

## LITERATURE

**Hartemink, A.E. and McSweeney, K. (eds.): Soil Carbon.** Progress in Soil Science, Springer, Heidelberg–New York–Dordrecht–London, 2014. 506 p.

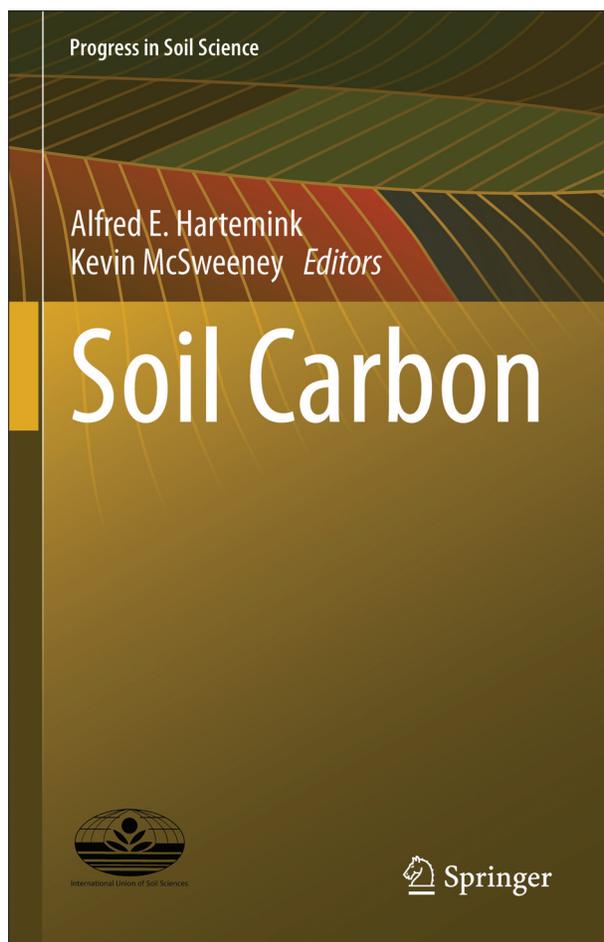
World soils contain approximately 1,500–2,000 Gtons of organic carbon in the top two meters. This large carbon reserve can increase atmospheric concentrations of CO<sub>2</sub> by soil misuse or mismanagement, or it can temperate the 'greenhouse' effect by proper land use and soil management. The recognition of importance of soil carbon reservoir on the climate and soil fertility led to increasing scientific activity on this field. Specific workshops and conferences on soil organic carbon (SOC) are a manifestation of increas-

ing scientific activity. The number of publications concerning SOC has been also increasing steadily since early 2000s. Actually, more than 1,500 papers per year cited by different scientific search engines.

International Union of Soil Science (IUSS) organised a Conference on Global Soil Carbon in June 2013, in Madison (Wisconsin, USA). 90 presentations were presented by more than 140 scientists from 35 countries. Organisers have invited 48 authors and teams to participate in this book. Chapters are grouped in four sections: I. Soil carbon in space and time; II. Soil carbon properties and processes; III. Soil use and carbon management; IV. Soil carbon and the environment. All of papers focus on novel and intriguing research from all over the world.

The first part of the book is an overview of the recent status of soil carbon research in the World's science. It summarizes the history, the recent scientific potential and new tendencies of these studies. Several authors emphasize importance of low carbon saturation of soils due to the agriculture and other human activities. However, capacity of the carbon sink depends on the land use (changes) and cultivation techniques, process of the carbon storage is proportional to molecular interactions between organic and mineral phase. The macro-scale studies are actually prevailed by SOC monitoring studies. The micro-scale researches on SOC follow these trends and deal with its chemical composition and structural properties. This part of the book provides a brief inventory of new developments for monitoring systems and the latest novel micro-morphological and analytical techniques for SOM.

Some of previously introduced analytical methods for studying SOC and molecular and microbial processes of soil organic matter (SOM) are overviewed in the second part of the book. Some of the chapters introduce applications of novel techniques (e.g. X-ray Fluorescence Molecular Spectroscopy, Quartz Crystal Micro-gravimetry) and few articles delineate new applications of traditional



methods, such as UV-Vis spectrometry and reflectance measurements. Most of the chapters deal with molecular structures of SOM and molecular processes of carbon storage in soils.

Chapters of the third part contain large scale studies: carbon management on different landscapes and the agro-technical aspects of the carbon sequestration. Selected teams have introduced new achievements to increase SOC absorption in the soils of the croplands and grasslands from tropical and subtropical Third World countries through the temperate zone (Europe, US) until the boreal areas.

Chapters of the fourth part (Soil and the environment) are loosely aggregated. Some of the chapters

are reviews on state of the art of soil mapping and on the relationship between climate change and soil carbon management. Most of the papers are overviews on the recent status of SOC researches of an area.

Soil Carbon is a new and high quality element of the Springer's Progress in Soil Science series. Several the authors (e.g. McBRATNEY, A.B.; MONGER, C.; POCH, R. etc.) belong to the top soil scientists of the world. This is an essential handbook for soil scientists, geographers and environmentalist to receive up to date knowledge about soil carbon.

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