



National Aeronautics and
Space Administration

Earth Action Update

Water Resources Program

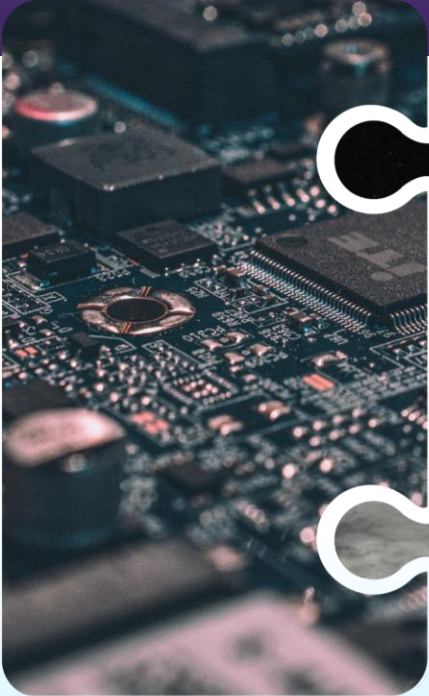
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Program Manager, Water Resources
NASA Earth Science Division, NASA HQ

September 3, 2026

NASA Earth

NASA Earth System Science Capability

Technology



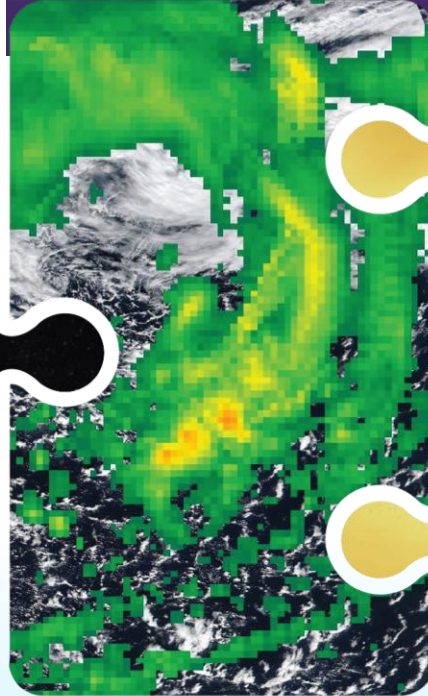
10 tech infusions/year

Flight



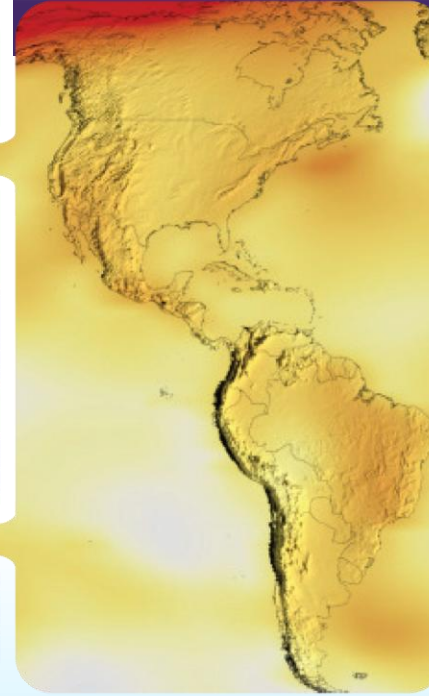
24 missions on orbit

Data and Modeling



Collect 160 TB/Day, serving 600 TB/Day, >10M users of world-class models

Research



Over 1,300 active research projects across the USA

Earth Action



Agriculture, Energy, Water, Disasters, Wildfires, & more

Earth Science to Action (ES2A)

Objective 2

Deliver trusted information to drive Earth resilience activities

Key Result 2.1: an advanced integrated end-to-end Earth system modeling capability

Key Result 2.2: user-centered solutions options and solutions-oriented applications and support tools

Key Result 2.3: trusted, actionable and science-based information

Key Result 2.4: increase visibility of Earth information and promote it as a national strategic asset



NASA Earth Action

To deliver impact in a world facing many complex challenges, Earth Action emphasizes three principles: **Scaling**, **Building Bridges**, and **User-centered Science**.



Scaling

Maximizes impact by building on existing research innovations and extending successful applications to new users.



Building bridges

Connects the knowledge generated by the NASA Earth Science Research Program to public and private sector organizations that can use that knowledge for societal benefit.

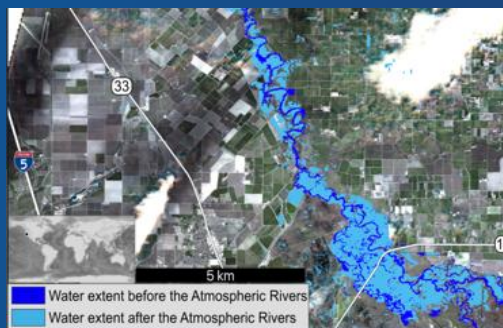


User-centered science

Puts user needs at the center of application projects and engages them as full partners in application development and implementation.

Earth Action Portfolio

Core Competed Programs



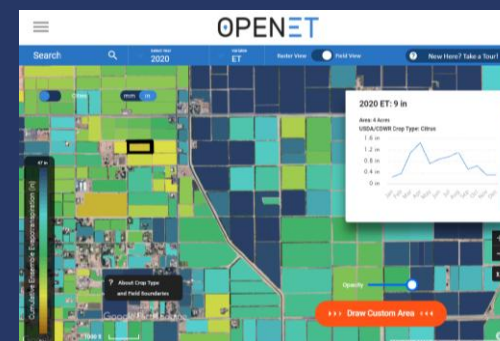
Application Innovation

- Core competed programs
- Water Resources, Health and Air Quality, Ecological Conservation
- Energy and Infrastructure



Disasters

- Disaster Response
- Competed Disaster program



Agriculture

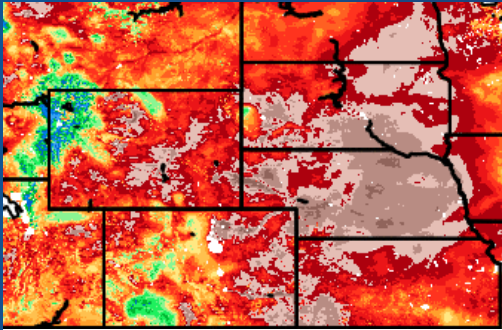
- Large consortia awards
- Domestic productivity
- International food security



Wildland Fires

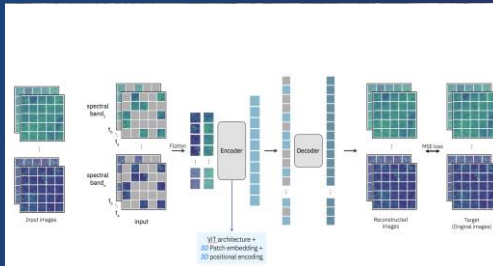
- Competed programs
- Field campaigns
- New technologies

Earth Action Portfolio Tools and Services



RSI Crosscutting

- ARSET, EarthRISE
- Earth Information Center
- Private Sector Engagement
- And more!



AI and Advanced Modeling Applications

- GeoAI to improve decision-making
- Other advanced modeling



Interagency Satellite Observation Needs

- Fulfills needs identified by federal agencies
- Develops some of NASA's most used data products
- aka SNWG



Commercial Satellite Data Acquisition

- Purchases to support ESD needs
- Sector support through product evals, cal-val, etc.
- Use-case dev.

NASA EarthRISE

Earth Resources for Industry and State Empowerment

EarthRISE accelerates the impact of NASA Earth Science for **state, local, Tribal, territorial, and private sector users** by translating user needs into coordinated action, delivering last-mile solutions, and preparing a mission-ready workforce.



SHORTER-TERM, LAST-MILE SOLUTIONS



LONGER-TERM CO-DEVELOPMENT



SCALING AND REPLICATING



NASA EARTH INTEGRATION



USER-DRIVEN INNOVATION



WORKFORCE DEVELOPMENT



Reach out to Natasha Sadoff,
EarthRISE Program Manager, at
natasha.sadoff@nasa.gov to learn
more about EarthRISE and discuss
the right resources for you.

Earth Action Strategy: Administration, Agency, ES2A

Safer, stronger, and more prosperous

Protect America: Maintain ability to adapt and adjust as pressing emerging challenges

Strengthen American resilience: Increase resilience to natural disasters, future weather, and health threats

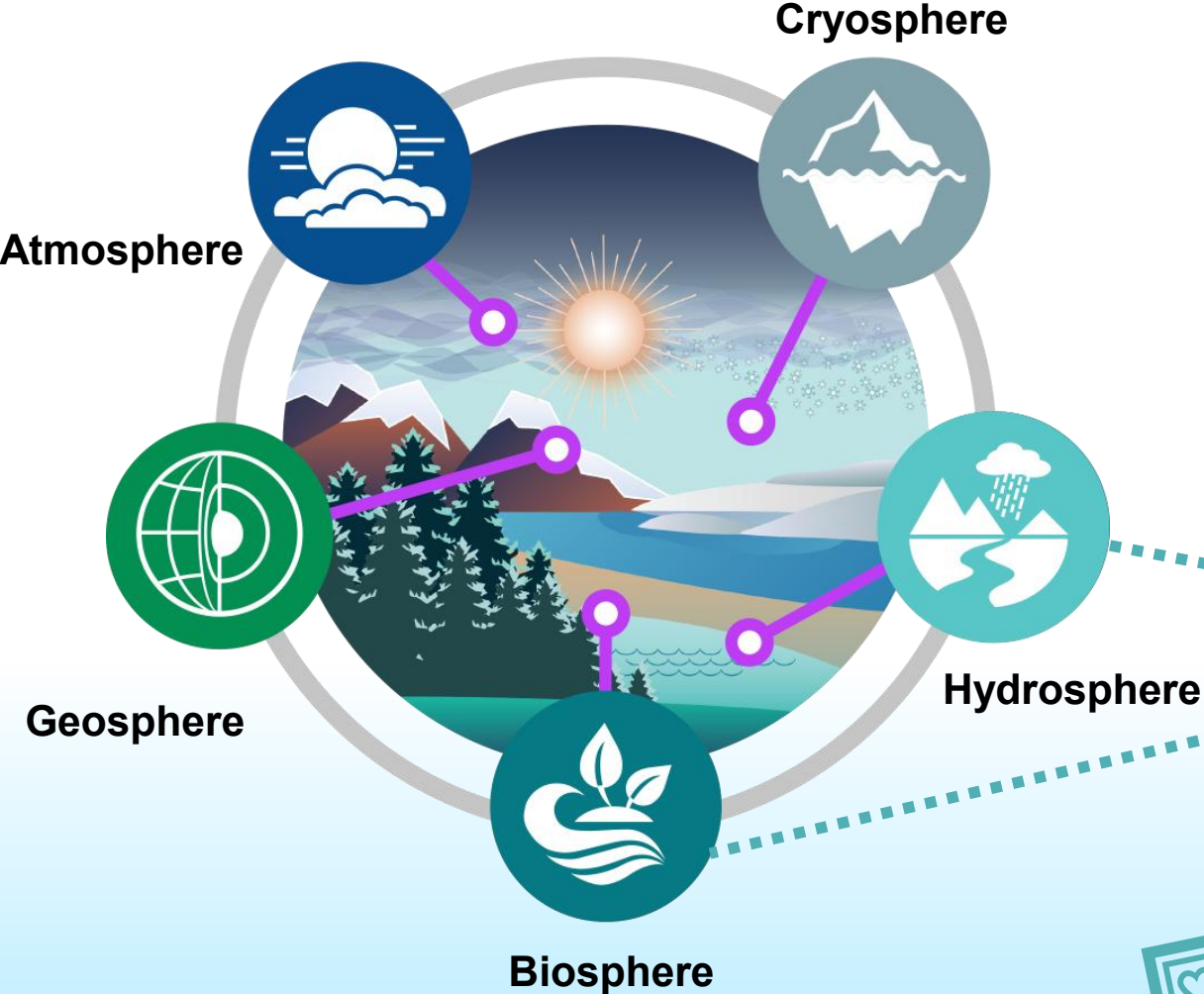
Drive American prosperity: Help U.S. businesses innovate and succeed

Accelerate use of AI: Widen access to Earth data and speed application development

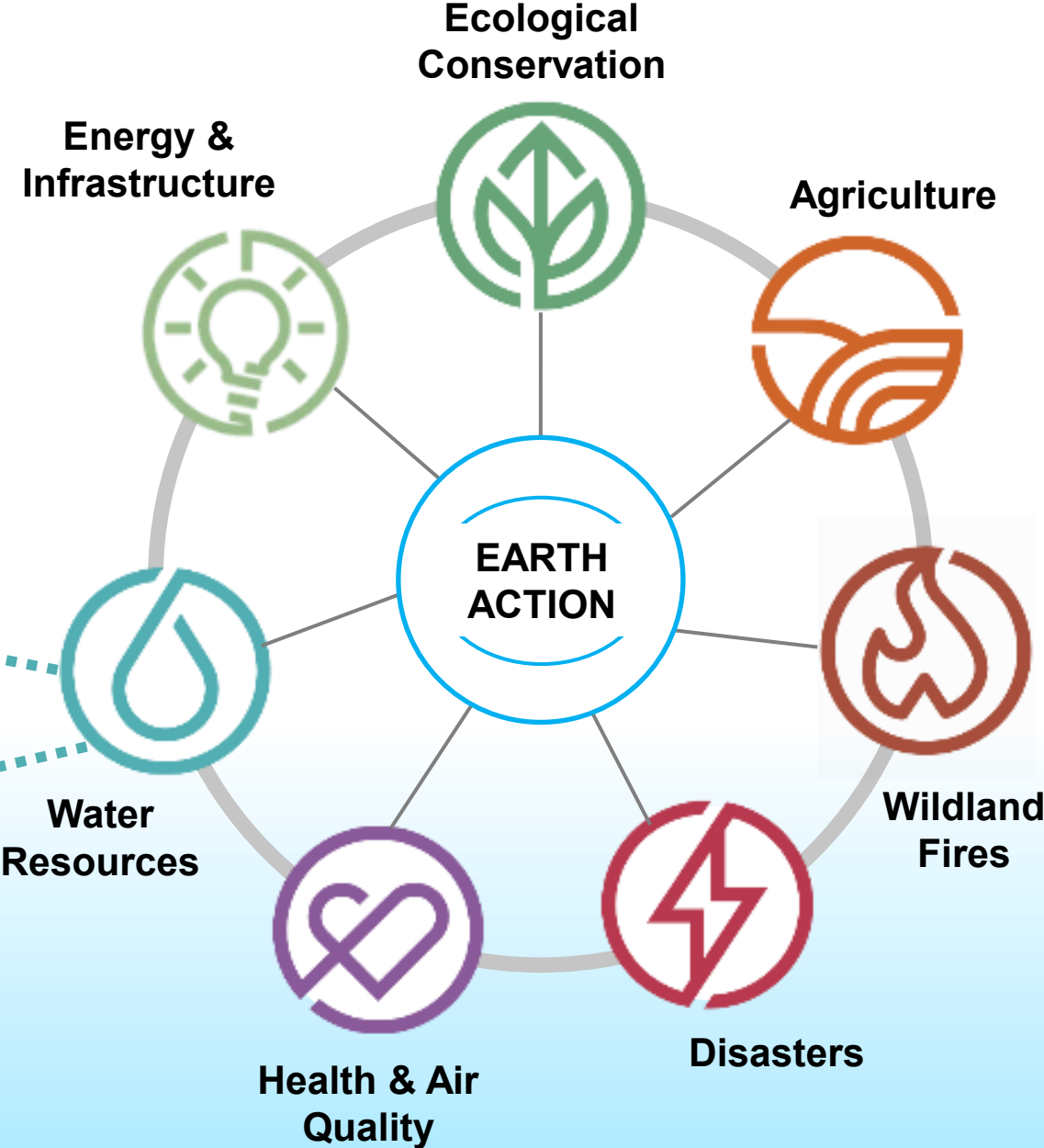
Faster to impact: Scale what works across regions and missions and be more efficient



Research (Spheres)



Earth Action (Core Programs)



NASA Water Resources Priorities

- **Addressing Regional and Global Needs:** Tackle urgent regional water challenges and develop strategies for global water security and resilience.
- **Enhancing Water Use Efficiency:** Optimize water use, reduce waste, and promote sustainable distribution across sectors and regions.
- **Improving Water Quality Management:** Advance monitoring and management of freshwater and nearshore water quality, focusing on regions with significant contamination issues.
- **Strengthening Resilience:** Assist vulnerable regions in adapting to changing conditions, extremes, and ensuring systems resilience and fair access to water resources.
- **Empowering Communities:** Use NASA Earth science to raise awareness and support sustainable water solutions.



- **Partner** with water management agencies and organizations to co-develop and scale cross-sector solutions supporting both rapid and long-term water decisions.
- **Enhance** water managers' capacity by integrating and validating NASA Earth science data into decision-support tools.
- **Build** broader capacity through outreach, co-learning, and sharing Earth observation use cases and success stories.



Program Portfolio

PI Institution Locations

- 10 **ROSES21** projects
- 30 new ROSES25 projects
 - **A.7 Water Quality**
 - **A.8 Water Resources**
 - **A.9 Foundation Models**
- 4 **WWAO** projects
- Multiple **DIRECTED** projects
- 3 **ES2A** Projects



Building Partnerships State, local, tribal, + federal



NASA Water Resources

Water Challenges [that our portfolio tackles]

- Water allocation & transboundary water management
- Drinking water safety & contamination
- Irrigation water use accounting & agricultural water management
- Coastal & estuarine water quality management
- Acute events (fire, flood, drought) & water infrastructure
- Snowpack, snowmelt, S2S & water supply forecasting
- Harmful algal blooms & nutrient pollution
- Dam safety & reservoir operations
- River navigation & interstate cooperative basin management
- Land use/land cover change impacts on water resources
- Ecosystem & environmental compliance

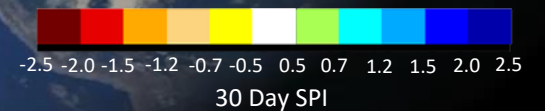
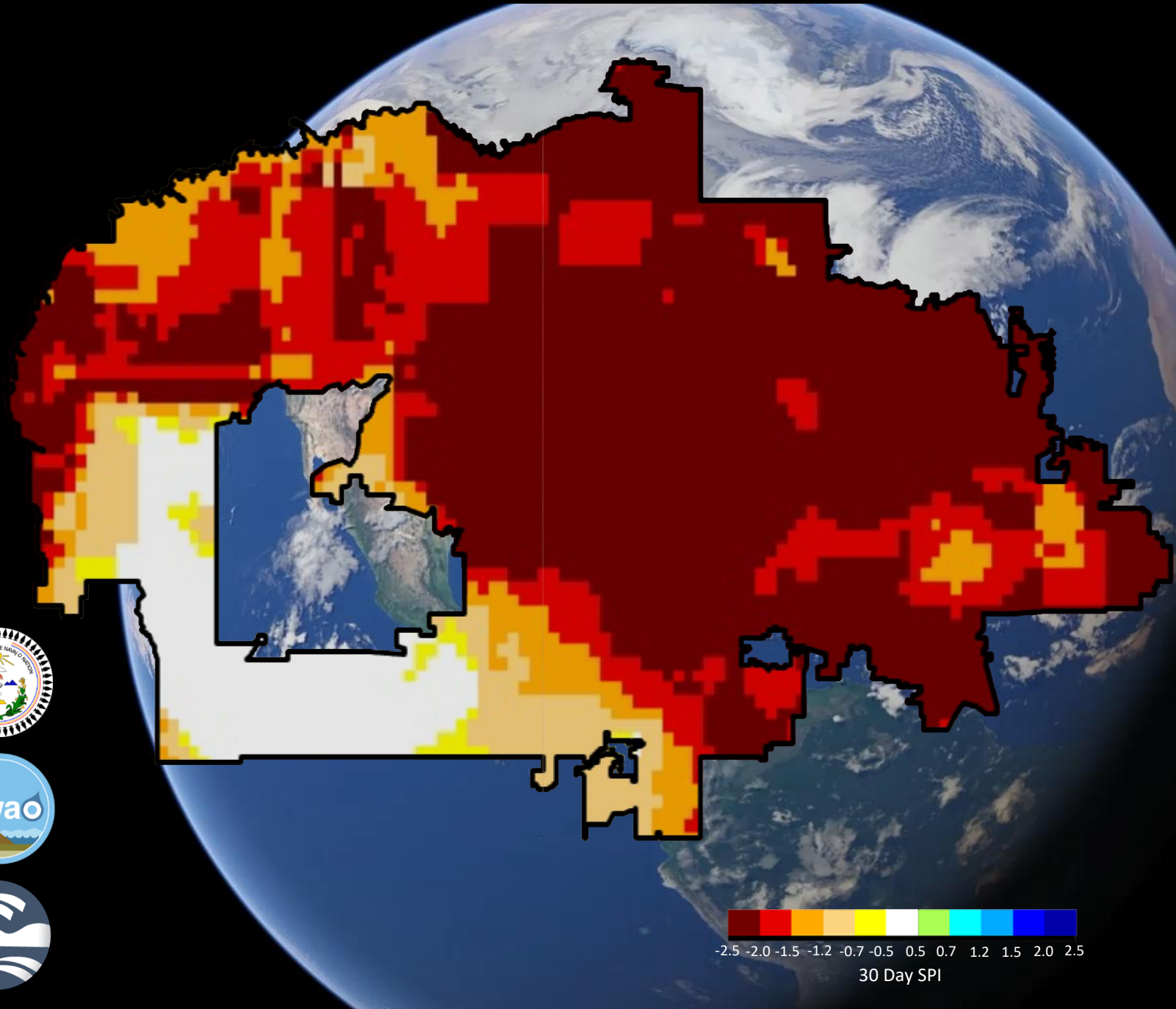


Satellite-based Drought Reporting on the Navajo Nation



“Providing context of the value of Earth observations and bringing Indigenous knowledge to NASA is important...a two-way street that includes Indigenous knowledge and Indigenous science.”

- Nikki Tulley | Navajo Nation



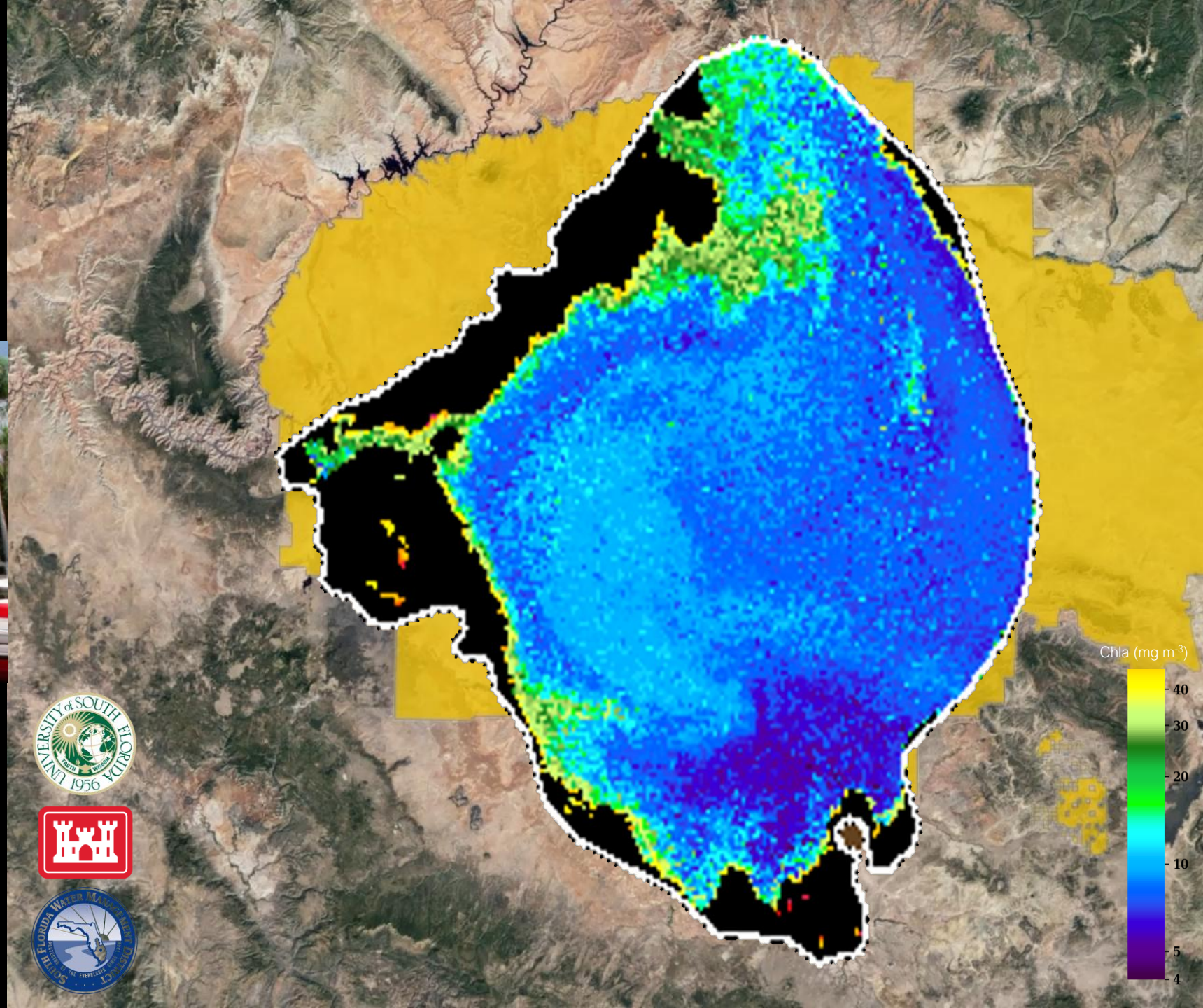
Precipitation, water management, and algae blooms in South Florida estuaries



“We are committed to investing in
“It’s like you have spring, you have
summer, and you have algae
bloom season...”

- Gil Smart | Executive Director VoteWater

- Lawrence Glenn | SFWMD Director of WR

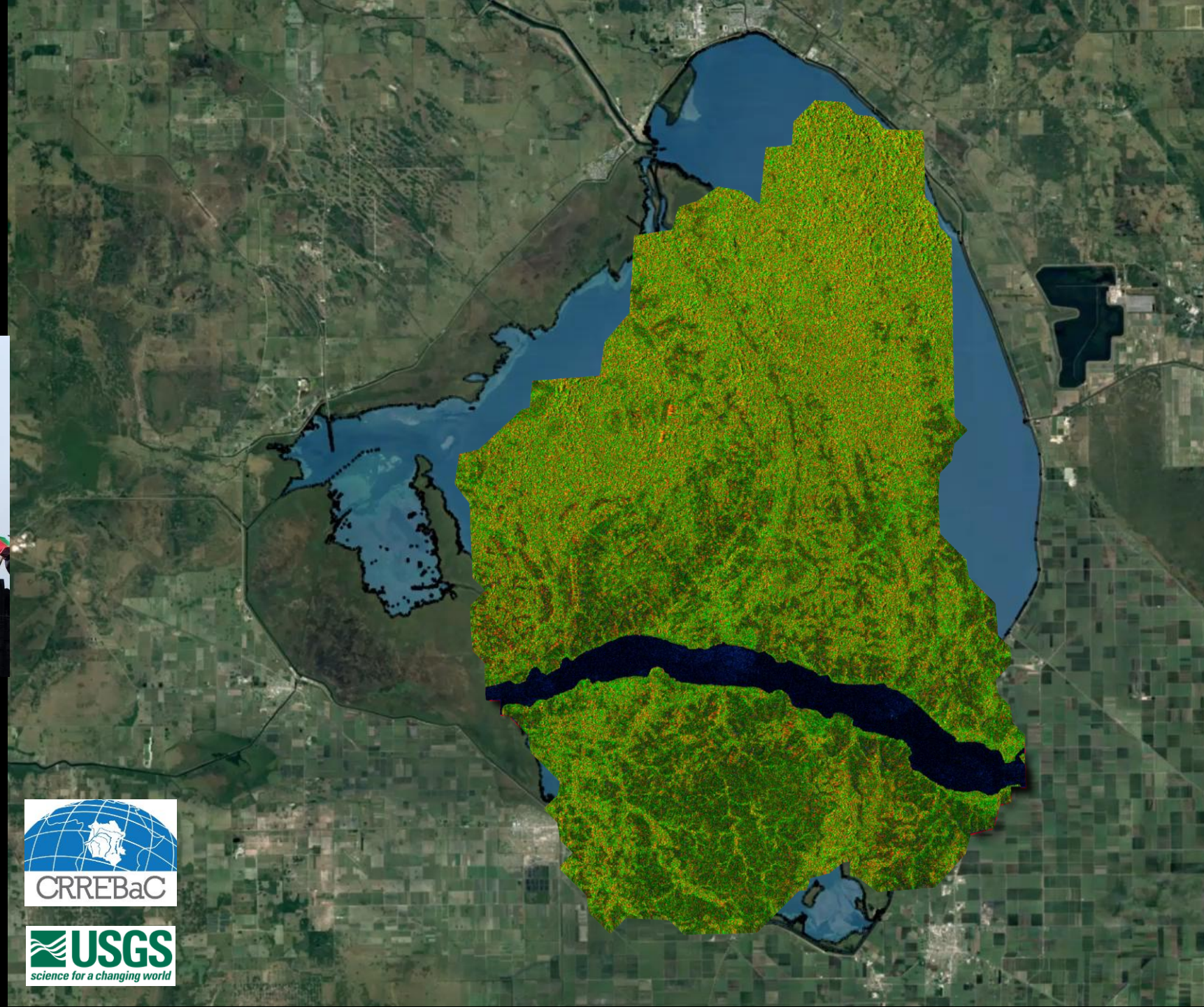


Safe Navigation in the Congo River Basin



Accurate [flood and flow] data is crucial for supporting effective management strategies, including the main road through the heart of the continent of Africa is the Congo River for those who dare to take it."

-Director of CRREBaC

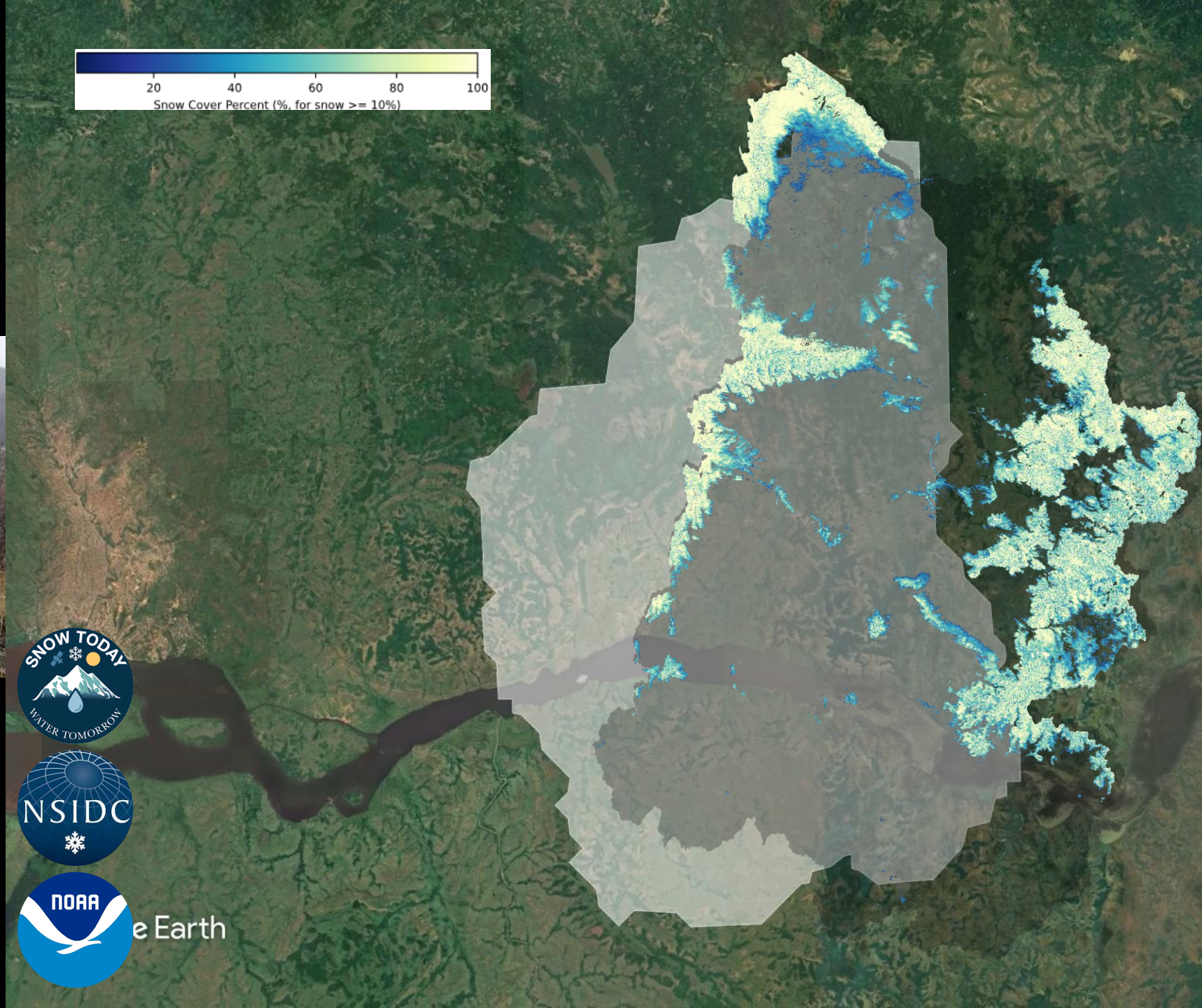


Mapping Snow Cover in the Colorado River Basin



“Lots of the agencies, entities,
water users, and communities...
are planning for the worst-case
scenario”

– *Western Water Assessment*



New Funding Opportunity!!

A.13 Accelerating Earth Solutions

Proposals due 10/15



Three major areas:

- Needs and Opportunities: Identifying critical issues and potential solutions;
- Solutions Development: Developing solutions for deployment; and
- Scaling Impact: Scaling the reach and utilization of existing solutions.

Selection priority will be given to:

- Topics aligned with US resilience, resources, economic growth, health, and security
- Increasing use of AI and ML
- Crossing boundaries across Earth Action thematic areas
- Transforming recent advancements in basic research or satellite remote sensing into solutions that address societal challenges
- Solutions based on data from any of NASA's Earth observing missions, especially NISAR, PACE, and SWOT
- Combined approaches using NASA's and other publicly available satellite data with commercial satellite data available under the NASA CSDA program



NASA's Earth Science Applications Guidebook

The NASA Earth Science Applications Guidebook offers practical advice and expert tips on how to develop and manage projects that apply Earth data to real-world challenges.

Available in interactive and pdf formats, the Guidebook is organized in three sections that cover:

- Earth Science at NASA
- **Developing Earth Action Proposals**
- Managing an Earth Action Project

The guidebook aims to help scientists deliver on the NASA Earth Science to Action strategy. Originally published in 2021, the guidebook has been updated with new features, scientist insights, application vignettes, and other multimedia that make it tactical, accessible, and actionable.



<https://tinyurl.com/EA-guidebook>



We are a part of an ecosystem

Partners & Decision-makers

Fed, state & local gov,
general public, private sector,
and others



Private Sector LLMs/GeoAI,
Consultancies, and
Value-added Data Services



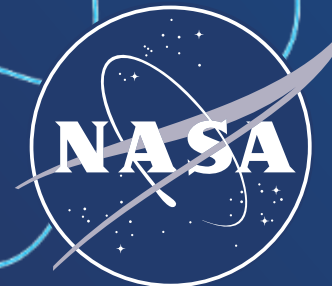
Commercial Satellite
Data Providers



Other public EO data
providers



Researchers &
Applications developers



NASA
Earth Science

Q&A





NASA Earth

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