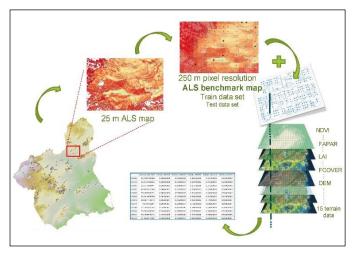


Copernicus Global Land Service Use Case



Forest tree carbon mapping

User's reference: Agresta S.Coop. https://agresta.org/en/



Methodological scheme to retrieve the final aboveground forest carbon maps.

Benefits for the user

- > Feasible and cost-effective approach for monitoring of aboveground carbon.
- > Easy updating of aboveground carbon evolution.
- > High temporal frequency (every 10 days) and moderate spatial resolution (300 m)
- > Applicable for local, regional and national land use planning and management.
- > Mapping of uncertainty values associated to the carbon estimation.

Data sources used

From the service

> 300 m resolution vegetation products: NDVI, LAI, FAPAR and FCOVER

Other sources:

- > Spanish National Plan of LiDAR data
- > Fourth Spanish National Forest Inventory
- > DEM and derived topographic parameters

Activity domain: Forestry and carbon monitoring Geographic area: Spain

Overview

Since Iberian Mediterranean ecosystems are very sensitive to climate change effects, they require adaptive management for assessment, monitoring and management of organic carbon in ecosystems, essential to achieve global change commitments at national level. However, such maps are difficult to produce and the uncertainties are often large. Due to its high-sensitivity and precision, LiDAR technology has been extensively used in forestry practices, including vegetation carbon density. However, these data presents much longer repeat cycles compared to satellite data and complicates its continuous spatial acquisition, especially at national scale studies. Agresta S.Coop, in collaboration with Universities of Almería (Spain) and Delaware (USA), has developed a methodological approach to improve a nationwide aboveground carbon map, integrating high-resolution data with vegetation products of the Copernicus Global Land Service.

Facts & key numbers

- Forest area in Spain increased 1.2% between 2004 and 2018.
- Forest covers more than 18 Mha in Spain, the third country of EU for its forested areas.
- > 2,544 Mt of carbon are accumulated in the forest soil of Spain. This value is equivalent to the CO2 emissions of Spain in the last 29 years (according to the average emissions 2001-2010)
- > The soil organic carbon stored in Spanish forest is four times greater than the amount stored in the above ground biomass of such forests.

About the user

Organization type: Associated Work Cooperative

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