National Aeronautics and Space Administration

Earth Science Division

Town Hall



Faster to Science

Oct. 29, 2026

Karen St. Germain
Director, Earth Science Division

Agenda
Faster to Science

- **Science as a Service**
  Exploring commercial capabilities
- **Updates to the Earth System Observatory**
  Advances in the Earth observing fleet
- **ROSES**
  Streamlining and focusing our grant resources



Earth Science to **Action Strategy**



Virtuous Cycle

Public Understanding & Exchange

Solutions with Value to the Nation

Earth System Science & Applied Research

Foundational Knowledge, Technology, Missions & Data

Earth Science Ignited

FAST: in the processes we implement (acquisitions, selections, development)

UNIQUE: Mission science focused on NASA-unique knowledge and capabilities

INNOVATIVE: Legacy missions retire to enable new technology and missions that maximize discovery

PARTNERED: Partnership models maximize science return and impact throughout mission lifecycle

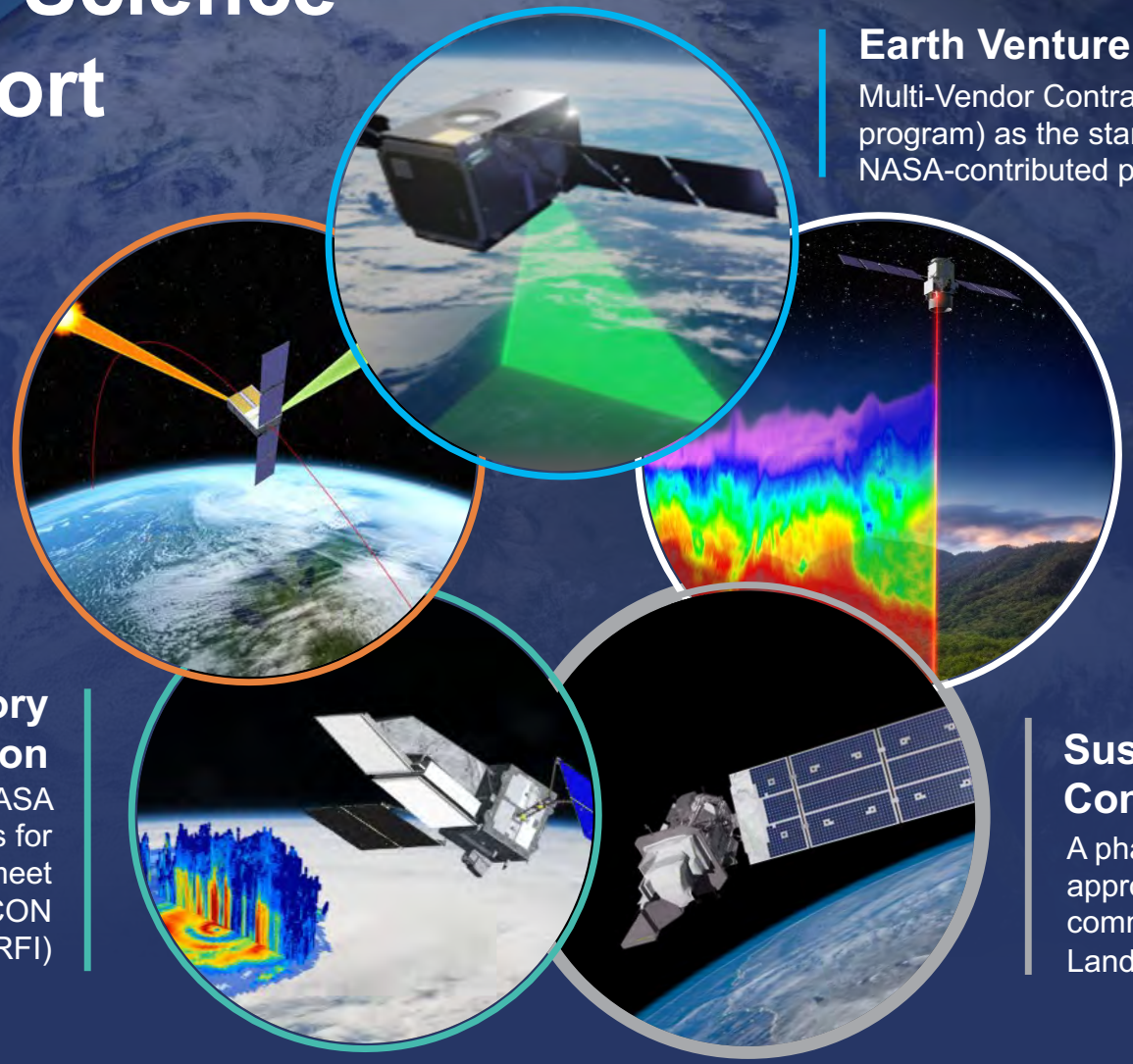
ALIGNED: Technologies for Earth observation also advance exploration missions and American industry

IMPACTFUL: Implementing EO 14239 for supporting State and Local Resilience



NISAR Launch
July 30, 2025
Credit: ISRO

Major Earth Science Lines of Effort



Earth Venture

Multi-Vendor Contract (Flight Opportunities program) as the standard approach for NASA-contributed platforms (EVO-1)

Venture Technology Accelerator

Identifying commercial fleet operators as partners to host small technology demonstrations

Earth System Explorers

Competitively selected missions with commercial partners that provide complementary observations (STRIVE)

Earth System Observatory Evolution

36-month rapid development of NASA unique missions including opportunities for commercial observations that can meet NASA's measurement needs (FALCON Radiometry RFI)

Sustainable Land Imaging Commercialization

A phased, product-based approach to support integrating commercial data into the Landsat record.

What is Science as a Service?

- Science as a Service (SaaS) is using existing industry capabilities and signaling future needs to enable science faster
- SaaS RFI released March 2026 to obtain community feedback on
  - Commercial Technology Needs
  - Pathways for Commercial Use
  - Streamlined Access to Space and Integration Support
  - Partnerships and Community Ecosystem
  - Program, Funding Models, and Milestone Structures
- Received nearly 200 responses and approximately 1,000 pages of content

Faster to Science: SaaS RFI
Key Takeaways



Commercial Technology Needs and Gaps

- Validation and Flight Access
- Calibration and Standards
- Manufacturability and Supply Chain
- Data Infrastructure



Streamlined Integration to Speed Access to Space

- Standardized Interfaces
- Shared Infrastructure
- Ground Segment and Data Operations



Partnerships and Community Ecosystem

- Co-Funded Pilots
- Academic and Nonprofit Roles
- Workshops and Working Groups
- International Collaboration



Demonstration Pathways and Validation

- Hosted Payloads and Rideshare
- Pre-Flight Validation
- Standardized Documentation
- Rapid Iteration



Transition to Commercial Operations

- Productization
- Lifecycle Support
- Business Models



Program Design, Funding Models, and Milestone Structures

- Milestone-based Funding
- Open Data and IP
- Sustainability and Scalability

Faster to Science: SaaS RFI
Key Takeaways Mapped to Initiatives



Commercial Technology Needs and Gaps

- SLI Commercialization
- CSDA efficiencies
- Vendor cal/val support



Streamlined Integration to Speed Access to Space

- SLI Commercialization
- FOP/Earth Ventures



Partnerships and Community Ecosystem

- SLI Commercialization
- VTA
- CSDA efficiencies
- Vendor cal/val support
- SWxP
- Private Sector
- Engagement



Demonstration Pathways and Validation

- SLI Commercialization
- FALCON Radiometer
- FOP/Earth Ventures
- VTA
- GDC Trailblazer
- CSDA efficiencies
- Vendor cal/val support



Transition to Commercial Operations

- SLI Commercialization
- FALCON Radiometer
- FOP/Earth Ventures
- SWxP



Program Design, Funding Models, and Milestone Structures

- SLI Commercialization
- Radiometer
- FOP/Earth Venture
- VTA
- CSDA efficiencies
- SWxP
- Private Sector Engagement

NASA CSDA Commercial Data Portfolio

Broadening Access to Diverse, Complementary Earth Observation Capabilities

OPTICAL/ MULTISPECTRAL

- AIRBUS
- planet.
- BLACK SKY
- SATELLOGIC
- ISI
- SATLANTIS
- Vantor

HYPERSPECTRAL (VNIR-SWIR)

- planet.
- pixxel
- TELEDYNE BROWN ENGINEERING
- KUVA SPACE
- WYVERN
- OSK

SAR

- AIRBUS
- Capella Space
- ICEYE
- UMBRA
- MDA SPACE

GNSS (RO/R)

- PLANETIQ
- spire
- MuonSpace

THERMAL INFRARED

- Hydrosat
- OroraTech

PRECIPITATION/ MICROWAVE

- tomorrow.io

ATMOSPHERIC/ GHG

- GHGSAT
- SATLANTIS

DEM/ ELEVATION

- AIRBUS
- Vantor

DIVERSE
Broad set of commercial partners and capabilities

COMPLEMENTARY
Complements NASA's Earth observations

RESPONSIVE
Rapid access to data for timely decision making

ACCESSIBLE
Structured delivery framework broadens U.S. government access.

NASA Provided **Calibration and Validation**

NASA's world-class calibration and validation infrastructure helps commercial Earth observation providers achieve science-quality performance faster, accelerating the use of commercial data in research, applications, and future NASA missions.

- **Build science-ready commercial data**

  Close the gap between emerging commercial capabilities and trusted interoperable data suitable for scientific use.

- **Unlock NASA's unique infrastructure:**

  Provide commercial providers access to NASA's calibration expertise, reference instruments, airborne campaigns, field measurements, and validation opportunities.

- **Accelerate innovation across the EO ecosystem:**

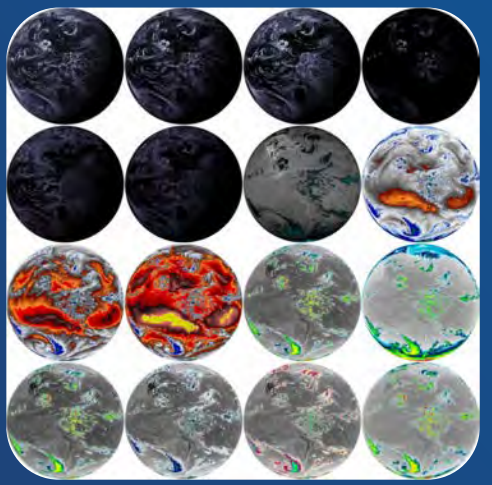
  Enable commercial providers and NASA missions to work together to improve data quality, performance, and scientific utility.

- **Accelerate Impact:**

  Reduce the time and cost required to demonstrate data quality and increase confidence in commercial observations, enabling broader integration across NASA research, applications, and future missions.



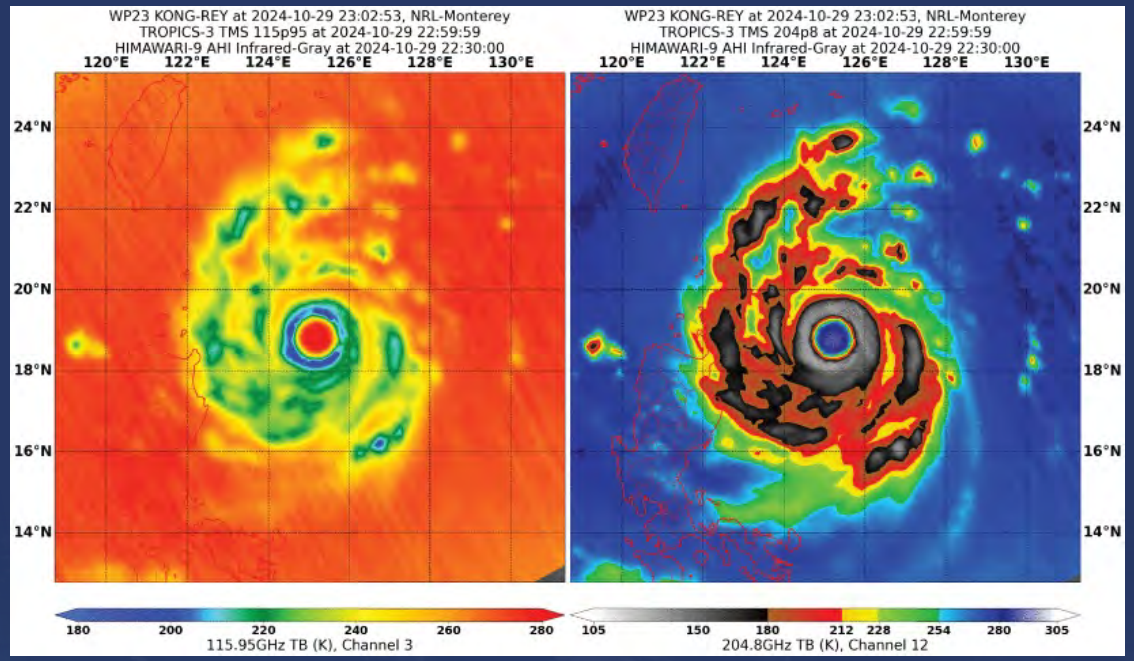
Radiometric Calibration Laboratory



GOES-16 ABI reprocessed Level-1b full disk imagery, all channels, 2019-06-02 at 2000 UTC

FALCON-Radiometry
Competed Commercial Capability

- FALCON integrates NASA-unique innovations, partner assets, and commercial capabilities into a coordinated fleet that maximizes science return
- Radiometry provides the temperature and water vapor measurements that enable all other FALCON capabilities
- Enables opportunity to develop world-leading SI training datasets from coordinated measurements
- Radiometer solicitation planned for FY27
- Target launch: 2029, 2030



Imagery from the NASA TROPICS mission of Typhoon Kong-rev. The TROPICS microwave radiometer has been transitioned to industry and is now flown and operated by Tomorrow.io (Figure from Blackwell et al. 2025).

Faster to Science
Venture Technology Accelerator

New Earth Science Technology initiative to accelerate transition of next-generation Earth observation technologies to science missions, operational agencies and commercial providers:

- Maturing high-potential Earth-observing technologies
- Identifying transition pathways early
- Engaging potential end users in targeted flight demonstrations and on-orbit validation planning
- Serving as a bridge to commercialization, infusion, and operations



Image Credit: NASA

Sustainable Land Imaging **Commercialization Plan**

USGS

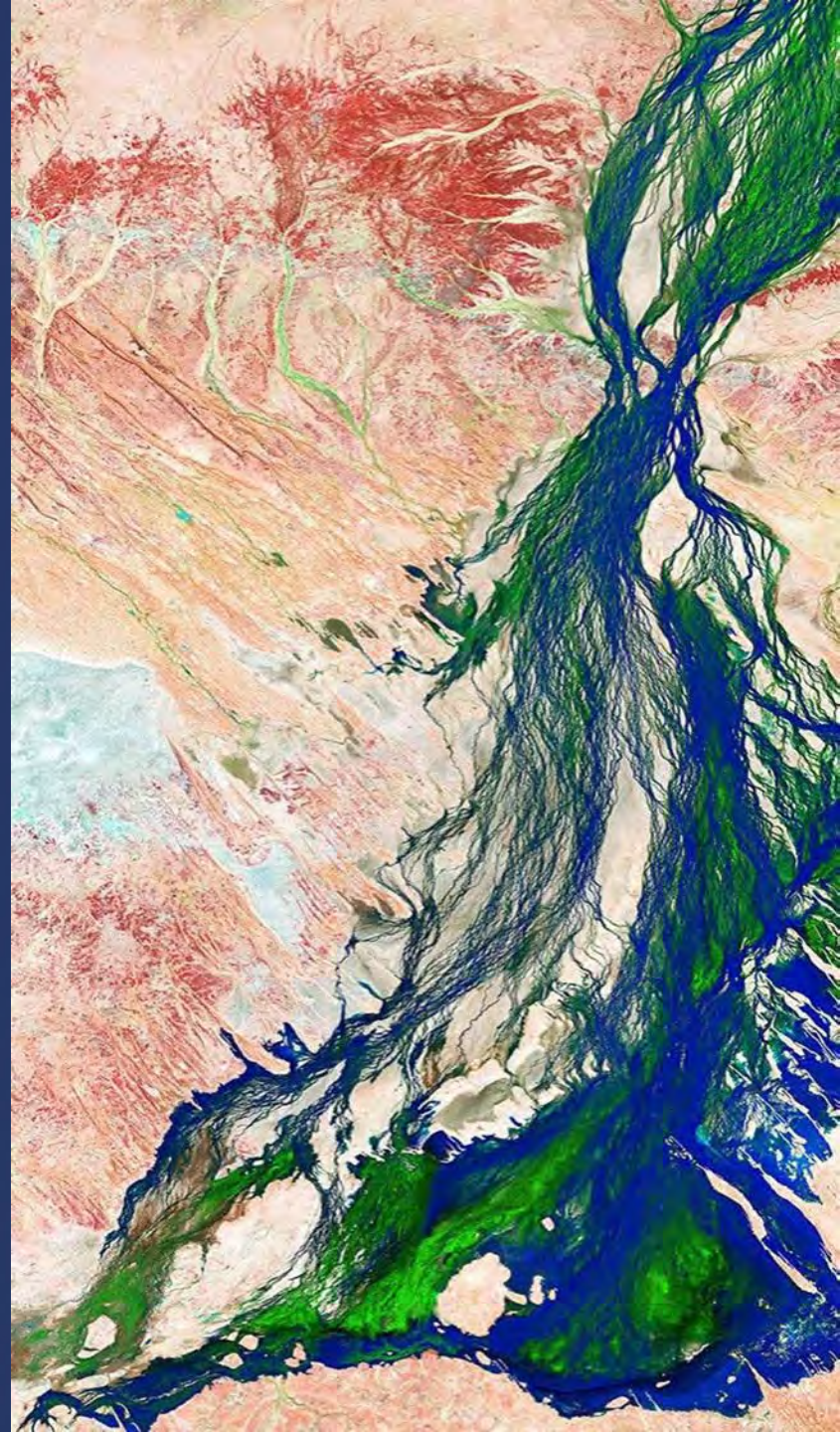
Approach for product-based strategy

As soon as feasible and no later than 2035, all or the majority of USGS Landsat data products are produced using commercially-provided data, which is harmonizable with the historical archive, from a robust and competitive marketplace supported by a rolling federal procurement process that maintains the value of the Landsat data record.

Phases

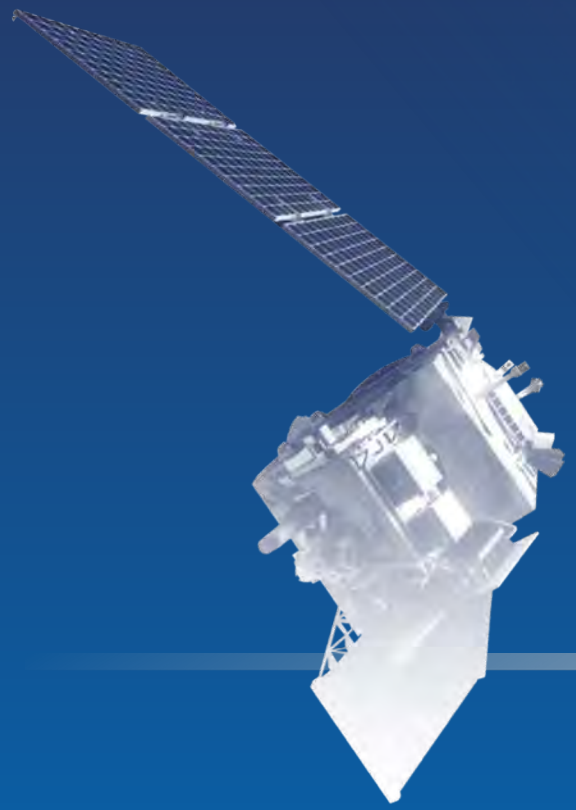
- Demonstration (FY27-28)
- Initial capability and comprehensive assessment (FY29-31)
- Operational capability (by FY35)

A phased, product-based approach to support integrating commercial data into the Landsat record.



Australia's Diamantina River captured by Landsat 8's Operational Land Imager (OLI) on April 7, 2023. NASA

Upcoming SaaS Opportunities*



FY27

CSDA vendor rolling on-ramps start

Earth Venture Orbital (EVO)-1 Solicitation

FALCON Radiometer Solicitation

Commercial Mission Operations Center (MOC) Solicitation

FY28

Venture Tech Accelerator (VTA) Solicitation

*Notional, subject to appropriations

ESD's Private Sector Engagement Strategy

Harness the power of **Earth Observations** to bolster America's **national security, safety, and economic prosperity**.

Unlock economic potential of NASA's Earth science cutting-edge capabilities.



Increase **awareness and use** of NASA Assets



Build a thriving **Commercial User Community**



Identify **private-sector needs** and inform future NASA priorities



Foster **innovation** through collaborative projects



Updates to the Earth System Observatory: **Advances in NASA’s Earth science fleet**

EARTH SYSTEM OBSERVATORY

INTERCONNECTED CORE MISSIONS



CLOUDS, CONVECTION AND PRECIPITATION

INCUS
PolSIR
PMM
FALCON-Radar
Commercial Radiometry
FALCON-Lidar Next Gen

AEROSOLS

FALCON-Lidar Next Gen
STRIVE

MASS CHANGE

GRACE-C

SURFACE BIOLOGY AND GEOLOGY

EAGLE-VSWIR
EDGE
EAGLE-TIR

SURFACE DEFORMATION AND CHANGE

NISAR

07.29.2026

As of FY2026 Enacted Budget

NASA's Next-Generation Earth Observing Fleet: **Focused, Faster and Efficient Explorer Class Missions**

EAGLE-VSWIR (JPL):
- Best-in-class imaging spectrometer
- Direct technology support of lunar and Mars missions
- Target launch: 2029

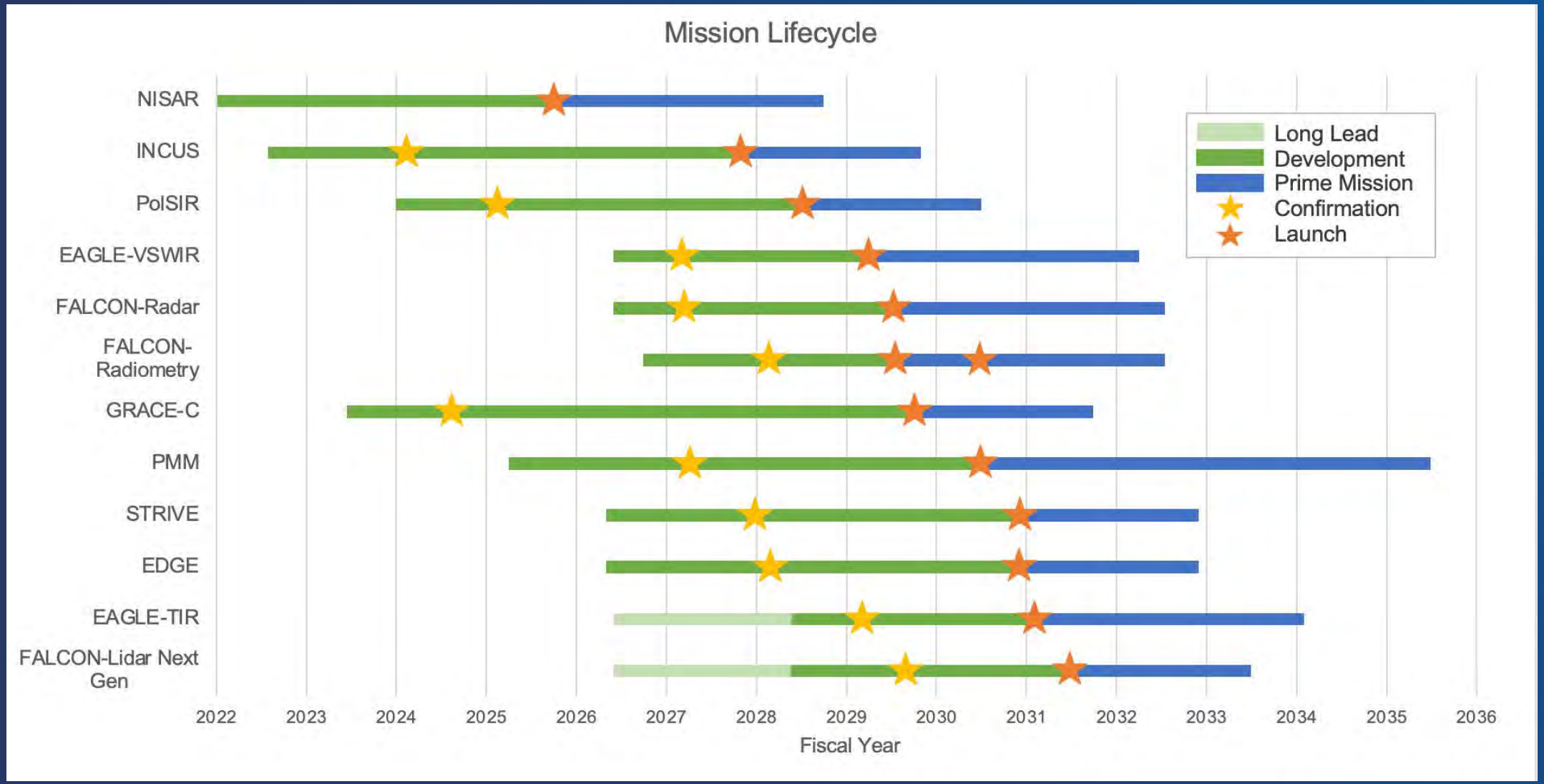
EAGLE-TIR (JPL):
- Thermal imagery with 3-day refresh and unmatched mid-infrared bands
- Unsaturated fire and volcano temperature sensing
- Target launch: 2031

FALCON-Radar (JPL):
- Advances technology for millimeter wave radar for Earth; lunar & Mars applications
- Improve understanding of severe weather drivers
- Target launch: 2029

FALCON-Lidar Next Gen (GSFC/LaRC):
- Cutting-edge detectors & laser for clouds, aerosols, first ever spaceborne lidar water vapor profiles
- Direct technology transfer from Earth to lunar and Mars exploration
- Target launch: 2031

Explorer class: cost-capped, 36-month timeline, directed missions

Earth System Observatory
Development/Launch Schedule Summary



Evolving the Decadal Survey Approach:
Full Community Engagement, Prioritization, and Flexibility

- **Expand community inputs through targeted, direct engagement with users outside the scientific community**
- **Prioritize science and observables through a mission-class based approach for NASA implementation**
- **Require flexibility to reaffirm or adjust priorities dependent on the evolving Earth Science domain during the next decade**
- **Focus on considering the:**
  - Unique capabilities that NASA brings to Earth observation, research and applications, and its importance for the Nation
  - Complementary, but independent, roles of other federal agencies with operational observation programs, including NOAA and USGS*
  - Expanding commercial EO sector and enabling its potential for advancing science and services
  - Evolving needs of users outside the scientific community across public, private, and civil sectors

**NASA is the only agency mandated in statute to solicit Decadal Survey recommendations as part of strategic planning*

Adopting a Mission-Class Framework

Shifting focus toward organizing high-priority science objectives into cost-capped, competitive or directed mission classes rather than tying recommendations to rigid, assumed budget profiles



Venture

- $35M-$250M
- < 36 months to orbit
- Higher-risk (tailored Class D and commercial best practices)
- EVO competition (PI-led) or Directed
- Fully commercial missions possible

Emphasizes rapid development, commercial partnerships, and innovative, high-risk/high-reward science



Explorer

- $251M-$500M
- 36-48 months to orbit
- Medium-risk (tailored Class C and commercial best practices)
- ESE Competition (PI-led) or Directed

Enables priority science and decadal objectives not met by Venture or commercial missions



Large

- >$500M
- Directed
- Lower-risk (typically Class C and commercial best practices)

Delivers transformational science not achievable through smaller or disaggregated approaches



ROSES: Streamlining and focusing our grant resources

Reducing Submission Burden and Reviewer Workload While Increasing Productivity and Efficiency

Changes implemented in recent ROSES calls:

1. ESD releasing more omnibus solicitations (an element for each Sphere, Accelerating Earth Solutions (AES))
2. Implementing a two-step process or mandatory Notice of Intent (NOI)
3. Reducing proposal length (12 pages or less)
4. Using pre-panel reviews for proposal triage

Implementing these measures reduces review time **from 162 days (ROSES-24) to 91 days (ROSES-25)** between proposal submittal to selection decision.



ROSES-25 Completed

Link to ROSES-25 Table of Solicited Research Programs

Element	Title
A.2	Earth Venture: TROPICS and PREFIRE Science and Applications Teams
A.3	NASA ISRO Synthetic Aperture Radar Mission Data, Applications, Research, and Technology Team
A.5	Earth Venture Suborbital-4 Snow4Flow Science Team
A.6	Earth Venture Suborbital-4 Landslide Change Characterization Experiment Science Team
A.7	Water Quality Applications
A.8	Water Resources Applications
A.9	User-Centered Applications with Large Earth Foundation Models
A.10	INNOVATE
A.11	Early Career Investigator Program in Earth Science
A.12	Hemispheric Airborne Measurements of Air Quality (HAMAQ) Science Team

ROSES-25 In Progress

Link to ROSES-25 Table of Solicited Research Programs

Title	Element	Deadline	Program Officer(s)
Rapid Response and Novel Research in Earth Science (RRNES)	A.4	No Due Date	Krishna Vadrevu
Accelerating Earth Solutions (AES)	A.13	Oct 15	Earth Action Team
Atmosphere	A.14	Aug 20 (Mandatory NOIs) Dec 2 (Proposals)	Atmosphere Team
Biosphere	A.15	Sep 4 (Step-1s) Nov 6 (Step-2s)	Biosphere Team
Cryosphere	A.16	Oct 16 (Mandatory NOIs) Dec 4 (Proposals)	Cryosphere Team
Hydrosphere	A.17	Oct 8 (Step-1s) Jan 28 (Step-2s)	Hydrosphere Team
Geosphere	A.18	Nov 16 (Mandatory NOIs) Jan 15 (Proposals)	Geosphere Team
Future Investigators in NASA Earth and Space Science and Technology (FINESST)	F.5	Jul 14	Early Career Research (ECR) Team

Planned ROSES-27 Elements

Elements subject to change

Title
Atmosphere Biosphere Cryosphere Geosphere Hydrosphere
Professional Engineering and Scientist Exchange Program (PESEP-Earth)
Intelligent Systems FireSense Technology

Title
Accelerating Earth Solutions (AES) Commercial Satellite Data Acquisition Program Cal/Val INNOVATE
Rapid Response and Novel Research in Earth Science (RRNES)
Multisource Integrated Observatory (MIO): ESO Integrated DART(s) MIO Water MIO Life
Future Investigators in NASA Earth and Space Science and Technology (FINESST)

1098
PROPOSALS REVIEWED

31
PANELS

464
PANELISTS & EXTERNAL REVIEWERS

ESD ROSES by the Numbers: FY 2026

(as of September 30)



Ongoing Engagement with the Earth Science Community

- National Academies Decadal Survey Kickoff, upcoming
- ESD Town Hall, American Geophysical Union Annual Meeting, Dec. 7
- ESD Town Hall, American Meteorological Society Annual Meeting, Jan. 10 (to be confirmed)



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