National Aeronautics and Space Administration

The NASA Applied Remote Sensing Training (ARSET) Program

2025 NASA Biodiversity and Ecological Conservation Team Meeting

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NASA Applied Remote Sensing Training (ARSET)

https://appliedsciences.nasa.gov/arset

The ARSET Program delivers cost-free training to increase the knowledge, awareness, and use of Earth Observations for decision making

ARSET Training Themes

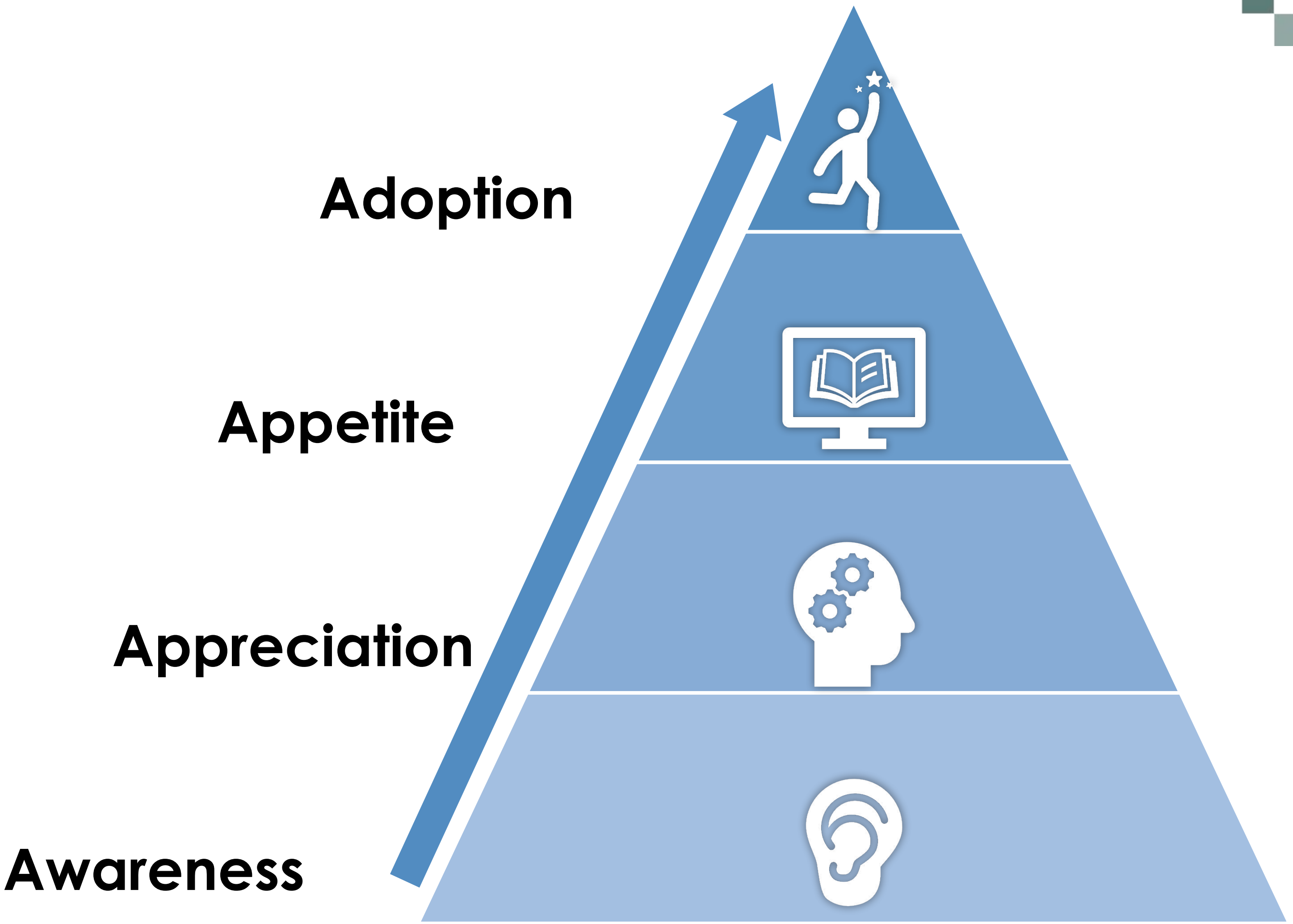
- AGRICULTURE
- CLIMATE & RESILIENCE
- DISASTERS
- ECOLOGICAL CONSERVATION
- HEALTH & AIR QUALITY
- WATER RESOURCES
- WILDLAND FIRES

EARTH SCIENCE
APPLIED SCIENCES

CAPACITY BUILDING

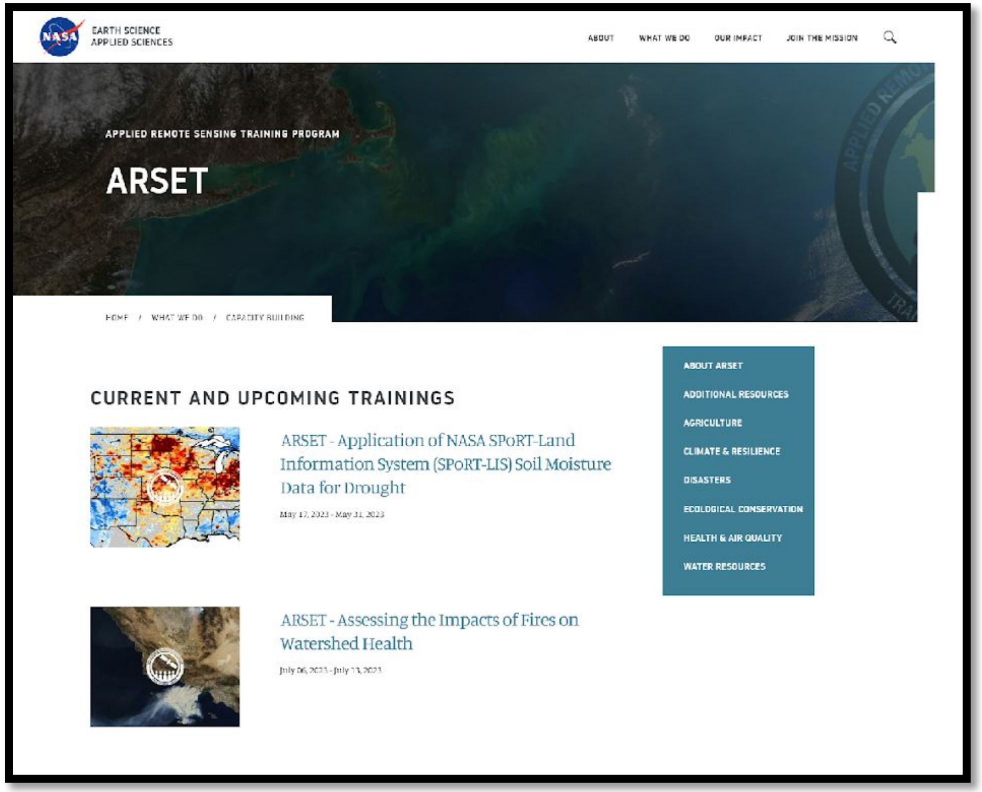
Why training?

- Accelerated use of data from awareness, appreciation, appetite, through adoption
- Improved utility of data products and tools for users
- Communicate appropriate uses of data products
- Increasing use of data in user communities enables more informed decisions



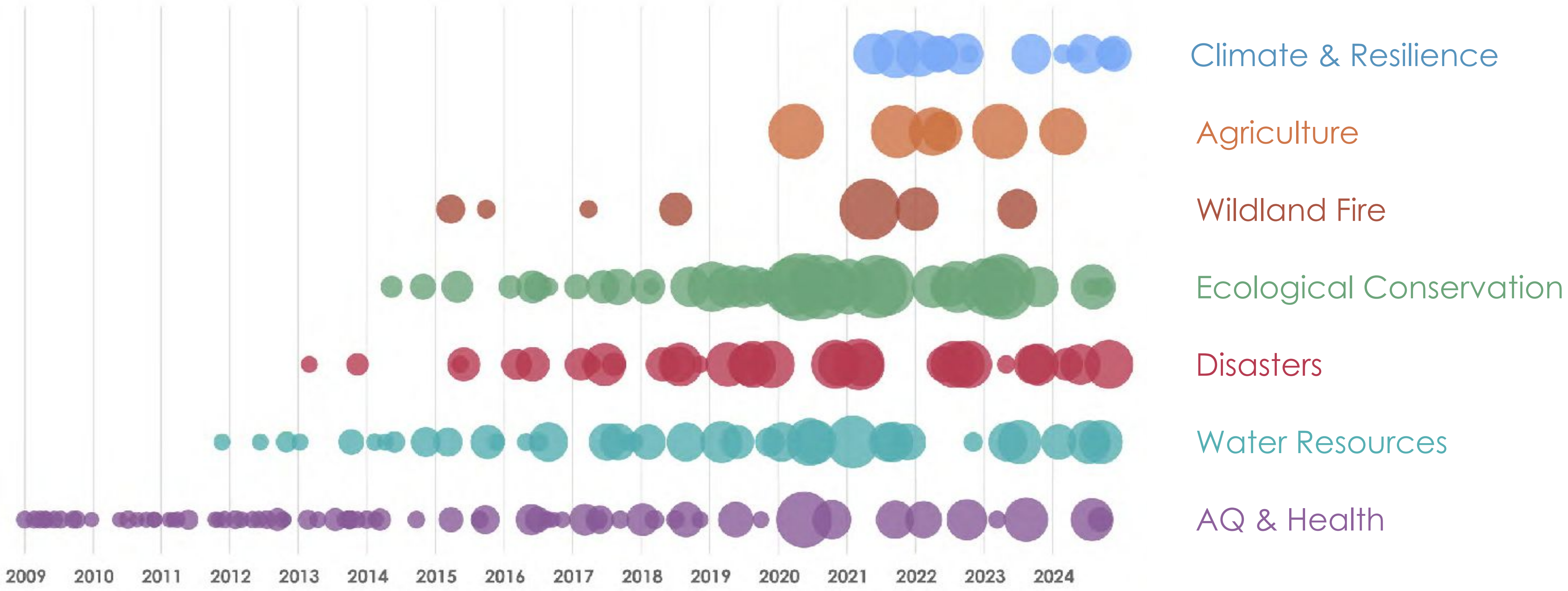
ARSET Trainings

- Our trainings are:
  - Online and in-person
  - Live and instructor-led, or self-guided
  - Online: Typically, 2 – 3 parts, 1-1.5 h each
  - Provided at no cost, with materials and recordings available from our website
  - Often multi-lingual
  - Range in level from **introductory** to **advanced**



ARSET Trainings 2009 - 2023

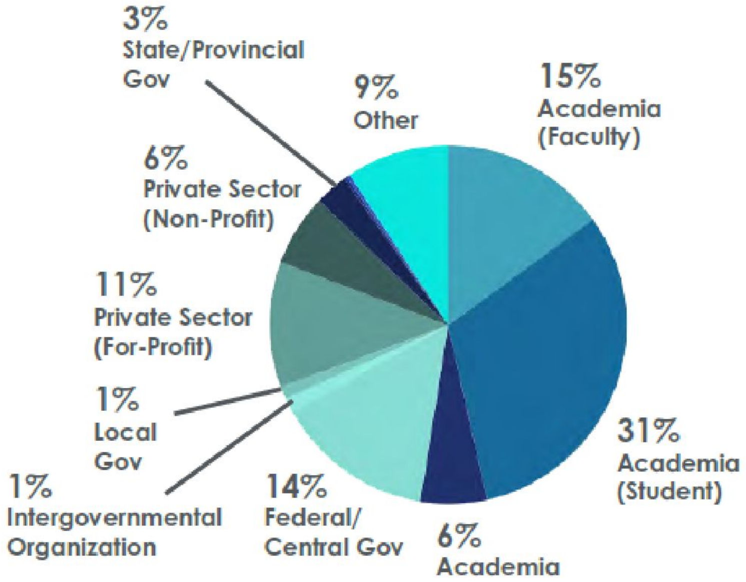
194 trainings | 130,000+ participants | 186 countries | 19,000+ organizations



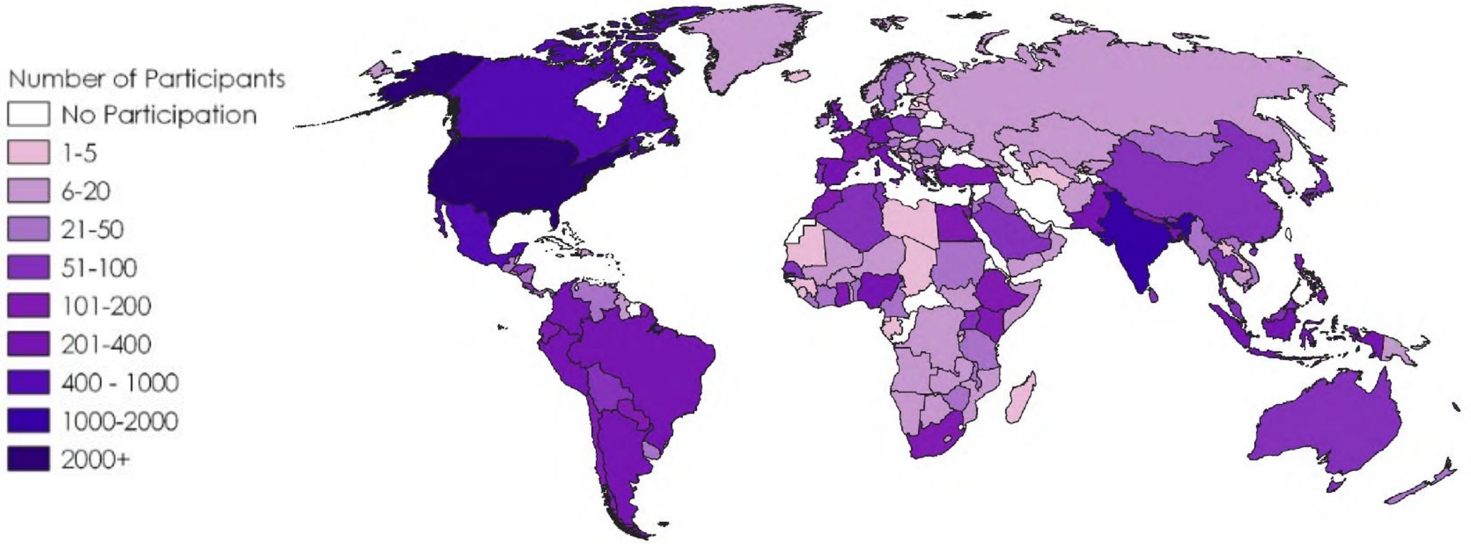
* Size of circles corresponds to number of participants

ARSET trainings serve a diverse set of communities…

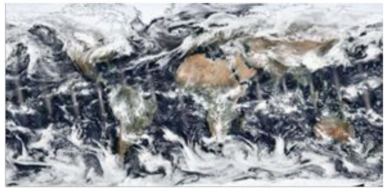
- ARSET trainings are **targeted to policymakers, NGOs, and other professionals** looking to incorporate NASA remote sensing into their activities.
- ARSET also trains the next generation of Earth scientists.
  - Academia (both faculty and students) routinely make up ~50% of training attendees.

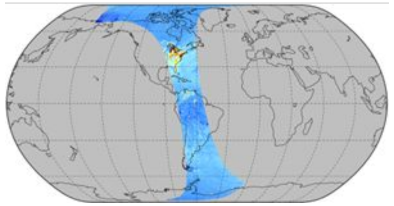


2024 Participation



ARSET Trainings





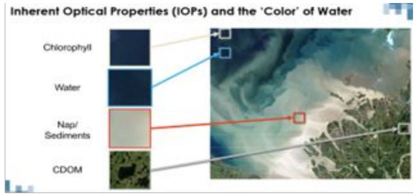
FIRMS
Fire Information for Resource Management System

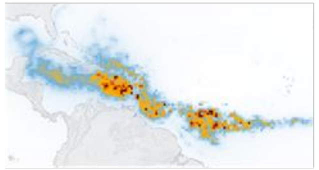
jupyter

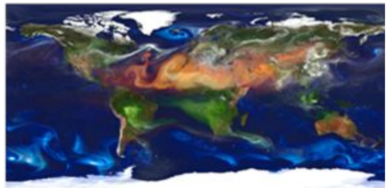
WORLDVIEW

SeaDAS

EARTHDATA
OPEN ACCESS FOR OPEN SCIENCE





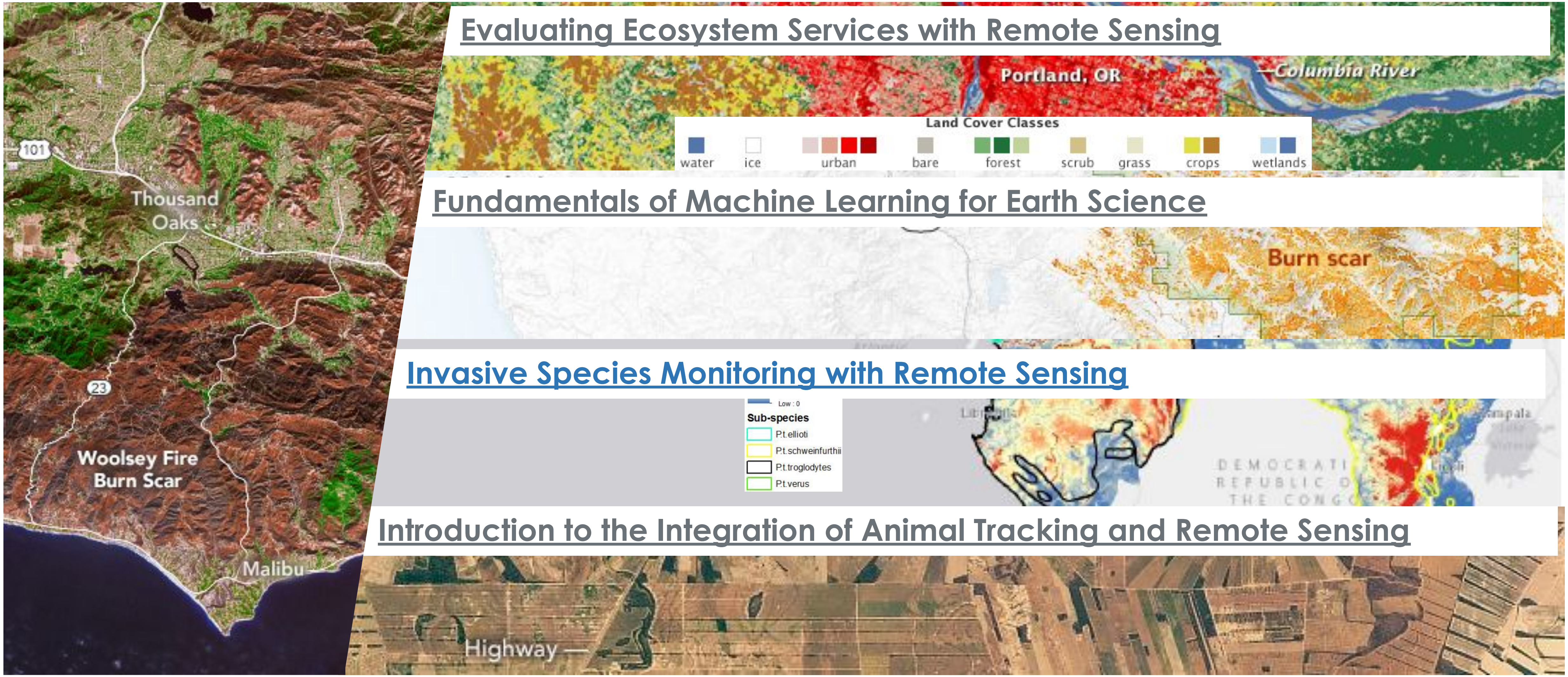


- Remote Sensing Basics
- Imagery
- Data Products
- Satellite Orbits and Observation Techniques
- Modeling

- How to Access Data
- Data Formats
- How to Visualize Data
- Tools for Data Analysis

- Fire detection and smoke transport
- Water and air quality monitoring
- Coastal ocean
- Land use change
- Floods and droughts

Ecological Conservation Training Topics



[Evaluating Ecosystem Services with Remote Sensing]

[Fundamentals of Machine Learning for Earth Science]

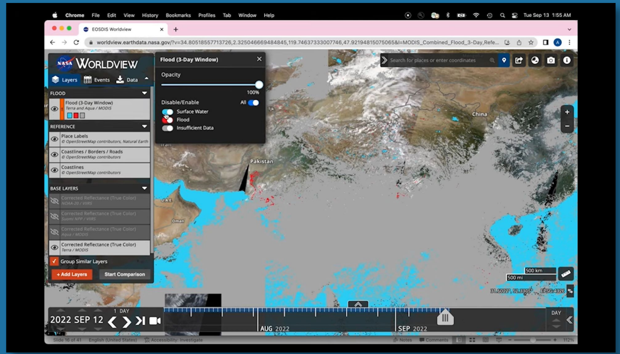
[Invasive Species Monitoring with Remote Sensing]

[Introduction to the Integration of Animal Tracking and Remote Sensing]

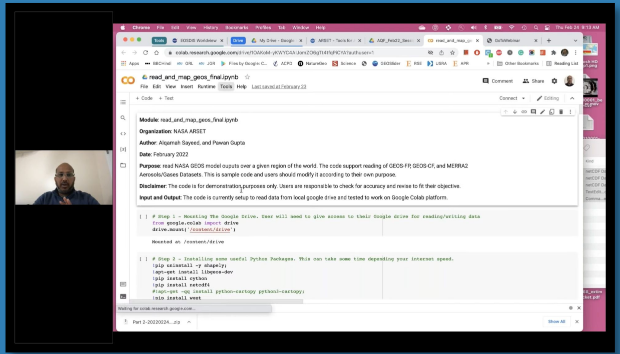
Training Content

Lectures

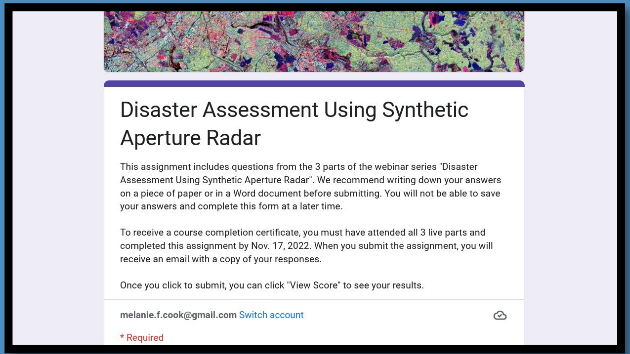
Demonstrations



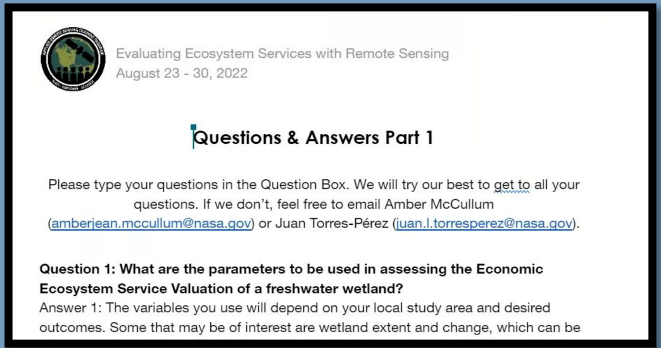
Hands-on Exercises



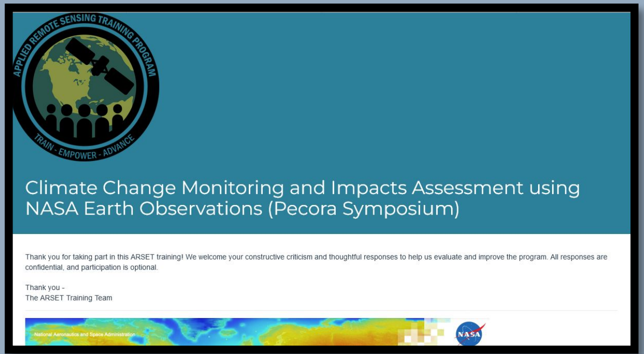
Homework



Q&A



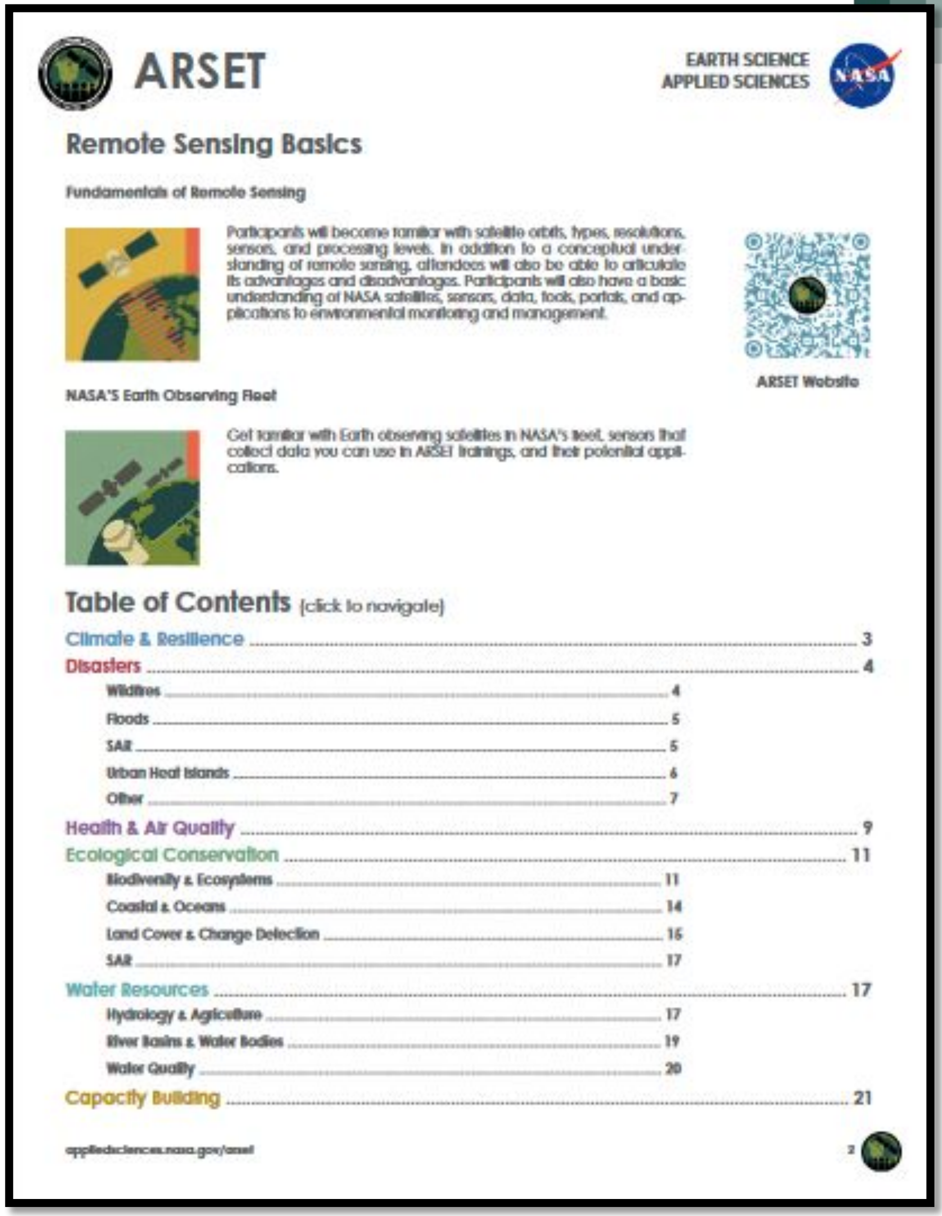
Training Evaluation



Connect with ARSET

https://appliedsciences.nasa.gov/arset

- **View all recordings and materials** from previous trainings
- **Register** for an upcoming training
  - We use training survey responses to assess the effectiveness of each component of the training and get **ideas for future trainings.**
- Browse all our previous trainings since 2015 in our **Online Resource Guide**
- Take our **new self-paced training** on Fundamentals of Remote Sensing
- **Sign up for our listserv and follow us** on Twitter/X (@NASAARSET) to find out about our newest trainings



ARSET

EARTH SCIENCE
APPLIED SCIENCES

Remote Sensing Basics

Fundamentals of Remote Sensing

Participants will become familiar with satellite orbits, types, resolutions, sensors, and processing levels. In addition to a conceptual understanding of remote sensing, attendees will also be able to articulate its advantages and disadvantages. Participants will also have a basic understanding of NASA satellites, sensors, data, tools, portals, and applications to environmental monitoring and management.

ARSET Website

NASA'S Earth Observing Fleet

Get familiar with Earth observing satellites in NASA's fleet, sensors that collect data you can use in ARSET trainings, and their potential applications.

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Thank you!