



National Aeronautics and
Space Administration

CESAS Briefing

Earth Science ROSES Update

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A large, circular graphic on the right side of the slide. It features a central image of the Earth from space, surrounded by concentric rings of various Earth science data visualizations, including satellite imagery of land, water, and ice, as well as a network diagram at the bottom right. A satellite is shown in orbit above the Earth, and a NASA aircraft is shown flying below it.

NASA Earth

ESD Research Strategy Provides Flexibility

- Simplify Research organization structure (transition to Spheres)
- Use directed funds to maintain community-serving capabilities
- Provide steady cadence of ROSES opportunities for all
- Streamline and accelerate the ROSES application, evaluation, and award processes
- Enhance communication to our science community



ESD Research advances Earth system science by enabling the use of satellite, airborne, and ground-based observations, along with modeling approaches, to improve understanding of Earth processes.

Atmosphere

Studies 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.

Geosphere

Studies processes and changes in the Earth's core, mantle, and crust along with surface topography and geology, and the hazards they generate, along with studying geodesy and geodynamics.

Biosphere

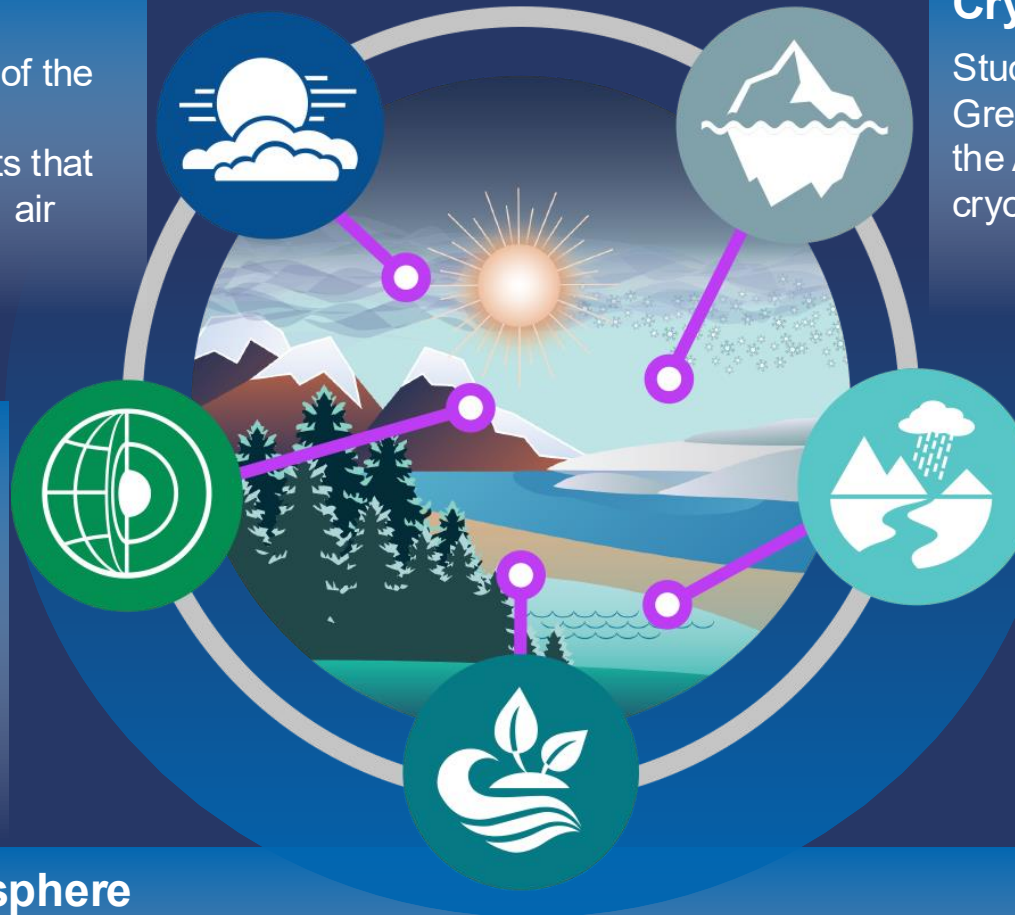
Studies the interactions between/within terrestrial and aquatic ecosystems, along with changes in their biogeochemistry and biodiversity, to further understand the Earth system in which both human-induced and natural changes influence productivity and the availability of natural resources.

Cryosphere

Studies polar ice, including the Antarctic and Greenland ice sheets, polar glaciers, sea ice in the Arctic and Southern Oceans, and the cryosphere's link to Earth system.

Hydrosphere

Improves the observation, understanding, and prediction of water and energy in the Earth System across land, ocean, and the atmosphere through the integration of measurements from satellites, surface networks, and airborne campaigns.



Enabling Capabilities

Foundational cross-cutting activities, opportunities, technologies, systems, or processes that benefit all Earth Science Division elements and science Spheres.

Airborne Science Program

Integrated Earth System Modeling

Ground Networks, Calibration Labs, and Crowdsourcing

Early Career Research



Goal: Reduce Submission Burden and Reviewer Workload While Increasing Productivity and Efficiency

Some potential changes include:

1. ESD Research releasing an element for each Sphere instead of each program
2. Implementing a two-step process or mandatory NOI
3. Reducing proposal length (5, 10, and 12 pages)
4. Proposing a fixed dollar amount with budget submitted and finalized after selection
5. Open solicitation with no due dates
6. Utilizing pre-panel reviews for modified proposal triage

Implementing some or all of these measures will reduce review time (proposal submittal to selection decision) from six months to under three months.



Past and Current ROSES-25 Elements

January 13, 2026	A.2 Earth Venture: TROPICS and PREFIRE Science and Applications Team
May 14, 2026 (Step-2)	A.3 NASA ISRO Synthetic Aperture Radar (NISAR) Mission Data, Applications, Research, and Technology (DART) Team
No Due Date	A.4 Rapid Response and Novel Research in Earth Science (RRNES)
September 9, 2025	A.5 Earth Venture Suborbital-4 Snow4Flow Science Team
April 14, 2026 (Step-2)	A.6 Earth Venture Suborbital-4 Landslide Change Characterization Experiment (LACCE) Science Team
December 16, 2025	A.7 Water Quality Applications
January 20, 2026	A.8 Water Resources Applications
January 9, 2026	A.9 User-Centered Applications with Large Earth Foundation Models
No Due Date	A.10 INNOVATE



Link to ROSES-25 Table of Solicited Research Programs



Planned ROSES-25 Elements

A.11 Early Career Investigator Program in Earth Science (ECIP-ES)

A.12 Earth Venture Suborbital-4 Hemispheric Airborne Measurements of Air Quality (HAMAQ) Science Team

A.13 Accelerating Earth Solutions

A.14 Atmosphere

A.15 Biosphere

A.16 Cryosphere

A.17 Geosphere

A.18 Hydrosphere

F.X Future Investigators in NASA Earth and Space Science and Technology (FINESST)



Planned ROSES-26 Elements

Estimated for Summer 2026 (release date and elements subject to change)



Earth System Science

- Atmosphere
- Biosphere
- Cryosphere
- Geosphere
- Hydrosphere
- Integrated Earth System Modeling (IESM)
- Professional Engineering and Scientist Exchange Program (PESEP)



Technology

- FireSense Technology
- Intelligent Systems
- Venture Technology Accelerator



Earth Action

- Accelerating Earth Solutions
- Agriculture
- Commercial Data Calibration and Validation
- Disaster Risk Reduction, Recovery, Resilience
- Energy & Infrastructure
- INNOVATE
- User-Centered Applications from Large Earth Foundational Models



ESD and SMD

- Future Investigators in NASA Earth and Space Science and Technology (FINESST)
- Multisource Integrated Observatory (MIO)
- Rapid Response and Novel Research in Earth Science (RRNES)
- Supporting High-Impact Opportunities for Uniting Teams (SHOUT)



1512

PROPOSALS
REVIEWED

110

PANELS

1507

PANELISTS

593

EXTERNAL
REVIEWERS

ESD Research by the Numbers: Calendar Year 2025





NASA Earth

Your Home.

Our Mission.

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