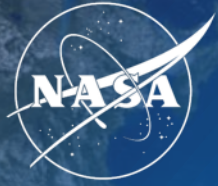


National Aeronautics and
Space Administration



NASA Earth

The Economic and Societal Value of NASA Earth Observation Data

Briefing to the National Academies, June 15, 2026

Karen St. Germain, PhD
Director

NASA Earth System Science

Atmosphere

Ocean

Land

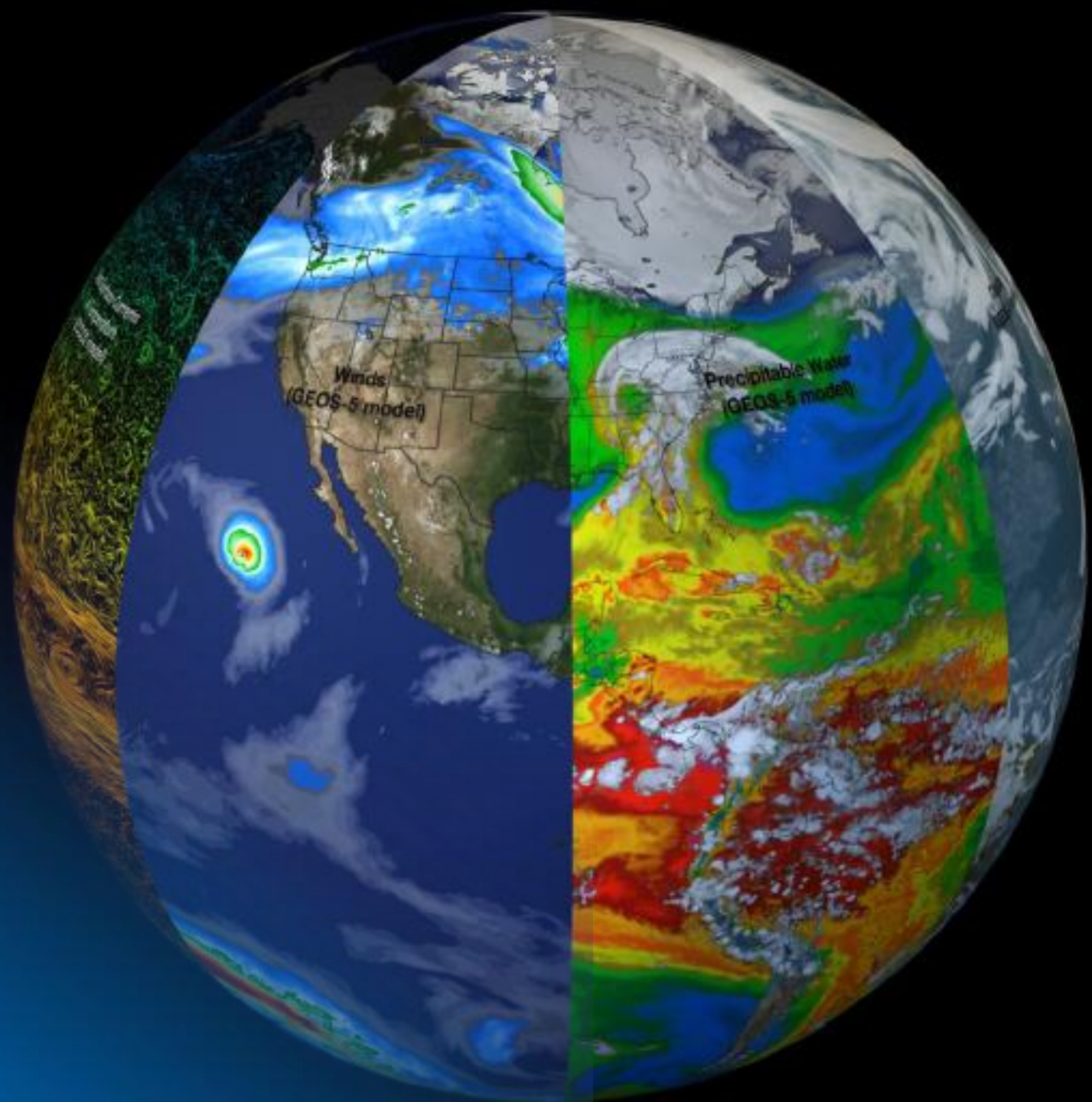
Biomes

Inland Water

Ice

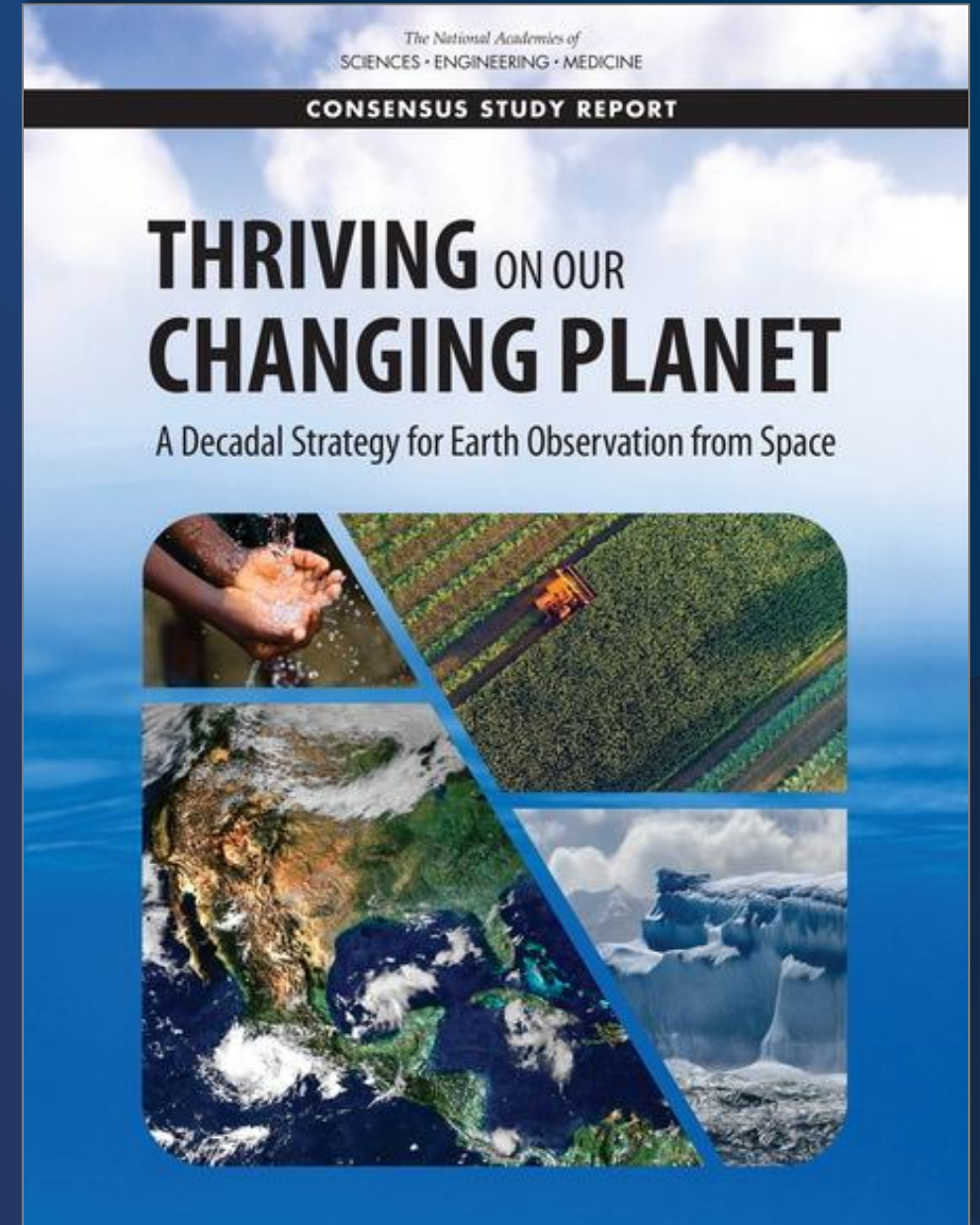
Earth Interior

Energy



The Decadal Survey: Guiding NASA Earth Science

- Cost-effectively implement next-generation capability to meet National Academies of Science objectives
- Advance technology, flight, research, modeling, data, and applications
- Position NASA Earth Science Division to maximize science and societal benefit



NASA's End-to-end Earth System Science Capability

Technology



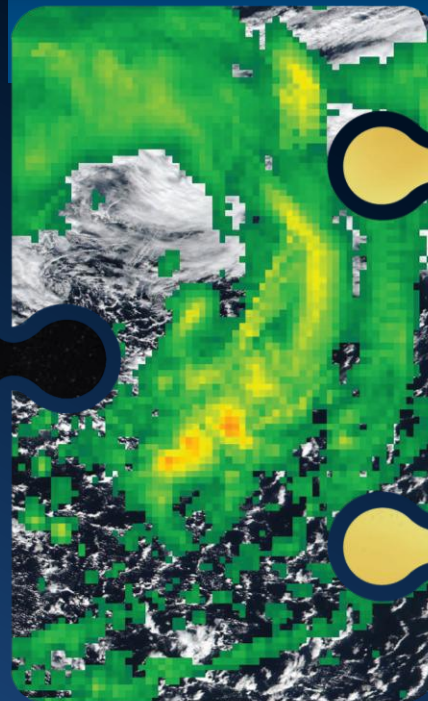
**10 Tech
Infusions/year**

Flight



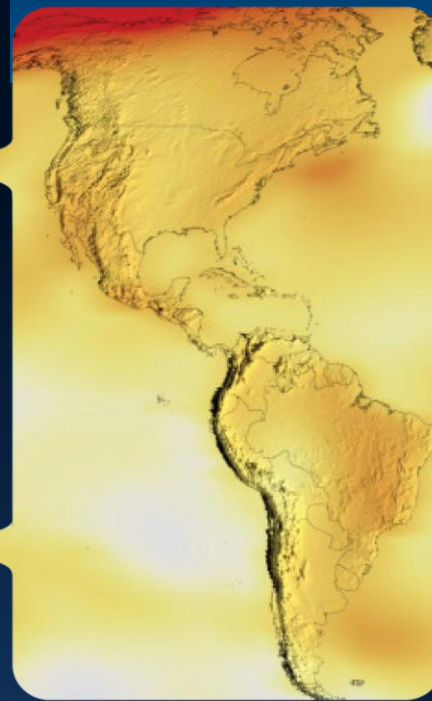
**24 missions
on orbit**

Data and Modeling



**Collect 160 TB/Day
Serving 600 TB/Day
>10M Users
World-Class Models**

Research



**1,330 Active
Research
Projects
48 States**

Earth Action



**Agriculture
Energy
Disasters
Wildfires
& more**

Earth Science to Action Strategy

Earth Science to Action



Virtuous Cycle

- User needs inform next iteration of programs, missions and initiatives

Public Understanding & Exchange

- Put more scientific understanding into public sphere
- Deliver applied science to users
- Participate in multi-way info exchange
- Use input to inform subsequent work

Solutions with Value to the Nation

- Offer models, scientific findings and info through Open-Source Science principles
- Support private sector development of applications of Earth observations
- Provide science applications and tools to inform decisions

Earth System Science & Applied Research

- Grow scientific understanding of Earth's systems
- Develop predictive models of dynamic Earth systems and tools to understand and adapt to changes

Foundational Knowledge, Technology, Missions & Data

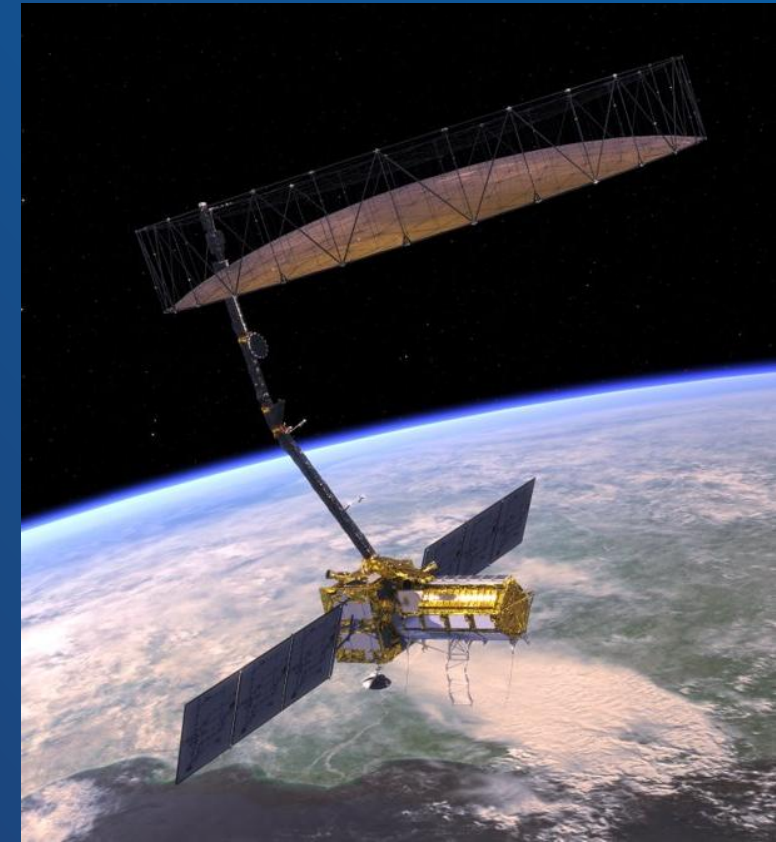
- Technology innovation
- Earth observations missions
- Data collected from space, air and ground

NASA drives Earth Observation and Science for the Nation

Cutting-edge instruments make highly-calibrated, accuracy-validated, and openly available measurements, such as:

- Soil moisture and changes in aquifer levels
- Changes in landcover and coastlines
- Temperatures, winds, and precipitation
- Crop health and yield
- Snowpack and ice cover
- Changing patterns of severe weather
- Changes in Earth's shape and center of mass that affect navigation
- Much more...

NASA's information and data drive humanity's understanding of the science of how our Earth works and our ability to predict and respond



NISAR mission, artist rendering, NASA/JPL

These data are a national strategic asset, powering business, security, and disaster response decisions for more than 60 years.

Expanding NASA Earth Science and U.S. Industry Collaboration *Fueling Billions in Economic Activity*

Private sector companies ranging from insurance to agriculture to heavy equipment manufacturers and more use NASA Earth Science Division data – from both daily observations and the 60-year data archive – to guide business decisions worth billions of dollars to the U.S. economy.

NASA has identified opportunities to further scale the economic value of NASA data across economic sectors for:

- Competitive advantages in both domestic and overseas markets
- New product lines
- Greater operational efficiencies
- Improved planning outcomes
- Better financial models
- Smarter risk management

NASA Collaborates with U.S. Industry Partners

From Innovation to Impact

NASA collaboration with industry to co-develop, learn, and deliver:

- Generates the scientific data necessary to inform decisions at every scale – from a single farm field to an entire financial field
- Leverages technical innovation – from public and private sectors – to develop novel applications or “use cases” of Earth science information
- Co-develops products, tools and analyses to meet critical needs
- Links technology, research and development, and actionable science to ensure rapid transfer from innovation to impact

“Data is the key. If we can measure it, we can quantify it, we can solve it.” -- Dwane Roth, Finney County, Kan., wheat farmer and user of NASA’s OpenET data tool





U.S. Chamber of Commerce hosted the **NASA Earth Science & Industry Summit** Feb. 2, 2026, in Washington, DC.

Here, Dr. Karen St. Germain takes part in a panel discussion with industry leaders from MDA Space, Liberty Mutual, John Deere, and Cotality.

NASA Earth Science and Industry Summit attracted ~180 industry leaders to discuss needs, challenges, and collaboration opportunities

Overview

- Hosted by US Chamber of Commerce (Feb 2, 2026)
- Gathered leaders interested in using Earth observation to solve problems, drive economic development, and benefit society
- Discussed challenges of integrating satellite data—including commercial—into products, services, and risk management

Industry Representation

- 180 participants: agriculture; insurance; finance; energy generation, transmission, and utilities
- Fortune 500 well-represented

Approach

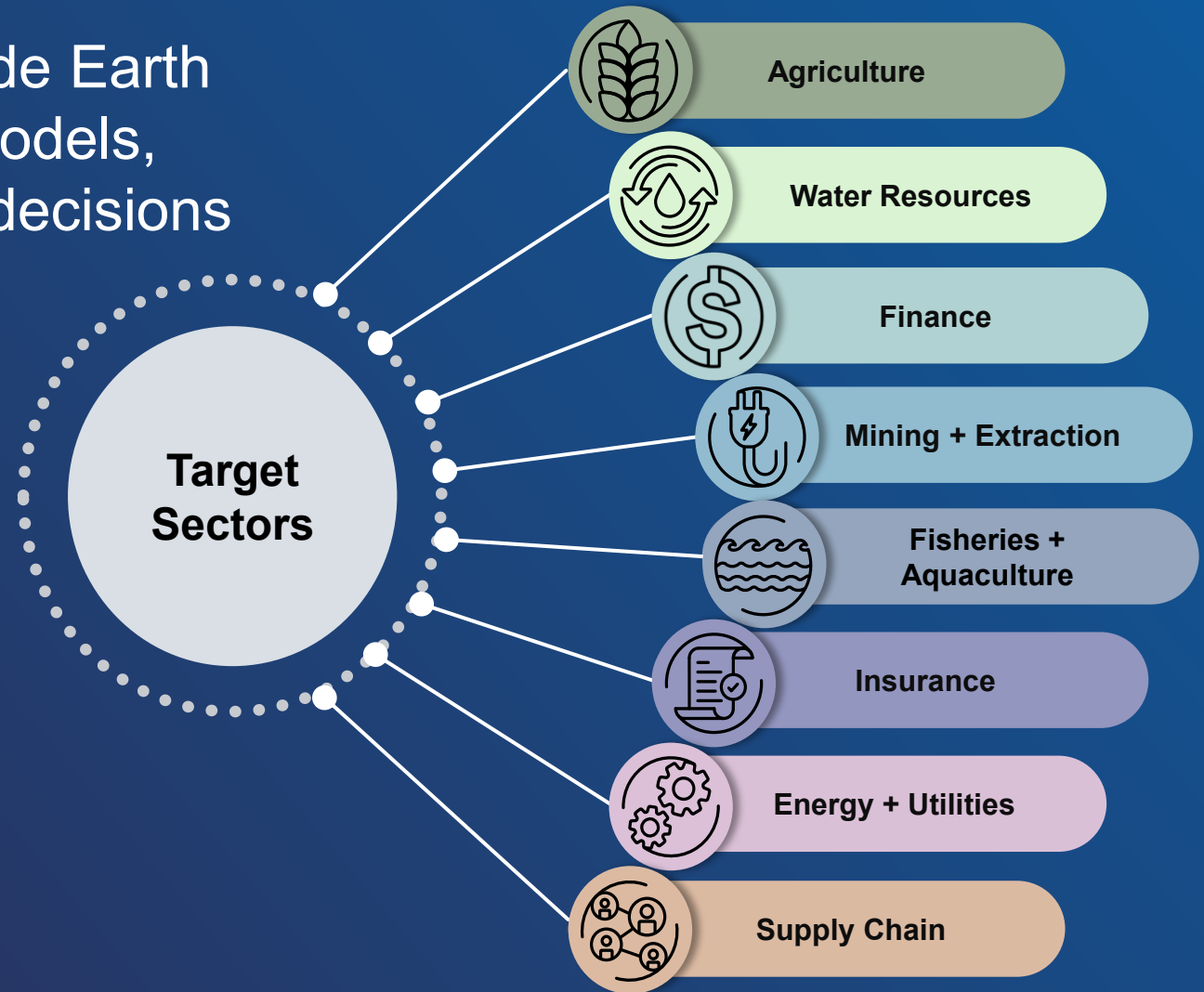
- Full-day event with panels and sector-specific breakouts
- Open dialogue on needs, trends, challenges, decision making, training, and opportunities for increased collaboration
- Follow-on event hosted by the National Academies to help inform the next Decadal Survey



Finding: Companies Engaged with NASA Earth Science are Enthusiastic Stakeholders – and Want More

Industry uses NASA's decision-grade Earth information and data to underpin models, risk assessments, and investment decisions worth **billions of dollars**

- Private sector leaders identified NASA's reliability, credibility, and technical leadership as essential reasons they rely on NASA data for day-to-day decisions
- Industry leaders also told NASA they need more "translation," clearer pathways from datasets to decisions, and products that are analysis- and cloud-ready for ease of integration



Insurance

Use Cases Today

- Understanding risk to set fair insurance prices
- Establishing automatic payout rules based on objective hazard metrics (wind speed, rainfall)
- Use of remote observations for faster damage analysis and quicker payouts after severe weather (wind, flood, wildfire/smoke)
- Tracking total risk across all policies (portfolio accumulation risk monitoring)



What They Need More of from NASA

- High-confidence, validated hazard data products and environmental benchmarks that are analysis-ready, prepared for the cloud, and easy to integrate into business operations
- Sustained engagement with insurance and reinsurance companies to co-develop products that are fit-for-purpose



The insurance industry needs validated datasets to price new products and use new approaches.

Agriculture

Use Cases Today

- Irrigation and water management decisions; drought and heat stress early warning
- Compliance with overseas requirements to access export markets
- Rapid post-event impact assessment (flood, wind, hail, wildfire)
- Clear, trustworthy measures of environmental conditions to manage risk to input sourcing and supply chain (e.g., fertilizer)

What They Need More of from NASA

- Decision-ready, verifiable, trusted data products co-developed from decades-deep datasets to fit existing farm and supply chain operations
- NASA-funded pilot projects, early-adopter initiatives, and training to scale up use
- Partnerships with trusted intermediaries, including other operational service agencies (e.g., National Weather Service)



Agriculture needs to co-develop tools and solutions with all stakeholders: farmers and ranchers, financiers, insurers, shippers, USDA, and other agencies.

Finance

Use Cases Today

- Climate and nature risk screening at asset and portfolio scale
- “What-if” tests and scenario analysis to assess how environmental conditions could impact performance for reporting risk to investors and regulators (e.g., Taskforce for Financial Disclosure)
- Location-based environmental data integrated directly into analysis, making it easier for risk teams to factor Earth science data into everyday decisions



What They Need More of from NASA

- A clear, curated set of trusted, high-quality datasets
- Data that's ready to use immediately: easy to load, easy to analyze
- Datasets that work with commonly used tools and cloud platforms
- Support for training so companies can scale up use from pilots to everyday corporate operations



Finance companies need decision-ready tools with mature, validated use cases.

Energy Utilities

Use Cases Today

- Siting and resilience planning for new assets and infrastructure
- Operational monitoring of hazards and disruptions to generation and transmission (heat, drought, wildfire/smoke, storms)
- High-resolution and long-record datasets for better prediction of demand and support for selection of wind-, water- and solar-based energy generation

What They Need More of from NASA

- Reliably available, easy-to-find data to plug into existing tools
- Guidance on which datasets to use without costly trial & error
- Pilot & early-adopter programs to reduce risk & safely test tools
- Partnerships with trusted federal partners for research-to-operations



This sector requires mature products that are production-ready, as risk tolerance forces slower adoption of emerging products.



Use of NASA Data Can Also Foster Growth of U.S. Commercial Earth Observation Sector

Non-government entities are responsible for less than 15% of commercial EO data sales, according to some commercial data providers. Major factors that restrict business-to-business (B2B) growth of commercial data sales include lack of verified use-cases and lack of trust in data.

How NASA helps U.S. commercial Earth Observation companies:

- Developing use-cases and practical applications of commercial data
- Signaling public sector trust in commercial data through purchases
- Accelerated commercial data buys
- Focused and facilitated private sector engagement
- Increased collaboration between commercial providers and NASA

How U.S. commercial Earth Observation companies benefit from partnering with NASA:

- NASA calibration and validation of commercial data products and tools
- Connecting commercial data to NASA's free and open data
- NASA-provided training to scale up commercial capacity



Commercial Data Panel, NASA Earth Science Industry Summit
Feb. 2, 2026

NASA is Meeting the Private Sector's Challenges

What's working:

- Open data, open science, freely accessible
 - Data transparency helps users see factors such as data heritage, calibration and changes over time
 - Shareable data (i.e., companies incorporate NASA data into products and services sold to customers)
 - Common basis for negotiations as all parties have access to the same trusted, neutral data
- Reliability, consistency, and coverage: validated, long-term global datasets
- Overcoming technical challenges to wider data use
- Wider use of data to inform state and local public sector resilience investment decisions

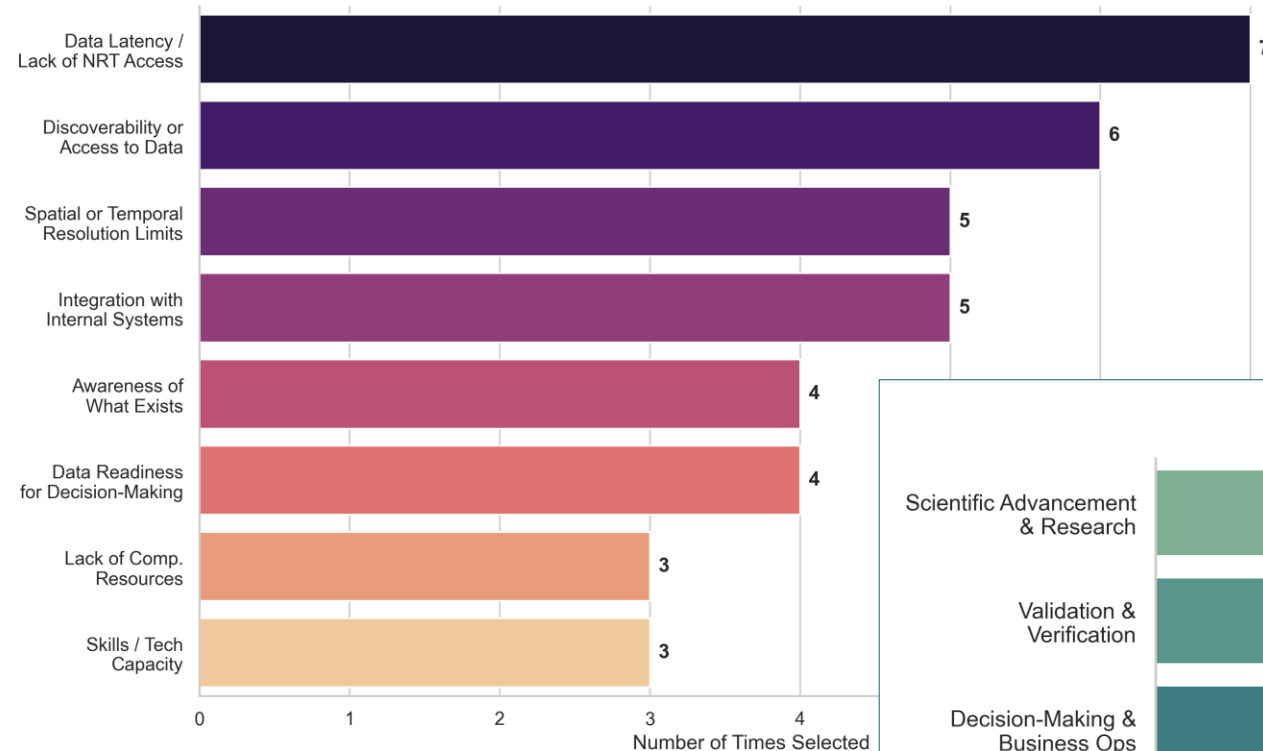
Priorities for increased focus:

- Make data easier to find, use, and access, including making datasets ready for AI
- Scale up NASA's successful efforts to co-develop the relevant, verified use cases and validated datasets that industry needs
- Raise awareness: 2026 Industry Summit attendees use specific NASA data, but only a fraction were aware of the full scope of NASA Earth science and data products

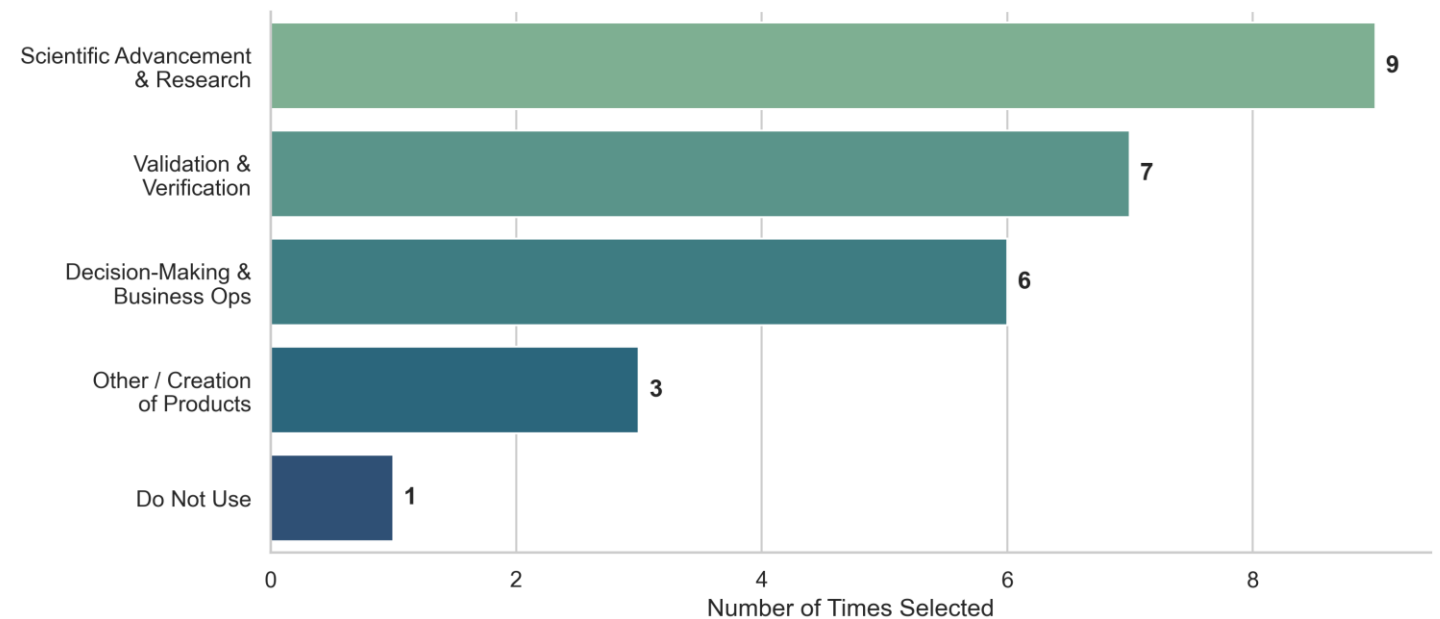
What We Heard from Industry

Survey Responses Following U.S. Chamber/ NASEM Event

Top Barriers to Using NASA Earth Data Effectively



How Organizations Currently Use NASA Assets



Scaling Engagement with the Private Sector: Competing with the EU and China

Strategic competitors are increasingly leveraging their sovereign science, data and technology capabilities to gain advantage over the United States. NASA is responding through:



Awareness Building

- Industry-focused web portal
- Embedded in industry forums
- Sector roundtables + working groups
- Targeted executive conversations
- Sector-specific use case catalog



Co-development and collaboration

- Formal partnerships
- Matchmaking initiatives
- Competed awards to catalyze innovation
- Pilot projects with anchor partners
- Pre-competitive industry collaboration



Capability advancement

- Integrated products
- Last Mile translation + solutions
- Technology and data transfer pathways



Capacity building for broader adoption

- Trainings (in-person and virtual)
- Tutorials (including use cases)
- Webinars (sector-focused learning series)

What NASA Data Users Say

“Satelligence, as a company, wouldn't exist without publicly available, high-quality datasets... The spatial, spectral and radiometric resolutions enable us to build high quality services.

More importantly, and often overlooked, the guaranteed lifespan of data availability of 10+ years in the future allows us to offer Service Level Agreements that comply with market requirements.”

-- *Arjen Vrielink, Director and owner, Satelligence*



What NASA Data Users Say

“Obviously top of the list is the data that NASA provides from remote constellations of satellites, and the associated training and documentation for the data quality considerations.

These are of the utmost importance and incredibly useful for R&D of products/solutions for the agriculture industry.”

*-- John Just, Senior Manager, Data Science,
John Deere*



What NASA Data Users Say

“As a food company, General Mills depends on resilient agricultural landscapes. NASA’s trusted Earth observation data helps turn water risk into actionable insight — supporting scalable solutions for critical watersheds nationally and globally.”

-- *Lilly Hancock, Senior Research & Agriculture Scientist, General Mills Inc.*





NASA Earth

Your Home.

Our Mission.

science.nasa.gov/earth