program, it will consider, as appropriate, the complementary roles of NOAA and USGS in developing its strategy.

The study will be conducted by a survey steering committee (“Survey Committee”) and supporting study panels, each appointed by the National Academies. The Survey Committee will be responsible for integrating panel input and issuing the study’s final report. It is anticipated that this survey will follow the previous survey’s practice of prioritizing science targets³ for execution through existing or proposed program lines.

¹ National Academies of Sciences, Engineering, and Medicine 2018. *Thriving on Our Changing Planet: A Decadal Strategy for Earth Observation from Space*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/24938>.

² Although NASA is the study sponsor, the survey committee will also be asked to consider the complementary roles of NOAA and USGS in developing its strategy.

³ The 2018 Earth Science Decadal Survey defined a “science target” as a prioritized set of objectives and measurement capabilities that can be significantly advanced by space-based data over the decade. These targets focus on delivering actionable information to, for example, manage natural resources, improve weather/climate forecasts, and address societal challenges.

Recognizing the need for timely strategic planning in the rapidly evolving Earth observation landscape, the decadal survey is proceeding on an expedited schedule. Accordingly, this Request for Information is being issued before the survey's steering committee and supporting study panels have been appointed.

Unlike the 2018–2027 survey, which used a two-step RFI process, this RFI combines those elements into a single step. It solicits both broad input on science and applications priorities and associated observational needs, as well as more detailed input on measurement approaches and implementation strategies.

For purposes of this RFI, responders should identify which one (or more) of the NASA Earth System Science Research Program "spheres" (atmosphere, biosphere, cryosphere, geosphere, hydrosphere) is best aligned with their submission. The Survey Committee will map the spheres themes to the selected panel themes to support analysis of the RFI submissions.

NASA Earth System Science Research Spheres

See the [NASA website](#) for more information.

Atmosphere: Atmosphere fosters research and innovation targeting the dynamics and thermodynamics of the atmosphere, its physical and chemical composition, and the interdependent impacts that these have on the Earth's radiative balance, air quality, and weather.

Biosphere: Biosphere provides foundational knowledge on interactions between and within terrestrial and aquatic ecosystems, along with changes in their biogeochemistry and biodiversity. The goal is to detect and predict natural and human-induced changes in living systems to sustain the services they provide and ensure planetary health for future generations.

Cryosphere: Cryosphere investigates polar ice, including the Antarctic and Greenland ice sheets, polar glaciers, and sea ice in the Arctic and Southern Oceans, with a focus on satellite and airborne observations. Cryosphere also seeks to improve our understanding of processes, advance prediction, and link the cryosphere to the Earth system.

Geosphere: Geosphere studies processes and changes in the Earth's core, mantle, and crust along with surface topography, composition, and geology, as well as the hazards they generate. Geosphere relies on essential measurements including InSAR, GNSS, lidar, gravity, optical, thermal, and hyperspectral observations.

Hydrosphere: Hydrosphere improves the observation, understanding, and prediction of the distribution and movement of water in the Earth system. Specifically, NASA Hydrosphere studies water and energy cycles across land, ocean, and the atmosphere through the integration of measurements from satellites, surface networks, and airborne campaigns.

Comprehensive information regarding the decadal survey—including its task statement, organization, committee membership, upcoming meetings, and responses to this Request for Information (RFI)—is available at www.nationalacademies.org/esas2028.

Submission information

All responses will be included in the National Academies' Public Access File for this Request for Information. Responses may also be included in a compendium published separately from the survey report.

Submitted papers should be no longer than seven single-spaced pages, using at least 11-point font, excluding figures, tables, and references.

Responses may address candidate science targets, implementation approaches, contextual topics, or a combination of these areas. Respondents are encouraged to make clear which questions or topics their submission addresses.

Responses addressing candidate science targets and proposed implementation approaches should provide the following information, where possible:

1. A clear description of the science question and/or societal challenge, its importance as evidenced in previous studies or reports, and how addressing it would advance understanding in one or more of the themes or spheres described above;
2. An explanation of the utility of the proposed measurement, observing capability, data product, modeling or analysis capability, or implementation approach for achieving the identified science and/or application target;
3. The key requirements for the measurement(s) or capability, including, as appropriate, performance, accuracy, precision, spatial and temporal resolution, coverage, latency, continuity, and other relevant specifications needed to achieve the science and/or application target; and
4. The likelihood of achieving the required measurement(s) or capability within the decadal time frame, given the heritage and maturity of current and near-future instruments, observing systems, data algorithms, modeling capabilities, and implementation approaches; the potential to leverage similar or complementary measurements, including from international, commercial, and other partners; and any workforce, infrastructure, institutional, or other capacity issues that could affect implementation.

Responses addressing contextual topics should clearly identify the issue or opportunity being addressed, describe its significance to the Earth science and applications community, and, where possible, suggest actions, priorities, or considerations relevant to the decadal survey.

Before responding to the RFI, please read the [Frequently Asked Questions \(FAQs\)](#). Anyone responding to the RFI who has self-nominated, or been suggested for service on a survey committee, should pay particular attention to the FAQ: “Are authors eligible to serve on the survey steering committee and the supporting panels?”

For full consideration, please submit your response by August 24, 2026, 11:59 Pacific Time, via this [form](#).

Questions about the RFI may be sent to project’s mailbox: esas2028@nas.edu.