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Sustainable Management of Seagrass Meadows: the GEOSS AIP-6 Pilot

Mattia Santoro (1), Roberto Pastres (2), Matteo Zucchetta (2), Chiara Venier (2), Roberto Roncella (1), Lorenzo Bigagli (1), Antoine Mangin (3), Mohamed Amine Taji (3), Gonzalo Gonzalo Malvarez (4), and Stefano Nativi (1)

(1) Institute of Atmospheric Pollution Research (CNR-IIA), Firenze, Italy (mattia.santoro@cnr.it), (2) University of Ca' Foscari, Venice, Italy, (3) ACRI-EC, Morocco, (4) Univerity Pablo Olavide, Siviglia, Spain

Seagrass meadows (marine angiosperm plants) occupy less than 0.2% of the global ocean surface, annually store about 10-18% of the so-called "Blue Carbon", i.e. the Carbon stored in coastal vegetated areas. Recent literature estimates that the flux to the long-term carbon sink in seagrasses represents 10-20% of seagrasses global average production. Such figures can be translated into economic benefits, taking into account that a ton of carbon dioxide in Europe is paid at around 15 € in the carbon market. This means that the organic carbon retained in seagrass sediments in the Mediterranean is worth 138 - 1128 billion € which represents 6-23 € per square meter. This is 9-35 times more than one square meter of tropical forest soil (0.66 € per square meter), or 5-17 times when considering both the above and the belowground compartments in tropical forests. According the most conservative estimations, about 10% of the Mediterranean meadows have been lost during the last century.
To estimate seagrass meadows distribution, a Species Distribution Model (SDM) can be used. SDM is a tool that is used to evaluate the potential distribution of a given species (e.g. Posidonia oceanica for seagrass) on the basis of the features (bio-chemical-physical parameters) of the studied environment.
In the framework of the GEOSS (Global Earth Observation System of Systems) initiative, the FP7 project MEDINA developed a showcase as part of the GEOSS Architecture Interoperability Pilot – phase 6 (AIP-6). The showcase aims at providing a tool for the sustainable management of seagrass meadows along the Mediterranean coastline by integrating the SDM with available GEOSS resources. This way, the required input data can be searched, accessed and ingested into the model leveraging the brokering framework of the GEOSS Common Infrastructure (GCI). This framework is comprised of a set of middle-ware components (Brokers) that are in charge of implementing the needed interoperability arrangements to interconnect the heterogeneous and distributed capacities contributing to GEOSS.
The presentation discusses such a framework explaining how the input data is discovered, accessed and processed to ingest the model.
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