



High Spectral Resolution Remote Sensing of Soil Organic Carbon Dynamics

Guest Editors:

Prof. Dr. Bas van Wesemael

Georges Lemaître Centre for Earth and Climate Research, Université Catholique de Louvain—UCLouvain, Belgium

bas.vanwesemael@uclouvain.be

Dr. Florian Wilken

Department of Environmental Systems Science, ETH Zurich & Department of Geography, University Augsburg, Germany

florian.wilken@usys.ethz.ch

Dr. Sabine Chabrillat

Section 1.4 Remote Sensing and Geoinformatics, Helmholtz Centre Potsdam GFZ German Research Centre For Geosciences, Germany

sabine.chabrillat@gfz-potsdam.de

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Message from the Guest Editors

Soil organic carbon (SOC) in croplands is responsive to changes in management and/or land use. Over the last decades, a substantial inter- and intrafield variability has developed, impacting food security and with the potential for negative CO₂ emissions.

The prediction of soil properties, such as SOC, is not straightforward due to the variable spectral response of organic matter, resulting in a lack of clear and narrow spectral features. This Special Issue calls for efficient methods improving the quantification of SOC based on visNIR spectroscopy data, including the calibration of spectral models acquired from the laboratory to remote sensing platforms using spectral libraries, development of adequate databases, development of algorithms enhancing the detection of exposed cropland soils, techniques for increasing the spatial coverage of SOC maps by, e.g., mosaicking images acquired at different periods, and the demonstration of spaceborne applications from current or future sensors. Contributions on digital soil mapping—that allow topsoil SOC concentrations to be converted to changes in SOC stocks, from a field to regional scale—will be appreciated.

