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Carbon Cycle and Climate Change: Adaptation and Mitigation in Land Ecosystems

Guest Editors:

Dr. Olga Gavrichkova

Research Institute on Terrestrial
Ecosystems, Research National
Council, Viale G. Marconi 2, 05010
Porano, Italy

Dr. Viacheslav Vasenev

Soil Geography and Landscape
Group, Wageningen University,
6707 Wageningen, The
Netherlands

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Message from the Guest Editors

The approval of the 1.5 °C warming target by the Glasgow Climate Pact in COP26 rises the importance of the adaptation of negative emission technologies. By now, the only efficient mechanism which the humanity possess for the removal of the CO₂ from the atmosphere is to rely on natural C sinks. Sequestration of carbon in land ecosystems is thus one of the major climate mitigation options. It requires the conservation of carbon stocks, vegetation and soil, and their potentiation through appropriate management strategies. In this sense, mitigation and adaptation capacities are intimately linked. Climate change and anthropogenic pressure impact land ecosystems, affect the carbon uptake and carbon emissions as well as the sink–source relationships in terms of carbon transfer, often weakening the capacity of the system to store carbon. On the other hand, sustainable soil and forest management, the restoration of degraded lands, sustainable agricultural practices, agroforestry, extension and management of urban green, and the protection and restoration of peatlands and wetlands can help the ecosystems to withstand the accelerated environmental variation.



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Editor-in-Chief

Prof. Dr. Dilantha Fernando

Department of Plant Science,
University of Manitoba, Winnipeg,
MB R3T 2N2, Canada

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Plants Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

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