MySustainableForest

OPERATIONAL SUSTAINABLE FORESTRY WITH SATELLITE-BASED REMOTE SENSING SERVICES FOR REDD+ MRV

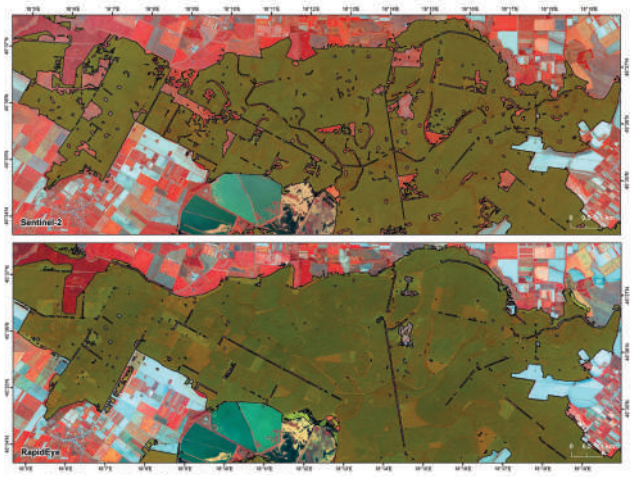
HORIZON 2020 project **MySustainableForest** is a geospatial web interoperable platform which provides 6 satellite based services with 28 products for forest management.
Products are codesigned with stakeholder's in-situ data, LIDAR, airborne, sonic, high and very high resolution optical and radar satellites -Rapideye, SPOT, Sentinel 1 & 2, WorldView, Pleiades-.
At present, products are on test in 14 sites across Atlantic, Mediterranean, continental forest types and *Eucalyptus globulus* plantations.

Results show the suitability of **MySustainableForest** Products for REDD+ MRV protocols:

- Products are forest-stakeholder driven (country, owners, association, etc)
- Products are increasingly implemented in a "learning by doing approach"
- Monitoring products safeguard the consideration of biodiversity, governance and the inclusion of local communities
- Satellite data make parameter estimates consistent across years
- Products data and methods are transparent: documented, quality controlled and ready for third party validation
- Estimates of emissions and removals follow IPCC methodologies and standard formats thus being comparable across sites

SERVICES

Satellite based forest monitoring services are the result of a user's needs consultation exercise. Nearly 450 needs were expressed by a population sample of 170 stakeholders, many representing large communities of forest owners, managers, wood transformation industries, transport and public entities.



Forest mask for CFRI2 area (Croatia). Upper panel: Sentinel-2 (10m); Lower panel: RapidEye (5m).


Forest mask for FOAL2 area (Lithuania) using Sentinel-2 data.

FOREST SITE CHARACTERIZATION provides facts of forest status and condition: extension, stand delineation, infrastructures, forest types, stand variables -dominant height, stand age, stand density-, forest disturbances -clear cuts, fire scars-, topography -DEM, slope, aspect-

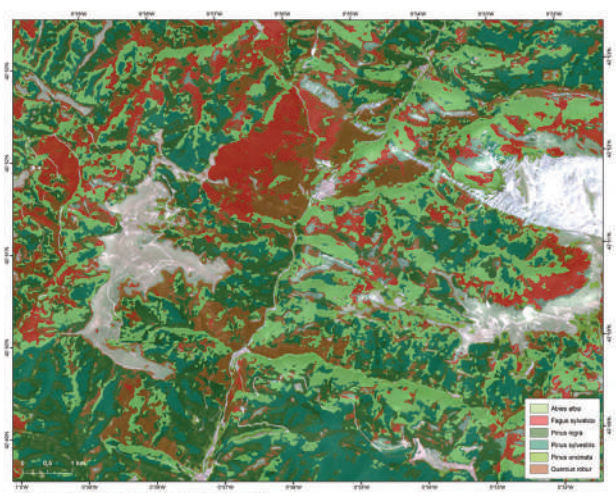
WOOD CHARACTERIZATION models and maps wood fiber attributes linked to wood potential and performance, i.e: pulp yield, density, strength and stiffness of lumber. Field fiber measurements are crossed checked against remote environmental parameters.

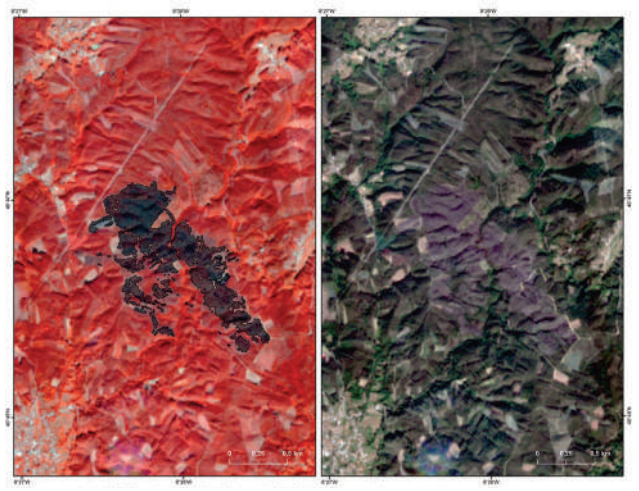
BIOMASS AND CO2STOCKING provides estimations of the living volume of trees in a forest and CO2stock content. These products are key for the forest biomass industry and carbon accountings.

FOREST CONDITION monitors and measures the forest health condition, identifying stressed vegetation, due to wind storms, drought, frost, plagues or any other hampering cause.

ECOSYSTEM VULNERABILITIES informs about an array of ecosystem descriptors and vulnerabilities, namely: watershed extent, hydrologic network, biodiversity indicators, habitat fragmentation, floods and forest fire risks.

SOCIOECONOMIC FUNCTIONS AND CONDITIONS provides analytics based on the System of Environmental Economic Accounting (SEEA) proposed by United Nations; SEEA integrates economic and environmental data to provide a comprehensive view of the relationships between economy and environment.


Forest types product (dominant species) for Valle del Roncal (Spain) using Sentinel-2 data.


Left panel: Burnt scar detection in RAIZ2 (Portugal) using Sentinel-2 data. Fire occured in October 2018. False color composition.
Right panel: The true color composition (3 days after fire) highlights the difficulty of detecting the scar.

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My Sustainable Forest
Earth observation services for silviculture

GFOI Plenary
Maputo, Mozambique
8-11 April 2019

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 776045