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

April 4, 6, & 11, 2023

10:00-12:30 (English) or 13:00-15:30 (Spanish) EDT (UTC-4)

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 will also cover 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, a web-based interactive development environment for scientific computing and machine learning.

This webinar series is a collaboration between ARSET, Agriculture and Agri-Food Canada (AAFC), European Space Agency (ESA), University of Stirling, University of Ljubljana, and the CEOS Working Group on Capacity Building & Data Democracy (WGCapD).

Part 1: Crop Classification with Time Series of Polarimetric SAR Data

Trainers: Sean McCartney & Erika Podest

Guest Trainer: Armando Marino (University of Stirling)

- Identifying crops with polarimetric SAR (PolSAR) time series from Sentinel-1 using Random Forest and other Machine Learning algorithms in Python Jupyter Notebook
- Q&A Session

Part 2: Crop Classification with Time Series Optical and Radar Data

Trainers: Sean McCartney & Erika Podest

Guest Trainers: Krištof Oštir & Matej Račič (University of Ljubljana)

- Detecting crop type with machine learning and time series data from Sentinel-1 & Sentinel-2 imagery
- Q&A Session

Part 3: Monitoring Crop Growth Through SAR-Derived Crop Structural Parameters

Trainers: Sean McCartney & Erika Podest

Guest Trainers: Heather McNairn, Emily Lindsay, & Xianfeng Jiao (AAFC/AAC)

- Monitoring crop growth using a canopy structure dynamic model and time series of Sentinel-1 imagery
- Q&A Session

ARSET empowers the global community through remote sensing training.

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