

IUSS Bulletin

Bulletin of the International Union of Soil Sciences (IUSS) | December 2013



123

International Union of Soil Sciences (IUSS)

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It is freely distributed through the IUSS website.
All contributions are welcome and should be send to the editor.

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Contents

Editorial	4
20th World Congress of Soil Science	6
IUSS Alerts June - November 2013	10
New IUSS Officers 2014-2018	12
5 Questions to a Soil Scientist	21
Brenda J. Buck	21
Megan Balks	22
Eric C. Brevik	23
Favorite soil science books	24
Favourite soil science books of Tom Sauer	24
Favourite soil science books of Yakov Pachepsky	24
Awards and Prizes	26
IUSS Dokuchaev Award for Alex McBratney	26
IUSS von Liebig Award for Magdi Selim	27
Special honor for Dick Arnold	28
Reports of meetings	29
IUSS Global Soil C Conference	29
First GlobalSoilMap Conference	30
The 11th International Conference of The East and Southeast Asia Federation of Soil Science Societies	30
Nutrient management, innovative techniques and nutrient legislation in intensive horticulture for an improved water quality	31
Soils in Space and Time Congress of IUSS, Division I, Ulm/Danau	32
New Publications	34
IUSS Honorary members	42



Editorial

Here a new Bulletin of the International Union of Soil Sciences (IUSS) that together with the monthly IUSS Alert is our main message board – for and from the global soil science community. We are very pleased to report that the preparations are well underway for the 20th World Congress of Soil Science that will be held 8-13 June 2014 in Jeju, Korea. We expect a large global crowd of soil scientists that reflect the vibrance, activities and progress in the soil science discipline. At the congress, we will have a special ceremony for the Nobel prizes in soil science: the Dokuchaev Award to Prof. Alex McBratney and the von Liebig Award to Prof. Magdi Selim. These are the most prestigious prizes in soil science and we are extremely delighted and proud to have the outstanding soil scientists Alex McBratney and Magdi Selim as recipients of these IUSS awards.

We shall also have special sessions at congress for young soil scientists – the future of our discipline. Recently, I attended the annual meeting of the Soil Science Society of America in Tampa, Florida. It was a large meeting with sessions on all possible subdisciplines of soil science. I attended a full day symposium on teaching and education in soil science. I learned quite a few things and it was pleasing to hear that student numbers are up in many of the soil science courses. It is possibly due to an increasing job market and because soil science is viewed as an essential profession to tackle many of the global environmental issues (most of us never doubted that, but we have had some headwind).

Presentations mostly focused on *how* we teach, not so much on *what* we teach. Apparently, that is more site specific, if not personal. There were quite a few presentations on new learning and teaching methods like, for example, studio teaching, flipped classrooms, blended learning, MOOCs, experiential learning, and problem based learning. There are experiments with all that in most universities and some of these models turn the teacher into a coach – something that will require adaptation to the university system.

Although soil science is a relatively easy subject to teach (real word issues, a giant laboratory

right outside the doorstep, many exciting new technologies), it has a terminology rich language that easily frightens students. Our students need to be able to speak some of that language just like they are being taught what mitochondria are in biology or the Pleistocene in geology. There are no short cuts to learning except that we might have to rethink at what level we introduce them to the rich terminology of our discipline. The Internet has changed many things but as far as I know it has not changed the speed or depth at which things are being learned. We may think of the internet as a resource that students can use to look up some of the basic information and knowledge. Our main task may be to integrate that knowledge, to make linkages, to guide them through that jungle of soil information on the Internet, but most of all: to inspire, and encourage them to think deeply and critically.

It was noted that our teaching is generalizing, that is: more and more teaching to students from other disciplines (e.g. geography, hydrology), whereas our research is specializing. At the undergraduate level there may be a bit of a gap between the topics in teaching and research but in more advanced courses that natural bond is firm. Nothing works more inspiring than teaching about ongoing research and even though most of our graduates may not end up in academia, research skills and thinking will help them in whatever profession they may choose.

There are many new soil science projects that consist of consortia with several university and research centres. Such network projects are favoured by donors and perhaps follow what has happened in the genetic and biological sciences in the 1990s. Group work is common in most soil science courses so that prepares our students for such future projects where multi-disciplinarity and collaboration is a key part. The idea that society and everything it offers has become extremely individual seem to be counterbalanced by the way teaching takes place and projects are being executed.

These are just some of the observations that I made during the teaching and education symposium.

We will need to continue to think about role as educators of the next generation of soil scientists, what do they need to know, what does the job market require, and where does the discipline head to. I have no doubt that we shall have discussions on this at the next World Congress of Soil Science.

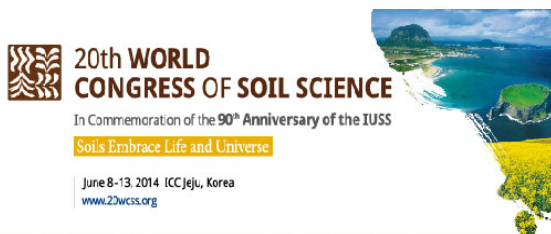
Now back to come of the IUSS Activities. In 2012, we organized the first global Presidential elections and this year we have held the elections of all Division and Commission chairs and vice-chairs. The elections were all done electronically and we had voting from all over the world, and I am pleased to report: no irregularities. We are thrilled with the newly elected officers that will take care of the scientific activities over the period 2014 to 2018. In this Bulletin you will find short biographies of our new officers, and it shows how truly global the IUSS is.

The IUSS' main role is to foster soil science activities in all parts of the world. Our global membership of over 50,000 soil scientists continues to expand and there are an increasing number of conferences as well as scientific publications showing that the discipline is thriving. In June 2013, we organized the first topical global conference on soil carbon, which was attended by 140 soil scientists from 35 countries. We shall continue to organize such conferences to serve the needs of our members and to advance soil science and enhance global cooperation. Many of today's environmental issues require local solutions but global thinking and teamwork – the IUSS will continue to provide that service to the global soil science community. We invite you to participate in all of the IUSS activities and hope to welcome you in Korea in 2014.

Alfred Hartemink
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Madison, USA
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20th World Congress of Soil Science



The 20th World Congress of Soil Science (20WCSS) will be held from June 8-13, 2014 on Jeju Island, Korea. Jeju Island is not only Korea's most prestigious resort destination, but has been a venue for several political joint summit talks and other major international meetings. The warm hospitality of Koreans and the unique cultural folk heritage of Jeju, coupled with the natural beauty of this volcanic island, will make the 20th WCSS a wonderful experience. The main theme of the 20th WCSS is 'Soils Embrace Life and Universe' and will welcome over 2,500 participants from more than 130 countries. The organizing committee has been preparing a variety of programs and interesting events for participants such as the Commemoration of the 90th Anniversary of the IUSS, Integrated Soil Art and Film Program and Inaugural International Soil Judging Competition. You can find more information at www.20wcss.org and mark your calendar for June, 2014 in advance. We are looking forward to seeing you in Jeju, Korea for soil and excitement!

Key Dates

- Deadline for Abstract Submission: November 30, 2013
- Notification of Abstract Acceptance: January 15, 2014
- Deadline for Early Registration: March 20, 2014
- Deadline for Regular Registration: May 8, 2014

1. Scientific Program

The congress will provide an excellent opportunity to learn and explore the many fields of soil science. Many distinguished speakers from all around the world will be in attendance to bring us up to date

on the most recent developments, both in basic and soil research, through 85 sessions (4 congress symposia, 15 inter-divisional symposia, 7 divisional symposia, 48 commissioned symposia, 11 working group symposia) which will cover the wide range of related academic fields.

We will update you on the confirmed program schedule soon.

You can check our list of invited speakers at http://www.20wcss.org/sub03_2.php

2. Special Events

a. Information on the 1st International Collegiate Soil Judging Contest

The 20WCSS will play host to the 1st International Collegiate Soil Judging Contest in June 2014. This exciting initiative will give students from around the world an opportunity to mix with fellow soil science students, to experience volcanic soils and landscapes in a beautiful part of Korea, and to test their soil description and interpretation skills on the world stage. Be part of history by getting involved in this truly international event. Detailed information will be updated soon on the homepage.

b. Commemoration of the 90th Anniversary of the IUSS

It is our honor to commemorate the 90th anniversary of IUSS, which will be full of special events, festivities, and culture, coupled with Soil Sciences at 20wcss. We are developing the program for your fun and entertainment. We will update you on these soon.

c. Integrated Soil Art and Film Program

(Curatorial Partner: Soil Arts Initiative, soilarts.org)
The 20WCSS is preparing two artistic events for the 20th World Congress of Soil Science: a soil film screening event and a soil art poster exhibition. The goal is to bring together different areas of expertise, to inspire new opportunities for interdisciplinary

collaboration, and to expand the practical horizons of soil protection, communication, and education.

3. Abstract

The 20WCSS Program Committee cordially invites you to submit abstracts for oral and poster presentations. There have been a lot of requests, from international institutions as well as individual authors, for more time to submit papers. Although we have received a number of very excellent abstracts which are sure to make 20WCSS an exceptional academic congress, we have decided to extend abstract submission to 30. Nov, 2013. Do not miss the last chance to share your knowledge with eminent Soil Colleagues at 20wcss! Please check your topics and category.

See: http://www.20wcss.org/sub04_2.php

- Special Issues: If your abstract is accepted for presentation at the congress, you are encouraged to submit your manuscript for publication in special issues of Plant and Soil, Chemosphere, Geoderma, Soil Science society of America Journal, Korean Journal of Soil Science and Fertilizer and so on. Please introduce your best work to show the 20wcss participants.
- Notification of abstract acceptance will be announced after 15. Jan, 2014.

4. Sponsorship and Exhibition

The networking and business hub! 20WCSS will be a great opportunity to promote your brand and company. Make the most out of the 20WCSS for your business with a wonderful sponsorship opportunity. For specific information on sponsorships, visit our website: http://www.20wcss.org/sub08_1.php

5. Registration

Participants are advised to register in advance (by March 20, 2014) to receive the Early-Registration discount.

Go to: http://www.20wcss.org/sub05_1.php

6. Accommodation

The 20WCSS Organizing Committee has prepared a wide range of accommodations in different rate categories, from top-scale luxury hotels to more affordable alternatives. Jungmun, which is close to the venue, has 5 hotels and a shuttle bus service for the participants' convenience. Also, from other

areas such as Seogwipo and the Jeju city, there is easy access to the venue by public transportation, the #600 limousine bus.

Accommodations around Jungmun are a bit up market, but are close to the venue. For more affordable alternatives, you can stay in Seogwipo in the price range from KRW 70,000 up to around KRW 140,000.

Rates for hotels are based on double-occupancy. Resorts and condominiums may allow multiple occupants, so please check before booking. Resorts and pensions offer kitchens, so please take note if you prefer cooking for yourself.

For the convenience of 20WCSS participants, we are offering the widest range of options for all budgets available. Accommodation information will be continually updated.

An extensive selection of accommodation types can be found on our website at:

http://www.20wcss.org/sub06_1.php

7. Tour

The beautiful island of Jeju has outstanding tourist attractions filled with breathtaking natural landscapes. Please come with your colleagues and family to enjoy a refreshing and beautiful day trip around Jeju Island. It will be pleasant way for you to get over the fatigue from your journey. Various optional tour programs are also provided, so please add them to your itinerary in advance.

- Pre-Congress Tours:

http://www.20wcss.org/sub07_1.php

- Congress Tours:

http://www.20wcss.org/sub07_2.php

- Post-Congress Tours:

http://www.20wcss.org/sub07_3.php

8. Why Jeju is the perfect location for the 20WCSS Congress

- a. World-Class Resort & Tourist Destination:

<http://english.jeju.go.kr/index.php/contents/travel>
Jeju Island, also known as the 'Island of the Gods,' is a popular vacation spot for Koreans as well as international visitors. It's fast becoming northeast Asia's top honeymoon destinations and is also regarded as one of the world's up and coming tourist destinations in Asia.

b. One of the New 7 Wonders of Nature:

<http://world.new7wonders.com/the-new7wonders-of-nature/jeju-island-korea-south/>

The island's preservation of beauty is a natural heritage for all mankind. The harmony between man and nature is the characteristic of Jeju Island.

c. Jeju Volcanic Soil Island:

<http://world.new7wonders.com/the-new7wonders-of-nature/jeju-island-korea-south/>

Jeju is a volcanic island, 130 km from the southern coast of Korea. The largest island and smallest province in Korea, the island has a surface area of 1,846 sqkm. A central feature of Jeju is Hallasan, the tallest mountain in South Korea and a dormant volcano, which rises 1,950 m above sea level. 360 satellite volcanoes dot the landscape around the main volcano.

d. Unique Cultural Heritage:

<http://www.ijto.or.kr/english/?cid=24>

Due to the relative isolation of the island, the people of Jeju have developed a culture and language that are distinct from those of mainland Korea. Jeju is home to thousands of local legends. The most distinct cultural artifact is the ubiquitous 'Dol hareubang' ('stone grandfather') carved from imposing blocks of basalt.

9. Venue

ICC JEJU is located within the Jungmun Tourist Complex, with the cobalt-blue Northern Pacific stretching to the south and towering Mt. Hallasan commanding the north. Spreading over

an area of more than 5,000 m², the world-class convention center occupies 7 stories aboveground. Artfully merging the blessed tourist resources around it with the functionality of a convention facility, this resort-style convention center is fully equipped for international meetings of any scale, and provides professional-grade logistics support for event-hosting. We are sure you will enjoy the recreation and leisure that you will find at ICC JEJU, the world's top resort-style convention center.

Go to ICC Jeju: <http://www.iccjeju.co.kr/EN/Main>

10. How to Reach Jeju, Korea

a. Direct international flights & international flights from major Asian hub airports to Jeju Island

b. Transfer from Incheon International Airport (ICN), the gateway to the Republic of Korea

c. Transfer through Incheon International Airport, bus transfer to Gimpo Airport (GMP - the second airport of Seoul) and then to Jeju Island. Please make sure to arrange your travel until Jeju Island. The IATA code for Jeju International Airport is CJU.


A comprehensive list of airline companies can now be found on the website:

http://www.20wcss.org/sub09_5.php:

11. VISA

For those who will travel directly to Jeju, not connecting at Incheon or Seoul, there is a very flexible





entry/departure policy, which allows visitors to stay without a visa for up to 30 days, except for those who are traveling from the following countries: Afghanistan, Cuba, Ghana, Iran, Iraq, Libya, Nigeria, Macedonia, Palestine, Sudan, and Syria.

Those who will travel from China and connect at Incheon or Seoul must obtain a valid visa for legitimate entry into Korea. If you are arriving directly on Jeju, no visa is required.

All foreign visitors wishing to enter the Republic of Korea must have a valid passport. While citizens of certain countries must obtain a Korean visa before coming, citizens of other countries who want to visit Korea temporarily are permitted to enter without a visa according to visa-exemption agreements or in accordance with principles reciprocity or national interest. To check if your country has a visa exemption agreement with the Republic of Korea, please check more way at: http://www.20wcss.org/sub09_5.php

12. Webmail

Information about the congress is regularly updated in the webmail which is sent once a month. IF you wish to receive or add your name to the list, please e-mail us at wcss@20wcss.org

Your participation will make 20WCSS a wonderful congress. We really look forward to seeing you next year in Jeju!

Contact Info: wcss@20wcss.org

Homepage: www.20wcss.org

IUSS Alerts June - November 2013

International Union of Soil Sciences



Information for and from the global soil science community

IUSS Alerts are e-mailed to more than 12,000 people in over 100 countries. If you have information to share please send it Hartemink@wisc.edu Below are the still relevant contributions that appeared in the IUSS Alerts between June and November 2013.

Conferences

Soil Change Matters 2014

24-27 March 2014, Bendigo, Australia

Soils change in response to land use, land management and climate. Understanding the mechanisms and rates of change in fundamental soil properties, and their extent across the landscape, is critical for management of soil and land to ensure enduring productivity and provision of ecosystem services. Soil Change Matters will bring together scientists who can explain the critical changes in soils, particularly during the past century of increasingly intense land use. Soil Change Matters will include dialogue between policy makers and scientists to clarify policy needs, as well as the current capability of soil knowledge systems and soil monitoring approaches. We invite you to be part of this international workshop organised by the Victorian Government's Department of Environment and Primary Industries, and supported by Soil Science Australia and the International Union of Soil Sciences.

Please visit www.soilmatters.org

The Carbon Management, Technology and Trade Conference

4-6 April 2014 at İstanbul, Turkey

The conference aims to bring together Carbon Technologists, Economists and Soil Scientists. The conference outcomes seek to integrate the contemporary scattered discussion that has been going on the individual grounds of Carbon Capture and Storage along with Clean Energy Technologies, Economics and developments in carbon markets and Management of Carbon Sequestration in Soils. You are kindly requested to submit your 250 word

abstract by the 30th of November 2013. Further information may be reached from

www.Carbonmeetings.com

International Conference of the European Society for Soil Conservation

Imola, Italy, June, 23-26, 2014

The general subject of the conference will be: 'Biogeochemical Processes at Air- Soil-Water Interfaces and Environmental Protection'. The objective is to promote exchange and discussion on the complex processes occurring at the Air-Soil-Water interfaces in a perspective of environmental protection. The Conference, consisting of invited lectures, scientific session with oral and poster presentations and a field excursion, will be hosted by the University of Bologna. Selected papers will be published on an international journal. Expression of Interest in Participation can be mailed to: secretariat.aswep@unibo.it.

Website: <http://aswep-essc.unibo.it>

9th International Symposium AgroEnviron

3-7 August 2014 in Goiânia, Brazil

With the theme 'Impacts of Agrosystems on the Environment: challenges and opportunities', the scientific program will focus on problems and solutions related to the environmental sustainability of agrosystems. The conference will address broad topics on soil and water conservation and management, agriculture and environmental policies, environmental sustainability, technology innovation, and education. A guided one-day field trip to the savannah with examples of tropical agriculture is included in the registration fees.

Abstracts submission is open at:

www.agroenviron2014.com

Online Educational Resources

Soil in Nature

There is a Soil, Agriculture, and Agricultural Biotechnology collection (<http://www.nature.com/scitable/knowledge/soil-agriculture-and-agricultural-biotechnology-84826767>) in the online educational resource that Nature Education is publishing called the Knowledge Project (<http://www.nature.com/scitable/knowledge>). It is a coordinated library of peer-reviewed/scitable articles intended for college and high school students. Apparently many educators are using these articles as supplementary readings in their courses.

Crowd-sourced soil data for Europe and the Globe

mySoil is a free smartphone app (download at itunes), originally for the United Kingdom and recently expanded to cover Europe. mySoil contains a soil properties map with basic information on soil texture, pH and vegetation habitat. It also has the ability to crowd source georeferenced data. We are continuing to expand the capabilities of mySoil and would be interested in hearing from groups who might help with data to take this effort global. Read more at:

<http://www.nature.com/nature/journal/v496/n7445/full/496300d.html>

Contact: David A. Robinson, CEHsoils@ceh.ac.uk

Newsletters

IUSS newsletter

Commission 1.4 Soil Classification officers have just released Newsletter 5 with a Message From the Chair; information about the 2013 National Cooperative Soil Survey Conference in Annapolis, MD; Forthcoming meetings - Division meeting Ulm, Germany; 7th IUSS International Conference of the Urban Soils Working Group, SUITMA; 2013 Soil Science Society of America; and Soil classification at the 20th World Soil Congress; South Korea. There is also an article reprint about the Universal Soil Classification System Report (paper published in Soil Horizons). The full newsletter can be accessed at: http://clic.cses.vt.edu/IUSS1.4/Newsletters/IUSS_Soil_Classification_Newsletter_1.4.5.pdf

Newsletter Soil Morphology and Micromorphology

The October 2013 Newsletter of Commission 1.1. Soil Morphology and Micromorphology has been published and is accessible at: <http://www.loess.umcs.lublin.pl/october2013.pdf>. Among other informations, the members of the commission are encouraged to send their abstracts to the three symposiums of the next IUSS World Congress organised by the Commission (one of them divisional); and also to send nominations to the Young Micromorphologist Publication Award, to be presented in the World Congress. The deadline for both calls is November the 30th. It is also a pleasure to announce the publication of the special issues of the Spanish Journal of Soil Science and of Quaternary International with selected papers of the 14th IWMSM held in Lleida in 2012.

Soil micromorphology

One year after the 14th International Working Meeting on Soil Micromorphology, the first issue of the proceedings, with seven selected papers presented at the meeting, have been published in the Spanish Journal of Soil Science. These open-access proceedings, with Irina Kovda and Curtis Monger as guest editors, cover sessions 1 to 4 of the meeting: http://sjss.universia.net/pdfs_revistas/revista_35_1373878761852.pdf. The separate papers can be downloaded from: <http://sjss.universia.net/verRevista.jsp>. A second volume will appear on November the 15th. The proceedings of Session 5 of the meeting will be published as special issue of Quaternary International, with Richard MacPhail as guest editor. The meeting proceedings are dedicated to the late micromorphologists Ulrich Babel and Nicolas Fedoroff.



New IUSS Officers 2014-2018

The IUSS has held its first electronic election of Division and Commission officers. A special website was open for three months in which biographies of all candidates could be read and members could vote. We are very pleased to announce the new officers for the period 2014-2018 – a summary table is below followed by information on each of these new officers. These officers will take over from our current officers but please do not hesitate to contact them with your ideas and suggestions.

Division 1: Soils in space and time

Chair Erika Michéli, Hungary

1: Soil Morphology and Micromorphology

Chair Rosa Poch, Spain

Vice Chair Richard J. Heck, Canada

2: Soil Geography

Chair Thomas Scholten, Germany

Vice Chair Angel Faz Cano, Spain

3: Soil Genesis

Chair Teruo Higashi, Japan

Vice Chair Nikolay Khitrov, Russia

4: Soil Classification

Chair John Galbraith, USA

Vice Chair Augusto Zanella, Italy

5: Pedometrics

Chair Budiman Minasny, Australia

Vice Chair Lin Yang, China

6: Palaeopedology

Chair Daniela Sauer, Germany

Vice Chair Sergey Sedov, Mexico

Division 2: Soil properties and processes

Chair Kazuyuki Inubushi, Japan

1: Soil Physics

Chair Stephan Peth, Germany

Vice Chair Tsuyoshi Miyazaki, Japan

2: Soil Chemistry

Chair Philippe Baveye, U.K.

Vice Chair Boris Jansen, Netherlands

3: Soil Biology

Chair Ellen Kandeler, Germany

Vice Chair Susumu Asakawa, Japan

4: Soil Mineralogy

Chair Balwant Singh, Australia

Vice Chair Stephen Hillier, Scotland

5: Soil Interfacial Relations

Chair Siobhan Staunton, France

Vice Chair Qiaoyun Huang, China

Division 3: Soil use and management

Chair Takashi Kosaki, Japan

1: Soil Evaluation and Land Use Planning

Chair Ivan Vasenev, Russia

Vice Chair No officer

2: Soil and Water Conservation

Chair Bernd Lennartz, Germany

Vice Chair Li Zhanbin, China

3: Soil Fertility and Plant Nutrition

Chair Scott Chang, Canada

Vice Chair Toru Fujiwara, Japan

4: Soil Engineering and Technology

Chair Bin Zhang, China

Vice Chair Țărău Dorin, Romania

5: Soil Degradation, Control, Remediation and Reclamation

Chair Jaume Bech, Spain

Vice Chair Xudong Zhang, China

6: Salt Affected Soils

Chair Donald Suarez, USA

Vice Chair Jingsong Yang

Division 4 -The Role of Soils in Sustaining Society & the Environment

Chair Christian Feller, France

1: Soils and the Environment

Chair Masamichi Takahashi, Japan

Vice Chair Ian Hollingsworth, Australia

2: Soils, Food Security, and Human Health

Chair Ganga Hettiarachchi, USA

Vice Chair Adelheid (Heide) Spiegel, Austria

3: Soils and Land Use Change

Chair Ryusuke Hatano, Japan

Vice Chair Jay Jabro, USA

4: Soil Education and Public Awareness

Chair Damien Joseph Field, Australia

Vice Chair Cristine Carole Muggler, Brazil

5: History, Philosophy, and Sociology of Soil Science

Chair Thomas J. Sauer, USA

Vice Chair Richard Doyle, Australia

Division I

Soils in space and time

Division Chair

Erika Michéli (born on 5th December, 1959), president of the Hungarian Soil Science Society is a professor and head of the Department of Soil Science, Szent István University, Hungary. Her contribution to soil science is in the area of soil classification. Her impact on IUSS is through her past and current functions such as: Chair of the WG WRB, Vice chair of the Commission Soil Classification and Vice Chair of the WG Universal Soil Classification, and through her man and co- organization activities such as: The IUSS meetings 'Soil Classification' 2001, 2004, 2008, 2012 (Hungary, Russia, Chile, USA) the international meeting 'Bridging the Centuries 1909-2009', Hungary, 2009 and Symposia of the World Congresses (2006, 2010).

Commission 1.1. Soil Morphology and Micromorphology

Commission Chair

Rosa Poch, Spain is an Agricultural Engineer (U Politècnica de Catalunya) and holds a PhD in Soil Science (U Ghent). At present I am Professor of Soil Science at the University of Lleida (Catalonia), lecturing on Soil Science, Surface Hydrology and Soil Conservation, and coordinator of the Interuniversity Master on Soil and Water Management. I'm doing research on soil genesis and soil management, mainly on semiarid soils. I have been organizer and lecturer of several Soil Micromorphology intensive courses. I've been visiting professor at the U Gent (Belgium), UC Davis (USA), CSIRO L&W (Australia), U N Agraria de Managua (Nicaragua) and U N Colombia – Medellín among others.

Vice Chair

Richard J. Heck, Canada holds undergraduate (agriculture) and graduate degrees (pedology) from the University of Saskatchewan. His career has evolved from sessional lecturer at the UofS, through visiting professor at the Universidade Federal Rural de Pernambuco, to Associate Professor (Soils and Landscape Processes) at the University of Guelph. Richard's research focusses on quantification of soil structure by X-ray computed tomography; his laboratory maintains a dedicated CT system, conventional thin-section infrastructure and archives the Canadian Soil Thin Section Collection. An ardent proponent of the

integrative role of micromorphology in soil science, Richard has trained more than 150 researchers/scholars in digital imaging/analysis of soil.

Commission 1.2. Soil Geography

Commission Chair

Thomas Scholten, Germany is Professor of Physical Geography and Soil Science. His research is concerned with soil science, environment, geomorphology, geocology and soil erosion. Fieldwork is with research projects in South Africa, Swaziland, Sudan, Israel, China, Nepal, Switzerland and Germany. Professor Scholten has published in soil science, environmental science and geoscience, having 7 books, 80 refereed papers and 179 conference papers. He received research grants from the European Union (EU), the German Research Foundation (DFG) and the German Federal Ministry of Education and Research (BMBF). He is referee for international journals, guest editor for *Geoderma* and *Catena* and serves on the editorial boards including *Journal of Plant Nutrition and Soil Science*. Since 2004, Thomas Scholten is council member of the European Society for Soil Conservation (ESSC) and President of the German Soil Science Society (DBG).

Vice Chair

Angel Faz Cano, Spain. Technical University of Cartagena

Commission 1.3. Soil Genesis

Commission Chair

Teruo Higashi, Japan is Professor of Soil Science and served as Vice-President of University of Tsukuba. He obtained his PhD in Soil Science from Kyushu University, Japan. He specializes in Soil Chemistry and Environmental Soil Chemistry. His current research interest focuses on effects of global warming and acid deposition on forest soils. He is Member of the IUSS Committee on Budget and Finances. He served as President of Japanese Society of Pedology (2008-2009). He was awarded 'Japanese Society of Soil Science and Plant Nutrition Award (2008)'.

Vice Chair

Nikolay Khitrov, Russia is Head of the Department of Genesis and reclamation of saline and sodic soils, V.V. Dokuchaev Soil Science Institute, Russian Academy of Agricultural Sciences, Moscow. He graduated from Leningrad State University, Faculty of Biology and Soil Science, 1978; got the Ph.D.

(1983); Dr. Sci. (Soil Science) (1996), V.V. Dokuchaev Soil Science Institute. Expertise: patterns and genesis of soil cover; processes in natural and anthropogenically-changed soils; Chernozems, Solonetz, Vertisols. He has published more than 160 books and papers (30 in English), and organized several conferences in Russia.

Commission 1.4. Soil Classification

Commission Chair

John Galbraith, USA is Associate Professor, Crop and Soil Environmental Sciences, Virginia Tech, Blacksburg, VA, having graduated with a PhD in 1997 in Soil Science, Agronomy, and Geomorphology from Cornell University. His research focuses on urban and mined-land classification; soil carbon; and wetland soil identification and genesis. His teaching includes wetland soils and mitigation, soil survey, soil genesis and classification, basic soils for majors and non-majors. John coaches the Virginia Tech Soil Judging Team. He has published 21 refereed journal articles; 7 refereed conference proceeding articles, six edited book chapters, 12 papers in editor-reviewed journals and conference proceedings and three USDA-NRCS soil surveys. John is chair of ICOMANTH. John was from 2007-8 elected Chair, Div. S-5 (Pedology) in SSSA. From 2008-2012 served in this Commission, established a web site and a newsletter.

Vice Chair

Augusto Zanella, Italy holds a Master's degree in 'Scienze forestali', University of Padua (Italy); Degree in 'Langue et Civilisation françaises', La Sorbonne University, Paris (France); Master's degree and PhD in 'Ecologie Generale', University of Paris (France). Teaching activities include Italy and France (240 hours/y) : Plant biodiversity, Soil ecology and classification, Forest botany. RESEARCH ACTIVITY: 67 publications: relationships soil/vegetation, humus forms classification, urban soil/tree system. Member of: Council of Ecology of the PhD School (University of Padua); Council of the National Centre for the Forest Biodiversity Conservancy (Potenza, Italy); Humus Cell (IUFRO, Wien, Austria); French Committee of Humus forms of the 'Référentiel Pédologique'.

Commission 1.5. Pedometrics

Commission Chair:

Dr Budiman Minasny, Australia graduated in 2000 from the University of Sydney in Soil Science with a focus on pedometrical method for predicting

soil hydraulic properties. He is currently an ARC (Australian Research Council) Future Fellow. His work has been focused on understanding why soil varies in the landscape, by means of both mechanistic and empirical approaches. He was the past vice-chair of the pedometrics commission in 2005-2010. During that period he actively communicated and promoted Pedometrics research by producing 10 widely-read newsletters, the most productive group in IUSS.

Vice Chair

Lin YANG, China is Associate Professor of Geography at the Institute of Geographical Sciences and Natural Resources, Chinese Academy of Sciences. She obtained her Ph.D. in 2009 from the Institute of Geographical Sciences and Natural Resources, Chinese Academy of Sciences. Her specialty is spatial sampling design and digital soil mapping methods and applications. She has been working in digital soil mapping with 20 research articles. She has made many contributions to the wider academic community, for example as lead writer of one of the Top 10 best papers of Acta Pedologica Sinica in year of 2010; organizer of a number of sessions on digital soil mapping symposiums at Chinese Academy of Sciences. Her accomplishments and extensive experience and extensive international connections as well as access to CAS resources will serve her well.

Commission 1.6. Paleopedology

Commission Chair

Daniela Sauer, Germany is Interim Chair of Landscape and Geoecology at Dresden University of Technology, Germany. Her focus is on rates of soil-forming processes and on paleosols. As present chair of the Palaeopedology Commission she organized the Meeting of the Palaeopedology Commission in 2011, the Workshop 'Rates of soil forming processes' in 2012, and a number of palaeopedological sessions at various conferences. In addition to promoting scientific exchange through regular commission meetings she aims at stimulating discussion and progress in previously defined fields within the palaeopedology network. Hence, in 2012 she started the initiative 'RAISIN' and is actively involved in the initiative 'AEOMED'.

Vice Chair

Sergey Sedov, Mexico was born on 23.11.1962, graduated from Soils Science department of Moscow Lomonosov University in 1985, stayed in

the same department as technician, researcher, assistant professor. Initially studied soil genesis and mineral transformations in boreal soils, defended PhD thesis in 1993. After that shifted to paleopedological research, in 1994-1998 studied relict Terra Rossa in Morocco with Prof. A. Bronger, participated in loess research with A. Bronger, A. Dodonov, B. Terhorst, developed soil-archaeological projects in Central Russia. In 1999 moved to National Autonomous University of Mexico (UNAM). Since then together with Mexican colleagues formed the Paleosol group of UNAM, which studied tephra-paleosol sequences of Central Mexico, paleosols of karstic landscapes of Yucatan, soil contexts of pre-Hispanic cultures of Mesoamerica. The group organized 3 International Paleopedology Meetings (2001, 2005, 2009). Has 55 publications in the international journals (SCI).

Division 2

Soil properties and processes

Division chair

Prof. Dr. Kazuyuki Inubushi obtained his PhD in Soil Science from the University of Tokyo, Japan. He specializes in Soil Microbiology, Soil Biochemistry and Environmental Science. He is Chair for Commission 2.3 Soil Biology (2010-2014), Member of IUSS Sub-committee, Science Council of Japan and Board member of Japanese Society of Soil Science and Plant Nutrition. He was working at IRRI and Rothamsted Experimental Station, UK. Editorial member of *Biology and Fertility of Soils*; *Soil Science and Plant Nutrition*; *Microbes and Environments*. Best Paper Award in International Soil Science Society, and Award of Japanese Society of Soil Science and Plant Nutrition.

Commission 2.1. Soil Physics

Chair

Prof. Dr. Stephan Peth University Kassel studied Geology at the Universities of Mainz, Durban-Westville, Stellenbosch and Kiel. In 2001 he joined the Institute of Plant Nutrition and Soil Science (University of Kiel) where he obtained his PhD in 2004. In 2010 he habilitated on the 'Dynamics and architecture of soil pore spaces' and continued working in Kiel as an Associate Professor. Since 2012 he is head of the Department of Soil Science at the Faculty of Organic Agricultural Sciences (University of Kassel). His main research field

is in soil physics with focus on mechanical and hydraulic soil processes and the application of X-ray microtomography and image analysis in soil research.

Vice Chair 2.1.

Dr. Tsuyoshi MIYAZAKI has been the professor of Agricultural Engineering from 1998 to 2012, and is the professor emeritus of the University of Tokyo and the President of The Japanese Institute of Irrigation & Drainage from 2013. He obtained his PhD in Soil Science from the University of Tokyo in 1976. He specializes in Soil Physics and Soil Hydrology. He served as President of The International Society of Paddy and Water Environmental Engineering (PAWEES) (2009-2011) and a member of the board of trustees of the International Commission of Agricultural Engineering (CIGR) (1998-2000). He received 'Outstanding Contribution Award of CIGR 2000'.

Commission 2.2. Soil Chemistry

Comm. Chair

Prof. Dr. Philippe Baveye is chair of Soil Ecosystem Modelling, SIMBIOS Centre, Abertay University and Kodak Professor of Environmental Engineering, Rensselaer Polytechnic Institute, New York, a Belgian citizen, studied at the Catholic University of Louvain (Belgium), the Johns Hopkins University, and the University of California at Riverside. His career has been divided between the US (lately at Rensselaer Polytechnic Institute) and Europe (currently at the SIMBIOS Centre in Scotland). His research focuses on the clogging of soils by bacteria, on the microhabitats of microorganisms (bacteria, fungi) in soils, on the reactivity of soil solid surfaces, and on the modeling of emergent soil properties. He is the co-author of 180 articles and book chapters, has edited 9 books, and received several awards.

Vice-Chair Comm 2.2

Ass. Prof. Dr. Boris Jansen, University of Amsterdam holds an MSc in Environmental Chemistry (Vrije Universiteit Amsterdam, 1998), a PhD in Soil Chemistry (University of Amsterdam, 2003) and presently continues to work in this field at the University of Amsterdam as Assistant Professor. Soil chemical questions that fascinate me are: How are soil chemical processes altered by natural or human-induced change? What are the implications for the functioning of ecosystems? How can we use this knowledge to optimize ecosystem services

rendered by the soil? I have a strong drive to serve the soil scientific community, and served as President of the Dutch Soil Science Society from 2007-2010.

Commission 2.3. Soil Biology

Comm. Chair

Prof. Dr. Ellen Kandeler, University Stuttgart Hohenheim, received a M.S. in Biology and Biochemistry and a PhD in Chemical Plant Physiology from the University of Vienna. After a position as a scientist at the Federal Institute for Soil Management, Vienna (Austria), she moved to the University of Hohenheim, Stuttgart (Germany), as a professor of Soil Biology in 1998. She is author or co-author of over 190 scientific journal publications. At Hohenheim, she maintains an active teaching programme focusing on soil biology and soil science. Her current research programme focuses on microbial and molecular ecology of soil microorganisms under a changing environment.

Vice Chair 2.3

Prof. Dr. Susumu Asakawa is Associate Professor of Soil Biology and Chemistry, Graduate School of Bioagricultural Sciences, Nagoya University/Japan from 2001. He obtained his PhD in Soil Science from the University of Tokyo in 1995. He specializes in Soil Microbiology, especially in methanogenic bacteria. He served as Chair of Commission III (Soil Biology) (2010-2012) and Editorial Board member of Japanese Society of Soil Science and Plant Nutrition (2002-2012) and Biology and Fertility of Soils from 2011. He was awarded 'Progress Award of Japanese Society of Soil Science and Plant Nutrition (1997)'.

Commission 2.4. Soil Mineralogy

Comm 2.4. Chair

Prof. Balwant Singh is an Associate Professor of Soil Science at the University of Sydney. He received BSc (Hons) Agr and MSc Agr from Haryana Agricultural University, Hisar (India) and PhD from the University of Western Australia. His teaching and research focuses on soil mineralogy and chemistry with environmental applications. He is the current President of the Australian Clay Minerals Society, Councilor of the AIPEA and Councillor of the Clay Minerals Society. He has served as the President and Vice-President of the Australian Soil Science Society Inc, (NSW Branch). He is an Associate Editor for Clay Minerals and Soil Research journals.

Comm 2.4. Vice-Chair

Dr. Stephen Hillier, The James Hutton Institute, is a clay mineralogist working in the Environment and Biochemical Sciences group at The James Hutton Institute and guest Professor in the Department of Soil and Environment, at SLU, Uppsala. He studied in Southampton, Paris and Bern before joining the Macaulay Institute in 1994. His interests include clay, soil, environmental and quantitative mineralogy. He is a former Secretary and Chairman of the Clay Minerals Group. He has served on Council for the Mineralogical Society and The Clay Minerals Society, is a member of the editorial board for 'Clay Minerals' and Chair of the organising committee for Euroclay 2015.

Commission 2.5. Soil Interfacial Reactions

Commission Chair

Dr. Siobhan Staunton is vice-Chair of Commission 2.5 and organised the InterCongress meeting, ISMOM, in Montpellier in 2012. She has degrees in Chemistry and Soil Science from Oxford University and worked in Oxford and London before being recruited by INRA France. She has published over 70 refereed papers and book chapters and has presented over 110 communications in national and international conferences. She is Associate Editor of European Journal of Soil Science and Soil Research. She has investigated the effects of organic coatings on clay mineral-metal interaction, and currently studies the fate of proteins (Bt-toxin, prion, glomalin and phosphatases) in soil.

Commission Vice-chair

Dr. Qiaoyun Huang is a Changjiang Scholar Professor, Distinguished Young Scholar of NSFC, Dean at Faculty of Resources and Environment, Vice Director of the State Key Laboratory of Agricultural Microbiology, Huazhong Agricultural University, China. His research area is soil mineral-organic matter-microorganism interactions. He has published over 130 peer-reviewed articles including 70 SCI papers. He is currently the chairman of Soil Chemistry Commission, Soil Science Society of China, and the Executive Board member of ISEB. He was the Chairman of the 4th ISMOM and the 21st ISEB. He serves as the editorial member of Applied Soil Ecology and Geomicrobiology Journal.



Division 3

Soil Use and Management

Soil Use and Management

Division chair

Professor Takashi Kosaki, Japan, is Professor of Soil Science in Tokyo Metropolitan University, Japan. He studied at the University of Wisconsin-Madison, finished PhD at Kyoto University, Japan, and did research with IITA, Nigeria. His interest focuses on the efficient and proper use and management of soil resources in Africa, Asia, former USSR, etc. He is currently serving as Vice-Chair of Commission 3.5, IUSS, and President of Japanese Society of Soil Science and Plant Nutrition. He has authored 200+ scientific publications and co-organized six international symposia on soil degradation and rehabilitation with IUSS.

Commission 3.1. Soil Evaluation and Land Use Planning

Chair

Prof. Dr. Ivan Vasenev is the Head of Ecology Department and of the Laboratory of Agroecological Monitoring, Ecosystem Modeling and Prediction, Russian Timiryazev State Agricultural University, Moscow. He graduated from Moscow State University (MSU), Soil Science faculty, 1984; got the Ph.D. (1987), Dr. Sci. (Biology: Soil Science and Ecology - 2003), MSU. Expertise: soil ecology and evolution; land evaluation and land-use planning; agroecology and ecosystem services; agroecological modeling and DSS; Chernozems and podzolic soils. He developed 3 DSS, published 168 books, manuals and papers, including those in international journals, organized several international conferences, summer schools and field tours.

Commission Vice chair

none

Commission 3.2. Soil and Water Conservation

Chair

Prof. Dr. Bernd Lennartz is full professor of resources conservation and soil physics at Rostock University, Germany. He graduated from Kiel University in Agricultural Sciences (majors: water management, soil science). During his PhD (1992) he worked at Cornell and Florida State University. He did his post doc in Southern France on surface runoff and

pesticide transport. Dr. Lennartz has supervised projects around the world. He was the scientific director of Jimma Institute of Technology, Ethiopia for two years. His expertise comprises (soil) water dynamics and solute transport at various spatial scales. He publishes regularly in international peer reviewed journals.

Vice chair

Dr Zhanbin Li has obtained his Ph.D degree in hydrology and water resources in 1991. He was selected as one of the members of '100-Top Scientists Plan' of Chinese Academy of Sciences from 1998 to 2002. From 2012, he is elected the director of State Key Lab of Soil Erosion and Arid Farmland. He specialized in soil erosion dynamic mechanics and sediment yield in watershed, soil and water loss prediction and modelling. He is chief editor of 'Journal of Soil and Water Conservation'. He has co-authored 7 books, published over 200 articles, and obtained 6 national and provincial awards.

Commission 3.3. Soil Fertility and Plant Nutrition

Chair

Prof. Dr. Scott Chang is a Professor at the University of Alberta in Canada and is specialized in soil biogeochemistry and plant nutrition. He has published 130 peer-reviewed articles. He is Chair-elect of the Forest, Range and Wildland Soils Division and a member of the Soil Science Research Award Committee of SSSA. He is serving/has served as Chair of the Alberta Soil Science Workshop, President of the Association of Chinese Canadian Professors, and as an associate editor for Biology and Fertility of Soils, Journal of Soils and Sediments, Canadian Journal of Soil Science, Journal of Environmental Quality, and Forest Ecology and Management.

Vice-Chair

Dr. Toru Fujiwara is Professor of Plant Nutrition and Fertilizers, Graduate School of Agricultural and Life Sciences, The University of Tokyo from 2010. He obtained his PhD in Soil Science from the University of Tokyo in 1992. He specializes in Plant Nutrition, especially in control of Boron uptake. He worked as Visiting Scientist at University of California, Davis (1992-1993) and Cornell University (1995-1996). He was awarded 'Japan Society for Promotion of Science Prize (2008)', 'Japan Academy Medal (2008)' and 'The Japanese Society of Soil Science and Plant Nutrition Award (2009)'.

Commission 3.4. Soil Engineering and Technology

Chair

Prof. Dr. Bin Zhang, Beijing, China studied agronomy in Nanjing Agricultural University and Soil Science from 1994 to 1997 in the Institute of Soil Science, (ISSCAS). He became full Professor on Soil Science in 2004 in ISSCAS and moved to the Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences. He received the Research Fellowship of Alexander von Humboldt Foundation in 1999. He served as second vice Chair of Commission 3.4 of IUSS (2002-2006), vice chair of Commission 2.1 of IUSS (2010-2014). He published 46 peer reviewed SCI papers. His research concentrates on soil structure, soil physical and biological interaction.

Vice chair

Prof. Dr. Țărău Dorin, Professor, Department of Sustainability Development and Environmental Engineering, Mapping, and land assessment, land evaluation, UASVM of Banat Timișoara, România. Main activities and responsibilities: writing and publication of specialized courses and books about the field mapping and natural resources assessment and environmental impact, development, protection and soil improvement, zoning agricultural production. He has published: 189 scientific papers, 85 articles and popular science materials, and 21 books, and manuals. Activities related to preparing and disseminating materials on good agricultural practices or soil and environmental protection to achieve a balanced agro-forest-hunting undertaken by SNRSS, CIEC, AEF Romania - Timișoara.

Commission 3.5. Soil degradation, control, remediation and reclamation.

Chair

Prof. Dr. Jaume Bech, Emeritus Professor Soil Science, Barcelona University. PhD Biology, M.A. Geology. Professor Pedology (1975-2007), directed 50 PhD, written 350 papers. First found metalophytes, Peru, Ecuador. Vice-Chair Commission VIII AISS, 1998-2002, 1.2. IUSS, 2002-2006. President Committee H, E (2002-2013), SSS Div. EGU. Convener Symposium EUROSIL 2004; S12.07, 2012; 20th WCSS Symposia, 10 Sessions SSSSEGU (2004-2013). Editorial Board: JGE, Annual Agrarian Sciences. Guest-Editor, 8 special issues

JGE, JSS. Kovalsky Medal, Officier l'Ordre Palmes Académiques, Honorary Convener, EGU 2013 Professor *Honoris Causae* -9 universities. Honorary Member, Soil Science Societies, Azerbaijan, Bulgaria, Georgia, Romania.

Vice Chair

Dr. Xudong Zhang is a Professor at the Institute of Applied Ecology, Chinese Academy of Sciences, following some years as Visiting Professor at University of Bayreuth, Germany. He currently serves as a Vice President of the Soil Science Society of China and a member of editorial boards of several academic journals. Dr. Zhang's research focuses on the understanding of microbial control over transformation and cycles of carbon and nitrogen in ecosystems aiming at developing better management practices for sustainable use of agricultural soils. He has published 200+ peer-reviewed articles and received over 50 million RMB research funding as a PI.

Commission 3.6. Salt affected Soils- chair position

Donald Suarez Ph.D., Director, USDA ARS Salinity Laboratory, 450 W Big Springs Road, Riverside Ca 92507

Vice chair

Dr. Jingsong Yang is a Professor of the Institute of Soil Science, Chinese Academy of Sciences, and he is the Director of Center for Salinity Management of the Institute. His research field is mainly focused on management of soil salinization and integrated use of salt-affected soils. He was the Chair of the Saline Soils Commission of Chinese Soil Science Society during 1999 to 2012, and is currently the honor Chair. Yang is the National Principle Expert of effective agricultural use of salt affected soils of China. He is also National coordinator of China for the FAO network of Integrated Soil Management for Sustainable Use of Salt-Affected Soils.

Division 4 The Role of Soils in Sustaining Society & the Environment

Division Chair

Dr. Christian Feller

Christian Feller is Emeritus Soil Scientist and

former Director of Research at the Institut de Recherches pour le Développement in Montpellier, France. He has a Ph.D. in organic chemistry (1972; Paris) and a Doctorate of Science in soil science (1994; Strasbourg). He researches soil organic matter and carbon sequestration in tropical areas. He worked extensively in Senegal, Martinique, Brazil, and Madagascar. He is a Member of the French Academy of Agriculture. He was the first recipient of the SSSA Brady Frontiers of Soil Science Lectureship (2006). He was Vice-Chair (2006-2010) of IUSS Commission 4.5. He is an IUSS Honorary Member.

Commission 4.1 Soils and the Environment Chair

Dr. Masamichi Takahashi is Principal Research Coordinator (Conservation of Forest Resources), Forestry and Forest Products Research Institutes (since 2012). He obtained his Ph.D. in soil Science from Hokkaido University. He specializes in soil chemistry, especially carbon dynamics in forest soils. He served as Editorial Board member of Soil Science and Plant Nutrition (since 2009), Committee Member of the Acid Deposition Monitoring Network in East Asia, IPCC editorial member of emission factor database (2008-2010), and IPCC LULUCF task2 (2002-2005). He was awarded 'Japanese Society of Soil Science and Plant Nutrition Award (2012).'

Vice-Chair

Dr. Ian Hollingsworth has 31 years professional experience in soil and landscape science and represents ASSSI on the National Soils RD&E Reference Group. He is an adjunct professional associate with Charles Darwin University, with research interests in methods for restoring critical environmental processes in landscapes, particularly in the context of mine rehabilitation. He has unusual experience in melding technical restoration objectives with the subsistence economic values of indigenous societies. His concern is to integrate quantitative environmental assessments with rehabilitation design in an ecologically engineered restoration. He sees understanding the links between regional and global systems as a challenge.

Commission 4.2: Soils, Food Security, and Human Health Chair

Dr. Ganga Hettiarachchi is an Associate Professor of

Soil and Environmental Chemistry at Kansas State University. She earned her B.S. (Hons.) from the University of Peradeniya, Sri Lanka, and her M.S. and Ph.D. from Kansas State University. She did a postdoctoral fellowship at the US-EPA in Cincinnati. Later she worked as a senior lecturer at the University of Peradeniya and a research scientist at the University of Adelaide in Australia. Her current research program at Kansas State University focuses on soil nutrient- and contaminant-biogeochemistry and applying knowledge of soil and environmental chemistry to develop solutions to agronomic and environmental problems.

Vice-Chair


Dr. Adelheid (Heide) Spiegel was born and educated in Vienna, Austria. Between 1979 and 1985, she studied for a diploma in agriculture at the University of Natural Resources and Life Sciences (BOKU) in Vienna. Between 1990-1992, she did her doctoral thesis at the University of Natural Resources and Life Sciences (BOKU), Vienna, in co-operation with the Federal Office and Research Centre for Agriculture (BFL), Vienna. The title of her thesis was 'Heavy metals in agricultural soils and plants in the district of Schwechat (Lower Austria).' In 2012, she received *venia docendi* for 'soil ecology' at the University of Natural Resources and Life Sciences. Her present position is as Soil Scientist and Senior Research Scientist.

Commission 4.3. Soils and Land Use Change Chair

Dr. Ryusuke Hatano Dr. Ryusuke Hatano, Professor, Hokkaido University, Japan is Professor of Soil Science, Research Faculty of Agriculture, Hokkaido University (since 1995). He obtained his Ph.D. in Soil Science from Hokkaido University in 1986. He specializes in soil physics. He is previous president of the Japanese Society of Soil Physics and Chair of Commission 4.3 – Soils and Land Use Change in IUSS (2010-2014). He has worked for various international joint research projects related to GHGs emissions from soils in East Siberia, South China, Japan, and tropical countries. He serves as a member of the Editorial Boards of Soil Science and Plant Nutrition, Pedosphere, and International Agrophysics.

Vice-Chair

Dr. Jay Jabro got his M.S. degree in soil physics in 1979 at Iowa State University and Ph.D. in soil physics and agricultural engineering in



1988 at Pennsylvania State University. Dr. Jabro is a Certified Professional Soil Scientist and is recognized internationally for research in water movement in soils, water quality/management, computer modeling, soil compaction, and precision agriculture. He has authored over 60 multidisciplinary refereed publications, convened panels, and presented research at national and international conferences. He has been awarded funding to further computer modeling research and serves as Associate Editor for *Agronomy Journal* and *Soil Science Society of America Journal*.

Commission 4.4. Soil Education and Public Awareness

Chair

Dr. Damien Joseph Field has contributed strongly to curriculum development nationally and internationally, resulting in innovative teaching approaches focusing on active- and problem-based learning in soil science. He is Academic Director for eLearning and SSEAC (Sydney Southeast Asia Centre) Country Coordinator for Laos. He has led a major national research initiative to develop an Australian National Curriculum in soil science, with output being publication of a set of novel soil science teaching principles. He believes that the time has come for an international conference on Soil Science Education and would champion this to occur in 2016 during his term as Chair.

Vice-Chair

Cristine Carole Muggler is Associate Professor in the Soil Science Department of the Federal University of Viçosa (UFV), Brazil. At UFV, her activities include teaching (Soil Genesis; Earth System Dynamics and Processes; Soil Education and History of Soil Science), supervising students (secondary school to doctorate level) and curatorship of the *Museu de Ciências da Terra Alexis Dorofeef*. She created and directs the *Programa de Educação em Solos e Meio Ambiente*. Since 2011, she is chairwoman of Division IV, Soils, Environment, and Society, of the Brazilian Soil Science Society, where she also chairs, since 2005, the Soil Education and Public Awareness Commission.

Commission 4.5. History, Philosophy, and Sociology of Soil Science

Chair

Dr. Thomas J. Sauer research responsibilities include characterizing surface soil, canopy, and crop residue properties that influence source

strength and transport mechanisms of greenhouse gases and air quality constituents. He develops innovative land use and biofuel management strategies that mitigate climate change impacts and enhance soil quality. He has published 77 journal articles. He was a Fulbright scholar to New Zealand and is Fellow of the Soil Science Society of America. He has been active for many years in the SSSA Council on the History, Philosophy, and Sociology of Soil Science. He co-edited 'Sustaining Soil Productivity in Response to Global Climate Change.'

Vice-Chair

Richard Doyle has over 20 years experience in universities and government agencies in Australia, New Zealand, and Namibia. He is President of Soil Science Australia and convened the Joint Australian-NZ Soil Science Conference in December 2012. He has undertaken research in several areas including soil carbon and soil erosion. He has over 100 publications including 38 refereed journal and conference papers. Richard has a passion for soil philosophy and soil art. He has commissioned soil based art works based on Aboriginal creation stories and is co-leader of Soil Science Australia's E(ART)H Project, which links soil science with indigenous art.

5 Questions to a Soil Scientist

5 questions to Brenda J. Buck



Name: Brenda J. Buck
Position: Professor
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1. When did you decide to study soil science?

I knew when I was 5 yrs old that I wanted to be an earth scientist. I grew up on a remote cattle ranch in southwestern Montana and I was very curious about everything having to do with the gorgeous landscape all around me. It wasn't until the summer before going to grad school that I became specifically interested in soils. I was working for the United States Geological Survey and mapping in and around Zion National Park in southern Utah. I learned that buried soils in deep arroyos where we were hiking held the record of past landscapes. This was so fascinating that I went on to earn my MS in geology working on Cretaceous paleosols and my PhD in Agronomy working on Quaternary soils.

2. Who has been your most influential teacher?

There are really too many to name. But my grandmother tutored me the summer after second grade because she recognized that I was not learning at school what I needed to keep up. She made a huge difference in my life and always was a great supporter of education, especially for

women – when many in my extended family and surrounding community didn't believe that women should even be educated.

3. What do you find most exciting about soil science?

I love solving scientific puzzles. I especially love working in arid soils because I feel we have the most to learn from these often-neglected soils. I especially like working on topics that can directly and immediately affect people's lives. This is why I'm currently working in a field called Medical Geology. Don't let the name fool you – this field encompasses a wide range of soil scientists because the primary pathway of human exposure to the earth is usually through soil. Currently I'm exploring how dust affects human health. It is exciting to work with so many different scientists, including medical doctors, toxicologists, and others. I also feel this field has a lot to offer for soil scientists. We dig soil pits and breathe in tons of dust often not thinking twice that it might affect our health. Our research and others have shown that we all should be a lot more careful about our exposure to dust.

4. How would you stimulate teenagers and young graduates to study soil science?

Students and the public need to better understand why soil science is so important for all life on Earth. No matter where you live or teach, the way to help people become more interested in your work is to link soil science to something important to them. We are fortunate because for soil science this is easy. Whether it is where to buy or build a house, their water or air quality, food safety and quality, climate change, or their own health, soil is the key. The options are endless and only limited by our creativity in presenting it.

5. How do you see the future of soil science?

Our planet's future is utterly dependent upon improving our knowledge and care of soils. However, as our populations become more and more urban, people are increasingly separated from the natural world. This is a problem for all natural sciences, but at least in the USA, I think this is especially

problematic for soil science. Because soil science education has traditionally been confined to Agricultural Colleges and Departments, many other scientists are not exposed to it and don't realize the breadth of knowledge that already exists. So I often see people in other fields unknowingly 'reinvent' our science. I think the best solutions to our planet's biggest problems will be found through multidisciplinary interactions.

5 questions to Megan Balks



Name: Dr Megan Balks
Position: Senior Lecturer (I started teaching soil science as a Junior Lecturer in 1988)
Age: 53
Address: Earth Sciences, University of Waikato, Private Bag 3105, Hamilton, New Zealand 3240
E-mail: M.Balks@waikato.ac.nz

1. *When did you decide to study Soil Science?*

I was brought up on a sheep farm in remote New Zealand hill country where interaction with the soil was part of everyday life. I watched tile-drains being installed on river flood plains, fertilizer being applied to hill pastures from airplanes, and landslides occurring during storms. Digging fence post holes, playing with clay to make sculptures, and helping in the vegetable garden to support our family food supply were everyday activities. I loved the land and landscapes.

When I decided to go to University I was interested in Geology (being unaware that Soil Science existed). I was constrained to going to the nearest

(Massey) University where the only geology papers were taught in the Soil Science Department. Thus I found myself studying Soil Science.

2. *Who has been your most influential teacher?*

Undoubtedly Prof. Vince Neall at Massey University. His enthusiasm, use of story-telling and photos to bring soils alive in the lecture theatre, and his great field knowledge, were huge influences that got me started in Soil Science. Others who inspired me by their enthusiasm and example were Dr Jim Pollock, Dr Allan Hewitt and Prof John McCraw. I was introduced to Antarctic fieldwork and soils by Drs Iain Campbell and Graeme Claridge who set me on a path that has literally taken me to the ends of the Earth.

Prof Daniel Hillel's soil physics texts and in particular his book 'Out of the Earth: Civilization and the Life of the Soil' were also key influences. It has been a delight and inspiration to meet 'World Food Prize' winner Prof Hillel on several occasions over the years.

3. *What do you find most exciting about Soil Science?*

Digging a profile pit is always exciting – you never know what you will find – it is always like looking for buried treasure. I still enjoy getting my hands 'dirty' and 'playing' with clay, and mud, and sand, and silt – what luxury to be paid to do it!. I have been very lucky that Soil Science has taken me on many exciting adventures – I have had 18 fieldtrips to Antarctica and I have also had opportunities to see soils in environments as diverse as the Australian desert regions, northern Siberia in Russia, and the Tibetan Plateau in China, as well as many other parts of the world. I have wonderful friends and colleagues in many countries that I have learned from and been able to visit and work with.

4. *How would you stimulate teenagers and young graduates to study Soil Science?*

I think sharing knowledge with enthusiasm is the number one key. One needs to get people out into the field so they can experience the (often overlooked) soil for themselves, to learn that not all soils are the same, and the differences matter. Helping people realize the critical importance of soil to food production, and hence human health and happiness, is important. Enabling people to appreciate the aesthetic beauty and the fascinating

complexity of soils helps them to engage with something that they may have previously taken for granted.

5. How do you see the future of Soil Science?

I think the future of Soil Science has never been more exciting. We have new tools and technologies with which to help understand and manage our soil resource. Soil Science is central to the major issues of the 21st century: sustaining a growing population; protecting our environment; and adapting to changes in climate, land-use, and technology.

5 questions to Eric C. Brevik



Name: Eric C. Brevik

Position: Professor of Geology and Soils
(since 2007)

Age: 43

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1. When did you decide to study soil science?

My bachelors and masters degrees are in geology, and after getting my masters I got a job as an environmental consultant. I rapidly learned that there was a lot of soils information that was important in my job, and while I had received some soils training as a geologist, I hadn't gotten enough. That stimulated my interest in learning more about soil science, and when I went back to graduate school I entered a soils Ph.D. program.

2. Who has been your most influential teacher?

There isn't a single teacher I can pick; there are three who were very influential on me at different stages in my education. When I was in the 8th grade (13-14 years old) all the students in my school were required to take an earth science course, and Mr. Steven Fogarty was the teacher. He was very enthusiastic about the subject and even took his students on multiple field trips ranging from a day to a week in length. I was hooked, and by the time I was 14 I had my college major (geology) picked. Dr. John Reid introduced me to and stimulated my interest in geomorphology, and in particular, glacial landscapes, and when I was looking for a soils Ph.D. program Dr. Tom Fenton took an interest in my geology background, stating that he could take that background and make a soil scientist out of me. All three have been major influences.

3. What do you find most exciting about soil science?

I really enjoy the interdisciplinary nature of soil science, that fact that so many other fields contribute to understanding soils. This also leads to the opportunity to work with a wide range of other specialists and to explore some complex topics that require multiple fields to truly understand.

4. How would you stimulate teenagers and young graduates to study soil science?

Get them in the field with their hands in the soil, experiencing it. As a student, I always found time in the field to be much more exciting than time in the classroom. It is also important to talk about and demonstrate soil's importance to society. I think most people want to be involved in something they think matters, and soils definitely do.

5. How do you see the future of soil science?

I think we will see continued and increased emphasis on interdisciplinary studies and collaborations with related fields. I hope we will see soil scientists taking a more prominent role in the study of less traditional areas like studying the links between soils and human health and other similar areas that will open up entirely new career and funding pathways for our discipline.



Favorite Soil Science Books

Favourite soil science books of Tom Sauer

After identifying my three favorite soils books, I set about trying to understand why these books were special to me. It is not their similarity in content or style, as they are each distinct treatments. *The Soil and Health – A Study of Organic Agriculture* by Sir Albert Howard (1947 The Devin-Adair Co., 307 pp.) is likely a favorite of many soil scientists. Howard describes his personal discovery of a new approach to agriculture in India and how he believes it could be adapted to western agroecosystems. This book is perhaps as interesting for its effort to portray agriculture in a more ecological context as its social science as Howard's adoption of techniques from farmers in India defied many of the class perceptions of his time. While Howard details a prescription to improve agriculture largely by enhancing soil properties, *Soil and Civilization* by Edward Hyams (1952 Thames and Hudson, 312 pp.) is an account of the largely disastrous history of human interaction with soils. Hyams suggests that the first step toward civilization is soil exploitation, a sentiment perhaps best captured by the title of Part 2 of the book 'Man as a Parasite on Soil'. His accounts of soil degradation in Europe, Asia, and the New World are interspersed with suggestions for alleviation and soil renewal through a more 'scientific' agriculture. Lastly, *Soil and Culture* edited by Edward R. Landa and Christian Feller (2010 Springer, 488 pp.) includes contributions on visual arts, literature and philosophy, indigenous and ancient cultures, and human health. The editors express their goal to produce an expansive cultural history of soil that spans time and subject to explore 'the perception of soil in ancient, traditional, and modern societies'. One key feature of *Soil and Culture* that separates it from all the most soils books is that the majority of the contributors are not soil scientists. Landa and Feller intentionally included perspectives from individuals outside the formal training and practice of soil science but yet intimate with and appreciative of soil through their own perspectives.


Upon reflection, I think *Soil and Civilization* is of interest for the ways Hyams details the past with our tendency to abuse soils and why it's important to accept and learn from this history. In contrast, *The Soil and Health* focuses on the future, how we may change our practices for the betterment of soil, agriculture, and society. Even though most of Howard's recommendations are still unrealized some 65 years later, it remains attractive for the sense of what soil management could be. And lastly, *Soil and Culture* is a celebration of many facets of soils, their perceptions by non-scientists, and the incorporation of these perceptions into the written and visual arts. Taken together, these three books encompass my acknowledgement of how historical relationships between humans and soils have shaped our current interpretations, how truly bold changes in our treatment of soils are possible, and how there is so much more to soils than typically addressed in our scientific pursuits.

Favourite soil science books of Yakov Pachepsky

Kovda, V. A. (1946-1947). The origin and regimes of saline soils. Volumes 1 and 2. USSR Academy of Sciences. 950 pp. (in Rus.) Reportedly available from the U.S. Dept. of Commerce, National Technical Information Service, Springfield, Va. As 'V. A. Kovda. Origin of saline Soils and Their Regime. Israel Program for Scientific Translations; Bolt, G.H. (Ed.). (1979). Soil Chemistry: B. Physico-Chemical Models. Developments in Soil Science. Volume 5, Part B, Pages iii-vii, xiii-xxii, 1-527 Hillel, D. (1980). Fundamentals of soil physics. Academic Press. 385 pp.

Here are my top ten reasons for the selection

1. They present a holistic yet comprehensive view of a substantial subdiscipline of soil science. Each of those books summarizes a concerted effort of a remarkable group of soil scientists.
2. They provide a captivating content for interested readers with different levels of proficiency in soil science, including newcomers.

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3. They appropriately refer to or directly address applied aspects of the subdiscipline.
 4. They present and emphasize bridges between soil science subdisciplines.
 5. They cover substantial aspects of transport in soils; I have not seen a book of the same caliber specifically on transport in soils yet.
 6. They are extremely well structured.
 7. They provide excellent examples of essay type – scientific storytelling - presentations on soil science.
 8. They are written with an extraordinary, I would say phenomenal, clarity. The selection of illustrative material is excellent.
 9. They are by no means outdated; they have content directly relevant to modern soil science challenges.
 10. I anticipate a pleasant feeling when I need to open one of those books.

Awards and Prizes

IUSS Dokuchaev Award for Alex McBratney



Alex McBratney, professor of soil science at the University of Sydney, Australia, will receive the Dokuchaev Award of the IUSS at the World Congress of Soil Science in Jeju, South Korea, in June 2014.

This is the third presentation of the Dokuchaev Award, established in 2006. The award is made for major research accomplishments, resulting from basic researches in any field of soil science. Each award includes an engraved medal, a certificate, a US\$ 1000 honorarium, and financial support to attend the presentation at the World Congress of Soil Science.

Alex McBratney is known for the development and application of statistical, geostatistical, and mathematical procedures, now known by the broad term pedometrics, which he introduced in the 1990s. In 2003, he suggested a new approach

to soil mapping, what we now know as Digital Soil Mapping. The principal innovation was an explicit, quantitative model that recognized the key environmental determinants of soil diversity, and which could be implemented as a soil predictive tool across the landscape. Through his development of new mathematical and modeling techniques, Alex has increased our understanding of many key soil properties and processes. He has taken this knowledge and applied it to the management of contemporary soil problems and the prediction of soil response to future environmental changes such as land use changes and climate changes. He has edited eight books and has published 226 refereed technical papers. His academic background includes a Bachelor of Science and two doctoral degrees in soil science from the University of Aberdeen.

Awards and Prizes

IUSS von Liebig Award for Magdi Selim



Magdi Selim is the recognized international authority on chemical sorption and transport in soils. He studies reactive chemicals and water flow in unsaturated and saturated soils and the chemical and physical processes governing the interactions and transport of solutes in the root zone. He is the original developer of the two-site model, where two distinct types of retention sites on soil matrix surfaces are assumed to govern the reactivity of chemicals during transport in soils, and subsequent multi-reaction kinetic models. The models have been used successfully for the description of heavy metals, radio-nuclides, explosive contaminants, phosphorus, and pesticides in soils and subsurface media. He has written two books and authored or co-authored over 250 publications. His academic background includes a Bachelor of Science degree in soil science from Alexandria University and master's and doctoral degrees in soil physics from Iowa State University.

Magdi Selim, professor of soil physics at Louisiana State University, Baton Rouge, USA, will receive the Liebig Award of the IUSS at the World Congress of Soil Science in Jeju, South Korea, in June 2014.

This is the third presentation of the Liebig Award, established in 2006. The award recognizes outstanding contributions in applied soil science research, contributing to new discoveries, techniques, inventions or materials that increase food security, improve environmental quality or conservation, land and water development, and other areas covered by the divisional structure of IUSS. Each award includes an engraved medal, a certificate, a US\$ 1000 honorarium, and financial support to attend the presentation at the World Congress of Soil Science.

Awards and Prizes

Special honor for Dick Arnold

In late January 2013, the presidium of the Russian Academy of Science selected two scientists to receive the 2012 Lomonosov Gold Medal Award for outstanding contributions in the field of Soil Science. The Russian soil scientist is Acad. Gleb. V. Dobrovolsky and the foreign scientist is Prof. Richard W. Arnold. The award will be presented at the Academy meeting in Moscow in late May. This award is the highest honor of the Russian Academy of Science and it is the first time soil scientists have received the award. Dr. Arnold is recognized 'for contributions to theoretical and applied soil science and development of models of soil behavior in various landscapes of the world'.

Dr. Arnold has degrees from Iowa State University and Cornell University and taught at the University of Guelph, Ontario and Cornell University, New York before becoming the Director of the Soil Survey with the Natural Resources Conservation Service, USDA in Washington, DC. He was active



in the US Soil Science and Agronomy Societies, the International Union of Soil Science, served on the International Board for Soil Research and Management (Bangkok), is an honorary member of several international soil societies, and a Distinguished Scientist of the Iowa Academy of Science. He retired from USDA in 2000, was a Fulbright Scholar in Russia in 2001, and continues to be interested in national and international activities in Pedology. He and his wife, Helen, now reside in West Lafayette, IN.



Reports of meetings

IUSS Global Soil C Conference

2-6 June 2013, Madison USA



Prof. Jae Yang in his opening address

In the past two decades an increasing number of soil studies have focused on soil carbon (C). Most of these studies were related to stock assessment, monitoring, microbial dynamics, loss of C, tillage effects, soil management, economics, or policy issues. The driving force for much of soil C research is related to climate change or the maintenance of soil quality and fertility. Few topics cut across the whole soil science discipline wider than research on soil C.

In 2009, The International Union of Soil Sciences (IUSS) recognised the need for a conference that



IUSS von Liebig Award laureates Prof. Rattan Lal and Prof. Don Sparks

focused on a single topic that is of interest to all IUSS Divisions, Commissions and Working Groups. It was decided that the conference topic should be soil C and that the conference should have an inter-divisional and inter-commissional approach. The *IUSS Global Soil C Conference* was held in June 2013 in Madison, USA, and consisted of three days of presentations and discussions, followed by a one-day fieldtrip. There were 140 participants from 35 countries. The book 'Soil Carbon' that has a selection of papers presented at the conference will be published by Springer in 2014.

First GlobalSoilMap Conference

7-9 October 2013, Orléans, France

The 1st GlobalSoilMap Conference was held 7-9 October 2013 in Orléans, France. The contributions demonstrated the latest developments in the GlobalSoilMap project and digital soil mapping for which the ultimate aim is to produce a high



resolution spatial soil information system of selected soil properties and their uncertainties for the entire globe. The conference involved 128 scientists from 26 countries. Most encouraging was the emergence of a large group of scientists from all continents who are using legacy soil information and current soil information systems to build GlobalSoilMap products using a large variety of digital soil mapping techniques to meet the GlobalSoilMap standards and specifications.

Papers covered a wide range of topics: background and specifications of GlobalSoilMap, end-users' needs, state of progress in various parts of the world, case studies, methodological issues, use of co-variates, uncertainty estimation, data dissemination and cyber-infrastructure. Keynote papers provided a general framework for methodological issues and uncertainties estimation.

The 11th International Conference of The East and Southeast Asia Federation of Soil Science Societies

21-24 October 2013, IPB ICC-Botani Square, Bogor, Indonesia

The 11th International Conference of the East and Southeast Asia Federation of Soil Science Societies (ESAFS) was held from 21-24 October 2013 at the IPB ICC-Botani Square, Bogor, Indonesia. The conference was biannual meeting of soil scientist mainly in East and Southeast Asia Region. After the opening ceremony hosted by Organizing Committee and Bogor Agricultural University, welcome speech were given by Dr. Mustafa Imir, FAO representative, Prof. Kye Hon Kim as Vice President of IUSS and Dr. Muhrizal Sarwani, Indonesian Agency for Research and Agriculture, Ministry of Agriculture. The plenary lecture was given by Prof. Toshiyuki Wakatsuki, Prof. Muhajir Utomo, Prof. Alex Mc.



Bratney, Dr. Yuji Niino, Prof. Rainer Horn, Dr. Bijay Singh, Prof. Supiandi Sabiham.

Some 350 soil scientists from 16 countries participated in the Congress with the theme 'Land for Sustaining Food and Energy Security'. Report from 11 ESAFS member country and development of soil science each country were presented by the President of each soil science societies. The member country was included: Japan, South Korea, Taiwan, Indonesia, Malaysia, Philippine, Thailand, Vietnam, Sri Lanka, Bangladesh and India. The exhibition and poster presentation also available at the conference. Welcome dinner was held in Cimory Restaurant at Puncak, Bogor.



After the conference, two scientific field tour were held, one to West Java; a one day excursion to visit Bogor Botanical Garden, examine soil profiles of Andosols in Segunung at Horticulture Research Centre, IAARD, enjoy traditional music performance in Saung Ujo, Bandung. The second day, visit Kawah Putih (white crater) is a striking crater lake and tourist spot in a volcanic crater about 50 km south of Bandung, West Java Province. The other field tour was held in a peatland, Riau Province, facilitated by main sponsor of the program, PT. RAPP.

During the conference and after the conference, there is still several joint meeting at the venue. The participant of joint meeting was also participated



in the ESAFS11. The joint meeting which held during ESAFS11 were the 5th group meeting of GRA Paddy Rice Research Group (PRRG) of Global Research Alliance (GRA), Global Soil Partnership and Asian Soil Partnership, and Oceania Node Meeting.

Nutrient management, innovative techniques and nutrient legislation in intensive horticulture for an improved water quality

16-18 September, Ghent Belgium

From September 16 to 18, 150 scientists, policy makers and other experts from 17 countries discussed during 'NUTRIHORT: Nutrient management innovative techniques and nutrient legislation in intense horticulture for an improved water quality' in Ghent the conflict between crop quality demands in vegetable and ornamental plant production and legislative requirements to protect water quality.

The range of contributions was impressive. Besides research results as such, some presenters focused on how to combine research and extension for fine-tuning new techniques and stimulating a faster and



higher implementation of new techniques. One of the key messages is that convincing the farmer to change habits is a bottleneck.

The conference reflected the state of the art in sustainable and innovative techniques in intensive horticulture. Similar techniques have been assembled in a benchmark study. The combination of both the conference and the benchmark study gives an answer to the question of which innovative techniques are already applied and which techniques need further research. The selected techniques are related to innovative fertilisation, crop residues management, crop rotation, organic matter management and soil quality practices in horticulture.

Most techniques focused on reducing nitrogen losses. Currently less focus is on reducing phosphorus losses from greenhouse or open air horticulture, and maintaining or increasing organic carbon levels in horticultural soil.

The benchmark study and the conference allow for defining the most important future research needs:

- Research should focus on a combined assessment of crop nitrogen demand, based on soil sampling, crop determinations and models.
- The use of local varieties and/or varieties with a higher nutrient use efficiency requires additional attention.
- Removal of crop residues is a valuable option for significant reduction of nitrate leaching. Here, a link with the bio-economy seems to be promising.
- A good use of catch crops, soil improvers and organic fertilisers, can reduce nutrient losses in combination with improved organic carbon levels in arable soils.
- There is room for improving the use of water treatment techniques for processing drain water surplus.

In the second part of the benchmark study the nutrient legislation in some countries and regions was compared, with focus on horticultural crops. It was a difficult task because the legislations are rather complicated. Some general conclusions can be drawn:

- The area of Nitrate Vulnerable zones, prohibition periods of nutrient applications and monitoring programmes are quite different between countries.
- Maximum allowed nitrogen application rates are difficult to compare as these are expressed as efficient nitrogen in some countries and as total nitrogen in others.

- Phosphorus fertilisation limits are only introduced in a limited number of countries, although many regions cope with phosphorus concentrations in surface waters which are too high to prevent eutrophication.

This study and this conference have answered some questions, but still more research is needed. Some of the future research and extension needs can be organised within European collaboration, as issues are relevant for several of the visited regions. In this matter, opportunities may also be provided by a 'European Innovation Partnership' (EIP). Common actions should be proposed to reduce the nitrogen and phosphorus losses in an equitable way and reduce the often large differences between legislation and its implementation in practice throughout Europe.

Soils in Space and Time Congress of IUSS, Division I, Ulm/Danau

30 September - 5 October 2013

All who were present will keep the informative and pleasant days, full of highlights, of the conference in Ulm in good memory.

The whole conference has had an enjoyable high scientific level and took place in the Ulm University from 30.09.2013-05.10.2013. Therefore special thanks are going to our colleagues from Ulm Professor Kazda, Doctor Werth and Ms. Schäfer as well as to the vice chancellor and the administration of the University. The technical equipment in the lecture halls, the poster sessions as well as the administration and catering area had been exemplary and highly esteemed by the 300 participants.

A conference of this size of course needs sponsoring. Therefore we want to thank all who made this event due to their funding possible: DFG (German

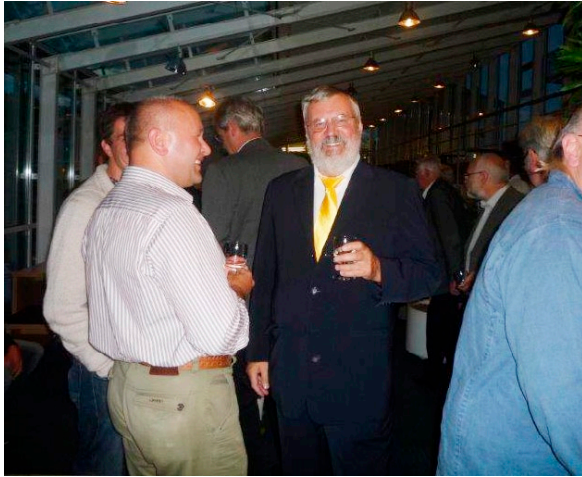
research foundation), Fiat panis Foundation Ulm, Farny Foundation, Universitätsbund Hohenheim, Brewery Gold Ochsen, IUSS and DBG (German soil science society).

According to the conference slogan 5 scientific excursions with circa 140 participants had been realized. They were based on scientific studies of student practical courses and doctoral studies. Most of the shown objects had never been part of a German or international conference before. Highlights of the excursion program had been soils of tertiary rocks in the 'Hochsträß' and 'Nördlinger Ries' as well as soils with early and late Tertiary relicts. The Holy Mountain of Upper Swabia had been climbed, and the 'Hohle Stein' (karst cave) with its prehistoric finds, the 'Schabenstein' 'Suevit' and the big Swabian-Bavarian moorland of the Danube visited. During the field trips regional food and local beers had been tested.

The level of the conference is also documented by the attendance of prominent soil scientists with headship in the International Union of Soil Science (IUSS) like Professor Yae Yang – President of the IUSS, Professor Alex McBratney – Deputy Secretary General of the IUSS and Professor Rainer Horn- President elect of the IUSS. 5 of the 6 commission officers Division I and the commission officer mineralogy (<http://www.iuss.org/>) joined the conference. The working group 'World Reference Base of Soil Resources' has had a 2-days workshop parallel to the conference. A consortium of scientist, interested in Mediterranean soils (AEOMED), met with oral and poster presentations linked to the conference. The plenary lectures, organized in the morning, were excellent and well-attended.

The social events, like a welcome-evening, a get-together-party in the Ulmer Ratskeller or an opulent congress dinner in the Edwin-Scharff-





Haus with a nice view of the historic city of Ulm will also stay in mind. At the conference dinner Otmar Nestroy, as champion of sensitive humor, had a nice contribution of „Soil Science and Soil Scientist’. And of course, beside all the other interesting items of the program, all who had time left could visit the sights of Ulm like Ulm minster, museum of bread culture or the old fishermen’s quarter on the River Blau.

It was great to be in Ulm.

Lisa Zwanzig and Karl Stahr



New Publications

Soil Hydrology, Land Use and Agriculture: Measurement and Modelling. M K Shukla (Ed.). CABI. ISBN: 9781845937973. Hardcover, 448 pages. Price \$180.00. Agriculture is strongly affected by changes in soil hydrology as well as by changes in land use and management practices and the complex interactions between them. This book aims to expand our knowledge and understanding of these interactions on a watershed scale, using soil hydrology models, and to address the consequences of land use and management changes on agriculture from a research perspective. Case studies illustrate the impact of land use and management practices on various soil hydrological parameters under different climates and ecosystems.


Laboratory Guide for Conducting Soil Tests and Plant Analysis. By J. Benton Jones, Jr. Taylor and Francis. ISBN: 978-0-8493-0206-0. Paperback, 384 pages. Price \$107.95. With the help of this guide, you can use obtained test results to evaluate the fertility status of soils and the nutrient element status of plants for crop production purposes. It serves as an instructional manual on the techniques used to perform chemical and physical characteristic tests on soils. Laboratory Guide for Conducting Soil Tests and Plant Analysis describes the basis and procedures for each test in detail, including analytical instrumentation procedures and laboratory quality assurance requirements.

Soils of the World. Original German edition published by Spektrum Akademischer Verlag GmbH Heidelberg. Zech, Wolfgang, Hintermaier-Erhard, Gert. 2012, 2012. Springer. ISBN: 978-3-540-30460-9. Hardcover, 180 pages. Price \$99.00. This book describes and comprehensively illustrates all earth soils in accordance with the prevailing worldwide WRB classification. However, it goes far beyond description and definition, by presenting the soils in the context of the natural habitats in which they occur. The book is structured in line with ecological zones. Initially their location, the climate and the vegetation as well as the factors influencing the constitution of the soil are briefly presented. All soils representative of the corresponding ecological zone are then defined and described in detail: definition, diagnostic features, physical,

chemical and biological characteristics, occurrence and distribution, use and endangering, processes influencing soil formation, distribution maps, diagrams showing profile characteristics and soil formation processes, photographs of soil profiles, photographs of soil-scapes and soil catenas. All these factors contribute to producing an impression of their characteristics as well as their natural surroundings. The very instructive photographs and graphs combine to make the publication an excellent reference book about the earth's soils and their distribution.

Toxicity of Heavy Metals to Legumes and Bioremediation. Zaidi, Almas; Wani, Parvaze Ahmad; Khan, Mohammad Saghir (Eds.). 2012, 2012, XII. Springer. ISBN: 978-3-7091-0729-4. Hardcover, 248 pages. Price \$189.00. This title discusses various effects of heavy metal exposure to legumes as well as the bioremediation potential of rhizosphere microbes. Availability of heavy metals, their uptake and the effects of metals on germination and various physiological functions of plants including legumes are presented. Furthermore, the effects of heavy metals to nitrogen fixing microorganisms and how microsymbionts can overcome metal stress is presented in detail. The influence of glutathione on the tolerance of *Rhizobium leguminosarum* to cadmium is discussed. The role of nitrogen fixers in decontamination of heavy metal toxicity, mycoremediation of metal contaminated soils, microbially mediated transformation of heavy metals and action of plant growth promoting rhizobacteria and nitrogen fixers together in detoxifying heavy metals are broadly explained. This volume is a useful tool for scientists, policy makers and progressive legume growers intending to develop safe and healthy legumes for future generations.

The Soils of Mexico. World Soils Book Series. By Krasilnikov, P., Gutiérrez-Castorena, M.d.C., Ahrens, R.J., Cruz-Gaistardo, C.O., Sedov, S. & Solleiro-Rebolledo, E. 2013, XI. Springer. ISBN: 978-94-007-5660-1. Hardcover, 181 pages. Price \$129.00. eBook. Price \$99.00. Mexico is an extensive country with an extremely complex mosaic of landscapes. The soils of Mexico have still not been completely



studied, and there are few publications available on this subject. This book provides a state-of-the-art view on Mexican soils, their geographical distribution, their use and degradation. This is a first attempt to give a systematized characteristic of the soil resources of Mexico. Land resources of the second-biggest economy in Latin America are critical for its sustainable development, and a demand for adequate soil information is high. The information contained within can be used for any soil-related research done in Mexico and in neighboring countries. The book includes detailed characteristics of soils of all the physiographic regions of Mexico with maps, photos and explanatory schemes. The book is based on the experiences of the authors in research and soil survey, as well as on the existent, mainly 'grey' literature on Mexican soils. The book is recommended for researchers and university readers, students of all levels and decision-makers, working in the area of soil science, environmental issues, earth sciences, land management and nature conservation.

Shifting Cultivation and Secondary Succession in the Tropics. By A. Aweto, Professor, Department of Geography, University of Ibadan, Nigeria. November 12. CABI. ISBN: 9781780640433. Hardcover, 208 pages. Price \$145.00 / £75.00 / €100.00. Shifting cultivation or rotational bush fallowing is the predominant system of arable farming in the humid and sub-humid tropics where several hundred million people depend on this system of agriculture for their livelihood. *Shifting Cultivation and Secondary Succession in the Tropics* documents and systematizes findings in shifting cultivation over the last six decades and also characterizes secondary succession and related changes that fallow vegetation undergoes to the process of soil fertility restoration under bush fallow. It includes unique features such as graphical illustration of the organic matter equilibrium concept; correlation and multiple regression analysis; core-periphery analogy, encapsulated in the spatio-temporal model and the graphical unified model of succession and soil fertility restoration, therefore providing essential reading for researchers and students within tropical agriculture and related fields such as forestry, geography, environmental science and tropical development.

Ecology and Management of Forest Soils, 4th Edition. By Dan Binkley & Richard Fisher. January 2013. Wiley-Blackwell. ISBN: 978-0-470-97947-1.

Hardcover, 362 pages. Price \$149.95. Forest soils are the foundation of the entire forest ecosystem and complex, long-term interactions between trees, soil animals, and the microbial community shape soils in ways that are very distinct from agricultural soils. The composition, structure, and processes in forest soils at any given time reflect current conditions, as well as the legacies of decades (and even millennia) of interactions that shape each forest soil. Reciprocal interactions are fundamental; vegetation alters soil physical properties, which influence soil biology and chemistry, which in turn influence the growth and success of plants. These dynamic systems may be strongly influenced by intentional and unintentional management, ranging from fire to fertilization. Sustaining the long-term fertility of forest soils depends on insights about a diverse array of soil features and changes over space and time. Since the third edition of this successful book many new interests in forest soils and their management have arisen, including the role of forest soils in sequestering carbon, and how management influences rates of carbon accumulation. This edition also expands the consideration of how soils are sampled and characterized, and how tree species differ in their influence on soil development. Clearly structured throughout, the book opens with the origins of forest soil science and ends with the application of soil science principles to land management. The coherent overview of the major issues surrounding the ecology and management of forest soils will be particularly useful to students taking courses in soil science, forestry, agronomy, ecology, natural resource management, environmental management and conservation, as well as professionals in forestry dealing with the productivity of forests and functioning of watersheds.

Biochar and Soil Biota. Natalia Ladygina & Francois Rineau (Eds.). To Be Published March 4th 2013. CRC Press. Taylor & Francis. ISBN: 978-1-46-657648-3. Hardcover, 278 pages. Price \$79.95. This book focuses on how the ecology and biology of soil organisms is affected by the addition of biochar to soils. It covers direct and indirect effects of biochar addition to soils, on the soil carbon cycle, impact on plant resistance to foliar and soilborne disease, interactions with pathogenic, mycorrhizal and saprophytic fungi. The book focuses on application of biochar to remediate polluted soils, taking into account possible toxic effects of biochar on soil fauna. One of the chapters provides extended

information on the role of biochar in soil using isotopic tracing techniques.

The Soils of Chile. Series: World Soils Book Series. By Casanova, M., Salazar, O., Seguel, O. & Luzio, W. 2013, X. Springer. ISBN: 978-94-007-5949-7. Hardcover, 185 pages. Price \$129.00. eBook. Price \$ 99.00. This book is intended for students and soil scientists who want to know about the state of the art in soil sciences in Chile. The book merges a comprehensive bibliographical review of the soil surveys carried out throughout the length and breadth of Chilean territory during the past 40 years and more recent information obtained by the authors in a number of field studies. As its starting point the book presents a general overview of important features related to Chilean soils, such as geology and geomorphology, climate, land use and vegetation. In this long and narrow country different soil formation factors and processes have resulted in a broad variety of soil bodies, from the extremely arid Atacama desert to the Patagonian and Antarctic zones. This book provides a description and classification (mainly Soil Taxonomy) of the most important soil types. Particularly important are soils derived from volcanic materials, which cover extensive areas of Chile. The book also deals with soil management topics in relation to the chemical, physical and biological properties of Chilean soils and it includes a number of examples from throughout the country. Finally, the book shows how man has induced severe soil degradation problems in Chile, such as erosive soil degradation, non-erosive soil degradation and land desertification.

The Science of Clays: Applications in Industry, Engineering, and Environment. By Mukherjee, Swapna. 2013. Jointly published by Capital Publishing Company and Springer. ISBN: 978-94-007-6682-2. Hardcover, 480 pages. Price \$179.00. This book is an attempt to provide a comprehensive and coherent description of three widely separated aspects of clays: the science of clays; the industrial uses of clays; and the role of clays in the environment. Most of the existing literature lacks such an integrated study and this work endeavours to fill that gap. An exhaustive account of the science of clays is presented in Part I of the book, which includes the classification, origin and evolution, composition and internal structure, chemical and physical properties of clays; soil mechanics; and analytical techniques

for determining clay constituents. Part II provides a comprehensive description of the applications of clays and their derivatives in various industries, while Part III describes the role of clays in the environment; the pollution caused by clay minerals; and the application of clays in order to prevent environmental hazards. A principal feature of the book is its explanation of how the structure and composition of particular clay types facilitate their specific industrial or environmental applications, thus describing the interrelationship between three widely varying aspects of clay. A number of thought-provoking questions are raised at the end of the work in order to leave readers with a better insight in this regard.

Fungi as Bioremediators. Soil Biology, Vol. 32. Goltapeh, Ebrahim Mohammadi; Danesh, Younes Rezaee & Varma, Ajit (Eds.). 2013. Springer. ISBN: 978-3-642-33811-3. eBook, immediately available per PDF-download (no DRM, watermarked). Price \$149.00 Hardcover, 489 pages. \$189.00. Biological remediation methods have been successfully used to treat polluted soils. While bacteria have produced good results in bioremediation for quite some time now, the use of fungi to decontaminate soils has only recently been established. This volume of Soil Biology discusses the potentials of filamentous fungi in bioremediation. Fungi suitable for degradation, as well as genetically modified organisms, their biochemistry, enzymology, and practical applications are described. Chapters include topics such as pesticide removal, fungal wood decay processes, remediation of soils contaminated with heavy and radioactive metals, of paper and cardboard industrial wastes, and of petroleum pollutants.

Precision Farming: Soil Fertility and Productivity Aspects. By K. R. Krishna. 2013. Taylor & Francis. ISBN: 978-1-926895-44-4. Hardcover, 188 pages. Price \$99.95. Precision farming involves soil fertility and crop growth monitoring, electronic equipment, remote sensing, global information and positioning systems, computer models, decision support systems, variable-rate technology, and accurate recordkeeping. This book on precision techniques provides valuable information on instrumentation and methodology. It discusses the impact of precision techniques on soil fertility, nutrient dynamics, and crop productivity and highlights the application of GPS techniques to regulate fertilizer supply based on soil nutrient distribution and yield

goals set by farmers. The book considers advances and examples from different agroecosystems from all continents.

Soil-Water-Root Processes: Advances in Tomography and Imaging. By Stephen H. Anderson and Jan W. Hopmans, editors. Soil Science Society of America. Hardcover. 304 pp., 2013. SSSA Special Publication 61. ISBN: 978-0-89118-958-9 (print). Also available at <https://dl.sciencesocieties.org/publications/books>. Rapid advances in tomography and imaging techniques and their successful application in soil and plant science are changing our sciences today. Many more articles using imaging and tomography are being published currently compared to 20 years ago. Soil-Water-Root Processes: Advances in Tomography and Imaging is a unique assemblage of contributions exploring applications of imaging and tomography systems in soil science—it provides an updated collection of X-ray computed tomography, synchrotron microtomography, neutron imaging, magnetic resonance imaging, geophysical imaging tools, and other tomography techniques for evaluating soils and roots. Exciting new procedures and applications have emerged, with the promise to propel forward our understanding of soil-plant properties and processes.

The Soils of Croatia. World Soils Book Series. By Bašić, Ferdo. 2013, XII. Springer. ISBN: 978-94-007-5814-8. Hardcover, 240 pages. Price \$129.00. The Soils of Croatia is a six-chapter book detailing all aspects of Croatian soils. The book presents, in a reader friendly way, the lively history of pedology in Croatia. It explains soils as natural resources for this country and offers a detailed view on the different agricultural regions referenced in Croatia. The Soils of Croatia also contains useful information regarding the different factors of soil genesis in the different regions as well as on soil taxonomy and it gives a very detailed classification of different Croatian Soils. Overall, this book contains everything that pedologists, students and anyone else interested in Croatian soils should know about.

Organic Compounds in Soils, Sediments & Sludges: Analysis and Determination. By T Roy Crompton. November 29th 2012. CRC Press. Taylor & Francis. ISBN: 978-0-415-64427-3. Price \$159.95. The increasing awareness of the effects of pollutants in the eco-system and on the development of suitable

methods of analysis has stimulated a lot of research recently. This volume comprehensively discusses the range of methods available for the analysis and determination of organic compounds in soils, river and marine sediments and industrial sludges. A review is provided of the instrumentation used in soil and sediment laboratories and an indication of the types of organics that can be determined by each technique. Subsequent chapters discuss the analysis of various types of organics in a logical and systematic manner. Guidance is provided on the applicability of techniques in certain environments, the advantages and disadvantages of using one method over another, likely interference, the sensitivity of particular techniques, and detection limits. The work will be of interest to agricultural chemists, agriculturists concerned with ways in which organic chemicals used in crop or soil treatment permeate the ecosystem and to biologists and scientists involved in fish, plant and insect life. Toxicologists, public health workers, oceanographers, and environmentalists will also find the book beneficial.

Quantifying and Modeling Soil Structure Dynamics. By Sally Logsdon, Markus Berli, and Rainer Horn, Editors. Soil Science Society of America. Hardcover. 208 pp., 2013. Advances in Agricultural Systems Modeling 3. ISBN: 978-0-89118-956-5 (print). Also available at <https://dl.sciencesocieties.org/publications/books>. Quantifying and Modeling Soil Structure Dynamics emphasizes a systems approach to how soil structure changes in response to inputs and to the environment. Soil structure is a dynamic, complex system affected by tillage, wheel traffic, roots, soil life, shrink-swell, and freeze-thaw. In turn, soil structure affects root growth and function, soil fauna, solute transport, water infiltration, gas exchange, thermal and electrical conductivities, traffic bearing capacity, and more. Ignoring soil structure or viewing it as 'static' can lead to poor predictions and management. Readers will especially appreciate the description of soil structure influence on endpoints, such as environmental contamination and efficient water use, and how models should be adjusted to include dynamic soil structure components for accurate outputs.

Enhancing Understanding and Quantification of Soil-Root Growth Interactions. By Dennis Timlin and Laj R. Ahuja, editors. ASA, CSSA, and SSSA. Hardcover. 324 pp., 2013; Advances in

Agricultural Systems Modeling 4. ISBN: 978-0-89118-338-9 (print). Also available at <https://dl.sciencesocieties.org/publications/books>. Researchers must come together and leverage our understanding of the rhizosphere to maximize efficient, sustainable use of limited water and soil nutrient resources. Enhancing Understanding and Quantification of Soil–Root Growth Interactions takes on this challenge to solve society’s growing problems in the conservation of quality water and soil resources—from addressing the critical needs in nations who cannot afford costly fertilizers, to the global challenge of enhancing soil carbon storage to reduce climate change effects of elevated carbon dioxide. This book brings together scientists from different disciplines, worldwide, together to encourage synthesis of transdisciplinary

Salinity and Drainage in San Joaquin Valley, California. Science, Technology, and Policy. Series: Global Issues in Water Policy, Vol. 5. Chang, Andrew C.; Brawer Silva, Deborah (Eds.). 2013, Springer. ISBN 978-94-007-6850-5. Hardcover, 394 pages. Price \$229.00. This book documents the history of irrigated agriculture and drainage in the San Joaquin Valley, and describes the hydrology and biogeochemical processes of salts and selenium, remediation technologies for salts and trace elements and policy and management options. The contents are comprised of fourteen chapter-length independent treatises, each depicting with fresh perspective a distinctive salinity drainage topic. The opening chapters detail the evolution of irrigated agriculture, and depict the geochemical and hydrological processes that define the San Joaquin Valley, including the physics, chemistry, and biology attributes that impact water management policies and strategies. Next, the contributors address the biogeochemistry of selenium, the role of plants in absorbing it from soils, and the processes involved in retaining and concentrating dissolved salts in drainage water. Further chapters describe on-farm and plot-level irrigation provisions to reduce agricultural drainage outputs and examine their effects on plant performance. This volume offers realistic policy analysis of water management options for irrigated agriculture in the Valley and assesses their respective outcomes, if implemented. Also included is an international perspective on the sustainability of irrigated agriculture there.

The Soils of Bangladesh. World Soils Book Series. By Huq, S.M. Imamul, Shoaib, Jalal Uddin Md. 2013, Springer. ISBN 978-94-007-1127-3. Hardcover, 169 pages. Price \$129.00. This book presents a comprehensive overview of the soils of Bangladesh. It is compiled by authors with vast experience in soil related problems and potential mitigation approaches. It discusses the development of Soil Science as an individual discipline in a country with limited resources and where soil plays a pivotal role for the economy; the formation of different agro-climatic regions; and the effects of human-induced soil degradation and climatic change on its soils, geology and geomorphology and major soil types. It examines ‘problem soils’ and how they are managed, the scenario of soil fertility status, and land and crop management, as well as focusing on the future soils. Topics covered include: the history of soil research in Bangladesh; agro-climatic regions of Bangladesh; soil and climatic change, major soil types; soil maps; soil properties; soil classification; soil fertility; land use and vegetation; land use changes; human-induced soil degradation; soil contaminants; and future soil issues. This book will be a valuable resource for researchers and soil science professionals.

Soil Security for Ecosystem Management: Mediterranean Soil Ecosystems Springer Briefs in Environment, Security, Development and Peace, Vol. 8. Subseries: Mediterranean Studies. Kapur, Selim; Erşahin, Sabit (Eds.). 2013, Springer. ISBN 978-3-319-00698-7. Softcover, 143 pages. Price \$49.99. The term ‘Soil Security’ is used in the context of maintaining the quality and quantity of soil needed in order to ensure continuous supplies of food and fresh water for our society. Topics in this unique book on the management of soil sustainability in the Mediterranean region include: soil information, land degradation, land desertification, pedoenvironments, and the carbon cycle and sequestration. One main focus of the book is the description of new approaches that have been adapted with regards to interdisciplinary soil ecosystem management to combat and mitigate desertification. The contributing authors are renowned experts in their fields which cover the subjects on traditional as well as innovative land use and management.

Restoration and Development of the Degraded Loess Plateau, China. Ecological Research Monographs. Tsunekawa, A.; Liu, G.; Yamanaka, N.; Du, S. (Eds.). 2013, Springer. XVI. ISBN 978-4-431-54480-7. Hardcover, 344 pages. Price \$129.00. This book presents state-of-the-art scientific evidence and technological innovations to restore lands on the Loess Plateau of China, known worldwide for its serious land degradation and desertification problems. Supported by a rapidly developing Chinese economy and the dissemination of effective technology, the Grain-for-Green Project and Western Development Action launched by the Chinese government have resulted in successful ecological restoration and protection over the past 30 years. These programs have contributed not only to conservation of soil and water, but also to economic development. At the same time, however, these developmental interventions have brought new challenges that have not yet been fully addressed. The book describes (1) case studies of success and failure in practice, including rare success stories of combating desertification; (2) technical issues such as erosion control and breeding of stress-tolerant plant species, and socioeconomic measures taken by the Chinese government and lending policies with support from the World Bank; and (3) comprehensive measures against desertification, such as water and wind erosion, salinization, and deforestation. This volume is recommended for researchers and students above the undergraduate level in diverse fields including soil science, rural engineering, social technology and civil engineering, biology, ecology, climatology, physical and human geography, and developmental economics, among others. It also serves as a valuable resource for engineers, government officials, and NPOs and NGOs involved in afforestation, ecological restoration, combating desertification, disaster prevention, and sustainable rural development.

Georges Aubert and the soils (1913-2006). By Christian Feller. 2013, IRD (diffusion@ird.fr). ISBN 978-2-7099-1751-3. Softcover, 72 pages. Price €10.00. Georges Aubert, one of the most famous pedologist of the XXth century, is widely recognized as one of the best specialists of soil diversity. His research on the soils began before the World War II. Aged only 24 years, he proposed at the 1937 French Congress for Development of Colonial Territories to launch a vast project aimed at studying

of Mediterranean and tropical soils. The project encompassed educating numerous soil scientists both French and foreign, establishing soil research centers and laboratories in France and overseas, as well as developing investigation programs to understand the formation of the soils, their properties and diversity, and making inventories of them with a view to draw maps at different scales to allow for a rational agricultural utilization. This ambitious program was to be pursued all along Georges Aubert's career with ORSTOM (nowadays IRD, Institut de Recherche pour le Développement). In 1944, he created its Pedology section which he directed until his retirement in 1975. The present biography describes some aspects of Georges Aubert's private life, his scientific career and his contributions to the French and the world science of pedology. Testimonies are provided by several of those who happened to best know him.

Soil Degradation. Series: Advances in GeoEcology, Vol. 42. Julia Krümmelbein, Rainer Horn & Marcello Pagliai (Editors). CATENA VERLAG GMBH, 35447 Reiskirchen, Germany, 2013. ISBN 3-923381-59-3, US ISBN 1-59326-263-9. Hardcover, 352 pages. Price € 149.00. Soils are regularly exposed to different kinds of external loads, which can be described as static or dynamic and are always variable in loading time and magnitude. How far these external forces and soil management strategies coincide with the approach of sustainability of soils and their functions in a changing world with an intensely growing population is discussed controversially. Thus, various aspects of mainly mechanical soil degradation will be described in the book elucidating the various scale effects as well as the consequences also for soil erosion and its quantification. Scale dependent processes of soil formation and impacts resulting in soil degradation from micro- to macroscale and the interactions between soil particles and chemistry on soil strength, soil erosion and landscape aspects are described in order to also derive countermeasures. These countermeasures also include natural soil regeneration or amelioration approaches based on the quantified internal soil strength and the information about the actual mechanical sensitivity of the soil being threatened by soil compaction and deformation. Regional soil degradation studies from Spain, Chile, Brazil and Senegal document the necessary variations in regeneration approaches under various climatic and soil conditions.

Exercises in Soil Physics. GeoEcology textbook. Naftali Lazarovitch & Arthur W. Warrick (Editors). CATENA VERLAG GMBH, 35447 Reiskirchen, Germany, 2013. ISBN 978-3-923381-60-9 US ISBN 1-59326-264-7. Softcover, 352 pages, Appendix on CD. Price € 55.00. This book is designed to complement available soil physics and vadose zone hydrology texts by providing additional practice exercises. Material is included for beginning to graduate level students and may be studied either independently or in conjunction with formal classes. More than 200 problems are presented with detailed answers. (from Preface). Chapter 1: The Solid Phase, Aziz Amoozegar; Chapter 2: Soil Water Relations, Markus Tuller; Chapter 3: Saturated Water Flow, Paul A. Ferre; Chapter 4: Unsaturated Flow, Gary W. Parkin and David J. Fallow; Chapter 5: Field Water Processes, Alex Furman, Uri Shavit and Ravid Rozenzweig; Chapter 6: Chemical Fate and Transport, Francis Casey and Leilah Krounbi; Chapter 7: Heat and Energy Transport, Colin S. Campbell, Douglas R. Cobos and Gaylon S. Campbell; Chapter 8: Soil Gases and Transport, Scott B. Jones; Chapter 9: Soil Variability, Ole Wendroth; Appendix on CD.

Technogenic Soils of Poland. Edited by P. Charzynski, P. Hulisz and R. Bednarek. Polish Society of Soil Science, 2013. ISBN 978-83-934096-1-7 - Hardcover, 358 pages. This book presents the state of the art of knowledge about diverse technogenic soils in Poland. It includes many examples of soil studies conducted in urban, industrial, traffic, mining and military areas. The presented issues concern not only morphology and properties of technogenic soils, but also their genesis, functioning in the environment, classification and reclamation. The editors hope that this monograph will provide new information on technogenic soils and will contribute to improvement of classification of this group of soils. Book can be downloaded for free from here: <https://sites.google.com/site/charzynskiprzemyslaw/home/publications>


Technogenic Soils Atlas. Edited by P. Charzynski, M. Markiewicz and M. Switoniak. Polish Society of Soil Science, 2013. ISBN 978-83-934096-2-4 - Hardcover, 168 pages. This book provides an extensive database on urban, traffic, mining and industrial soils from the following countries: Hungary, Poland, Romania and Slovakia. The main objective of this study was to present a great diversity of transformations in the investigated soils. The collected data will allow

greater understanding of processes taking place in human-made ecosystems and will be a useful tool in soil-science teaching.

Minor Element Geochemistry at the Earth's Surface: Factors of distribution, transport, soil interactions and their environmental significance. Velde, Bruce D.; Bauer, Andreas (Eds.). 2013, Springer. ISBN 978-3-642-31358-5. Hardcover, 360 pages. Price \$179.00. Provides basic tools to understand relations between plants and soil. Provides basic methods to interpret x-ray diffraction spectra used to identify clay minerals. The book could serve as a basis for innovative research as well as for existing lectures for students. The importance of clay minerals for soil functioning is well recognized.

Precision in Crop Farming. Site Specific Concepts and Sensing Methods: Applications and Results. Heege, Hermann (Ed.). 2013 Springer. ISBN 978-94-007-6759-1. Hardcover, 346 pages. Price \$189.00. High yields and environmental control in crop farming call for precise adaptations to local growing conditions. Treating large fields in a uniform way by high capacity machinery cannot be regarded as a sustainable method for many situations. Because differences existing within single fields must be considered. The transition from former field work carried out manually or by small implements to present day high capacity machinery caused that the farmers lost the immediate and close contact with soils and crops. However, modern sensing and controlling technology can make up for this deficit. High tech methods that include proximal sensing and signals from satellites can provide for controls that allow adjusting farming operations to small fractions of one ha and sometimes even down to some m², hence in a site-specific mode. This applies to operations for soil cultivation, sowing, fertilizing and plant protection. This book deals with concepts, applications and results, and has an interdisciplinary approach that pervades all chapters.

Ecosystem Services and Carbon Sequestration in the Biosphere. Lal, R.; Lorenz, K.; Hüttl, R.F.; Schneider, B.U.; von Braun, J. (Eds.). 2013. Springer. ISBN 978-94-007-6454-5. Hardcover, 464 pages. Price \$209.00. This book describes comprehensively potential, co-benefits and drawbacks of carbon (C) sequestration for ecosystem services. Soil generates numerous ecosystem services for human wellbeing and ecological functions. The services



discussed include provisional (feed, food, timber, biofuel), regulating (carbon sequestration, pests, diseases), cultural, and supporting (soil formation, nutrient cycling) services. Recarbonization of the biosphere is a potential strategy to redistribute C among global pools, and to enhance ocean but most importantly land-based C sinks with possible feedback on soil-based ecosystem services. Land use and soil management can degrade soil quality, and either reduce quantity and quality of ecosystem services or lead to disservices and create large ecological footprint. Thus, trade-offs between carbon sequestration and ecosystem services must be considered when incentivizing land managers through payments for ecosystem services. Together with sustainable management of land-based C sinks for climate change adaptation and mitigation this will minimize the risks of recarbonization of the biosphere for ecological functions and human wellbeing.

respond wisely to what is changed, and be proactive to what may happen because of natural and anthropogenic perturbations. The chapters, which exemplify these ideas, cover a range of topics including organic farming, soil fertility, crop-symbiotic soil microbiota, human-driven soil degradation, soil degradation and restoration, carbon sink capacity of soils, soil renewal and sustainability, and the marginality principle.

Principles of Sustainable Soil Management in Agroecosystems. Rattan Lal, B.A. Stewart (Eds.). 2013. CRC Press. ISBN: 978-1-46-651346-4. Hardcover, 568 pages. Price \$139.95. With the use of high-level soil management technology, Africa could feed several billion people, yet food production has generally stagnated since the 1960s. No matter how powerful the seed technology, the seedling emerging from it can flourish only in a healthy soil. Accordingly, crop yields in Africa, South Asia, and the Caribbean could be doubled or tripled through adoption of technologies based on laws of sustainable soil management. Principles of Sustainable Soil Management in Agroecosystems describes the application of these laws to enhance ecosystem services while restoring degraded soils and promoting sustainable use. With chapters contributed by world-class soil scientists, ecologists, and social scientists, this book outlines critical changes in management of agricultural soils necessary to achieve food security and meet the food demands of the present and projected future population. These changes include conversion to no-till and conservation agriculture; adoption of strategies of integrated nutrient management, water harvesting, and use of drip sub-irrigation; complex cropping/farming systems such as cover cropping and agroforestry; and use of nano-enhanced fertilizers. The book is based on the premise that it is not possible to extract more from a soil than what is put into it without degrading its quality. The strategy is to replace what is removed,

IUSS Honorary members

Year	Member	Country	Year	Member	Country
1924	L. Cayeux †	France	1990	G. Aubert †	France
	K. Glinka †	USSR		E.G. Hallsworth †	Australia
	Jos. Kopecky †	Czechoslovakia		J.S. Kanwar	India
	E. Ramann †	Germany		P. Schachtschabel †	Germany
	Sir John Russell †	UK		R.W. Simonson †	USA
	S. Winogradski †	USSR		I. Szabolcs †	Hungary
1927	P. Treitz †	Hungary	1998	G.H. Bolt	Netherlands
1935	E.A. Mitscherlich †	Germany		R. Dudal	Belgium
	A. d'Sigmond †	Hungary		K.H. Hartge †	Germany
	J. Stoklasa †	Czechoslovakia		M. Kutilek	Czech Rep.
	G. Wiegner †	Switzerland		J. Quirk	Australia
1950	A. Demolon †	France	W.G. Sombroek †	Netherlands	
	D.J. Hissink †	Netherlands	K. Wada	Japan	
	W.P. Kelley †	USA	D.H. Yaalon	Israel	
1954	S. Mattson †	Sweden	S.V. Zonn †	Russia	
	E. Truog †	USA	2002	R.W. Arnold	USA
1956	G. Bertrand †	France		G.V. Dobrovolsky †	Russia
	E.C.J. Mohr †	Netherlands		W. Gardner †	USA
1960	F.A. Bear †	USA		H.M. Hamdi †	Egypt
1964	J.A. Prescott †	Australia		L.A.L. Sarmiento	Colombia
1968	F. Hardy †	UK	F. Mancini	Italy	
	W.L. Kubiena †	Germany	B.S. Nosko	Ukraine	
	L.A. Richards †	USA	R. Rosell	Argentina	
	A.A. Rode †	USSR	A. Ruellan †	France	
	1974	R. Bradfield †	USA	A. Tanaka	Japan
G.V. Jacks †		UK	P.B.H. Tinker	UK	
Ch.E. Kellogg †		USA	2006	W.E.H. Blum	Austria
M.K. Kononova †		USSR		H-P. Blume	Germany
A. Oudin †		France		J. Bouma	Netherlands
F. Scheffer †	Germany	S-J. Cho †		S Korea	
1978	G. Barbier †	France		J. Glinski	Poland
	V. Ignatieff †	Canada	M.G.H. Jamagne	France	
	Y. Ishizuka †	Japan	D.R. Nielsen	USA	
	L. Krolikowski †	Poland	J.H.V. van Baren †	Netherlands	
	L. Vettori †	Brazil	L.P. Wilding	USA	
1982	Ph. Duchaufour †	France	2010	C. Feller	France
	W. Flaig †	Germany		K. Kumazawa	Japan
	V. Kovda †	USSR		K. Kyuma	Japan
	E. Mueckenhausen †	Germany		J. Ryan	Syria
	E.W. Russell †	UK		B.A. Stewart	USA
1986	H. Jenny †	USA	V. Targulian	Russia	
	D. Kirkham †	USA	G. Varallyay	Hungary	
	S.K. Mukherjee †	India	J.S.P. Yadav †	India	
	R. Tavernier †	Belgium			

