



## 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.



### 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.



## Agriculture - 2024

### Large Scale Applications of Machine Learning using Remote Sensing for Building Agriculture Solutions



Participants will become familiar with data format and quality considerations, tools, and techniques to process remote sensing imagery at large scale from publicly available satellite sources, using cloud tools such as AWS S3, Databricks, and Parquet. Additionally, participants will learn how to analyze and train machine learning models for classification using this large source of data to solve environmental problems with a focus on agriculture. Participants will have a basic understanding of tools such as Pyspark and TensorFlow.

Advanced - 2024



## Agriculture - 2023

### Crop Mapping using Synthetic Aperture Radar (SAR) and Optical Remote Sensing



This three-part, advanced training builds on previous ARSET agricultural trainings. Here we present more advanced radar remote sensing techniques using polarimetry and a canopy structure dynamic model to monitor crop growth. The training also covers how to apply machine learning methods to classify crop type using a time series of Sentinel-1 & Sentinel-2 imagery. This series will include practical exercises using the Sentinel Application Platform (SNAP) and Python code written in Python Jupyter Notebooks.

Advanced - 2023



# Agriculture - 2022



## Applications of Remote Sensing-Based Evapotranspiration Data Products

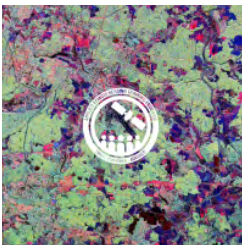


This three-part webinar series focuses on introducing newly available ET products derived from remote sensing observations. It will specifically cover a web portal called OpenET (<https://openetdata.org/>), which includes ET products estimated by using six models as well as Landsat satellite observations. These ET products cover the western United States. In addition, information about global ET products derived from ECOSystem Spaceborne Thermal Radiometer Experiment on the Space Station (ECOSTRESS) will also be covered.

Intermediate - 2022



## Mapping Crops and their Biophysical Characteristics with Polarimetric SAR and Optical Remote Sensing



This four-part, advanced training builds on the previous ARSET agricultural training. Here we present more advanced radar remote sensing techniques using polarimetry to extract crop structural information. We also present Sen4Stat – an open source system demonstrating the potential of optical and SAR satellite Earth observations for monitoring and reporting of the SDG targets related to agriculture.

Advanced - 2022



# Agriculture - 2021

## Agricultural Crop Classification with SAR and Optical Remote Sensing



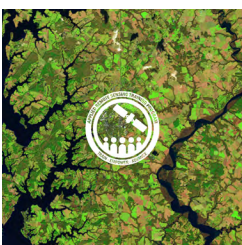
This five-part, intermediate webinar series will focus on the use of synthetic aperture radar (SAR) from Sentinel-1 and/or optical imagery from Sentinel-2 to map crop types and assess their biophysical characteristics. The webinar will cover a SAR and optical refresher along with pre-processing and analysis of Sentinel-1 and Sentinel-2 data using the Sentinel Application Platform (SNAP) and Python code written in JupyterLab, a web-based interactive development environment for scientific computing and machine learning.

Intermediate - 2021



# Agriculture - 2020

## Satellite Remote Sensing for Agricultural Applications



This training addresses how to use remote sensing data for agriculture monitoring, specifically drought and crop monitoring. The webinar also provides end-users the ability to evaluate which regions of the world have agricultural productivity above or below long-term trends. This informs decisions pertaining to market stability and humanitarian relief.

Introductory - 2020

