

### Report on Global Soil Carbon Conference

In the last few years, a special respect has been given to carbon because of its primary importance in greenhouse effect and climate change. Soil is the second largest terrestrial carbon pool right after fossil stock. The 2 m thick uppermost layer of earth stores 2.500 Gt carbon. The processes of carbon sequestration and mineralisation in soil play very important role in climate change. That is the reason for the significant increase of global conferences on soil carbon. At the beginning of summer 2013 two scientific meetings were held on this topic within two weeks. The first one was in Reykjavik, Iceland on 26–29 May. It was followed by the IUSS Global Soil Carbon Conference.

The conference was organised by the International Union of Soil Science (IUSS) between 3 and 6 June 2013, in Madison, Wisconsin, USA. That event was hosted by the University of Wisconsin-Madison Department of Soil Science. During the opening ceremony Alfred HARTEMINK being a soil science professor at the university and the secretary-general of the



Alfred HARTEMINK, Secretary General of the IUSS introduces an Alfisol profile formed on glacial till.



IUSS welcomed the participants as the organizer of the conference. He was followed by Birl LOWERLY, the senior associate dean of college of agricultural and life sciences. Finally, Jae YANG, the president of IUSS, emphasized the role of soil carbon in the environment.

The main topics were introduced by three keynote speaker, namely, Alex McBRATNEY (University of Sydney) who summarised the known facts on soil carbon. The next speaker, Donald SPARKS (University of Delaware), gave a very impressive speech on carbon-mineral complexation in soil and the impact of it on C sequestration and cycling. Rattan LAL (Ohio State University), the third keynote speaker, highlighted the connection between soil carbon management and climate change. The presentations were classified into 14 sections (soil C and the environment, land use change, plant nutrition, soil fertility, soil and water conservation, mineralogy, biology, physics, chemistry, pedometrics, monitoring, morphology, geography and soil genesis).

Professor HARTEMINK presents the soils of Wisconsin State



The audience in comfort

The audience consisted of more than 140 scientists from 35 countries gave 90 presentations. The principal idea of the organizers was not to apply parallel sections; in this way each participant could follow each presentation. However, that limited the size of presentations in 5 minutes. This duration allowed the speakers to present only the main findings. In some cases, it was difficult to keep the time but the chairs generally were intractable and asked the presenters to finish their speeches. Just after the presentations everyone was able to question the presenter who reflected to the unclear part. In addition at the end of each section a plenty of time was taken to discuss the methods and results. Hungary was represented by six presentations and seven scientists. Erika MICHELI (Saint Stephan University) gave a speech on the role of soil carbon in soil classification systems. Zoltán TÓTH (Pannonian University) reported data on long term field trials from Keszthely. Nóra ZBORAY (Department of Environmental and Landscape Geography, ELTE) reviewed soil organic matter measuring methods. Klaudia KISS (Geographical Institute, RCAES HAS) demonstrated the differences in soil organic substances of Hungarian soils while Zoltán SZALAI (Geographical Institute, RCAES HAS and DELG ELTE) pointed to the importance of organic carbon-iron relation in wetland. Gergely JAKAB (Geographical Institute, RCAES HAS) presented data on erosion related carbon processes in the soil.

At the end of the third day the division chairs summarized the main findings of the different sections. The overall consequence was that the most important thing is to improve the discussion between the science society and the decision makers in order to control or mitigate climate change. Conference proceedings will be published in a book entitled "Soil Carbon" and edited by Alfred HARTEMINK and Kevin McSWEENEY by Springer. Hopefully, the volume will be available at the end of 2013.

On the 4th day a field excursion was organized in order to get familiar with the landscape and introduce the most interesting sites near Madison. The first stop was West Madison Agricultural Research Station where various research activities were presented. The most impressive attraction was the professional routine of composting and recycling of organic waste. Next to the station, three soil pits were demonstrated. The Alfisol and Mollisol profiles were formed on loess. Next, the O.J. Noer Turfgrass Research Facility was visited where different types of lawn production and the related problems were shown. Finally, the Arlington Agricultural Research Station was shown where more than 200 crop and animal research projects are going on. In more details, the Wisconsin Integrated Cropping Systems Trial was discussed. All the sites have miraculous infrastructure such as prime movers, lysimeters etc. During the trip the participants were continuously informed about the periglacial landscape forms and the history of South Wisconsin. After the scientific program, in the early evening, the most famous products of Wisconsin, namely, beer and cheese were tasted. Although, Californian wines are more popular after tasting the local wine, the authors can prove the quality of Wisconsin wine too.

Summing up the results of the conference, the increasing possibilities in soil carbon research are doubtless. In addition to the scientific findings, personal acquaintances were also improved.

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