National Aeronautics and Space Administration

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

November 12 & 19, 2025

11:00-12:00 (Session A) or 15:00-16:00 (Session B) EST (UTC-5)

Satellite observations can be used to detect active fires as well as monitor fire impacts to 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 requiring restoration intervention. Wildfire smoke monitoring is also critical for air quality and public health applications, as exposure to fine particulate matter within smoke can cause respiratory issues and other health complications. Along with active fires, satellite sensors can detect static thermal anomalies (STA) from natural heat sources, such as from volcanoes, or industrial heat sources such as mineral processing plants, gas flares, and waste incinerators. Multiple sources of satellite imagery and derived data products relevant to smoke, post-fire conditions, and STA identification are available within the NASA Fire Information for Resource Management System (FIRMS). This two-part training will introduce participants to several capabilities within FIRMS that were not included in the previous ARSET training, Introduction to NASA Earth Observations and Tools for Wildfire Monitoring and Management. Participants will learn how to use the FIRMS aerosol index indices, burned area products, post-fire indices and imagery, static thermal anomaly information, and how to use Jupyter notebooks to ingest and visualize active fire detection data.

Part 1: Post-Fire Imagery and Smoke Monitoring

ARSET Trainers: Melanie Follette-Cook

Guest Instructors: Jenny Hewson, Diane Davies

- Introduction
- Use of FIRMS to Inform Post-Fire Assessments
- Exploring the Smoke and Aerosols Mode of FIRMS
- Summary
- Q&A Session

Part 2: NASA's Citizen Science for Earth Systems Program

ARSET Trainers: Melanie Follette-Cook

Guest Instructors: Dylan Mendes, Brad Quayle

- Introduction
- Jupyter Notebooks
- Static Thermal Anomalies (STAs)
- Summary
- Q&A Session

ARSET empowers the global community through remote sensing training.

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