

Image Credit: [Earth As Art](#)



2025 Annual Report

NASA Applied Remote Sensing Training Program (ARSET)

Introduction

2025 was an eventful year for the ARSET program. We migrated our web presence to Earthdata, launched our Fundamentals of Remote Sensing self-paced training, delivered a record number of online trainings, and grew our team.

In the following slides, you will see an overview of our year, starting with maps and statistics, a summary of each training delivered, other notable events from the year.

Thank you to the NASA Earth Science Division Earth Action element and our Program Manager, Natasha Sadoff, for their continued support, our generous guest instructors for contributing their time and expertise, the Earth Science Data Systems program for their support in the ARSET website migration to Earthdata, and our participants for their continued passion and interest in using NASA's critical Earth Observations to improve our planet.

Hands-On: Participants of an in-person ARSET training on TEMPO in the field in Fort Collins, CO.

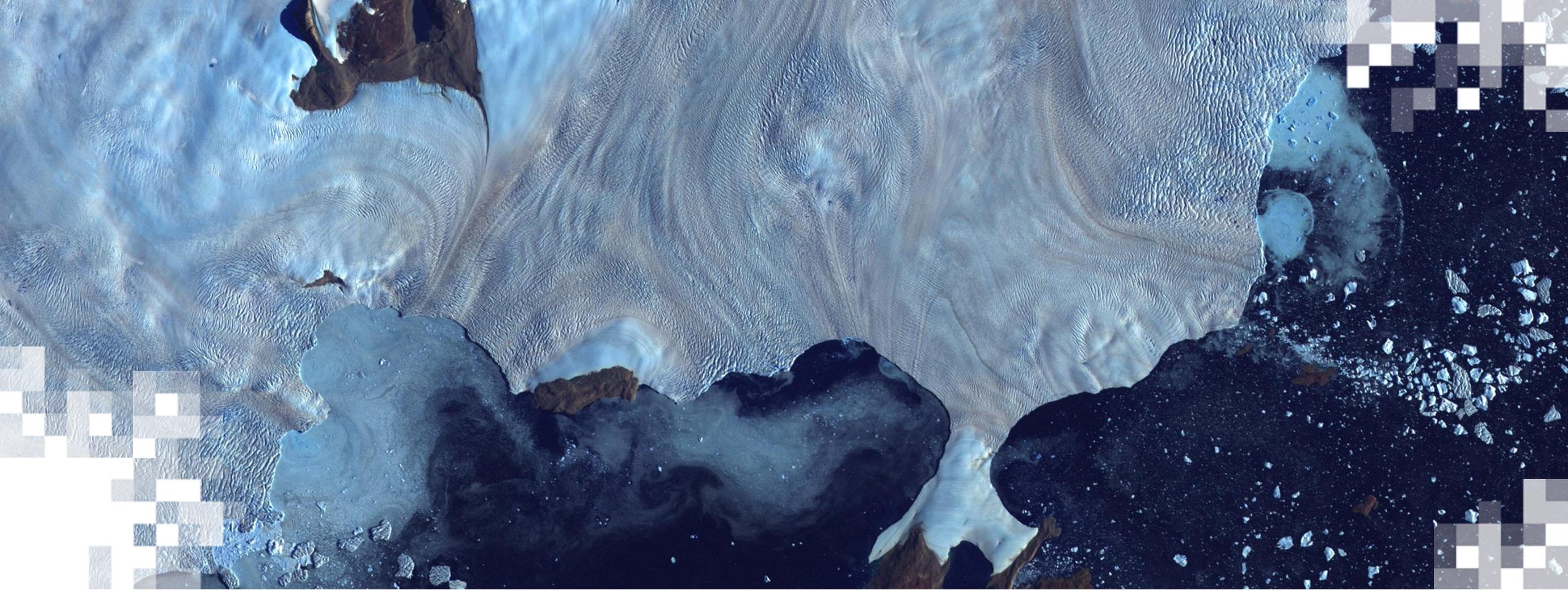


Attentive participants during an ARSET in-person training in New Orleans, LA.



ARSET Trainers Erika Podest, Sean McCartney, and Amita Mehta outside the UN Headquarters in New York City.





2025 Participation

2025 Summary

- **29,389** Total Participants
- **5,888** US Participants
- **26** Trainings
- **59** Guest Instructors



Most attended online, instructor-led training with **2,328** participants:

- ❖ [Monitoring Global Terrestrial Surface Water Height Using Remote Sensing \(Bilingual\)](#)

2025 Global Participation

176 Countries

2025 Participation

Number of Participants

□ No Participation

□ 1-5

□ 6-20

□ 21-50

□ 51-100

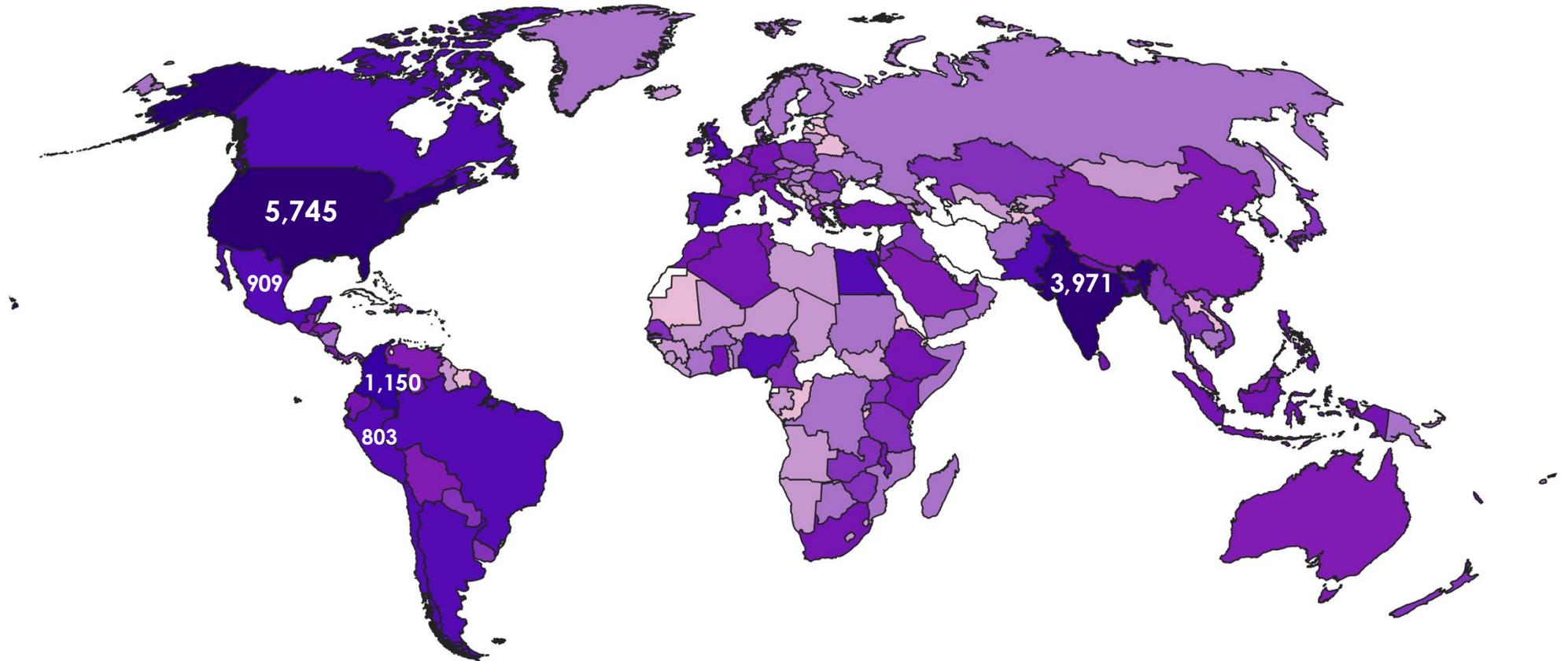
□ 101-200

□ 201-400

□ 400 - 1000

□ 1000-2000

□ 2000+



* Top five countries labeled



2025 US Participation

55 US States and Territories

2025 Participation

Number of Participants

□ No Participation

□ 1-5

□ 6-20

□ 21-50

□ 51-100

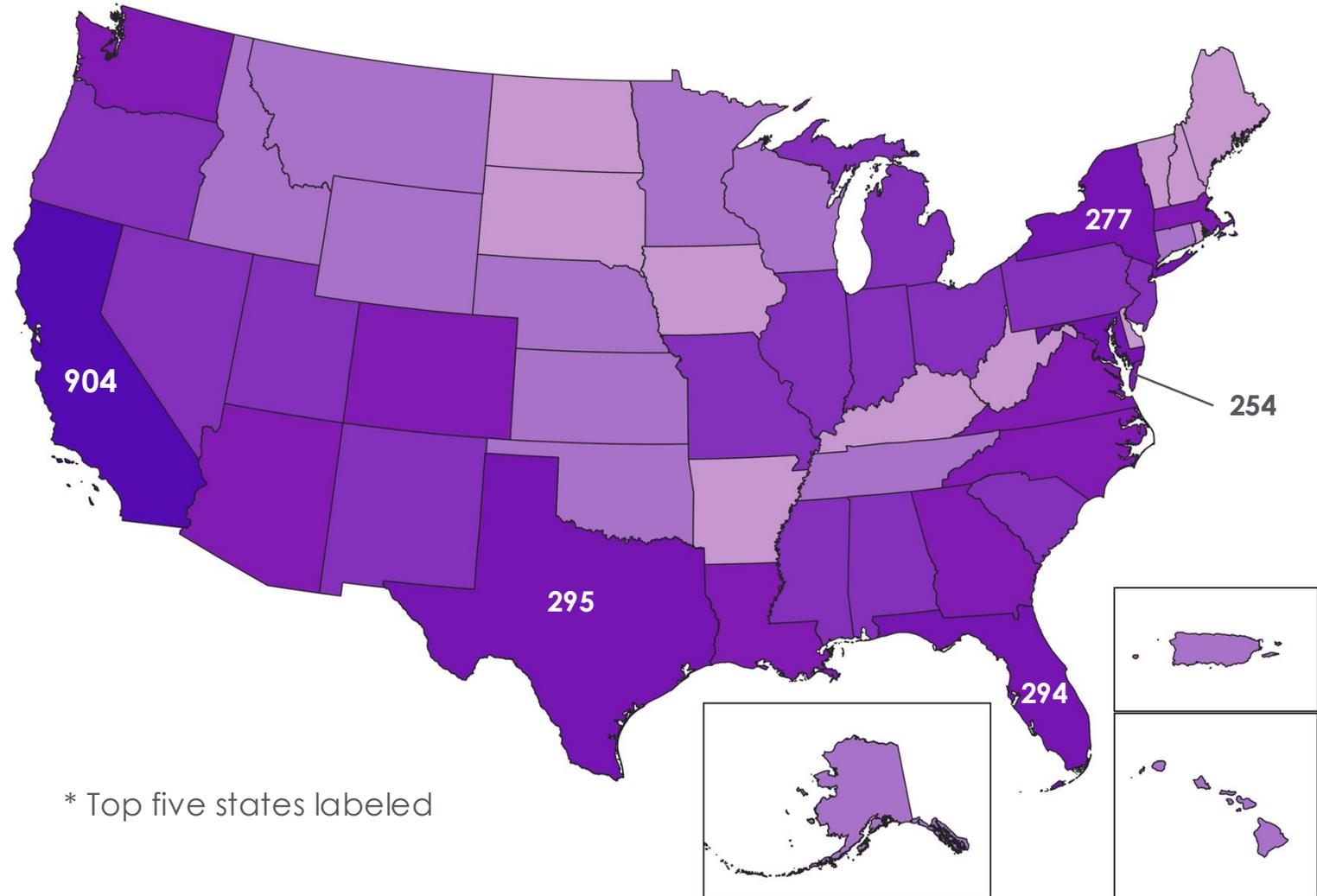
□ 101-200

□ 201-400

□ 400 - 1000

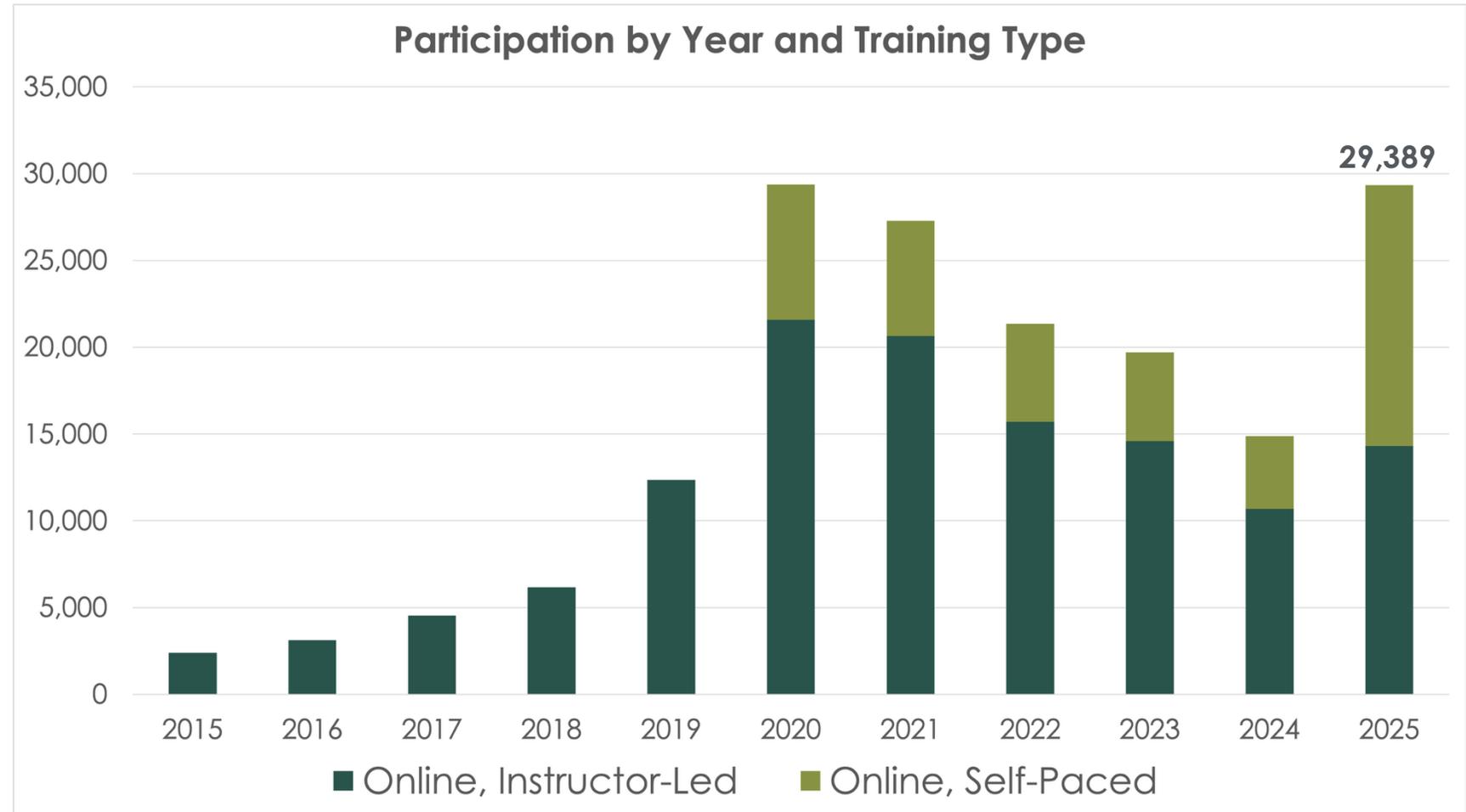
□ 1000-2000

□ 2000+



2025 Statistics

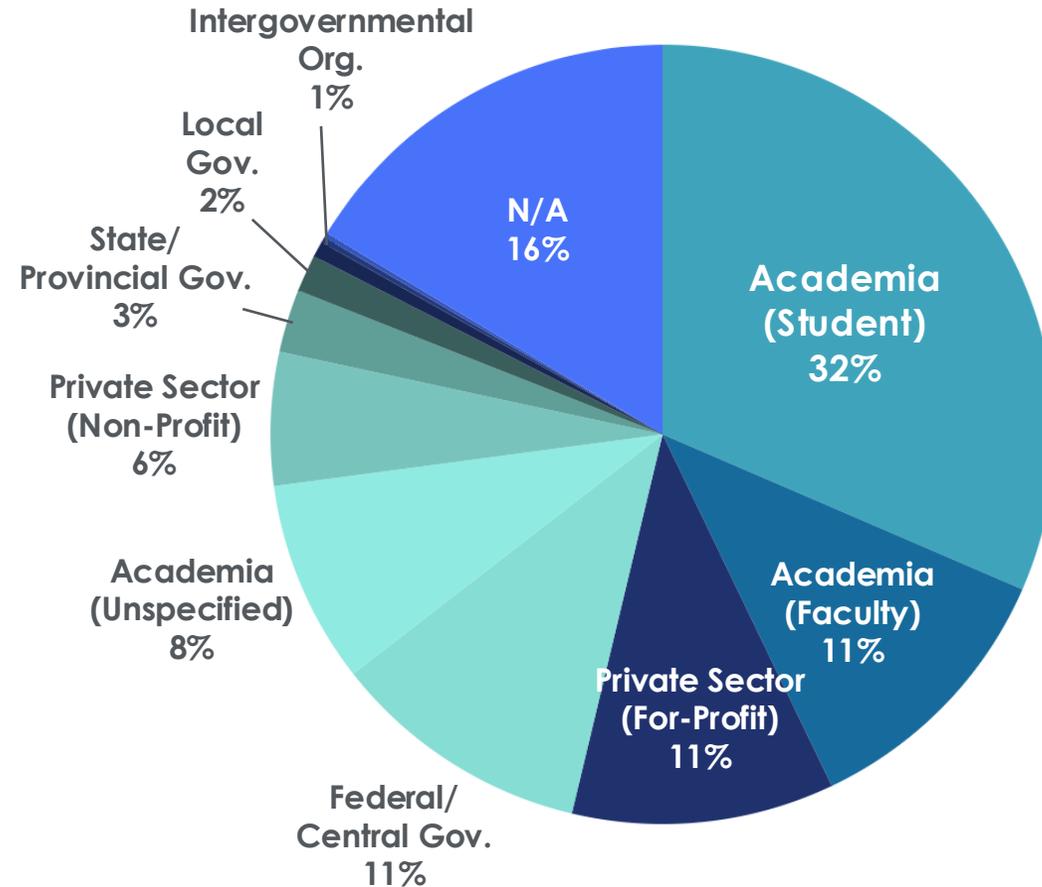
- 2025 saw increases in both instructor-led (dark green) and self-paced online (light green) trainings.
- The increase in self-paced online participation is due to the launch of Fundamentals of Remote Sensing (opened February), which netted **11,756** participants.



Global Participation by Sector

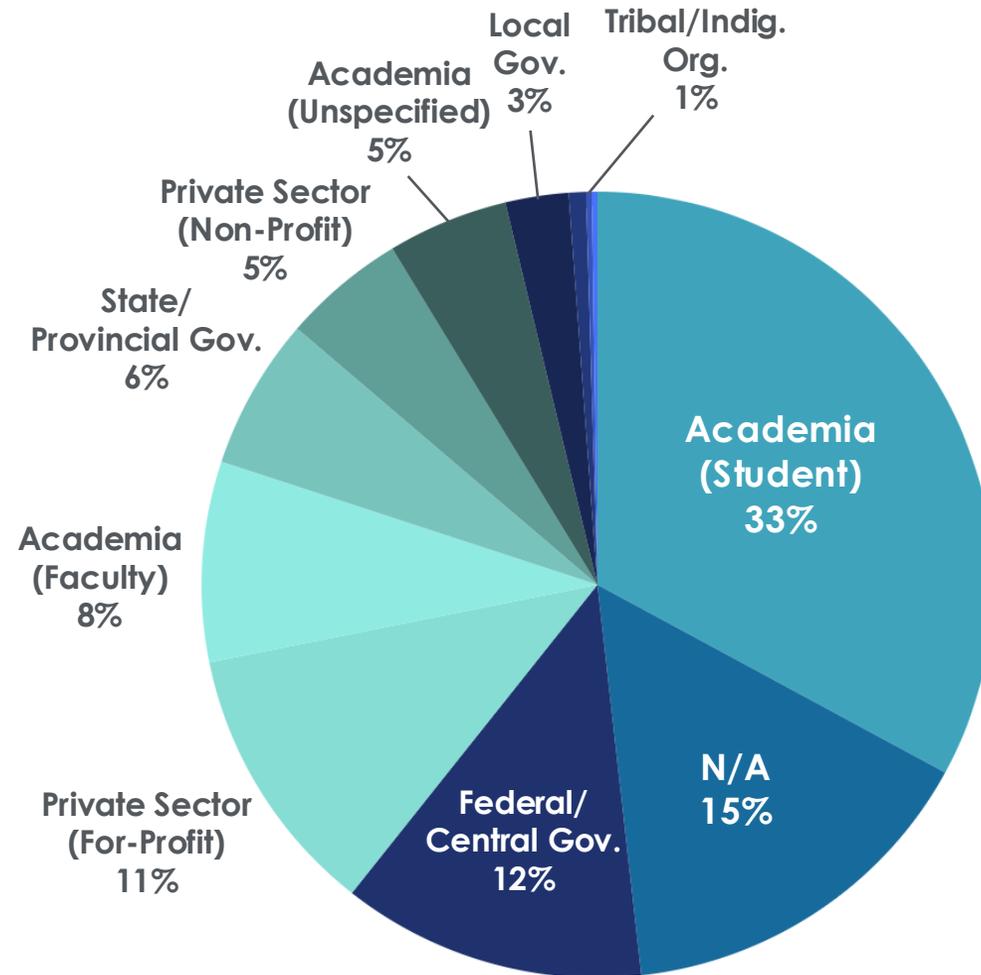
8,668 Unique Organizations

- **Largest Sector: Academia (Student)**, totaling **9,249** participants.
- **Academia (all categories)** made up **51%** of all global participation.
- **Notable growth: Private Sector (For-Profit)** participation grew **+71.6%** compared to 2024.



US Participation by Sector

- **Largest Sector: Academia (Student)**, totaling **1,939** participants.
- **Academia (Student)** was also our fastest growing sector in terms of absolute growth, seeing roughly **+30%** growth every year since 2023. This suggests an increasing reliance on ARSET materials in educational settings.
- **Local Government** showed the highest government sector growth rate (**+172%**) in 2025, rebounding from decreased participation in 2024.

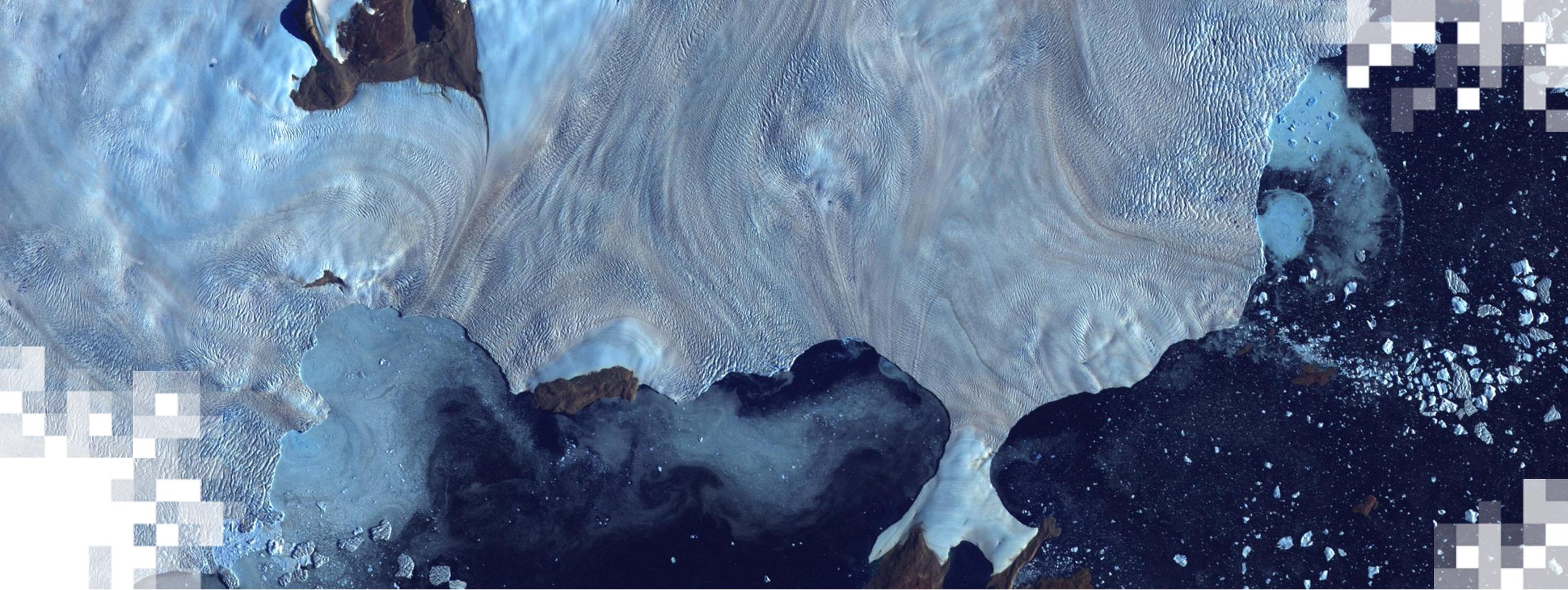


Top Participating Organizations

Top Organizations (US)	Participants
Embry-Riddle Aeronautical University	106
National Aeronautics and Space Administration (NASA)	98
University of Maryland	77
Bureau of Land Management (BLM)	58
US Geological Survey (USGS)	52

Top Organizations (International)	Participants
Catholic University of Malawi	208
Indian Institute of Technology (IIT)	168
National University of Colombia (UNAL)	126
National Autonomous University of Mexico (UNAM)	121
National Institute of Technology, India (NIT)	119





2025 Online, Instructor-Led Trainings

Calculating Spectral Indices for Land and Aquatic Applications using QGIS



February 27, 2025

This one-part, bilingual training provided an overview of spectral indices for land and aquatic applications as they are calculated within QGIS. Specifically, this training began with an introduction to the Normalized Difference Vegetation Index (NDVI), along with its calculation, uses, and applications in diverse thematic areas (agriculture, disasters, etc.). We also reviewed additional land-based indices such as the Enhanced Vegetation Index (EVI), Soil-Adjusted Vegetation Index (SAVI), and Normalized Burn Ratio (NBR). Finally, we concentrated on spectral indices primarily used in aquatic ecosystems, such as the Normalized Difference Chlorophyll Index (NDCI), Normalized Difference Aquatic Vegetation Index (NDAVI), Floating Algal Index (FAI), and Normalized Difference Turbidity Index (NDTI) for aquatic applications. More information can be found on the [training webpage](#).

Online
Introductory
Attendance:
912
Participants
590
Organizations
107 Countries
31 US States

**Satellites/
Sensors**
Harmonized
Landsat/
Sentinel-2

Instructors



Landslide Monitoring and Risk Assessment Using NASA Earth System Data



March 11–18, 2025

This three-part training, in collaboration with the Disasters Program, covered a number of topics relating to landslides, demonstrating a wide variety of NASA Earth science data uses to characterize landslides and their impacts. The training provided the scientific background of landslides to answer important questions such as: What is a landslide? Where do they occur? What causes them, and why? More information can be found on the [training webpage](#).

Online
Introductory
Attendance:
1,054
Participants
662
Organizations
110 Countries
39 US States

**Satellites/
Sensors**
Landsat 8/9
Sentinel-1/2
GPM
SMAP
SRTM

Instructors



Sean McCartney
NASA GSFC/SSAI
ARSET Instructor



Robert Emberson *
UMBC
Guest Instructor

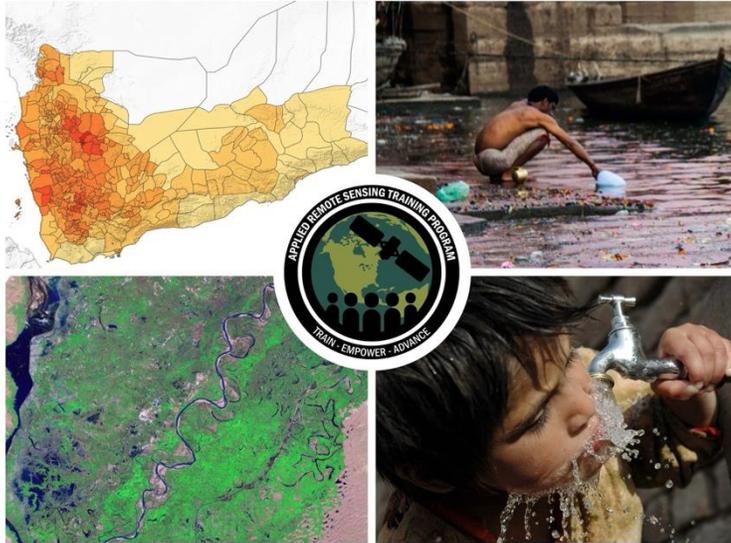


Pukar Amatya *
UMBC
Guest Instructor

* Funded by the NASA Disasters Program



The Application of Earth Observations for Assessing Waterborne Disease Risk



March 25–27, 2025

This two-part training focused on describing and accessing remote sensing observations useful as water quality indicators of waterborne diseases and presented case studies where remote sensing data are used to assess the likelihood of cholera outbreaks. More information can be found on the [training webpage](#).

**Online
Introductory
Attendance:
501
Participants
358
Organizations
99 Countries
29 US States**

**Satellites/
Sensors**
PACE
Landsat 8/9
SNPP
GPM
SMAP
Sentinel
JPSS
Aqua
Terra

Instructors



Amita Mehta
NASA GSFC/UMBC
ARSET Instructor



Antar Jutla *
University of Florida
Guest Instructor



Bailey Magers *
University of Florida
Guest Instructor

* Funded by the NASA Health and Air Quality Program



Introduction to NASA Earth Observations and Tools for Wildfire Monitoring and Management



April 16–30, 2025

FIRMS is a web-based application with a dynamic mapping interface to visualize current and historical satellite imagery, active fire detections/hot spots and related science data products to identify the location, extent, and intensity of wildland fire activity and its effects. This three-part training familiarized participants with the various modules available in FIRMS, explored the range of data and information available as well as the characteristics of satellite-based active fire detection, and provided hands-on experience that participants can apply to query, access, and visualize the data in GIS and other applications. More information can be found on the [training webpage](#).

Online
Introductory
Attendance:
911
Participants
371
Organizations
105 Countries
43 US States

**Satellites/
Sensors**
Landsat
Sentinel
VIIRS
Aqua/Terra
MODIS

Instructors



Melanie Follette-Cook
NASA GSFC
ARSET Instructor



Dylan Mendes *
NASA FIRMS/SSAI
Guest Instructor



Diane Davies *
NASA FIRMS/SSAI
Guest Instructor



Asen Radov *
ESSIC
Guest Instructor



Brad Quayle
USGS/USFS
Guest Instructor



Otmar Olsina *
NASA FIRMS/GST
Guest Instructor

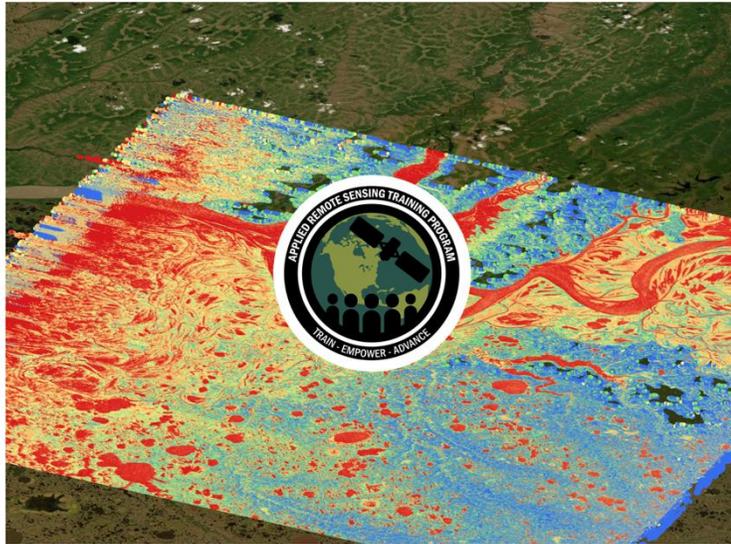


Jenny Hewson *
NASA LANCE/SSAI
Guest Instructor

* Funded by the NASA Land, Atmosphere Near real-time Capability for Earth observation (LANCE) Project



Monitoring Global Terrestrial Surface Water Height using Remote Sensing



May 13–15, 2025

The latest NASA mission, Surface Water and Ocean Topography (SWOT), which was launched on December 16, 2022, allows the first ever mapping of global surface freshwater components, including rivers, lakes, and wetlands, with high-resolution measurements (~200 m). This training focused on introducing SWOT freshwater data products and their applications for water resources and disaster management. More information can be found on the [training webpage](#).

Online
Introductory
Bilingual
Attendance:
2,328
Participants
1,187
Organizations
111 Countries
43 US States

**Satellites/
Sensors**
SWOT

Instructors



Amita Mehta
NASA GSFC/UMBC
ARSET Instructor



Matthew Bonnema *
JPL/Caltech
Guest Instructor



Sean McCartney
NASA GSFC/SSAI
ARSET Instructor



Michael Durand **
Ohio State University
Guest Instructor



Erika Podest
JPL/Caltech
ARSET Instructor



Merritt Harlan
USGS
Guest Instructor



Angelica Rodriguez *
JPL/Caltech
Guest Instructor

* Funded by the Surface Water and Ocean Topography (SWOT) Mission
** Funded by the NASA Water Resources Program



Introduction to the Integration of Animal Tracking and Remote Sensing



May 20–22, 2025

Animals are sentinels of environmental change, and animal telemetry is a commonly used tool to quantify habitat use and help understand environmental changes. NASA data can be used to characterize the environmental parameters that infer the habitats that animals use. This training provided participants with an overview of animal tracking sensors, NASA's history of animal tracking, [NASA's Internet of Animals project](#), and the types of remote sensing data that can be paired with animal telemetry. More information can be found on the [training webpage](#).

Online
Introductory
Attendance:
1,128
Participants
707
Organizations
115 Countries
48 US States

**Satellites/
Sensors**
Aqua/Terra
MODIS

Instructors



Juan Torres-Pérez
NASA ARC
ARSET Instructor



Dr. Morgan Gilmour *
NASA ARC
Guest Instructor

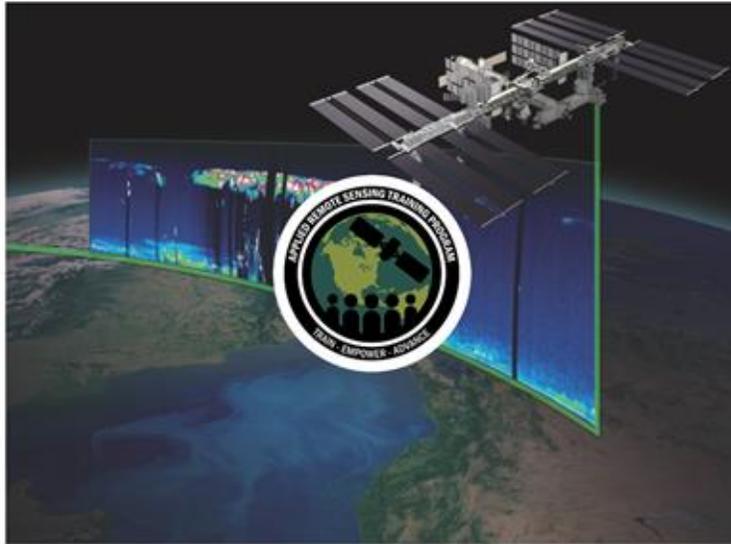


Claire Teitelbaum *
Georgia CFWRU
Guest Instructor

* Funded by the NASA Internet of Animals project, a Satellite Needs Working Group (SNWG) Solution



LiDAR Profiling Satellite Observations for Air Quality Applications



Online
Introductory
Attendance:
658 Participants
456
Organizations
93 Countries
37 US States

**Satellites/
Sensors**
CALIPSO
CATS
ICESat-2
EarthCare

Instructors



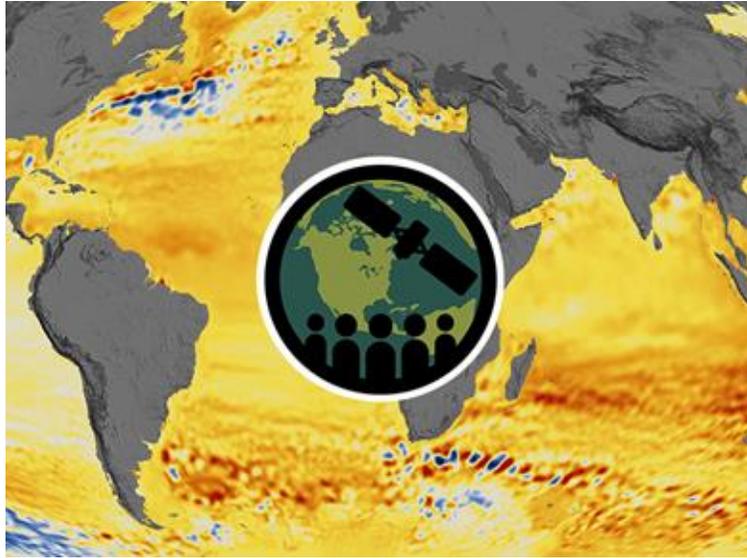
Ed Nowotnick
NASA GSFC
Research Physical Scientist

June 4–11, 2025

This training introduced data-users to the fundamentals of lidar remote sensing, highlighting strengths, limitations and differences when compared to passive remote sensors. Case studies were used to demonstrate how to interpret lidar imagery from a variety of past and current spaceborne lidars, including the Cloud-Aerosol Lidar with Orthogonal Polarization (CALIOP), the Cloud-Aerosol Transport System (CATS), the Ice, Cloud, and Elevation Satellite, version 2 (ICESat-2), and the Earth Cloud Aerosol Radiation Experiment (EarthCARE), and provided instruction on how to acquire lidar data for analysis by the user. More information can be found on the [training webpage](#).



Sea Level Change Tools for Planning and Decision Support



June 10–17, 2025

This training series focused on NASA products and tools available to assess historical sea-level rise, access and understand projections of sea level, and investigate impacts. Participants were exposed to the causes behind regional and global sea-level changes and explored climate and analysis tools to access, visualize, and perform statistical analysis using NASA data. More information can be found on the [training webpage](#).

Online
Introductory
Attendance:
653
Participants
447
Organizations
94 Countries
31 US States

**Satellites/
Sensors**
ICESat-
2/ATLAS
TOPEX/
Poseidon
Jason-1
Jason-2
Jason-3
Sentinel-6
GRACE

Instructors



Sean McCartney
NASA GSFC/SSAI
ARSET Instructor



Robert Kopp *
Rutgers University
Guest Instructor



Denis Felikson *
NASA GSFC
Guest Instructor



Phil Thompson *
Univ. of Hawai'i
Guest Instructor



Angelica Rodriguez *
JPL/Caltech
Guest Instructor



Ben Hamlington *
JPL/Caltech
Guest Contributor

* Funded by the NASA Sea Level Change Team



Introduction to Snow and Ice Data Products and Applications for Water Resources Management



Online Introductory Attendance: 495
Participants 338
Organizations 72
Countries 33
US States

Satellites/Sensors
MODIS
VIIRS
SSMI & SSMIS
AMSR-E & AMSR-2 & 3

Instructors



Amita Mehta
NASA GSFC/UMBC
ARSET Instructor



Sean McCartney
NASA GSFC/SSAI
ARSET Instructor



Karl Rittger *
CU Boulder INSTAAR
Guest Instructor



Andrew Barrett **
NSIDC DAAC
Guest Instructor



Saber Brasher **
NSIDC DAAC
Guest Instructor



Diane Fritz **
NSIDC DAAC
Guest Instructor



Mikala Beig **
NSIDC DAAC
Guest Instructor



Sean Fleming ***
WWAO
Guest Instructor



Walt Meier **
NSIDC DAAC
Guest Instructor

** Funded by the NASA Earth Science Data and Information System (ESDIS) Project

July 24 – August 7, 2025

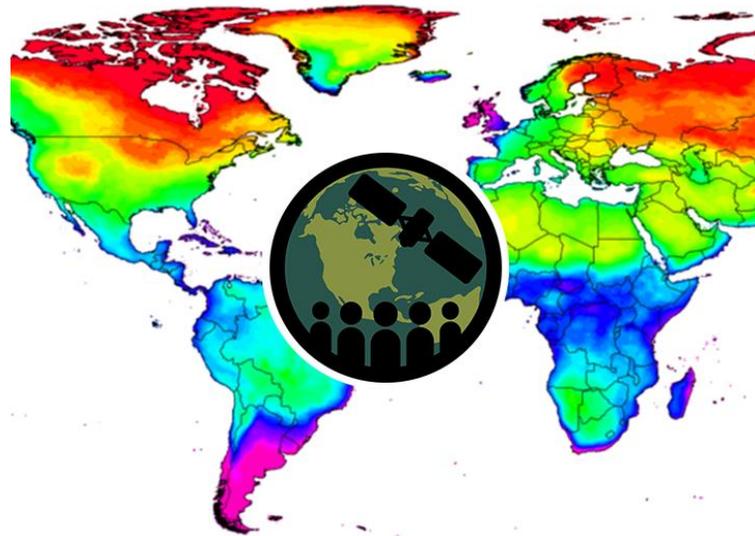
Approximately 75% of the Earth's total freshwater is stored in glaciers, ice sheets, and permafrost (USGS). In many regions, snowmelt also serves as a major source of freshwater. NASA Earth system models can diagnose snowfall during winter and estimate snow water equivalent—a key parameter for assessing freshwater resources. This training introduced NASA's snow and ice data products and snow water equivalence data to participants, with a particular focus on snow data application to monitoring and forecasting snow-fed river flow and water availability. More information can be found on the [training webpage](#).

* Funded by the NASA Water Resources Program and the NASA The Science of Terra, Aqua and Suomi-NPP

*** Funded by the NASA Western Water Action Office (WWAO)



Assessing Extreme Weather Statistics using NASA Earth eXchange Global Daily Downscaled Projections (NEX-GDDP-CMIP6)



Online
Advanced
Attendance:
742
Participants
497
Organizations
95 Countries
33 US States

Missions/
Datasets
NEX-GDDP-
CMIP6

September 10–17, 2025

NASA Earth eXchange Global Daily Downscaled Projections ([NEX-GDDP-CMIP6](#)) provide global, high resolution, bias-corrected projections of daily minimum and maximum temperatures, precipitation, humidity, windspeed, and surface radiation from the Coupled Model Intercomparison Project Phase 6 (CMIP6) GCMs at 0.25x0.25-degree resolution. This two-part training focused on evaluating projected statistics of extreme heat and cold wave events, and extreme precipitation excess and deficit events, from NEX-GDDP-CMIP6 at the regional scale during the 21st century to assess regional risk. More information can be found on the [training webpage](#).

Instructors



Amita Mehta
NASA GSFC/UMBC
ARSET Instructor



Alex Goodman **
NASA JPL
Guest Instructor



Sean McCartney
NASA GSFC/SSAI
ARSET Instructor



Aashish Panta **
University of Utah
Guest Instructor



Bridget Thrasher *
Climate Analytics Group
Guest Instructor



Giorgio Scorzelli ***
University of Utah
Contributor



Kyo Lee **
NASA JPL
Guest Instructor



Valerio Pascucci ****
University of Utah
Contributor

* Funded by NASA Earth eXchange (NEX)

** Funded by NASA Science Mission Directorate (SMD)

*** Funded by the NASA Advanced Information Systems (AIST) Program

**** Funded by AIST, the National Science Foundation Office of Advanced Cyberinfrastructure, and the Advanced Research Projects Agency for Health



Airborne Data Applications for Invasive Species Mapping



September 30, 2025

This one-part training introduced airborne and in situ field data applications for invasive species mapping utilizing datasets acquired during the BioSCAPE campaign in South Africa. The training was a collaboration between ARSET and the Oak Ridge National Laboratory (ORNL) DAAC. More information can be found on the [training webpage](#).

Online
Advanced
Attendance:
401
Participants
260
Organizations
68 Countries
33 US States

**Satellites/
Sensors**
AVIRIS-NG

Instructors



Sativa Cruz
BAERI/ARC
ARSET Instructor



Savannah Cooley
BAERI/ARC
ARSET Instructor



Justin Fain
BAERI/ARC
ARSET Instructor



Michele Thornton *
NASA GSFC/SSAI
Guest Instructor



Juan Torres-Pérez
ARC
ARSET Instructor

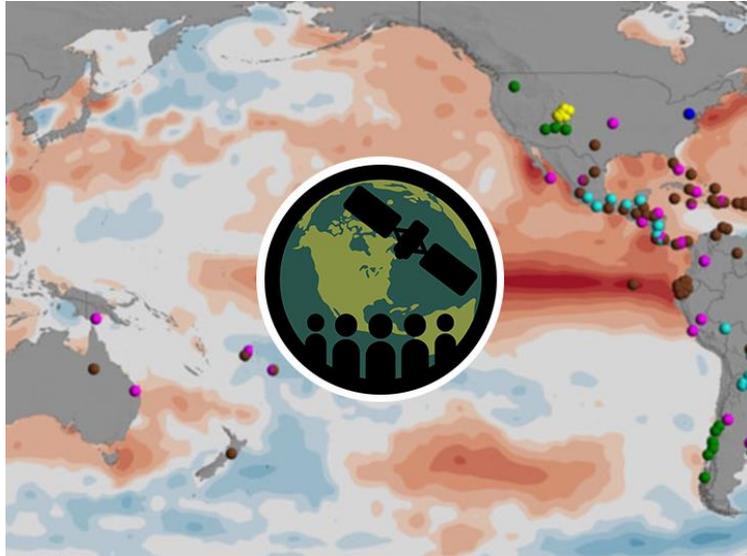


Rupesh Shrestha *
NASA GSFC/SSAI
Guest Instructor

* Funded by the NASA Earth Science Data and Information System (ESDIS) Project



Remote Sensing for Climate-Sensitive Infectious Diseases



October 7–9, 2025

In this two-part training, participants learned the basic principles of how satellite remote sensing data can be applied to track climate-sensitive vector-borne disease outbreaks and provide early warnings for potential outbreaks. More information can be found on the [training webpage](#).

Online	Satellites/ Sensors
Introductory	MODIS
Attendance:	VIIRS
643	Landsat
Participants	Sentinel-1
411	NISAR
Organizations	SMAP
99 Countries	GPM
29 US States	

Instructors



Carl Malings
NASA GSFC/UMBC
ARSET Instructor



Assaf Anyamba
GESTAR/UMBC
ARSET Instructor



Tatiana Loboda *
UMD
Guest Instructor



Michael Wimberly **
University of Oklahoma
Guest Instructor

* Funded by the NASA Health and Air Quality Program

** Funded by the NASA Health and Air Quality Program and the National Institute of Allergy and Infectious Diseases



Solar Induced Fluorescence (SIF) Observations for Assessing Vegetation Changes Related to Floods, Drought, and Fire Impacts



October 15–29, 2025

Online
Intermediate
Attendance:
821
Participants
526
Organizations
97 Countries
26 US States

**Satellites/
Sensors**
OCO-2
OCO-3

Instructors



Erika Podest
JPL/Caltech
ARSET Instructor



Junjie Liu
JPL
Guest Instructor



Nick Parazoo
JPL
Guest Instructor



Karen Yuen
JPL
Guest Instructor



Jacqueline Ryan
JPL
Guest Instructor

* Funded by the NASA Orbiting Carbon Observatory-2 (OCO-2) and OCO-3 Missions

This three-part, bilingual (English and Spanish) training demonstrated how SIF data can be used to study the impact of floods and droughts on agricultural systems and the impacts of fire on forested ecosystems. Participants gained hands-on experience analyzing SIF datasets from NASA missions including the Orbiting Carbon Observatory-2 ([OCO-2](#)) and Orbiting Carbon Observatory-3 ([OCO-3](#)), as well as using gap-filled data products derived using machine learning techniques. More information can be found on the [training webpage](#).



Spaceborne Lidar for Monitoring Vegetation Structure and Biomass using GEDI



October 23 & 30, 2025

This two-part, bilingual (English and Spanish) training built on a fundamental understanding of light detection and ranging (lidar), including its strengths, limitations, and distinguishing characteristics compared to other active and passive remote sensing observations. A central focus of the training was NASA's Global Ecosystem Dynamics Investigation (GEDI) mission, a novel spaceborne lidar sensor that began collecting data in April 2019. More information can be found on the [English webpage](#) or the [Spanish Webpage](#).

Online
Intermediate
Attendance:
675
Participants
386
Organizations
89 Countries
28 US States

Satellites/
Sensors
GEDI

Instructors



Savannah Cooley
BAERI/NASA ARC
ARSET Instructor



Niara Pinto *
NASA JPL
Guest Instructor

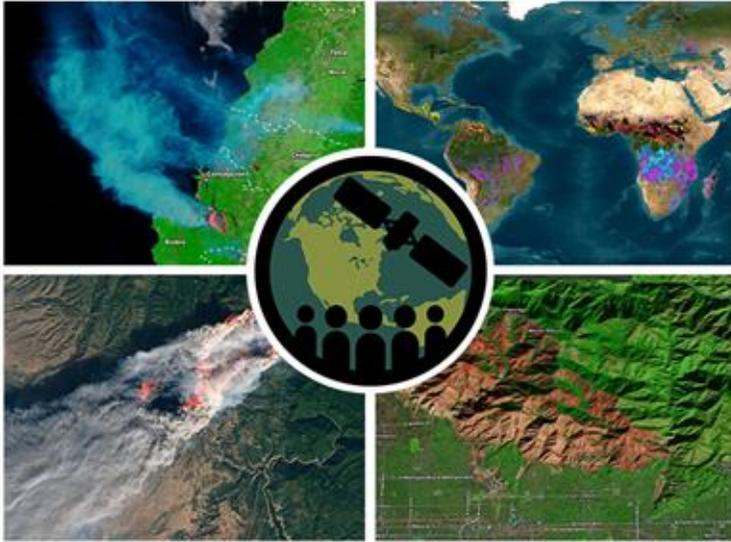


Stephanie Jiménez *
UAH
Guest Instructor

* Funded by the NASA Jet Propulsion Laboratory (JPL), NASA SERVIR Applied Sciences Team, and NASA EarthRISE program



NASA Earth Observations and Tools for Active Fire, Smoke, and Post-Fire Monitoring



Online
Intermediate
Attendance:
630
Participants
424
Organizations
92 Countries
30 US States

Satellites/Sensors
Terra VIIRS
Aqua MODIS
SNPP OLI
Landsat OMPS
Sentinel-2 MSI
NOAA-20
NOAA-21

Instructors



Melanie Follette-Cook
NASA GSFC
ARSET Instructor



Diane Davies *
NASA FIRMS/SSAI
Guest Instructor



Jenny Hewson *
NASA LANCE/SSAI
Guest Instructor



Brad Quayle
USGS/USFS
Guest Instructor



Dylan Mendes *
NASA FIRMS/SSAI
Guest Instructor

November 12–19, 2025

Satellite observations can be used to detect active fires as well as monitor the impacts of fires on air quality and ecosystems. Monitoring post-fire impacts to vegetation is essential for evaluating burn severity, which informs post-fire debris flow risk; understanding patterns in ecosystem recovery; and identifying areas that require restoration intervention. Multiple sources of satellite imagery and derived data products relevant to smoke, post-fire conditions, and STA identification are available within NASA's Fire Information for Resource Management System ([FIRMS](#)). This training introduced participants to several capabilities within FIRMS that were not included in [a previous ARSET training](#). More information can be found on the [training webpage](#).

* Funded by the NASA Land, Atmosphere Near real-time Capability for Earth observation (LANCE) Project



NASA Satellite Laser Altimetry for Coastal and Near-Shore Bathymetry



Online
Intermediate
Attendance:
497
Participants
328
Organizations
84 Countries
29 US States

**Satellites/
Sensors**
ICESat-2
ATLAS

December 2–4, 2025

The Advanced Topographic Laser Altimeter System ([ATLAS](#)) instrument's green wavelength, photon-counting lidar signal can reach depths of up to 40 meters in regions with adequate water clarity to provide shallow, near-shore bathymetric data for a range of applications. The [ATL24](#) product provides near global along-track coastal and nearshore satellite-derived bathymetry. This training improved users' knowledge of ICESat-2, the ATL24 product, and how to access, plot, and analyze ICESat-2 bathymetry data. More information can be found on the [training webpage](#).

Instructors



Sean McCartney
NASA GSFC/STC
ARSET Instructor



Lori Magruder **
University of Texas
at Austin
Guest Instructor



Diane Fritz *
NSIDC DAAC
Guest Instructor



Gretchen Imahori
NOAA
Guest Instructor



Joseph-Paul Swinski **
NASA GSFC
Guest Instructor



Christopher Parrish **
Oregon State
University
Guest Instructor



Keana Kief **
Oregon State
University
Guest Instructor



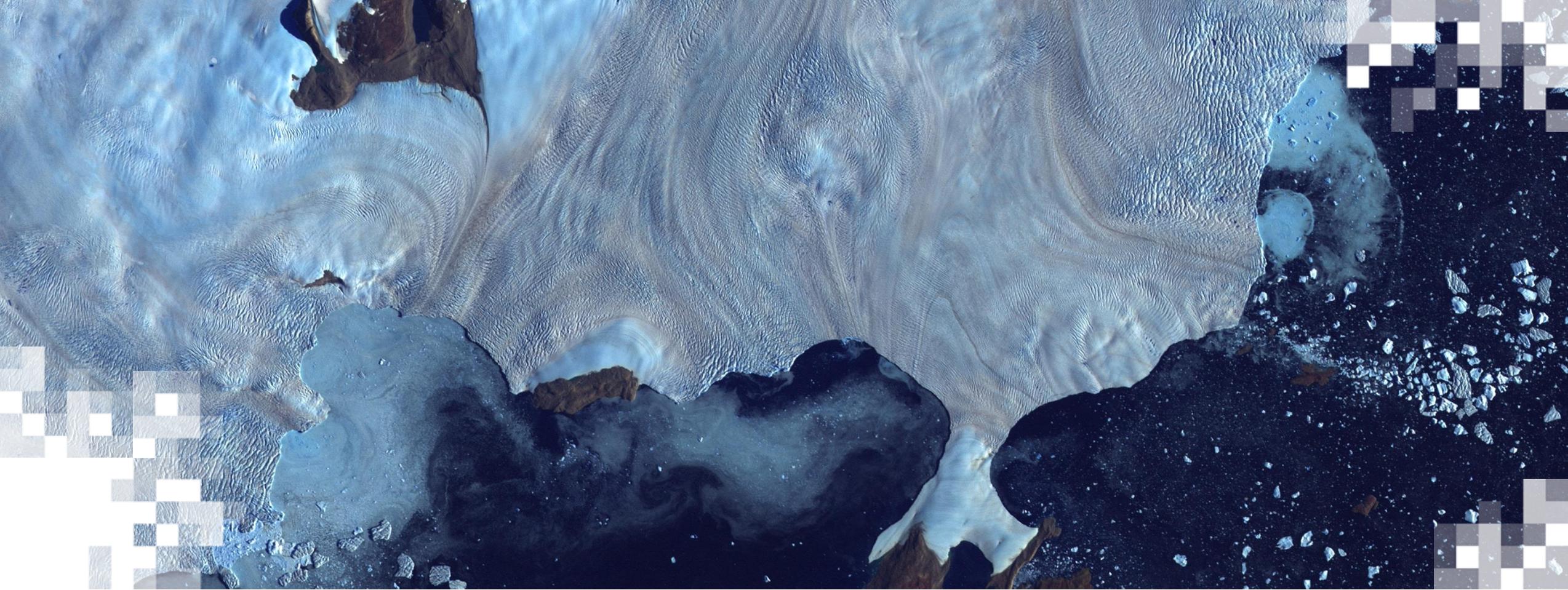
Mikala Beig *
NSIDC DAAC
Guest Instructor



Aimee Neeley **
NASA GSFC
Guest Instructor

* Funded by the NASA Earth Science Data and Information System (ESDIS) Project
** Funded by the NASA Ice, Cloud, and Land Elevation Satellite-2 (ICESat-2) Extended Mission Program





2025 In-Person Trainings

Monitoring Harmful Algal Bloom Indicators for Aquaculture using NASA Remote Sensing Observations



In-Person
Introductory
Attendance:
32
Participants
25
Organizations
5 Countries
13 US States

**Satellites/
Sensors**
Aqua
Terra
Landsat 8/9
SNPP
PACE

Instructors



Amita Mehta
NASA GSFC/UMBC
ARSET Instructor



William Wainwright *
619/SSAI
Guest Instructor

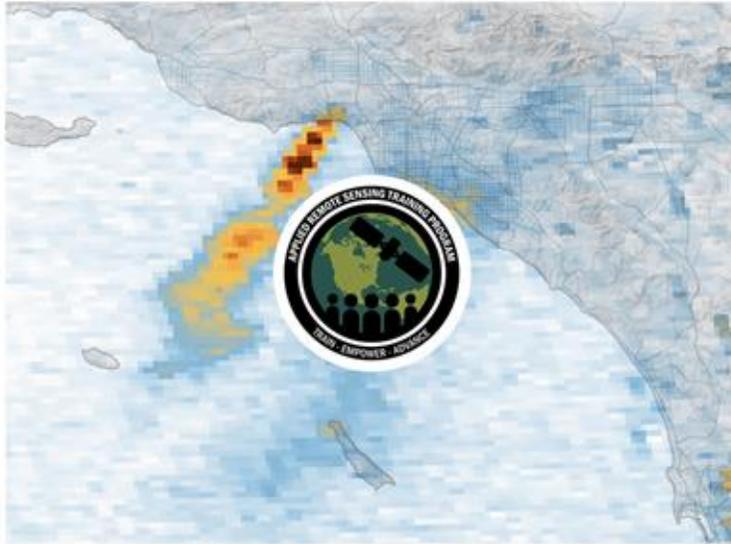
* Funded by the NASA Water Resources Program

March 6–10, 2025

This two-hour, introductory, in-person training provided an overview of NASA remote sensing data for supporting aquaculture activities in marine and freshwater environments. The training included fundamentals of remote sensing of water quality, and how to access and visualize data for monitoring harmful algal blooms. More information can be found on the [training webpage](#).



Introduction to Geostationary Satellite Observations for Air Quality Applications in the Western US



In-Person

Intermediate

Attendance:

34 Participants

21 Organizations

11 US States

Satellites/Sensors

TEMPO

August 5–7, 2025

This three-day, in-person training workshop hosted at CIRA/CSU in Fort Collins, CO provided an overview of TEMPO observations, taught users how to access and visualize the data, and highlighted example air quality applications in the Western USA. We also covered other missions and datasets that complement TEMPO for additional insights supporting air quality forecasting and management. Participants conducted short projects on the last day of the workshop to demonstrate their skills. This in-person training was in collaboration with the TEMPO Applications Team, the Atmospheric Science Data Center (ASDC), the US EPA, the South Coast Air Quality Management District (SCAQMD), and was hosted by the Western States Air Resources Council (WESTAR). More information can be found on the [training webpage](#).

Instructors



Carl Malings

NASA GSFC/MSU
ARSET Instructor



Kevin Fuell

NASA MSFC/UAH
ARSET Instructor



Kristina Pistone

ARC/BAERI
ARSET Instructor



Aaron Naeger *

TEMPO Applications
Guest Instructor

* Funded by the NASA
Tropospheric Emissions:
Monitoring of Pollution (TEMPO)
Mission

Guest Instructors

Hazem Mahmoud **
(ASDC)

Georgina Hayes-Crepps **
(ASDC)

Danny Kaufman ** (ASDC)

Jim Szykman (US EPA)

Matt Freeman (US EPA)

Barron Henderson (US EPA)

Amy Huff (NOAA)

Emily Bian (SCAQMD)

Hosts

Mary Uhl (WESTAR)

Shawn McClure (WESTAR)

Rhonda Payne (WESTAR)

** Funded by the NASA Earth
Science Data and Information
System (ESDIS) Project



NASA Earth Observations for Environmental Challenges and Opportunities in the Midwest



In-Person
Introductory
Attendance:
24 Participants
15
Organizations
5 US States

**Satellites/
Sensors**
Multiple

Instructors



Sativa Cruz
BAERI/ARC
ARSET Instructor



Justin Fain
BAERI/ARC
ARSET Instructor

October 20–22, 2025

In this in-person training, we shared information about NASA programs and activities that offer training and otherwise build capacity to sustainably and impactfully apply NASA data to real-world problems of interest to the Midwestern US. Trainers highlighted NASA's available data and tools, opportunities for training through the Applied Remote Sensing Training (ARSET) Program, and other activities to make NASA data actionable and accessible for communities. This training included interactive components to discuss how NASA Earth observations currently support, or can support, their areas of interest, including: policy, business, infrastructure, and broader management decisions. The trainers also requested feedback from participants about how to move toward more collaborative, effective, and actionable Earth science for this region.



Earth Observations in Support of Insurance and Finance Sector Decision-Making



November 12, 2025

In-Person
Intermediate
Attendance:
26 Participants
16
Organizations
3 US States

**Satellites/
Sensors**
Landsat 8/9
Sentinel-1/2
Suomi-NPP VIIRS
GPM
ECOSTRESS
Terra/Aqua MODIS
SMAP

Instructors



Sean McCartney
NASA GSFC/SSAI
ARSET Instructor



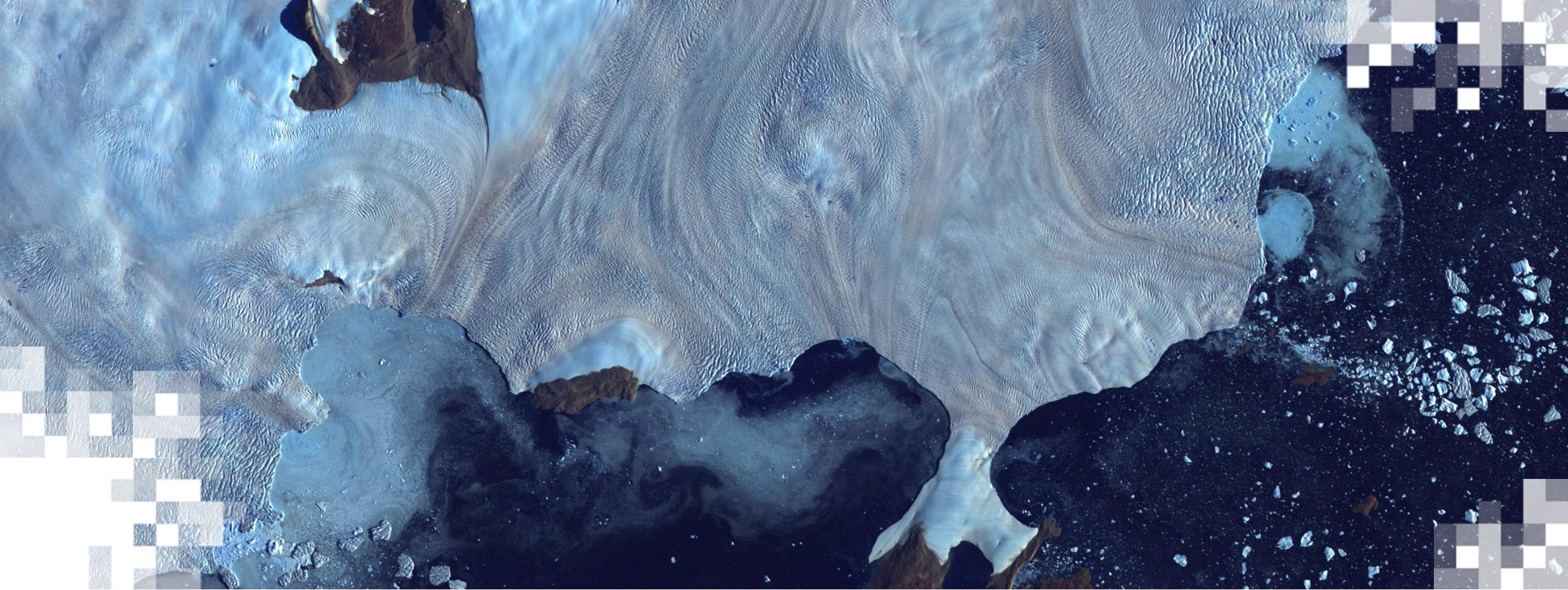
Amita Mehta
NASA GSFC/UMBC
ARSET Instructor



Erika Podest
JPL/Caltech
ARSET Instructor

This in-person training was in collaboration with NASA's Private-Sector Engagement. The training covered methodologies on how to generate pre- and post-disaster products from satellite and model data and access existing products relevant to assessing fires and floods. The training focused on data access and analysis for the stated applications with demonstrations and hands-on use cases for participants to build their technical skills in working with and analyzing NASA Earth Science data. Building technical capacity to apply Earth observations and modeled data will better prepare finance and insurance sectors to estimate loss to property caused by natural hazards and extreme events in different geographies around the world.





2025 Online, Self-Paced Trainings

Developing Sustainable Earth Science Applications



Online, Self-Paced

Introductory

Attendance:

858 2025 Participants

1,841 Total Participants

605 Organizations

104 Countries

34 US States

Launched: Jan. 1, 2024

This training helps scientists and partners working on Earth-science-based applications increase the usability and relevance of their products, datasets, and tools — described here as “applications.” Based on the NASA Earth Science Applications Guidebook, the training uses a narrative approach to introduce the Applications Pathway and non-science success factors necessary to building sustainable Earth Science applications, including project management and team collaboration, partner engagement, communications, and monitoring and evaluation. Participants will improve their ability to build applications that improve people’s lives and advance solutions to climate change, health, food insecurity, and other pressing challenges. More information can be found on the [training webpage](#).



Fundamentals of Remote Sensing

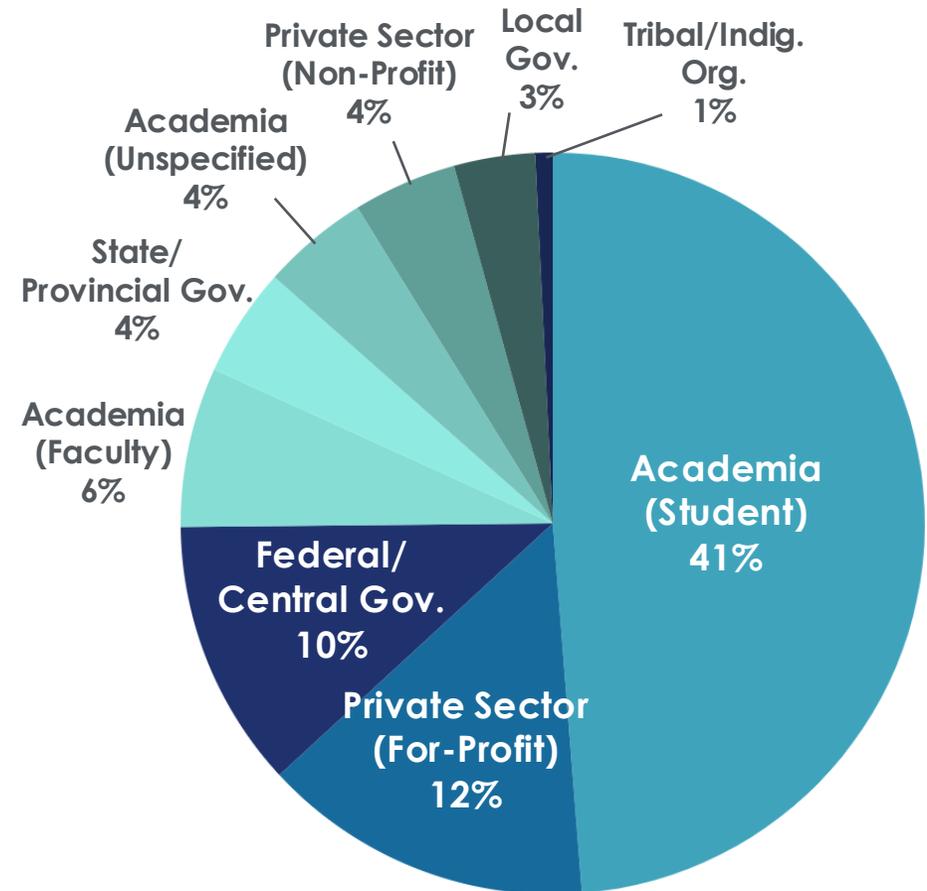


**Online, Self-Paced
Introductory
Attendance:**
11,756 Participants
1,047 Organizations
164 Countries
55 US States & Territories

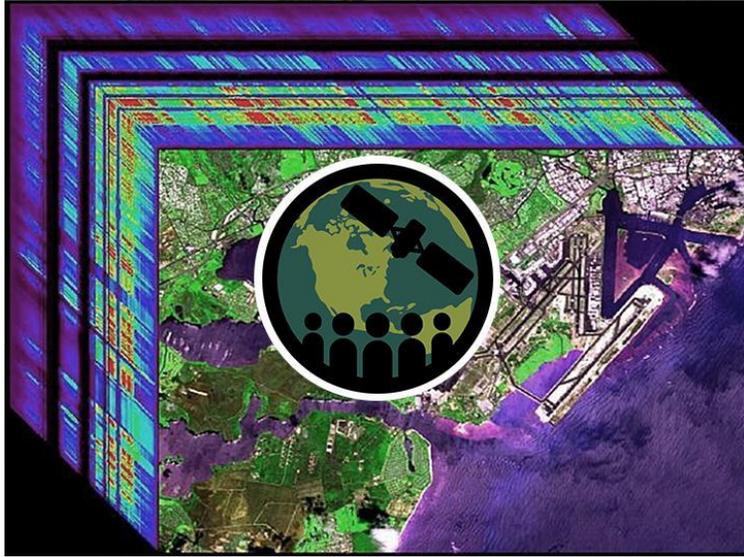
Launched: Feb. 18, 2025

In this self-paced course, participants learn the underlying science behind how remote sensing works and the basic functional characteristics of satellites and sensors. They explore the kinds of satellite remote sensing data that are available, advantages and disadvantages of remote sensing, and some basic tools to visualize data. By the end of the course, participants are equipped to begin their journey using NASA's no-cost, open-access remote sensing data and resources. They also earn a certificate upon successful completion of the course. More information can be found on the [training webpage](#).

Participation by Sector



Hyperspectral Data for Land and Coastal Systems



**Online, Self-Paced
Introductory
Attendance:**
741 Participants
515 Organizations
104 Countries
29 US States

Launched: Aug. 25, 2025

In 2021, ARSET hosted a training that introduced the basics of hyperspectral remote sensing and its potential applications for land and ocean systems. Due to the training's popularity, we have made the original instructor-led training materials available as a self-paced course with the option for participants to earn a certificate of completion. The high spectral resolution of hyperspectral data improves our ability to characterize vegetation types and biogeochemical processes across the land and oceans. This enables us to identify chemical, physiological, and morphological traits of plants, minerals, and microorganisms, and allows decision-makers to better understand critical components of ecosystem dynamics. More information can be found on the [training webpage](#).



NASA's Earth Observing Fleet



**Online, Self-Paced
Introductory
Attendance:**
1,673 Participants
894 Organizations
109 Countries
40 US States

Launched: 2020

In this self-paced training module, users are able to familiarize with Earth observing satellites in NASA's fleet, including sensors that collect data commonly used in ARSET trainings and their potential applications. More information can be found on the [training webpage](#).



Pre-Training Tutorials (Short Courses)

This year we introduced two new pre-training tutorials, or “Short Courses,” to help participants be better prepared to capitalize on what they learn in ARSET trainings.

[Link to Tutorials](#)

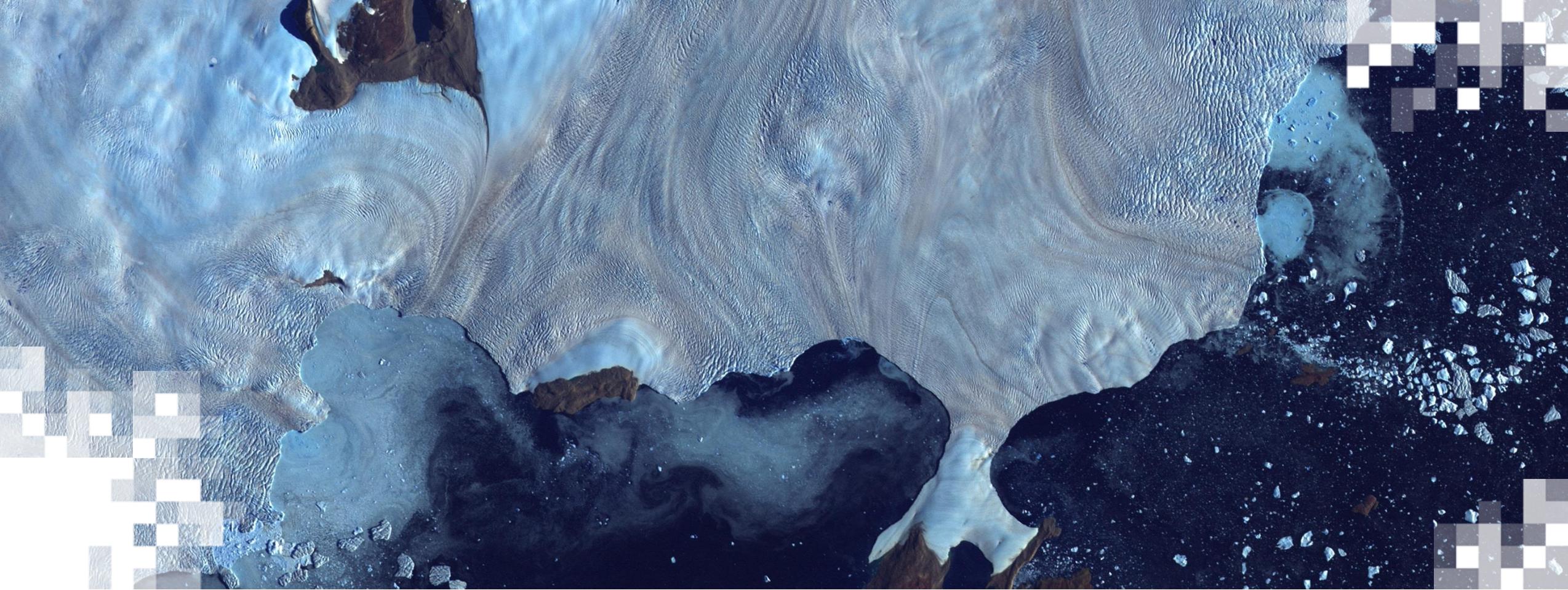
Intro to Version Control with Git and GitHub

- Learn how to use Git and Github for version control. Clone existing code to your local device and manage your own projects by linking your local changes to a remote repository.
- **763** Views by **269** Users

Installing QGIS

- Learn how to download and install QGIS for Windows, verify that QGIS is functioning, import a basemap from a web server, and review important elements of the QGIS GUI. This training aims to give participants the tools and knowledge they need to engage in ARSET trainings that utilize QGIS.
- **1,707** Views by **535** Users





Notable Events

Esri Federal GIS Conference

- Selwyn Hudson-Odoi gave a presentation on the ARSET Program at the Earth Science User Interest Meeting during the Esri Fed GIS Conference in February. Topics included general info about ARSET, our global impact, why NASA provides remote sensing training, about our trainings, and specific trainings for certain applications and where to find them.



ARSET's Selwyn Hudson-Odoi gives a talk to an audience at the Esri Fed GIS Conference in 2025. Photo: Sean McCartney



NASA Space Apps Collective Genius Summit

- **A 1.5-hour workshop, delivered by Sean McCartney, was provided by ARSET in support of the Space Apps Collective Genius Summit.** The workshop was targeting students, teachers, and scientists new to satellite remote sensing interested in remote sensing data and applications for Earth sciences. The workshop covered ways that satellite remote sensing observations are used to study Earth's systems, identify common geophysical parameters of interest to understanding the Earth system, and provided hands-on opportunities for participants to use NASA WorldView to access, display, and analyze geophysical parameters of remote sensing data.
- *“There were 186 participants in the ARSET workshop, and we had 477 overall unique attendees at the summit! Your workshop got the highest satisfaction scores (4.85/5) and engagement scores (4.8/5) of any session in the Summit!”*
– Parker Miles



NASA ARSET Training Resources Workshop

- On April 15th, ARSET's Brock Blevins delivered an online [NASA ARSET Training Resources Workshop](#) hosted by the [Global Land Programme](#), an interdisciplinary community of science and practice fostering the study of land systems and the co-design of solutions for global sustainability.
- Topics covered included:
 - Introduction to Brock Blevins and his work
 - Comprehensive overview of the ARSET training program
 - Exploration of resources available to early career scientists
 - Discussion of intended audiences for NASA resources
 - Tutorial on navigating the ARSET webpage and Online Resource Guide
 - Introduction to NASA DEVELOP program opportunities
 - Information about NASA Mission Early Adopter Programs



Other Notable Events

February

- 2025 Capacity Building Program Retreat – Shepherdstown, WV
- ESRI Fed GIS Conference – Washington, DC
- Space Apps Collective Genius Summit – Virtual
- Launch of [Fundamentals of Remote Sensing](#)

April

- Global Land Programme – [NASA ARSET Training Resources Workshop](#)
- ARSET Retreat (hybrid)

May

- 2025 NASA Biodiversity and Ecological Conservation Team Meeting, In-Person, Brock Blevins (May 27, 2025)



Other Notable Events

June

- In-person workshop by M. Follette-Cook, N. Sadoff, supported by S. Neugebauer, Foreign Service Institute, Arlington, VA
- Virtual workshop by C. Malings, DEVELOP, and ASDC, University of Georgia College of Public Health and Morehouse School of Medicine
- Virtual presentation by M. Follette-Cook, Living Planet Symposium, Vienna Austria
- Virtual presentation by A. Mehta, Masterclass on Statistical Data Analytics and Deep Learning, IIT Mandi, India

July

- Introduction to Git Version Control System (Self-paced)
- Virtual presentation by M. Follette-Cook, USGS Community for Data Integration
- Virtual presentation by M. Follette-Cook, S. McCartney (ARSET/DEVELOP), and K. Lemon (DEVELOP), National Association of Conservation Districts Conservation Coffee Series



Other Notable Events

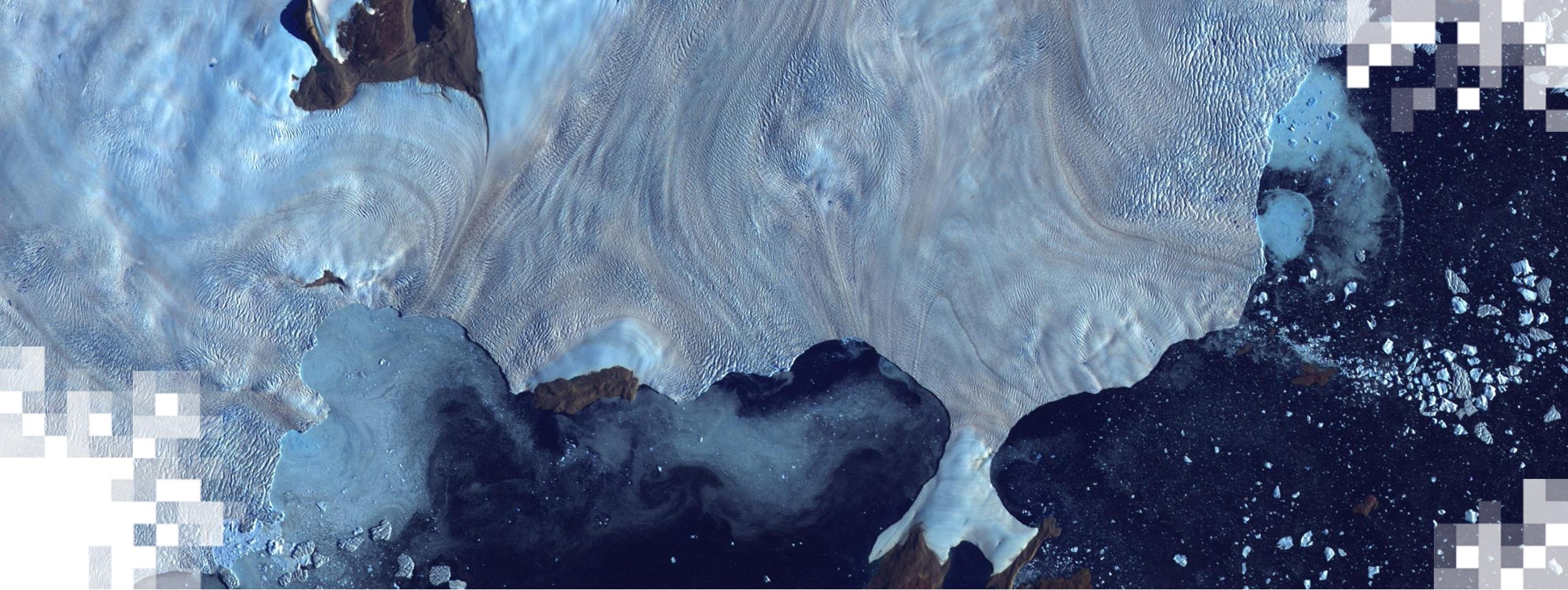
September

- Presentation by J. Fain and J. Torres-Perez, California Council on Science and Technology Science Day
- ARSET featured in [NASA Science Article](#)

November

- [Virtual presentation](#) by B. Blevins with Erin Martin and Yasha Yoz (EOTEC DevNet), CALMet XVI - CONECT 3 Conference, Florence, Italy





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- William Wainwright
- Aaron Naeger
- Hazem Mahmoud
- Georgina Hayes-Crepps
- Danny Kaufman
- Jim Szykman
- Matt Freeman
- Barron Henderson
- Amy Huff
- Emily Bian



Our 2025 Team



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Project Scientist



Brock Blevins
Training Coordinator



David Barbato
Spanish Translator



Annelise Carleton-Hug
Program Evaluator



Juan Torres-Pérez
Lead Instructor



Justin Fain
Instructor



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Instructor



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Andrea Portier
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Sean McCartney
Instructor



Amita Mehta
Lead Instructor



Erika Podest
Lead Instructor



Thank You!

