Assessing the Impacts of Fires on Watershed Health

July 6, 11, & 13, 2023

11:00-12:30 or 15:00-16:30 EDT (UTC-4)

This advanced-level training will focus on using remote sensing observations for monitoring post-fire impacts on watershed health, building off the ARSET training offered in 2021: Satellite Observations and Tools for Fire Risk, Detection, and Analysis. Specifically, this training will highlight uses of NASA Earth observations (EO) for pre-fire land cover mapping, watershed delineation and stream mapping, post-fire burn severity mapping, and pre- and post-fire riverine and freshwater water quality. This three-part training will highlight case studies that use remote sensing data for assessing the impacts of fires on watersheds. This training will also provide participants with hands-on exercises for using NASA EO for these assessments within the Soil Water Assessment Tool (SWAT) and Google Earth Engine.

Part 1: Satellite Observations and Tools for Fire Risk

Trainers: Sean McCartney, Amita Mehta, Erika Podest

- Provide examples of fire science criteria for drought conditions in a given watershed pre-fire to select the appropriate data from satellites/instruments for a watershed of interest
- Demonstrate how to delineate river basins and subbasins for a watershed of interest
- Calculate anomalies in biophysical and meteorological conditions for a watershed of interest

Part 2: Earth Observations and The Soil & Water Assessment Tool (SWAT) for Assessing Post-Fire Water Quality in Watersheds

Trainers: Sean McCartney, Ibrahim Mohammed, Mandy Lopez

- Identify physically-based model components necessary to run a SWAT model to predict the impact of management on water and sediment in a watershed
- Ingestion of Earth remote sensing data into SWAT model using NASAaccess
- Recognize best practices used to conduct calibration in SWAT

Part 3: Using Google Earth Engine to Monitor Post-Fire Impacts

Trainers: Amber McCullum, Juan Torres-Pérez, Britnay Beaudry, Sativa Cruz

- Identify global socioeconomic datasets and land cover products useful for assessing the impact of fire on population, infrastructure, and land use & land cover types
- Acquire land use & land cover maps for a watershed of interest
- Evaluate the severity of post-fire burns within a watershed of interest

ARSET empowers the global community through remote sensing training.

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