Special Issue

Advancing Soil Organic Carbon Stock Prediction with Digital Mapping

Message from the Guest Editors

Soil Organic Carbon (SOC) plays a pivotal role in global climate regulation, soil fertility, and sustainable agriculture. As the largest terrestrial carbon pool, SOC is central to international climate goals and nature-based solutions. This Special Issue aims to gather cutting-edge research on innovative approaches for mapping and evaluating SOC stocks at multiple spatial and temporal scales. We welcome contributions that advance Digital Soil Mapping (DSM) techniques, integrate remote and proximal sensing data, and explore machine learning and deep learning applications in SOC prediction. Interdisciplinary studies that incorporate microbiology, spectroscopy, land use dynamics, and novel monitoring frameworks (e.g., MRV systems) are especially encouraged. We are particularly interested in studies addressing persistent challenges in SOC mapping, such as data scarcity, uncertainty quantification, harmonization across regions, and underrepresentation of vulnerable ecosystems. Contributions that propose scalable, transparent, and policy-relevant solutions are essential to support soil-centered climate actions and sustainable land use transitions.

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Agriculture (ISSN 2077-0472) is an international, cross-disciplinary and scholarly journal on the science and technology of crop and animal production, and management of the natural resource base for agricultural production. We invite submissions from authors according to the aims and scope of the journal described in more detail on this page. *Agriculture* is published in an open access format – articles are published on the journal's website immediately after acceptance, giving the scientific community and the public unlimited and free access to the content.

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