

NASA EARTH SCIENCE

IMPACTS AT A GLANCE



WHAT IS NASA EARTH SCIENCE

Most people think of deep space exploration when they hear the name, NASA. However, thousands of experts conduct cutting-edge research into Earth Science that helps us monitor, understand, and better predict environmental conditions that affect our economy, our security, and our ability to support thriving and healthy communities around the country. The Earth Sciences Division of NASA, housed at the Goddard Spaceflight Center has been the technical innovator and essential data provider supporting national infrastructure, scientific leadership, and economic resilience for almost 70 years.

HOW DOES NASA SAFEGUARD EARTH?

The United States depends on the Earth Science division to deliver integrated Earth observations, advanced models, and actionable insights to support the protection of lives, property, and critical systems. These foundational capabilities also fuel commercial innovation – providing industry with scalable remote sensing technology, reliable data, and AI-enhanced analytics to meet the growing demand for Earth intelligence.



Accelerating innovation and preserving American space dominance by pioneering next-generation sensors, technologies, and data systems.



AI-driven financial models are increasingly used to assess weather-related risks in global investment portfolios leveraging NASA's authoritative data.



Every person on Earth with a phone relies on NASA Earth Science geodesy technologies, which provide the backbone for accurate GPS, navigation, and satellite calibration.



74% of U.S. Fortune 100 companies rely on NASA Earth Science data to support operations, logistics, and risk management.



On-demand, global scale water cycle data is used for national defense and agriculture to forecast and manage threats associated with extreme weather, flooding, and water scarcity.



AMERICANS ARE MORE SECURE, COMPETITIVE, AND PROSPEROUS BECAUSE OF REASONABLE AND MEANINGFUL INVESTMENTS IN FEDERAL EARTH SCIENCE AND WEATHER INTELLIGENCE.

NASA GODDARD SPACE FLIGHT CENTER (GSFC)

The GSFC is NASA's premiere space flight complex and is home to the nation's largest organization of scientists and engineers who build spacecraft, instruments, and new technologies to study Earth, the Sun, and the universe. Earth-observing missions at GSFC focus on collecting satellite data about the planet, developing, running, and disseminating computational earth system models and their results. GSFC's world leading research is distributed freely across the country at American universities and all levels of the government.

MODELING

A comprehensive approach fuses high-quality, calibrated data from multiple sensors to develop and advance cutting-edge Earth system models. Adaptive virtual replicas of Earth systems offer scenario testing for a wide variety of uses, including strengthening U.S. resilience for disasters and resource impacts.



ATMOSPHERE

Advances knowledge of the Earth's atmosphere, including cloud and precipitation systems, Planetary Boundary Layer thermodynamics and air quality, ozone layer, and atmospheric radiation. Both the public and private sector rely on NASA technology and advanced analysis to unlock new understanding of these complex systems.



LAND & WATER

Continuing to understand Earth's water cycle, polar regions, land and ocean ecology, and geophysical phenomena, to benefit many societal needs. Earth system and purpose-built models deliver actionable information to support resource management, agriculture, ecosystem health assessment, and natural disaster mitigation.



DATA

Catalog of trusted Earth observation data is a national asset that keeps America at the forefront of intelligence, including real-time data to support emergency response and national defense. Accessible data stimulates the commercial Earth observation market, powers emerging AI methodologies and accelerates industry applications.



WANT TO GET INVOLVED?

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