



Contribution ID: 149

Type: WP6

Satellite Data Management for advanced environmental applications

Efficient satellite data management is essential to improve environmental monitoring and support various space economy applications. As part of Working Project 6 (WP6) 'Cross-Domain Initiatives and Space Economy' of Spoke 2, we developed a custom library designed to simplify the entire workflow from downloading to pre-processing and analysis of satellite data.

The library facilitates the creation and management of datasets using multispectral images from the Sentinel-2 satellites of the Copernicus constellation. We demonstrate its utility through two case studies: the segmentation of wildfire-affected areas and the early detection of vineyard diseases. In the first case, we integrate Sentinel-2 imagery with wildfire information from the Copernicus Emergency Management Service. In the second case, we combine satellite data with geolocation and disease impact assessments from recent airborne surveys in the context of the regional PERBACCO project.

To further enhance our analytical capabilities, we are expanding our methods to incorporate additional data sources from other satellites within the Copernicus constellation. This improvement allows for more comprehensive datasets. By integrating diverse satellite and aerial data through our custom library, we aim to enhance the scalability and effectiveness of environmental monitoring applications, contributing significantly to disaster response and sustainable agricultural practices.

Giorno preferito

Primary authors: TRICOMI, Alessia Rita (Università di Catania & INFN Catania & CSFNSM); CHIARELLI, Enrico (Department of Physics and Earth Science, University of Ferrara & INFN, Sezione di Ferrara); MANTOVANI, Fabio (Department of Physics and Earth Science, University of Ferrara & INFN, Sezione di Ferrara); Dr ANASTASI, Gioacchino Alex (Università di Catania & INFN Catania); PIPARO, Giuseppe (Istituto Nazionale di Fisica Nucleare); ELEK, Irem Nedime (Department of Physics and Earth Science, University of Ferrara & INFN, Sezione di Ferrara); RAPTIS, Kassandra Giulia Cristina (Department of Physics and Earth Science, University of Ferrara & INFN, Sezione di Ferrara); ALBÉRI, Matteo (Department of Physics and Earth Science, University of Ferrara & INFN, Sezione di Ferrara); STRATI, Virginia (Department of Physics and Earth Science, University of Ferrara & INFN, Sezione di Ferrara)

Presenter: PIPARO, Giuseppe (Istituto Nazionale di Fisica Nucleare)