



Effects of Global Change and Human Activities on Soil Carbon and Nutrient Dynamics

Guest Editors:

Dr. Daniel Liptzin

INSTAAR, University of Colorado
at Boulder, Boulder, CO, USA

Prof. Dr. Wendy H. Yang

Departments of Plant Biology
and Geology, University of Illinois
at Urbana-Champaign, Urbana,
IL, USA

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Message from the Guest Editors

Human activities alter soil carbon and nutrient dynamics directly through land use change and management decisions, such as tillage, irrigation, and fertilization practices in agricultural systems, and fertilization and irrigation in urban environments. At the same time, human activities alter soil carbon and nutrient dynamics indirectly through global change factors such as climate change, species invasion, and anthropogenic nitrogen deposition. A wide variety of methodological approaches are needed to tease out how soils will respond to the complex interactions between global changes and human activities. For example, it is unknown how increased intensity of precipitation events associated with climate change will alter soil processes such as nitrous oxide emissions from agricultural soils associated with fertilizer application, or phosphorus cycling associated with iron redox dynamics in wet tropical forest soils. In addition, many of these soil processes can result in feedback loops that can amplify these changes.

