EGU22-9949, updated on 11 Aug 2022
https://doi.org/10.5194/egusphere-egu22-9949
EGU General Assembly 2022

Establishing a Spatial Soil Database Management System to Support Carbon Farming Geolocation: Introducing the LIFE GEOCARBON Preparatory Project

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Carbon farming has been proposed as one of the primary pilots of the upcoming CAP by the European Commission and European Parliament. Subsidies will be tied to carbon farming, necessitating the development of practical methods to assess farmers' carbon balance. The so-called Activity Data are one of the most common gaps preventing a thorough assessment of carbon balance at both the micro and macro levels. In addition, the accuracy and completeness of existing estimates of the carbon sink capacity of agricultural soils remains until today under-addressed. These obstacles are now reflected in National GHG Inventory Reports, which use default emission factors for most Mediterranean Nations, resulting in Tier 1 reporting status. Thus, for climate change mitigation, a more precise evaluation of the changes in the carbon balance of soil in relation to agricultural management techniques could be extremely helpful.

In this presentation we introduce the recently initiated EU-funded GEOCARBON project, (http://www.lifegeocarbon.eu) providing a detailed overview of the project's research aims and objectives as well as the first results from its implementation. The project aims to address the lack of farming-level knowledge systems by enhancing existing earth-based data with a structured, harmonized geospatial framework system that is ready to be used as input to the Carbon Farming Calculation Tool.

The project outputs will combine all existing knowledge databases to facilitate the development of an interactive Carbon Farming Calculation tool. The project's principal deliverable will be a demonstration high-resolution geospatial information system that will collect relevant data (e.g., climate, landscape elements, management practices, etc.). This will be used to determine the potential for climate change mitigation at farm level, as well as to design and implement targeted Carbon Farming strategies. The GEOCARBON project will geo-locate (at agricultural parcel level) a

representative sample of farms and offer quantitative and qualitative statistics on earth-based data relevant to the agricultural sector.
The geospatial framework system that will be developed in GEOCARBON will be a critical step towards carbon precise calculation at farm level, employing IT-based decision support tools as part of a climate change mitigation plan. GEOCARBON deliverables are expected to enhance farmers' knowledge towards strengthening the so-called Activity data for the LULUCF sector. Farmers will be able to use a cost-effective mobile application on the field to record their management techniques (cultivation methods).

KEYWORDS: carbon farming, GEOCARBON, geoinformation, webgis