

PORTUGAL

Revealing new insights about the Portuguese landscape

“As the National Reference Center for Land Cover, we have been producing the flagship land use and land cover map of Portugal based on visual interpretation of orthophotos. Whilst these maps are widely appreciated and used by the public and private sectors, we are also pioneering new methods of map production as a response to the ever-growing need for information on land cover. Based on Sentinel-2 images and automatic methodologies, we are starting a new annual series of land cover maps which we hope will also become a milestone in terms of innovation and quality in the coming years.”

Fernanda do Carmo, General Director, Directorate General for Territory, Portugal

The Directorate General for Territory has started production of an annual land cover map series of Portugal based on satellite imagery.

A new land cover map for mainland Portugal – COSsim – was produced using Sentinel-2 data automatic classification. Using the reference year of 2018, it depicts the Portuguese landscape in raster format at high spatial resolution with the aim of initiating a series of maps that will be updated every year.

The new map builds on the supervised classification of Sentinel-2 data with machine learning classifiers and the automatic extraction of training data from auxiliary datasets, such as official crop records and Copernicus High Resolution Layers. The supervised classification is refined by integrating expert-knowledge rules related to species distributions, agricultural practices, vegetation recovery after wildfires and so on.

The methods deployed form an end-to-end and reproducible semi-automatic workflow based on open source software for providing reliable and transparent new information to society.

Benefits

- Reveals new insights about the Portuguese landscape that emerge from the high spatial resolution.
- Provides relevant information for public and private stakeholders that need fine spatial data, such as decision-makers, researchers, and entrepreneurs.
- Offers opportunities for monitoring the territory over time.
- Already adopted in real applications on wildfire spread modeling and spatial planning.
- Meets the ever-growing need for information about land use and land cover.

