

MONITORING OF SOIL CONDITIONS



Scientific evidence¹ indicates that about 60 to 70% of soils in the EU are currently in an unhealthy state. Between 61% and 73% of agricultural soils in the EU are affected by erosion, loss of organic carbon, nutrient (nitrogen) exceedances, compaction or secondary salinisation (or a combination of these threats). EV ILVO develops innovative data products that allow soil monitoring using indicators considering soil-pedoclimatic conditions. For the development of the products, EV ILVO uses Copernicus services and available soil points of known measured conditions. The data products can deliver information at a large scale, which means at the regional or national levels, EU-wide. The data products have a high spatial resolution and adequate accuracy to support relevant continuous monitoring. The soil quality information can also be assigned to agricultural parcels when monitoring rural areas to support CAP needs. The delivery of the products can be done directly, using maps or via APIs to support application development on the client side. Current EV ILVO soil monitoring data products estimate indicators that inform on the topsoil organic carbon conditions.

KEY FEATURES AND PAS BENEFITS:



Soil Monitoring framework as a service

The service establishes a monitoring framework that provides the data and information needed to define the right measures at a wide range. The service applies artificial intelligence solutions based on field-based measurements without excluding the use of a sensing system.



Cost-efficient monitoring with sufficient granularity

The service has been designed to provide affordable services with sufficient granularity for monitoring and trend analysis, supporting the definition of the right measures.



White Paper



Adaptation to local conditions considering local districts

Our service utilizes advanced Deep Learning algorithms and artificial vegetation indices to The service considers the wide range of soil types, specific local and climatic conditions and the land use or cover. It can be applied to established soil districts across the EU, allowing the reporting using harmonised indicators.



Continuously research and updates

Data products are updated to follow the EU Directives (for example, the Soil Monitoring Law) and National Regulations.



Different ways to access the data products

You may access and use the data products directly by providing GIS maps that visualise the information according to the customer needs or by using Application Programming Interfaces supporting the integration with existing systems or the development of smart applications.



Transparency on the performance

Soil monitoring data products are delivered with their metadata, providing information related to the models' performance and supporting further decision-making. Additionally, applying modern techniques unlocks the hidden information in the models.





White Paper

WHAT OUR PARTNERS SAYS:

“During the implementation of the Flemish BC within the Envision project, LV collaborated effectively and efficiently with EV ILVO to develop Soil Quality products that allow the monitoring of the Top Soil Organic Carbon (TopSOC) using satellite imagery data. Within the three iteration cycles, EV ILVO proactively adapted the developed methodology to conform with the provided requirements, achieving the goal of identifying zones within the parcels where the TopSOC are below, close or above the average within the Flemish region considering the pedoclimate conditions. That is a critical first step towards CAP monitoring. Still, it also opens the doors to integrating this service into the Soil Passport project, as demonstrated during the AgriTEF day in June 2023. We are optimistic that the use of the extra soil labs measurement, coming from various Flemish initiatives like the Carmon Monitoring network, will increase the accuracy of the model, allowing not only the relative monitoring of the TopSOC conditions but also the provision of accurate absolute values which are needed for the calculation of the changes through time at parcel level”.

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The ENVISION project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 869366.

