

José Dörner

☞ CESTRO and Czech ISTRO Branch

The International Conference held in Brno, Czech Republic, 6th – 8th September 2022 was a successful meeting with over 80 participants.

“Scientific and warmly friendly” is the best description of the CESTRO Conference in Brno.

The 2nd Central European ISTRO Conference (CESTRO) was organised as the second joint scientific Conference since the association of the national branches of the Czech Republic, Croatia, and Hungary was established. Simultaneously the event was the 8th International Conference of the [Czech ISTRO branch](#).

The Conference took place in Brno in 2022 when the 200th anniversary of the birth of Gregor Johann Mendel is commemorated. G. Mendel, the father of modern genetics, whose ideas about inheritance were far ahead of his time, is one of the most famous scientists who lived and worked in Brno.



The conference was attended by 86 participants from 14 countries. A rich scientific programme consisted of 28 lectures and 30 posters presented over two days. Poster presenters were given the opportunity to speak for 5 minutes about their posters. While this was challenging for some young presenters speaking outside their native language they all acquitted themselves well and their performances stimulated subsequent discussions.

The scientific contributions were divided into four sections:

Soil health assessment

Soil management

Sustainable crop production adapted to climate change

Precision agriculture

The oral and poster presentations were related to the soil erosion and degradation, soil water infiltration rate, soil aggregate stability, soil organic carbon concentration and stock, microbial activity etc. Specific soil management practices, especially the effect of conservation agriculture on soil quality under climate change were also introduced. The section devoted to sustainable crop production covered the modern principles of sustainability including the cover crops. It was followed by precision farming based on mapping the spatial heterogeneity of arable fields from crop yield records and remotely sensed data. In future, tools based on digital technologies to monitor and optimise agricultural production processes can improve the crop production towards higher profitability and lower environmental impacts. Many researchers focused on an interdisciplinary approach involving different ways to characterise the dynamic and living soil–water–plant–atmosphere system.



The first day of the conference ended with a tour of the [Mendel University](#) campus. All participants enjoyed a pleasant evening stroll through the botanical garden and arboretum followed by the guided tour of FoodTech pavilion with experimental

bakery, meat and dairy processing facility and craft beer brewery.



The networking and informal discussions continued during the Gala dinner in a friendly atmosphere with plenty of food, Moravian Folk music and a selection of Moravian wines. At the beginning of the Gala evening "The best three young scientists" with oral or poster presentation were awarded by the Scientific board. Education and support of the young generation is one of the most important things for a sustainable future.

The third day of the conference was dedicated to the field trip to a village of Hrubčice in Haná region. Haná region is situated on the wide flat plateau in the central part of Moravia. The growing conditions are superior due to deep fertile soil of Chernozem type, and moderate temperature and sum of precipitation.

The theme of the trip was "Conservation soil tillage workshop" and right in the field there was a practical demonstration of P&L tillage machines. [P&L company](#) sells various brands of agricultural equipment and develops machines in a cooperation with research institutes and universities. For example, the ECO-TILLER machine for strip tillage was developed for reduction of water erosion in wide-row crops, particularly in endangered areas. A prototype of a machine for inter-sowing cover crops in maize cultivation, which was also presented, resulted from the cooperation with Mendel University in Brno.

All machines were demonstrated in field and thus all participants had the opportunity to assess the quality of soil processing (intensity of loosening, clod

crushing, depth of processing and quality of incorporation of crop residues). There was also a discussion on intercropping, as two Czech seed companies, [SEED SERVICE](#) and [PRO SEEDS](#), presented their selected mixtures of intercrops. Intercrops have several agro-ecological functions with a positive effect on carbon sequestration and soil fertility and are an important part of conservation agriculture. The participants themselves could check the soil quality in a pit which was established to demonstrate the depth of soil profile and presence of soil life.



The afternoon program included visit to the [Museum of historical carriages](#) in Čechy pod Kosířem, a village close to town Prostějov. The museum keeps a unique collection of dozens of carriages from different periods, most of them have been meticulously repaired and are operational. All participants admired the beauty of the carriages, horse harnesses and other equipment which show the craftsmanship of the Czech people. Moreover, the impressive commentary of the guide during the tour was an unforgettable experience for everybody. The tour day ended with a pleasant dinner in a restaurant on the outskirts of Brno.

The CESTRO conference had plentiful scientific and social programme. After COVID-19 pandemic, there was a chance to meet each other, and I am proud that Brno was the place of this friendly meeting organized by the Czech branch of ISTRO together with Croatian and Hungarian branches. During the conference these three branches agreed to accept Serbian branch (SRBSTRO) into the CESTRO network. From

now there are four countries which will organise the next CESTRO meeting.

One of the outputs of the conference is the [Book of Abstracts](#), which summarizes the abstracts of all active participants. There is a number of interesting research results from different soil and climate conditions that can help adapt different management systems to the ongoing climate change. However, the step of transferring these results to agricultural practice is also important.



Based on the results from the topics presented during the conference we can conclude:

„European farmers must adapt to a changing climate, which often means changes in crop management practices and diversification of income sources. Extreme weather and climate events (including droughts and heat waves) can significantly reduce the yields of some crops. The projected increase in the frequency of such events is expected to increase the risk of crop losses, resulting in higher food prices and reduced food security. Likewise, the risk of more frequent intense rainfall increases erosion risks. Opportunities exist to implement a wide range of farm-level measures to improve soil and water management, bringing adaptation, mitigation and environmental and economic benefits.“

Finally, I would like to thank all participants for their interesting and inspiring presentations and fruitful debates. I was pleased to meet old friends again and also to make new friendship with others who attended the conference for the first time. I look forward to seeing all of them again sometime in future.



My sincere thanks go also to the members of the Organising committee for their efforts in organising this conference!

Brno, 15th September 2022

Vladimír Smutný on behalf of ISTRO CZ

⌘ News and update from ISTRO Group F

On June 27th group F held an online Assembly and Webinar where the new secretary, Wim Cornelis from Ghent University, Belgium, was presented to the group. The group extended its thanks to outgoing secretary Lars Munkholm for his many years of dedication, which has helped grow the group into one of the most active in ISTRO.

The Webinar centered around a presentation on the **'Effect of soil structure on root exploration of wheat after 15 years of conservation agriculture in organic farming'**, by Joséphine Peigne.

Future Activity

The group is planning a Face-to-Face workshop in 2023 and is organizing another two Webinars in 2022. The first of these will be on September 19th, and will have the following presentation "Using Visual Soil Evaluation methods to inventory soil quality across soil textures and degradation levels", by Lin Lin, from Ghent University.

The second Webinar will be on November 21st (Programme to be confirmed). For more info please go to the group F section of the ISTRO website. If you would like to participate in the webinar series, please email Rachel Guimarães at rachelguimaraes@utfpr.edu.br to receive the link.

⌘ Upcoming Meetings and Events

2022

October-December

October

Intersoil 2022 – What Strategy for European Soils in 2030. October 5th – 6th, 2022, in Brussels, Belgium. Webpage: <https://www.webs-event.com/en/event/intersoil/appelacom/>

International conference contaminated sites 2022. 12th-14th, October. Trnava, Slovak Republic. Webpage: <https://contaminated-sites2020.sazp.sk/>

ISFS 2022 - 10th International Symposium on Forest Soils. October 17-22, 2022, in Hangzhou, China. Webpage: <https://isfs2022.casconf.cn/page/1450021481600913409>

November

9th IASSC “International Acid Sulfate Soils Conference”. November, 2022, in Adelaide, Australia. Webpage: <https://biological.adelaide.edu.au/acid-sulfate-soil/iassc/>

2022 ASA, CSSA, SSSA International Annual Meeting “Communication and Public Engagement for Healthy People and Healthy Planet”. November 6th - 9th, 2022, in Baltimore, Maryland (USA). Webpage: <https://www.acsmeetings.org>

Life of Mine – Maintaining Sustainability Through Geoscience Virtual Symposium. 14th-17th. November 2022. Virtual. Webpage: <https://www.minesymposium.org/>

XIV Congress “Soils for the Support of the Social Welfare and Environmental Protection” Tuesday, 22. November 2022 to Friday, 25. November 2022. Valdivia, Chile. Webpage: www.congresoschcs.cl

December

World Soil Day (WSD) is held annually on 5 December to focus attention on the importance of healthy soil and advocating for the sustainable management of soil resources. Webpage: <https://www.fao.org/world-soil-day/en/>

2023

January-December

February

Workshop Soil Mapping for a Sustainable Future. Tuesday, 7. February 2023 to Thursday, 9. February 2023. Location: Orléans, France. Webpage: <https://www.lestudium-ias.com/event/soil-mapping-sustainable-future>

March

Third Global Soil Biodiversity Conference-13-15 March 2023. Dublin, Ireland. Webpage: <https://gsb2021.ie/>

June

Global Conference on Sandy Soils. Sunday, 4. June 2023 to Thursday, 8. June 2023. Location: Madison, Wisconsin, USA. Webpage: <https://sandysoils.org/>

July

XXIII Latin-American Congress of Soil Sciences (XXIII CLACS). Sunday, 30. July 2023 to Friday, 4. August 2023. Location: Florianópolis, Brasil. Webpage: <https://www.slcs.org.mx/>

2024

January-December

ISTRO Conference. Location: Virginia Tech, Virginia, USA. Date have not been settled yet. More information soon in <https://istro.org/>

May

Centennial Celebration and Congress of the IUSS 100 years of soil science - past achievements and future challenges. Sunday, 19. May 2024 to Tuesday, 21. May 2024. Location: Florence, Italy. Webpage: <https://centennialiuiss2024.org/>

New Books

Sustainable Soil and Land Management and Climate Change

Editors: Shah Fahad, Osman Sonmez, Shah Saud, Depeng Wang, Chao Wu, Muhammad Adnan, Veysel Turan

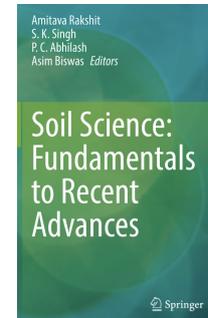


The third volume of Sustainable Soil and Land Management and Climate Change presents a complete overview of plant soil interactions in a climate affected by greenhouse gas emissions and organic carbon. It presents approaches and managements strategies for the stabilization of soil organic matter. The latest in the respected Footprints of Climate Variability on Plant Diversity series, this book enhances the reader's knowledge of the preservation of organic matter through microbial approaches as well as through soil and plant interactions.

More information on following this [Link](#)

Soil Science: Fundamentals to Recent Advances

Editors: Amitava Rakshit, S.K Singh, P.C. Abhilash, Asim Biswas.



This compilation has been designed to provide a comprehensive source of theoretical and practical update for scientists working in the broad field of soil science. The book explores all possible mechanisms and means to improve nutrient use efficiencies involving developing and testing of nano fertilizers, developing consortia based microbial formulations for mobilization of soil nutrients, and engineering of nutrient efficient crops using molecular biology and biotechnological tools.

More information on following this [Link](#)

Sustainable Soil Management in Eurasia

Editors: FAO and the Eurasian Centre for Food Security (ECFS).

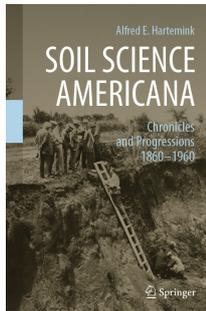


This book collects Eurasian country experiences in the application of the recommendations contained in the Voluntary Guidelines for Sustainable Soil Management. In Eurasia soils face serious degradation processes associated with low technological level of farming as well as excessive pressure from high-tech cultivation and use of chemicals.

More information on following this [Link](#)

Soil Science Americana

Editors: Alfred E. Hartemink

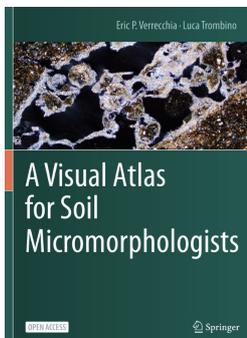


This book narrates how the study of the soil became a science and institutionalized in the USA between 1860 and 1960. The story meanders through the activities, ideas, publications, and correspondence of people who influenced the progressions, that led to the budding and early blossoming of American and international soil science.

More information on following this [Link](#)

A Visual Atlas for Soil Micromorphologists.

Editors: Eric P. Verrecchia, Luca Trombino.



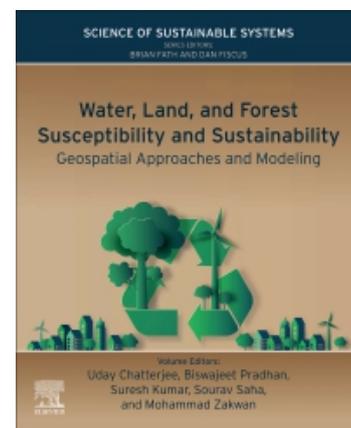
This open access atlas is an up-to-date visual resource on the features and structures observed in soil thin sections, i.e. soil micromorphology. The book addresses the growing interest in soil micromorphology in the fields of soil science, earth science, archaeology, and forensic science, and serves as a reference tool for researchers and students for fast learning and intuitive feature and

structure recognition. It provides hundreds of images and photomicrographs to help practicing soil micromorphologists and students. Focuses on the diversity of soil elements and features, rather than feature interpretations, to assist with recognition.

More information on following this [Link](#)

Water, Land, and Forest Susceptibility and Sustainability

Editors: Uday Chatterjee, Biswajeet Pradhan, Suresh Kumar, Sourav Saha, Mohammad Zakwan



Water, Land, and Forest Susceptibility and Sustainability: Geospatial Approaches and Modeling brings an interdisciplinary perspective to solving complex problems in sustainability, utilizing the latest research, technologies, and case studies. The text covers forest, land, and water resources, presenting an integrated perspective on their characterization, susceptibility, and sustainability. The book explains applications of remote sensing, GIS, and image processing for addressing the current state and future needs for sustainability.

More information on following this [Link](#)

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