

PhenoCube

Unleashing the Potential of Multi-Source Satellite Data and Archives for Phenological Land Monitoring

The full potential of deriving information for phenological monitoring based on EO data has not been used so far. Reasons are lacking knowledge of remote sensing data and techniques of users with no remote sensing background, lacking knowledge of data portals and download opportunities for big datasets, lacking knowledge of data preparation, data fusion and processing and limitation of the storage volumes. A data cube based on the open source toolkit of the CEOS Open Data Cube initiative (ODC) has been designed to foster and support the integration of multisource (Sentinel-2, MODIS, Sentinel-1) time series and historical data of the Landsat archive in local scale phenological monitoring activities. Analyses-ready data (ARD) are integrated in a user-friendly web-based environment and linked with easy to use analyses tools that can be applied by non-remote sensing analysts. Most important is the fact that users are able to analyse EO data with the needed flexibility regarding the study area, analyses tool and observation time. PhenoCube provides simple time series tools based on NDVI and Leaf Area Index products for two different environmental monitoring scenarios. The first scenario covers the Durable Environmental Multidisciplinary Monitoring Information Network (DEMMIN), which is part of the GEOGLAM / JECAM calibration and validation activities. The data cube provides tools for agricultural monitoring purposes. The second area covers the forest ecosystems of the Steigerwald, Germany. The PhenoCube is embedded in a network of local scientists with the goal to test the applicability and interoperability in their operational working environment. We show the first results of the Summer 2018 drought monitoring in Germany.