My Sustainable Forest

USER'S GUIDE #3
VOLUME, ABOVE GROUND BIOMASS & CO_2 STOCK

- **Forest owners, associations, and industries, wishing to take more efficient strategic business decisions can directly benefit from MySustainableForest products.**
- **Remotely sensed data applied to forest inventory can quickly generate maps with the distribution of wood volume, above ground biomass and CO_2 stock at lower costs and without on-field sampling.**
- ***Volume, Above Ground Biomass and CO_2 Stock* products automatically classify the landscape into its available wood volume, above ground biomass and CO_2 sequestration potential.**

The product in a nutshell

With the ***Volume, Above Ground Biomass and CO_2 Stock*** products you can:

- Assess wood volume availability at stand and/or regional scale.
- Evaluate biomass supply availability at regional scale.
- Assess CO_2 sequestration and produce carbon budget models.
- Optimise the supply chain, thus improving competitiveness in the forest industry.
- Enhance the effectiveness of forestry works with more efficient planning.

The challenge

Volume is the wood volume available per surface unit (m3/ha). Above ground biomass is the dry tree biomass per surface unit, broken down by tree compartments for a given species and region. CO_2 stocking represents mass of CO_2 if all carbon in tree biomass per surface unit is converted to CO_2 (also called CO_2 equivalent mass). Precise estimates of volume, biomass and CO_2 stock are essential data for the forest industry (including wood and biomass) and carbon accountings.

To date, wood volume, above ground biomass and CO_2 stock are mainly derived from species abundance, diameter at breast height (dbh) and tree height data collected in sampling plots during national or regional forest inventories or during operational inventories. In many countries, regional or national inventories are costly and time-consuming (especially in remote areas with scarce infrastructures) and usually take place every 10 years. Operational inventories are also costly and time-consuming due to the need of a large number of field plots.

MySustainableForest solution

MySustainableForest (MSF) is a geo-information portfolio of products aiming to support silvicultural activities and sustainable forest management. The products are based on satellite data, LiDAR and sonic non-invasive measurements.

Volume, Above Ground Biomass and CO_2 Stock products use LiDAR-based data algorithms, which relate volume and above ground biomass in field plots with statistics derived from the LiDAR point cloud. CO_2 stocking is then calculated converting dry wood biomass to species' specific wood carbon content and then transforming wood carbon content into CO_2 equivalent mass.

What do I need to provide?

The user has to provide only the geo-location of the **Area of Interest (AOI)**, through coordinates or a GIS vector layer.

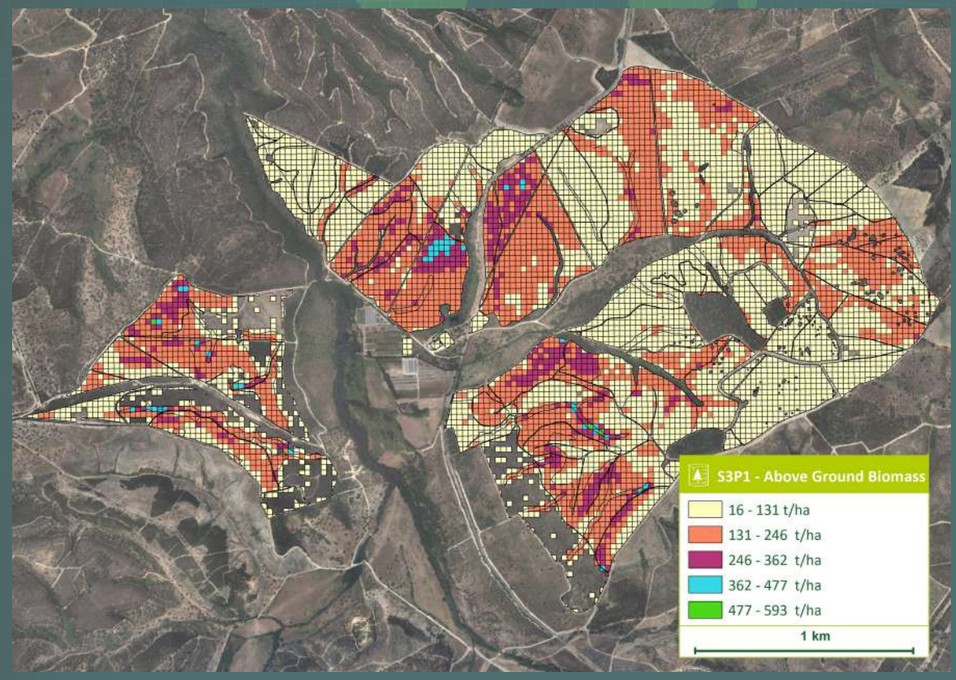
Additionally to this input file, the MSF platform will provides airborne LiDAR images when freely available in national or regional datasets. Otherwise, LiDAR data can be purchased and inputted directly by the user. In certain areas, additional field measurements may be needed.

What will I obtain?

Volume, Above Ground Biomass and CO_2 Stock products will classify your AOI into ranked areas of available wood volume (m^3/ha), above ground biomass (t/ha) and CO_2 stocking (t CO_2 eq/ha).

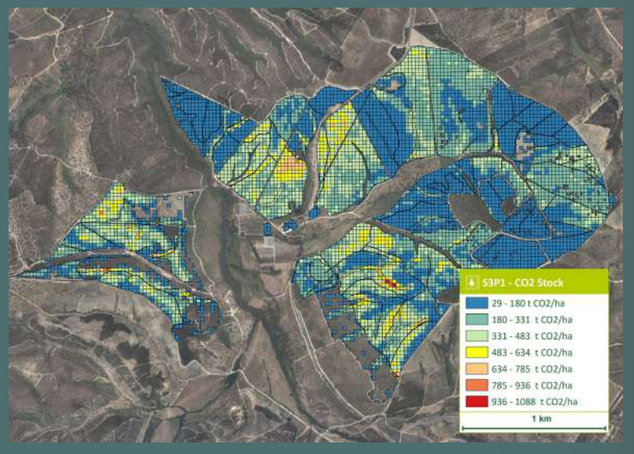
The classification files are accessible through the MySustainableForest platform. The information can be downloaded to any OGC standard GIS viewer with a Web Map Service. Product files are metadated.

Full technical specifications are available at MySustainableForest website.



Map 1. (left). *Above Ground Biomass product overview. Sample mapping of Caniceira area, Portugal.*

Map 2 and 3 (below). *Stand Volume and CO_2 stock products overviews. Sample mapping of Caniceira area, Portugal.*



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