



IUSS Bulletin 139



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Soil Sciences (IUSS)

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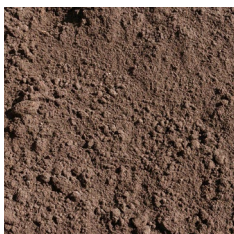
[International Decade of Soils \(2015-2024\)](#)

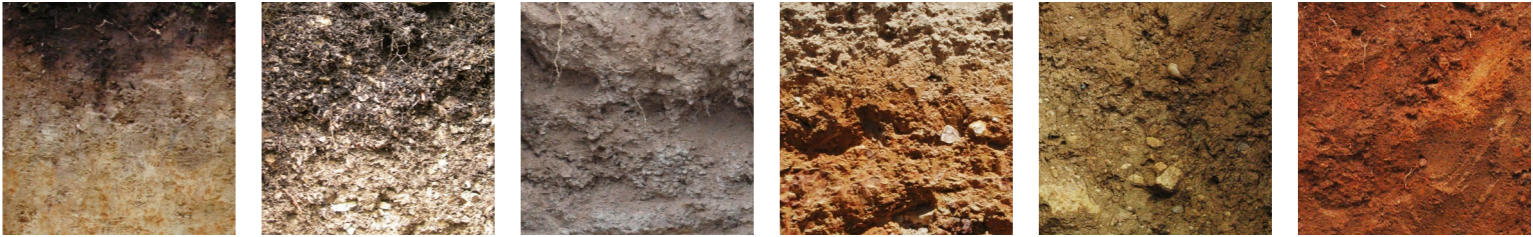
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IUSS Reports

IUSS Events

Minutes of IUSS Council Meetings during the IUSS Inter-Congress Meeting 2020 (online)

List of abbreviations:

AB – Andreas Baumgarten (Treasurer)	LBRS – Laura Bertha Reyes Sanchez (President Elect 2019-2020)
AH – Alfred Hartemink (US, Chair of Committee on statutes and structure)	LM – Luke Mosley (UK)
BL – Bruce Lascelles (Vice President Congress 2018-2022)	MB – Megan Balks (NZ)
BR – Bashiru Raji (NG)	MG – Martin Gerzabek (AT)
BRS – Bal Ram Singh (Chair of Division 3)	PANR – Pedro Antonio Núñez Ramos (DR)
CB – Colette Black (Speakeasy)	RH – Rainer Horn (Chair of Committee on Presidential elections)
CH – Chantal Hendriks (NL)	RL – Rattan Lal (Past President 2019-2020)
DF – Damien Field (Chair of Division 4)	RYH – Ryusuke Hatano (Chair of Division 2)
EACC – Edoardo A.C. Costantini (President Elect 2021-2022)	SD – Samira Daroub (US)
EM – Erika Micheli (Chair of Division 1)	SG – Sergey Goryachkin (RF)
JK – John Kim (Chair of Committee on budget and finance)	SH – Sigbert Huber (Secretary)
JVW – Joke Van Wensem (NL)	TK – Takashi Kosaki (President 2019-2020)
KS – Karl Stahr (Honorary Member)	TS – Tom Sauer (Chair of Committee on prizes and awards)
KV – Karen Vancampenhout (BE)	TT – Tibor Toth (HU)

18/11/2020

1. Introduction

- SH/BL/CB provided brief introductions and housekeeping.

**2. Minutes Council Meeting during
21st WCSS in Rio 2018**

- SH presented the minutes as shown in the Annotated Agenda.
- No comments/amendments raised and minutes approved.

**3. Minutes Executive Committee Meeting
during 21st WCSS in 2018**

- SH presented the minutes as shown in the Annotated Agenda.
- No comments/amendments raised and minutes approved.

4. Report Presidents

- The Presidents presented their report as shown in the Annotated Agenda.
- No comments were raised.

5. Report Secretariat and Treasurer

- SH and AB presented their report as shown in the Annotated Agenda.
- As an outcome of the prior EC meeting, SH presents the possibility for online voting for 24 hours for representatives who cannot participate in the meeting. An email has been sent out to representatives that have delegated the vote (“proxy vote”) – those who cannot be present can vote using a provided link.
- JVW requested more information on how decisions are made around expenditure and investment and if the membership agree with how the money is being spent. AB responded to state that the Divisions are already assigned \$7.5k each year and \$10k for the President each year. AB noted there was also the Stimulus fund. It was also noted that suggestions for spending money are always welcomed and all were encouraged to make proposals.
- SH also highlighted the need to have funds to cover issues should they arise in the future, such as problems around the World Congress etc. and to support special events such as the Centennial.

- KV asked a question around what is in the IUSS investment portfolio? AB responded to say the information is available, but investments are switched at times. AB stated there were no ethical issues at the moment but would check to confirm this. AB to get in touch with MSSB to see what is possible to ensure we do invest ethically.
- LM wanted to see some sort of strategic document formulated with a clear plan for activities to spend some money of the Stimulus Fund. Supporting early career scientists and developing countries should be important priorities in his opinion.
- Finally, it was raised that strategic spending of money and its impact are important.

6. Report Division 1 – Soils in Space and Time

- EM presented the report as shown in the Annotated Agenda.
- Question from KS – requesting correction with regard to Dan Yaalon Medal for young scientists, which is bestowed together with Commission 4.5 – no change with respect to grant process (chaired by KS).
- Comment from SD – expressed thanks to EM for the level of activity undertaken.
- Finally it was mentioned that Stimulus fund grants were complemented by the Division.

As requested by participants: EACC introduced himself as the new President Elect of IUSS and thanked for the wide support; his team was already working for the Centennial in 2024.

7. Report Division 2 – Soil properties and processes

- RYH presented the report as shown in the Annotated Agenda.
- No questions were raised.

8. Report Division 3 – Soil Use and Management

- BRS presented the report as shown in the Annotated Agenda.
- SH asked how was the exchange across the Divisions and Commissions in relation to planning for the World Congress? Would there be more interaction in the future? BRS: Work is done in this direction; additional money can be used for enhancement of cooperation within the Division and also with Division 1.
- SG asked a question around the structure of IUSS – particularly around forest soils in Div 3. Question was what problem was actually being looked at? BRS confirmed the key aspect of this Working group was on the

management of these soils and how these management processes differed from other land use types such as agriculture. A possible renaming of the WG (e.g. Management of soils of forested ecosystems) will be discussed with chair and vice chair. A short presentation of the tasks of the WG on the IUSS website could help.

9. Report Division 4 – The Role of Soils in Sustaining Society and the Environment

- DF presented the report as shown in the Annotated Agenda. In addition, he reported that the Division is reviewing its current structure in discussion with Division 3. The intention is to expand its awards and develop working groups for each Commission to increase the activities in the next two years. He will request the members of Division 4 to submit applications for the Stimulus Fund regarding emerging topics in cooperation with Division 3.
- DF mentioned that Commission 4.3 looks for intensification of exchange with Commission 3.4 and two interdivisional sessions (e.g. on regenerative agriculture) were proposed for the WCSS 2022.

19/11/2020

10. Report Committee on Awards and Prizes

- TS presented the report as shown in the Annotated Agenda. In addition, he gave an outlook on the IUSS Awards. Nominations are due in summer 2021, call will be launched in beginning of 2021.
- SD asked if had there been applications for the ISC Awards 2021. TS confirmed there had been 3 applications and that solicitation for nominations was sent to National Societies. Greater participation would be welcomed next time.

11. Report Committee on Budget and Finances

- JK presented the report and shared a powerpoint presentation based on the report included in the Annotated Agenda.
- No questions were raised.

12. Report Committee on Statutes and Structure

- AH presented report as shown in the Annotated Agenda. In addition he mentioned that in future changes will be proposed in relation to a permanent Secretariat, voting procedures (from absentee to electronic voting) and limitation of appointment of chairs of Standing Committees for two terms (as already the case for its members).

- The changes were voted on as proposed in the annotated agenda – all votes were in support of the proposed changes. The Statutes and Bye-laws shall be changed accordingly.

13. Report Committee on Presidential elections

- RH presented the report as shown in the Annotated Agenda.
- BR congratulated the new President Elect, Edoardo A.C. Costantini, on behalf of the Soil Science Society of Nigeria and wished him a successful tenure. BR also noted that when looking at the Presidents Committee it is not very diverse and questioned if others from different regions should be appointed.
- RH responded by saying the committee was established some time ago but supported a new way forward to enable a way to include a representative from Africa.
- AH said that anyone is welcome to join Standing Committees, the question remained whether it should be defined as a requirement of the committee. RH committed to look at this when the next voting for the committee comes around.
- EACC noted that he would do his best to be inclusive.
- PANR suggested thinking about supporting small members and developing societies in order to move forward, or else they will never be able to scale and play a good role at regional and global level.
- SD asked that gender diversity is also considered.
- BR committed to speak to the African Societies and propose nominations.

14. Report Research forum

- RL presented the report as shown in the Annotated Agenda. From 2021 onwards TK as Past President will be the chair and RL will be the co-chair. The Forum will focus on how soil can help in emerging issues.
- SD requested to know the date of the next Forum meeting – clarified this was 21 Nov. 2021.
- SD asked if the next Forum meeting can be recorded? CB confirmed that this was possible and would be done.

15. Election of Honorary members

- SH presented the process and list of nominations.
- No comments were raised and so online voting was carried out but was not concluded as a question came up around the analytics, in particular who had actually voted. CB to follow up on this action. It appeared that the link issued earlier to members not able to attend

the meeting who previously delegated their voting right had been shared beyond those who were allowed to vote).

- AH asked to investigate and address the irregularities in our elections, and stated that IUSS might need a Standing Committee on Election and Procedures. BL suggested that such a committee also looks at the process around engagement, diversity, inclusion around membership of various committees/roles, including across the EC – e.g. wording used in calls for nominations can put some people off. AH committed to take this proposal and the comments/ideas to the EC.
- It was requested to send nomination documents to Council in advance.
- Online voting was re-opened once the agenda of today had been completed until 20 Nov. for those who were unable to attend the Council meeting today, could not manage it during the meeting or previously delegated their vote. This time the requirement was to indicate the first name and surname when entering the voting area in order to check who really voted.

16. Preparation of Elections of Division and Commission officers

- Proposed changes to deadlines were presented and accepted as given in the Annotated Agenda.

17. IUSS Stimulus Fund

- SH presented the report as shown in the Annotated Agenda.
- No questions were raised.

20/11/2020

Voting of Honorary Members

Misunderstanding of voter eligibility affecting Honorary Member voting. Explanation: 3 Honorary Members, EC, and eligible voters at Council = 60 eligible voters in total, but as only 50 voters cast votes 26 votes (not 31) was the minimum for being elected. *Results:* 10 successful candidates (10 max. allowed) which were recommended by the EC to be elected. AH & BR (and others) – update wording to clarify eligibility and voting procedures including electronic voting KS – volunteers to be on election procedures committee.

18. International Decade of Soils

- LBRS presented the report as shown in the Annotated Agenda. In addition she mentioned IUSS books

- planned for 2021 and 2022, such as Cultural Understanding of Soils, Soil biodiversity and World of Soils.
- No questions were raised.

19. IUSS International Affairs

- RL, LBRS and TK presented the report as shown in the Annotated Agenda. In addition it was mentioned that no IUSS members have achieved positions with ISC so far. Nevertheless it was recommended to continue and strengthen the relationship with ISC.
- Regarding cooperation with FAO and the “IUSS GOES TO THE SCHOOL” educative project the books ‘Vermicomposting for Children’ and ‘Perfilito, a very lucky boy’ as well as a Set of agronomic cards from multiple national societies in multiple languages were mentioned. LBRS will continue asking for input after becoming President in January 2021.
- In relation to the Distinguished Service Medals the medal 2020 will be awarded to Dr. Franz Fischler (Austria). Proposals were made to bestow future medals to Ban Ki-Moon (AH) or to former Prime Minister of Norway, Gro Harlem Brundtland (BRS).
- SH/TK – Future effort shall go into Standing Committee on Prizes and Awards in order to improve the process for nominations. Template for proposals by Council members should be prepared by TS.

20. IUSS Internal Affairs

- SH presented the report as shown in the Annotated Agenda and thanked for contributions to Bulletin and Alert, contributions are always welcome until given deadlines.
- TT asked for subscription to online meetings platform purchased by IUSS that can be shared amongst members; MG – license usually limited by institution, how would this work for IUSS? Skype, Skype4B or Big Blue Button platforms were proposed.
- AH proposed Soil Goals 2030; goals and challenges, identify goals and set people to work on them, their assessment, and report out in 2030 (like SDGs), SH – Mission on Soil Health and Food is an EU initiative which follows quite a similar idea, so look for continental views e.g. in cooperation with regional soil partnerships from GSP, could be combined later on. RH – Could be another task for Research Forum to define topics? Prepare proposal to Forum in next 6 months. MB – work through GSP? BRS – Forum working on paper regarding SDGs. RL – suggested AH to lead effort through Forum. AH – Some possible goals: sequester x Gt carbon, 90%

of cultivated lands managed properly; no more erosion; soil information at 1 m resolution globally; quantification of all soil biodiversity; global leadership by the IUSS on all soil matters. We then form working groups for each goal, that makes inventory, assessments, recommendations, some site specific, some globally.

21. WCSS 2022 Preparation and Draft Programme

- BL presented the report as shown in the Annotated Agenda. In addition he mentioned the following points:
- Final programme ~ August 2021;
- Abstract submissions starting ~ October 2021.
- Policymakers – opportunities for interaction, e.g. Forum may develop IUSS position statements.
- Costs: Venue ~ \$300,000, contract negotiations, contract with staged payments, would hope to get insurance and vaccine is successful (no postponement or cancellation).
- Thanks to partners, EC ...
- KS – excellent preparation for Congress; basic scientists don’t know that they’re welcome, take measures to assure.
- RL – impressive preparation, comprehensive, inclusive, good to have plans A, B, and C, unlikely to have everyone vaccinated in 18 months; instead of N/S divide make positive – soils to improve connectivity.
- SD – link WCSS website to IUSS website.

22. WCSS 2030 Bidding and Beyond

Canada – Richard Heck

(Chair of Canadian bid committee):

100 years since “Dirty 30’s”, theme – Global Impacts of Climate Change “Soils in a Warmer World”

Date: Mid-July

Location: Rahul Shah – Destination Toronto, “Canada’s Downtown”

Soil judging contest at Guelph, Pre-congress tours, In-congress tours, Post-congress tours – 18 regions

Sergey Goryachkin – Russia may present bid for Moscow during WCSS 2022 in Glasgow for WCSS 2030, no governmental approval yet.

Nigeria – Bashiru Raji/Victor Chude

Recognized support of SSSN, last time WCSS in Africa in 1954 in Kinshasa, Nigeria is largest national member of IUSS in Africa

Location: Abuja – host city, fastest growing in Africa

Theme: Soil – Our Enduring Heritage

23. Preparation of the Centennial 2024

- TK presented the report as shown in the Annotated Agenda.
- EACC: Jeju 2014 – encouraged to develop idea for centennial celebration, ceremony in Villa Borghese in Rome max. 150 persons, invitation only, scientific programme following in Florence 2-3 days, up to 2,000 attendees, transdisciplinary focus. Days of congress most likely 19-22(23) May 2024, structure of programme by IUSS, detailed sessions in responsibility of session chairs (not only IUSS), link with other disciplines, contacts already with Florence Convention Center and CNEL (National Council for Economics and Labour).
- SD – how to choose 150 people?
- EACC – specific request to use same room, much easier to use different locations and organize tours to facility, Rome to Florence 1.5 hours by train, celebration as excursion from Florence.

- AH – make video of venue/event and start congress with video
- SH – Encourage additional interviews on historical perspective; national societies could have own celebrations in parallel
- TT – suggests writing profiles of scientists present at founding of ISSS, EM – AH has already done so.
- CH – requests to see Glasgow videos. BL – will be on portal then to IUSS YouTube channel
- Canada and Nigeria will send links to their websites.

24. Any Other Business

SH – Thanks to Takashi, Distinguished Service Medal for service as President, Thanks to supporters in UK, BSSS, Speakeasy ...

TK – Thanks to participants, challenges for first-time virtual Inter-Congress meeting, requested feedback to improve future meeting format. Wish to see you all in Glasgow!

World Congress of Soil Science 2022 (WCSS22): Update

By Bruce Lascelles, IUSS Vice President Congress and Christine Berrill, Project Co-Ordinator, British Society of Soil Science

We are getting closer and closer to The World Congress of Soil Science 2022 (WCSS22). The end of November marks the deadline for abstract submission, 30 November 5pm GMT, and with over 500 abstracts received we have been ecstatic with the support shown by the soil science community. We will be responding to all applications early in 2022, keep an eye on your inbox! Developments continue apace, with tours and soil judging now fully open for booking via the main registration portal for the Congress, and we are now starting to release regular updates and information through our social media channels. If you would like to keep up to date make sure to follow us at @worldsoils2022. November also saw COP26 being hosted at the venue for the WCSS22, the SEC in Glasgow. Seeing this incredible and world-leading event being held at our location, less than a year before the WCSS22, has been a strong motivation to all those working behind the scenes, and is a strong reminder that the WCSS22 aims to positively influence soil science and policy for years to come. Representatives of the British Society of Soil Science (BSSS) attended the conference, due to their observer status, and championed for soil science while taking away some lessons for hosting the WCSS22 (you can read their blogs <https://soils.org.uk/the-bsss-blog/>).



Fringe Events

Some sponsors and partners for the WCSS22 have now been confirmed; meaning we are starting to look towards how to make the most out of these relationships, and to how we may collaborate with other like-minded organisations. The shape these relationships may take will vary dependant on the objectives of our partners, as well as our own and those of the IUSS, but we are encouraging conversations to work out where these opportunities may lie.

Fringe events are important for making sure there is diverse range of voices at our Congress, beside the core programming. A pathway for applying to host Fringe events has now been created and the application form can be found <https://22wcsc.org/conference/fringe-events/>. Should you or your organisation wish to have an informal conversation about potential opportunities prior to applying you can email us at wcsc22@soils.org.uk.

Early Careers Grant

The British Society of Soil Science (BSSS) has recently launched an update to their established Early Career Conference Grant. This update confirms the focus of the £500 bursaries will be attendance at the World Congress of Soil Science 2022. Applicants who have applied to deliver either a poster or oral presentation will be considered, and awards may be approved in principle before confirmation of your presentation is received. Deadlines for applications is the 28 February 2022. You can find out more details and apply <https://soils.org.uk/grants-awards/>.

Activities of the IUSS President

The IUSS President, Laura Bertha Reyes Sánchez, was appointed Member of the Advisory Council of the Interdisciplinary Soil Studies Programme (PUEIS) of the UNAM.

Soil Judging

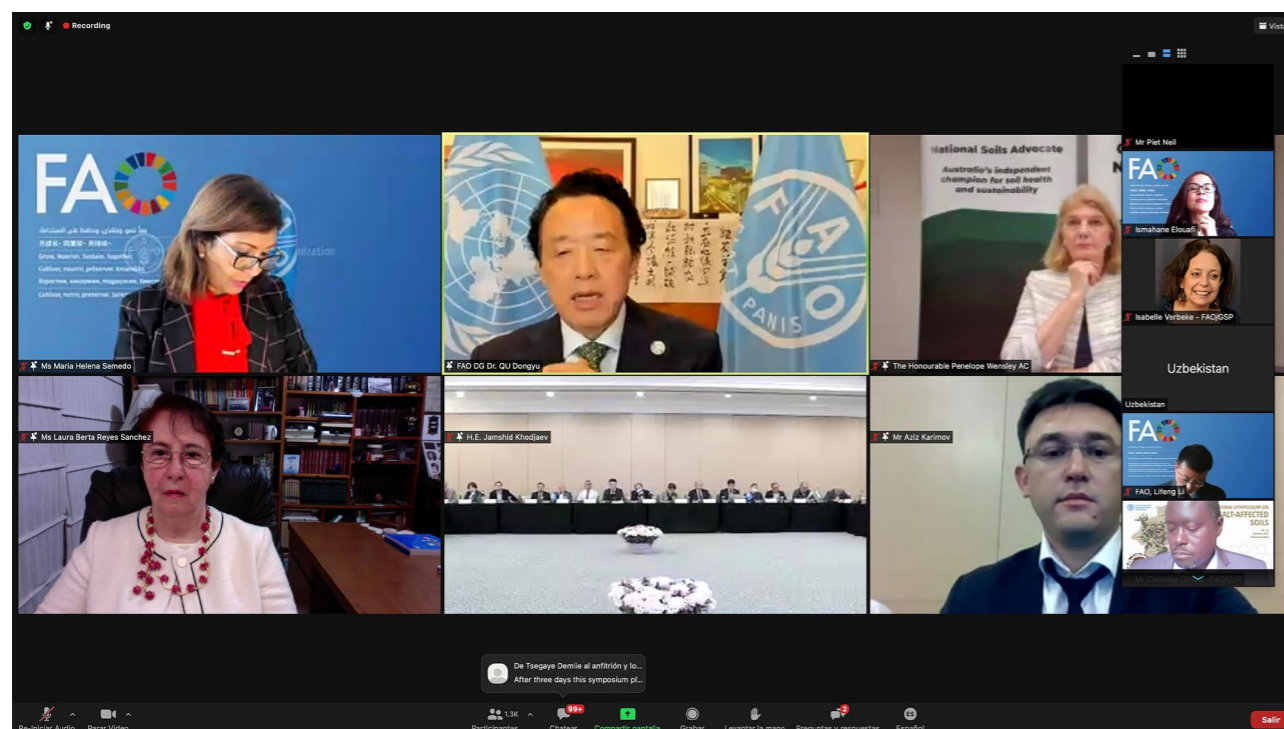
Details for the accommodation, meal plan, and prices for the soil judging competition have now been confirmed. The hotly contested competition will be based at the stunning University of Stirling campus in central Scotland, with accommodation and catering provided on site and included in the cost of the ticket. With education and training delivered by experts in the field, this is not an experience to miss! The ticket price for a team of four is £3500 and tickets for additional participants, such as coaches, can be purchased for £875. You can find out more details of the competition <https://22wcsc.org/additional-activities/soil-judging/> or contact us with queries, or to apply, on wcsc22@soils.org.uk. Follow us on Twitter: @Soil_Science and @WorldSoils2022. Contact: Bruce.lascelles@arcadis.com. Read more: <https://www.soils.org.uk/wcsc2022>.

On June 4 2021 the IUSS President was panelist at the FAO-GSP meeting “Technical and financial tools to value the productive and environmental potential of soils in Latin America and the Caribbean”.

The Japanese Society for Soil Science and Plant Nutrition (JSSSPN) invited the IUSS President as speaker during the 2021 Conference of Japanese Society for Soil Science and Plant Nutrition, at Hokkaido University. The IUSS President delivered a talk at the FACING FIRE: A Service-Learning to improve training and employability in wildfire management in southern Europe **ERASMUS + KA2013. 2020** during the young people meeting on September 29, 2021, in Aveiro, Portugal. She invited young people to work together through the content of this talk “*The IUSS GOES TO SCHOOL educative Project facing fire with young people*”. On September 27, the IUSS president was invited by the Land Development Department of Thailand as speaker during the National symposium on soil salinity under the World Soil Day theme. During her visit to Vienna the IUSS President presented a diploma and an official letter of appreciation to Dr. Winfried Blum for having obtained the International Science Council “Science for Policy” Award 2021. **Honor to whom honor is own**, those were the words of the IUSS President when she presented to Dr. Franz Fischler, **the IUSS Distinguished Service Medal 2020** on October 15th, during the Symposium “Soils for our future” organized by the BOKU University and the Soil Science Society of Austria.

The Mexican Group of Applied Edaphology invited the IUSS President to deliver talk during his launching in Mexico. During the opening of the FAO Global Symposium on on Salt-affected Soils (GSAS21): ‘Halt soil salinization, boost soil productivity’, the IUSS President shared the floor as main speaker with the FAO’s General Secretary and the UN representatives on October 20. On October 22 the IUSS President was invited to talk about “The teaching of soil science with an interdisciplinary approach”, during the online webinar organized by the Interdisciplinary Social Studies Programme (PUEIS) of the UNAM.

The Ministry of Agriculture of the Republic of Uzbekistan has invited the IUSS President as speaker during the 100th Anniversary of the Research Institute of Soil Science and Agrochemistry, on the topic “Soil Science in modern society: achievements, problems and prospects” to be held on December 2nd in Uzbekistan. Laura Bertha Reyes Sánchez was also involved in a number of activities linked to World Soil Day 2021. For more information, the reader is kindly referred to Section World Soil Day 2020, p. 29.



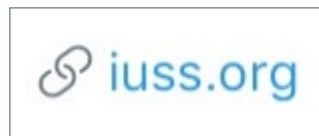
Screenshot Global Symposium on Salt-affected Soils (GSAS21) (© IUSS)

Report from the IUSS Secretariat

IUSS on Twitter

The International Union of Soil Sciences has an Official Twitter Account. Follow us on **@IUSS_ORG**, where we promote all our official activities and remain in touch with the Soil Science Scientists community worldwide. There are weekly tweets, with close to 2300 followers.

From our Twitter account, you can also directly access the IUSS Website by touching on the symbol.



Offer to share videos on IUSS YouTube channel

The International Union of Soils Sciences has invited its members to provide links of their YouTube videos on soil science, which IUSS offers to share on its YouTube channel in order to make them known more widely. Videos should preferably be in English, but all languages are welcome. YouTube videos should not be larger than 2 GB, nor longer than 10 minutes. Please bear in mind to check pertaining copyrights. IUSS will not consider videos with unsuitable content.

Read more: <https://www.youtube.com/playlist?list=PLi-8j0XEXF7nrizZwcMAXA6-8PB3MPvOk>.

IUSS on Facebook

In the October and November 2021 Alerts, the IUSS Secretariat (iuss@umweltbundesamt.at) kindly invited all IUSS members to submit contributions to the [IUSS Facebook page](#) with 14,000 followers. In particular, we are looking for very short announcements of soil events, new findings in soil science, articles about soil in newspapers and journals, astonishing photos about soil and anything else, which might interest the soil science community. Please make sure to provide a link and an image with copyright information.

IUSS on LinkedIn

IUSS is also represented on LinkedIn in the Group 'IUSS – International Union of Soil Sciences', which is managed mainly by Niels Batjes, ISRIC – World Soil Information. Currently the group has already more than 4,500 members. You are kindly invited to join the group and post information for the IUSS members <https://www.linkedin.com/groups/2871883>.

IUSS Stimulus Fund

The IUSS Stimulus Fund was created to support suitable activities within the Commissions and Working Groups. Where appropriate, the Fund will also support other activities to assist the development of Soil Science in general, but particularly in regions of the world where lack of resources limit opportunities. Some funds have been and will continue to be allocated to undertake specific projects identified by the Executive Committee, particularly projects which contribute to fulfilling the objectives of the International Decade of Soils.

IUSS has set aside a sum of \$15,000 annually to help fund a number of activities, but this funding may be increased, if the quality of applications is particularly high. The normal maximum award will be \$2,500, but larger awards may be considered. For more information about the stimulus fund, please go to https://www.iuss.org/about-the-iuss/iuss-stimulus-fund/?search_highlighter=stimulus+fund.

Please note that research projects, travel costs of individual people, and applications from countries with outstanding membership fees as well as applications lacking detailed budgets cannot be taken into consideration for funding.

As in the preceding years, in 2021 again \$15,000 were available, with two submission dates for applications: 15 March and 15 September. Applications are always welcome and should be sent in due time to iuss@umweltbundesamt.at.

Calls for submissions were published in the IUSS Alert.

From the second round of submissions (deadline 15 September 2021), the IUSS decided to contribute to support the following three activities:

1. An online resource to promote the concept and practice of Digital Soil Mineralogy; salaries 2.5 days of work without overheads
2. 'MicroSoil' workshop July 4-8, 2022, Saint Loup Lamairé, France; salary of the video specialist.
3. '6th International Soil Classification Congress', ISCC 2020 + 2, March 25 to April 1, 2022, Cuatro Ciénegas and Querétaro, Mexico; four student scholarships and webmaster support.

In 2021, a total 14,181.64 USD was approved from the IUSS Stimulus fund.

A short (500-1000 words) report of the activity for which the funds were received, must be presented for inclusion in the IUSS Bulletin within 2 months of completion. The next submission date for applications will be 15 March 2022, where again 15,000 USD will be made available.

News from national and regional Soil Science Societies

Soil Science Society of America

Soil Science Society of America releases recommendations for climate change solutions

Seeing the rapidly increasing focus on agriculture as a climate solution, ASA, CSSA, and SSSA released a new climate solutions position statement, Advancing Resilient Agriculture: Recommendations to Address Climate Change, which outlines concrete actions policymakers can take right now to help U.S. agriculture mitigate climate change and adapt to its effects. Read more: <https://www.soils.org/news/science-policy-news/societies-release-recommendations-climate-change-solutions>.

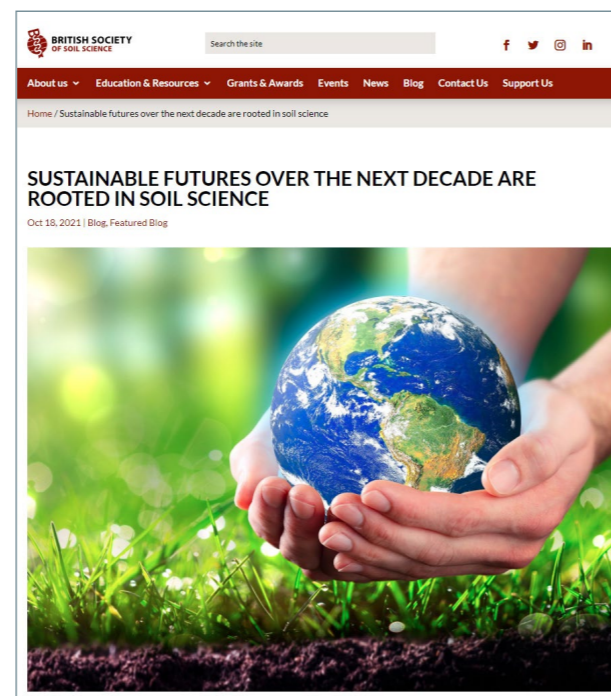


Developed by a Climate Change Task Force, the statement provides recommendations under seven categories <https://www.soils.org/files/science-policy/issues/2021-acs-climate-solutions-statement.pdf> (© ASA-CSSA-SSSA)

British Society of Soil Science

Launch of First Science Note

The British Society of Soil Science (BSSS) recommends to governments that long-term financial incentives are introduced to encourage sustainable soil management practices, particularly in a bid to store soil carbon. BSSS are delighted to announce their first Science Note, on the topic of Soil Carbon. The comprehensive note sets out the academic research concerning soil carbon which is used to define clear recommendations to governments. The note, which explores the importance of carbon in soils, how it behaves, and how it might be increased to help address the climate crisis, is available as a technical, fully referenced version or a shorter version, aimed at lay people. Read more: <https://soils.org.uk/education/guidance-and-science-notes/>. The full, technical Science Note: Soil Carbon can be accessed at: https://soils.org.uk/wp-content/uploads/2021/11/Long_BSSS_Science-Note_FOR-DIGITAL.pdf.



Screenshot of the homepage from the BSSS Blog platform – see next page (© BSSS)

Launch of the BSSS Blog

The BSSS Blog, a platform for our Corporate Members to publish high quality soil-related content that aims to educate, inspire and inform. The first blog, *Sustainable futures over the next decade are rooted in soil science*, written by Dr Dan Evans, discusses the major progress made in soil science over the past decade, particularly around five grand challenges: climate change, food security, water security, urban development, and ecosystem biodiversity.

Read more: <https://soils.org.uk/blog/sustainable-futures-over-the-next-decade-are-rooted-in-soil-science/>.

World Congress of Soil Science 2022: Fringe Events

A number of organisations have expressed an interest in hosting a fringe event during WCSS22. The wide-reaching scope of the congress offers a unique opportunity for organisations and individuals to reach influencers and decision makers in the industry, cultivate opportunities, and promote public engagement. We are now accepting applications to host events, alongside our [sponsorship opportunities](#), and please submit this by **31 January 2022** when all applications will be reviewed by our Working Group.

Submit application:

<https://22wcsc.org/conference/fringe-events/>.

Recordings of BSSS Annual Conference 2021 – Soil Health: From Principles to Practice

The British Society of Soil Science's Annual Conference 2021, sponsored by Arcadis, considered soil health from five different perspectives, providing insight into a prominent topic across professional and academic practice.

Screenshots of the asteroid naming ceremony (© ISSCAS)



Catch up now: https://www.youtube.com/watch?v=xxqx1iLTv0I&list=PL1MnnrWVUv1n0hQKuT54_7PJZEZSwMyE1.

[The four articles above are from the British Society of Soil Science Newsletter – Issue 3, Nov. 2021]

Soil Science Society of China

Chinese Soil Scientists Revealed the Role of Earthworms to Reduce Antibiotic Resistance Genes

Accumulation of medically relevant antibiotic resistance genes (ARGs) in the environment is an emerging global environmental and health crisis. Earthworms are widely distributed, and are known to degrade soil pollutants, they might hold the key to solving this global crisis. Here, we conducted a continental-scale survey and a microcosm study to evaluate the potential role of earthworms in remediating soil ARGs. We show that earthworms consistently reduce the diversity and abundance of ARGs both in natural and agricultural ecosystems, and under controlled experimental conditions. Processes in the earthworm gut affect the abundance of ARGs by reducing the abundance of dominant bacterial phylotypes that are the likely hosts of ARGs. Earthworms could provide a sustainable and natural solution to address the global ARG crisis. The results have been published in *Environmental Science & Technology* and received a lot of media attention, including *Science Daily*, *GEN*, *Technology Networks*, and so forth.

Asteroid “ISSCAS” named, to honor to contributions of soil science

World Soil Day (WSD) is celebrated annually on December 5th, to emphasize the importance of healthy soil and advocate for the sustainable management of soil resources. This year, the 8th WSD is a special day for all scientists

in Soil Science Society of China (SSSC), and also a memorable day for the Institute of Soil Science, Chinese Academy of Sciences (ISSCAS).

On December 5th, 2021, a naming ceremony for the Asteroid "ISSCAS" was held by the ISSCAS and SSSC in Nanjing, China, as an event of a series of celebrations for the 8th WSD. Asteroid "ISSCAS" (530721), approved by the International Astronomical Union, was discovered by the Purple Mountain Observatory, Chinese Academy of Sciences (CAS) on September 11th, 2007. Prof. Xiaoyuan Yan, Vice Director of ISSCAS and General Secretary of SSSC, hosted the ceremony. Prof. Jiabao Zhang, President of SSSC, and Prof. Renfang Shen, Director of ISSCAS and Honorary President of SSSC, together received the certificate for Asteroid "ISSCAS". Laura Bertha Reyes Sánchez, International Union of Soil Sciences (IUSS) President, also gave a congratulatory speech via a virtual meeting. Asteroid "ISSCAS" is a showcase for the achievements of ISSCAS, also a gesture from the natural science community to recognize the contributions of soil science toward the progress and development of human civilization.

Malaysian Society of Soil Science

The most recent newsletter of MSSS is now available on the IUSS website. It gives a detailed account of its Golden Jubilee (50 years) celebrations, which took place in April 2021. The goal was to highlight the valuable contribution of MSSS members and raise public awareness on the importance of soil. All the programmes were held through a Zoom platform and live-streamed on MSSS Facebook due to the pandemic Covid-19.

Read more: <https://www.iuss.org/newsroom/newsletters/malaysian-society-of-soil-science-newsletter/>.

Soil Science Society of Poland

The following news item appeared in the October Alert.

4th international conference of young scientists: Soil in the environment

Under the patronage of the IUSS President, IUSS invites you to participate in 4th international conference of young scientists: Soil in the environment to be held on 29 May to 01 June 2022, in Torun, Poland

Read more: <https://sites.google.com/view/site-torun-2020>.

Spanish Soil Science Society

FACING FIRE: A Service-Learning approach to improve training and awareness on soil conservation after wildfires

Forest fires are a complex problem that affects many areas of the planet, seriously impacting the environment, rural development and economy. Although there have been substantial research and technical advances in recent years, the area that burns each year is still very important and in many cases restoration or soil conservation practices are not adopted. The FacingFire project proposes the reinforcement of training capacities on wildfire management (from secondary school to university) by improving the practical experience of the students and encouraging the involvement of the different affected actors. The project introduces the Service-Learning (S-L) approach, an educational methodology in which the students learn from solving real needs of their environment. In the case of forest fires, multidisciplinary teams of students participate in prevention, restoration and awareness-raising projects in areas affected by fires. FacingFire has its origin in 2016, as an initiative of the University of Santiago de Compostela, located in the region of Europe with the highest incidence of forest fires. Currently, within the framework of the Ministry of Science and Innovation and the Erasmus programme, different regions from Spain (<https://www.plantandocaraalfuego.org/>) and some European countries (<https://facingfire.eu/>) are adopting this methodology. One of the main outputs will be the FOREST FIRE TRAINING NETWORK, hosted at FUEGORED (<http://fuegored.weebly.com/>). Since the beginning of the project, more than 100 students from different studies (forest sciences, education, biology, journalism) and more than 20 agents (secondary schools, forest administration, forest communities, NGOs) have participated in more than 15 projects.



Forest fire training in Spain (© Agustín Merino, University of Santiago de Compostela, Spain)

Pacific Regional Society of Soil Science

Equity, Diversity and Inclusion

Since April 2021, rotating members of the PRSSS team have been hosting 5-10 minute Equity, Diversity and Inclusion (EDI) presentations on soil science related topics at their monthly meetings.

Selected resources:

[Implicit Bias & Microaggressions Module](#) and

[Racism in academia, and why the 'little things' matter](#) – Kevin N. Laland.

Latin American Soil Science Society (SLCS)

Argentine Association of Soil Science

- **Technical Conference: Organic matter and soil health.** Friday, August 6.
- The Argentine Association of Soil Science organized the **Seminar on Soil Functions in Ecosystems**, which was held on October 22, 2021.
- **Blowing South: Southern Hemisphere Dust Symposium** held online on 9-10 November 2021, free of charge. Read more: <http://dust2021.cima.fcen.uba.ar/>.
- **XI Congress on Land Use and Management**, Bahía Blanca-Argentina December 1 to 3, 2021. Read more: <https://ums2021.suelos.org.ar/>.

Left: Announcement of the Technical Conference: Organic matter and soil health (all: © AACs)

Right: Flyer for the Southern Hemisphere Dust Symposium



Healthy Soils + Healthy Farmers Podcast Episode

The Peace River Forage Association has a great podcast that covers "all things forage, livestock, soil health, and sustainable pasture and range management". This week they have released an Episode with PRSSS member Brooke Hayes. Brooke talks about her research on the link between soil health and farmers' health.

Access the podcast: [May the Forage be With You Podcast – Healthy Soils – Healthy Farmers: Brooke Hayes, Part 1](#) | Free Listening on Podbean App. Website: www.prsss.ca.



Poster Seminar on Soil Functions in Ecosystems (© AACs)



Treinamento ProBASE
Programa Brasileiro de Análise de Solo via Espectroscopia
Versão ASA – Agricultura, Solo e Ambiente
Coordenador: José A.M. Demattê
CV: <https://esalqgeocis.wixsite.com/geocis/equipe>
Escola Superior de Agricultura "Luiz de Queiroz"
Universidade de São Paulo

DO LABORATÓRIO AO MANEJO VIA SENSORES

Participação especial:
Prof. Dr. José Luiz Demattê, ESALQ/USP
(Manejo de Solos Arenosos)
Prof. Dr. Raul Poppiel, UNB
(Termal versus Produtividade)

Dinâmica: Aulas EAD e Exercícios
Data: 13, 18, 25 outubro e
8, 22, 29 novembro, 2021
Horário: 19:00 as 23:30 hs
Carga horária: 27 hs
Contato: jamdemat@gmail.com

Não precisa ser especialista

Patrocínio: 

Apoio: 



INSCREVA-SE AQUI 

<https://fealq.org.br/cursos>

Brazilian Soil Science Society

- **Brazilian programme for soil analysis by spectroscopy:**
Higher School of Agriculture
"Luiz de Queiroz"
Universidade de São Paulo
October 13 to November 29, 2021.
Read more: <https://esalqgeocis.wixsite.com/geocis/equipe>.
- **II Pedometrics,**
November 24 to 27, 2021.
Read more: <https://pedometrics.brazil2021.ciente.live/>.

Colombian Soil Science Society
Information systems applicable to the agricultural sector.
October 28-29, 2021.

Flyer of the Brazilian programme for soil analysis by spectroscopy (© SBCS)

II Pedometrics
Nov, 24th to 27th, 2021
Brazil

<https://pedometricsbrazil2021.ciente.live/pt/inicio/>


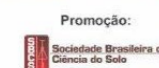

Já estamos com a programação fechada!

Palestras legendadas em português.

Data limite para entrega dos resumos: 30/09/21.

Faça logo sua inscrição, as vagas são limitadas!

Inscrições pelo site do pedometrics.

Apoio:  Promoção:  Organização: 

Flyer 'II Pedometrics' (© SBCS)

Costa Rican Association of Soil Science

On October 20, 2021, the Costa Rican Association of Soil Science organized the conference **Recarbonization of soils: an opportunity to influence sustainable production and climate change.**

Dominican Soil Science Society

The Dominican Society of Soil Sciences invites to the **World Soil Day Celebration** online on December 3, 2021, virtually, from 10:00 – 11:30 AM.

SEMINARIO
Sistemas de Información Aplicables al sector Agrario
Modalidad: Virtual
28 y 29 de Octubre de 2021
Moderadores:
Luis Armando Castilla Lozano
Guillermo López Pérez

Los invitamos a participar en nuestro evento sobre "Sistemas de Información Aplicables al sector Agrario"

Mayor Información:
Sociedad Colombiana de la Ciencia del Suelo
Cel. 311-2271731
scsuelo@cable.net.co - scsuelo@sccsuelos.com
<https://sccsuelos.org>



UNA **SEMINARIO**
INFORMACIÓN EN CIENCIAS DEL TIEMPO Y DEL ESPACIO

ACCS
Asociación Guatemalteca para el Manejo de los Suelos

Seminario:
Recarbonización de los Suelos:

Una oportunidad para influir en la producción sostenible y en el cambio climático.

Fecha: 20 de octubre
Hora: 9 a.m.

YouTube **LIVE**



Above: Invitation to the seminar on Information systems applicable to the agricultural sector (© SCSS)
Below: Conference Flyer 'Recarbonization of soils' Facebook (© ACCS)

Guatemalan Association of Soil Science

On October 19, 2021, the Guatemalan Alliance for Soil Management organized the **conference "Recarbonization of the soil, what it is and possibilities of application in Guatemala"**.

¡Salve la fecha!

El Ministerio de Medio Ambiente y Recursos Naturales y la Sociedad Dominicana de la Ciencia del Suelo con el apoyo de la Organización de las Naciones Unidas para la Alimentación y la Agricultura invitan a la celebración del:

Día Mundial del Suelo
Detener la salinización de los suelos, aumentar su productividad

Viernes 3 de diciembre del 2021
10:00 a 11:30 a.m.



f LIVE **ALIANZA GUATEMALTECA para el MANEJO DE LOS SUELOS**

La AGMS invita a la conferencia:

"Re carbonización del Suelo, que es y posibilidades de aplicación en Guatemala"

Martes 19 de octubre
17:00 horas



Above: Flyer of the Dominican Society of Soil Sciences celebrating World Soil Day 2021 'Halt Soil Salinization, boost its productivity' (© SDGS)
Below: Conference flyer 'Recarbonization of the soil, what it is and possibilities of application in Guatemala' (© AGCS)

Honduran Association of Soil Science

In recognition of the work carried out in favor of the soils of Honduras, the National Federation of Farmers and Ranchers of Honduras (FENAGH) granted recognition as a Member of Honor to the Honduran Association of Soil Science (ASOHSUELO).

Mexican Soil Science Society

- The online **45th Mexican Soil Science Congress** took place 6 – 8 October 2021, organized by the Autonomous University of Hidalgo.
- Virtual course on Agricultural and Environmental Nanotechnology**, held on October 4 and 5, 2021, as a prelude to the 45th National Congress of Soil Science, organized by the Mexican Society of Soil Science. Read more: <https://www.smcsmx.org/congreso2021/>.
- Within the framework of the WSD-2021 Celebration, the Geology Institute of the National Autonomous University of Mexico and the Youth Action Commission of the Mexican Soil Science Society, through the Soilx Project organize:
 - 4th Mexican Soil Evaluation Contest**. December 4, by registration in <https://cutt.ly/oRooqrx>.
 - 2nd International Soil Assessment Course**. December 4, by registration in <https://cutt.ly/oRooqrx>. Read more: <https://cutt.ly/XRoe9Ny>.

Soil Science Society of Spain

- Agriculture, water and biodiversity in the Iberian southeast**. Cehegín, Murcia, from September 21 to 24, 2021.
- 7th edition of the Ramon Margalef Colloquia **“A cross-system view of the biological carbon cycle in the anthropocene”**, held online 5-8 October 2021. Read more: <http://www.acoio.org/margalef-summer-colloquia/>.
- Webinar: “Post-fire soil erosion risk mapping”** organized by the CESAM of the Aveiro University of Portugal, celebrating the WSD.
- Online conference “Soil Management Strategies in the Face of Climate Change”** organized by the SECS Soil and Water Conservation Section for December 10, 2021. The detailed programme can be found below.

Flyer 4th Mexican Soil Evaluation Contest and 2nd International Soil Assessment Course (© UNAM)

Flyer Agriculture, water and biodiversity in the Iberian southeast © SECS

WEBINAR LIFE REFOREST, FEMME & EPYRIS projects
POST-FIRE SOIL EROSION RISK MAPPING IN PORTUGAL &
ITS MITIGATION USING ESTABLISHED AND NOVEL MEASURES

When: 3 December 2021
Where: online ZOOM meeting
Registration: <https://tinyurl.com/rf7hbxaj>

AGENDA	
09:30 – 09:40	Welcome
09:40 – 10:10	Post-fire soil erosion risk mapping in Portugal Diana Vieira Joint Research Centre & University of Aveiro
10:10 – 10:25	Comments and questions
10:25 – 10:55	Effectiveness of post-fire soil erosion mitigation treatments Antonio Girona-Garcia University of Aveiro
10:55 – 11:10	comments and questions
11:10 – 11:30	Break
11:30 – 12:00	Testing REFOREST's novel measure to mitigate post-fire erosion Ana Isabel Machado University of Aveiro
12:00 – 12:15	Comments and questions
12:15 – 12:30	Post-fire soil erosion risk and mitigation mapping in Portugal Diana Vieira Joint Research Centre & University of Aveiro
12:30 – 12:45	Comments and questions
12:45 – 12:50	Closure

Times are in Western European Time, UTC+0

LIFE REFOREST RECOVERING ECOSYSTEMS
LIFE REFOREST is a project co-funded by the European Union under the LIFE Financial Instrument within the axis Environment Policy and Governance and under the Grant Agreement n. LIFE17 ENV/ES/000248.

FEMME FEMME is a project funded by the Portuguese Government through the Fundação para a Ciência e a Tecnologia (PCIF/MPG/0019/2017).

EPYRIS Epyris is a project funded by the European Union through the SUDOE INTERREG Program (SOE2/P5/E0811).

PROGRAMA DE LA JORNADA on-line

Organizado por la Sección de Conservación de Suelos y Aguas.
Ramon Bienes y María José Marqués

“ESTRATEGIAS DE MANEJO DEL SUELO FRENTE AL CAMBIO CLIMÁTICO”

Fecha: 10 de diciembre, de 10 a 14:00 h.
Lugar: Jornada en remoto, a través de la plataforma Teams.
Para acceder pulse: [aquí](#)

10:00 - 10:10 Presentación de la jornada y de los ponentes.

10:10 - 10:50. Efecto de cubiertas vegetales sobre balance de agua en cultivos leñosos Mediterráneos con respecto a manejo con suelo desnudo y perspectivas ante escenarios previstos de cambio climático.

José Alfonso Gómez Calero. Laboratorio de Erosión del Suelo. Instituto de Agronomía Sostenible (IAS-CSIC).

10:50 - 11:30. Erosión del suelo en campos de cultivo en el Este de la Península Ibérica. La experiencia de SEDER entre 1989 y 2021.

Artemi Cerdà Bolinches. Soil Erosion and Degradation Research Group. (SEDER). Departamento de Geografía, Universidad de Valencia.

11:30 - 12:10. Cambio climático, erosión y materia orgánica en el viñedo europeo. ¿Apocalipsis o soluciones reales?.

Jesús Rodrigo Comino. Departamento de Análisis Geográfico Regional y Geografía Física. Universidad de Granada.

12:10-12:50. Iniciativas globales implicadas en el aumento del secuestro de carbono del suelo.

Paloma Melgarejo Nardiz. “Iniciativa 4 por 1000”. Ministerio de Agricultura, Pesca y Alimentación.

12:50-13:30 Los eco-esquemas y su posible impacto en la conservación del suelo”.

Mónica Álvaro Sánchez. Técnico de la Unión de Pequeños Agricultores y Ganaderos (UPA) de Madrid.

13:30-14:00 Preguntas y resumen de las conclusiones.

Detailed programme of the Post-fire soil erosion risk mapping (© SECS)

Detailed programme of the Soil Management Strategies in the Face of Climate Change (© SECS)

Paraguayan Soil Science Society

Within the framework of the World Soil Day celebrations, the Paraguayan Society of Soil Science organizes the **III Soil Photographic Contest 2021**. Reports at sopacisconcursos@gmail.com.



III Concurso Fotográfico de Suelos



Foto Ganadora II Concurso
Georg Ginter

La foto que envíes, si resulta ganadora puede ser la portada de Facebook de la SOPACIS!
¿Cómo lo puedes lograr?

Participa del concurso con fotos relacionadas al suelo y si resultas ganador/a, aparte de nuestros geniales premios, tu foto será la portada de la página oficial de la SOPACIS.

Recepción de fotografías del 08 al 22 de noviembre de 2021
(sopacisconcursos@gmail.com)

Bases y condiciones disponible en la página de Facebook de la Sociedad Paraguaya de Ciencia del suelo.

Premios:
Primer puesto: 1.000.000 G + 1 plaza en el IV Congreso Paraguayo de Ciencia del Suelo y VII Simposio Paraguayo de Manejo y Conservación de Suelo.
Segundo puesto: 500.000 G + 1 plaza en el IV Congreso Paraguayo de Ciencia del Suelo y VII Simposio Paraguayo de Manejo y Conservación de Suelo.
Foto más votada en Facebook: 1 termo de terere con logo de SOPACIS + 1 plaza en el IV Congreso Paraguayo de Ciencia del Suelo y VII Simposio Paraguayo de Manejo y Conservación de Suelo.

La temática de fotografía es el suelo en todas sus dimensiones y escalas y pueden ser:
- mostrando perfiles
- prácticas de manejo de suelo (uso de abonos verdes, prácticas mecánicas y sus efectos positivos y negativos, etc.)
- suelos degradados
- acciones de recuperación de suelos (énfasis en mejoras biológicas y físicas)
- componentes del suelo y sus interacciones
- geomorfología
- fotografías por microscopía óptica, microscopía electrónica, imágenes aéreas

Flyer III Soil Photographic Contest 2021 (© SOPACIS)

Awards

IUSS Distinguished Service Medal 2020 to Dr. Fischler

Following its mission, since 2012 the IUSS has recognized world soil leaders who have translated soil science into action, by awarding the Distinguished Service Medal. The IUSS Distinguished Service Medal is a recognition for people who have served the IUSS as a worldwide organization in a way that has been more than committed to its goals, having behaved worthy of this distinction. Consequently, this is an award to recognize people who throughout their lives have distinguished themselves for actions that contributed significantly to the growth and consolidation of the IUSS, of the soil science as well as the promotion and reinforcement of public policies for soil resource preservation. We have the privilege and honour to inform that Prof. Laura Bertha Reyes Sánchez, President of the International Union of Soil Sciences, bestowed the Distinguished Service Medal 2020 to Dr. Franz Fischler (Austria) in recognition of his outstanding cooperation and continuous

support that helped the IUSS to become what it is today, dedicating at the same time all his professional life both to supporting agriculture and soil science and to promoting the policies necessary for its preservation. The laudation for Dr. Fischler was held by Prof. Winfried E.H. Blum, IUSS Honorary member. Dr. Franz Fischler, former Minister of Agriculture, Forestry and Water Management of Austria, former Commissioner for Agriculture and Rural Development of the European Union and former President of the European Forum Alpbach enabled with his support the statutory change from a personal membership based International Society of Soil Science (ISSS) to a nationally based International Union of Soil Sciences (IUSS), which could be concluded in 1998, and the establishment of a new scientific structure, which since 2002 has been fostering the cooperation between different soil scientific disciplines within the Union and with the worldwide scientific community as a member of the International Science Council (ISC).



From left: Hubert Hasenauer, Winfried E.H. Blum, Laura Bertha Reyes Sánchez, Franz Fischler, Rainer Horn, Andreas Baumgarten (© BOKU)

The ceremony took place during the **Symposium ‘Soils for our future’** held on Oct. 15, 2021 at the [University of Natural Resources and Life Sciences Vienna](#), Austria. The participants were welcomed by Prof. Hubert Hasenauer, Rector of the University of Natural Resources and Life Sciences Vienna, and Dr. Andreas Baumgarten, President of the [Austrian Soil Science Society](#). At the symposium, which was organized in cooperation with the Austrian Soil Science Society, Dr. Fischler stated that soils were again seen as very important, one of the fundamentals for living on earth, with the almost biggest pool of carbon. The biome is important for life, also that in the soil for our resilience. In contact with farmers and politicians it is important to underline the benefits of managing soils properly and how this can contribute to global decarbonisation.

Prof. Rainer Horn, former President of IUSS, concluded that in order to sustain soil properties and functions a more site related land use and soil management strategy is needed. We shall use current knowledge on chemical, physical and biological processes as a basis for values for a sustainable land use planning. Continuous development of new insights into processes in soil and how soils react under various land uses, climatic and anthropogenic inputs are key. IUSS has the potential to deliver essential information for a more sustainable future land management.

In order to disseminate this information cooperation is important. Dr. Fischler offered to convey the message of this symposium to the organisers of the [European Forum Alpbach](#) (founded 1945) which may result in a seminar on soils during the next European Forum Alpbach. Furthermore a cooperation regarding a conference with the European Parliament was envisaged for 2022. Finally a cooperation with the [European Landowners’ Organisation \(ELO\)](#) could be of interest, e.g. in relation to soil biodiversity.

Find out more about the detailed programme and the talks given during the symposium ‘Soils for our future’:

<https://www.iuss.org/newsroom/>

More information about the Soils for our future programme: https://www.iuss.org/index.php?rex_media_type=download&rex_media_file=soils_for_our_future_programme_20211015.pdf.

International Science Council Award 2021 for IUSS Honorary member

The International Union of Soil Sciences proudly announces that **Prof. Winfried E.H. Blum** has obtained the International Science Council “Science for Policy” Award 2021 and applauds its **Honorary member and former General Secretary** for receiving this well-deserved honor of this globally recognized award.

The [International Science Council Awards Programme](#) was established in 2020 by the [ISC Governing Board](#) to recognize individuals, groups, and initiatives launched by the ISC and its [members](#) who serve to advance science as a global public good, by, for example, promoting international, interdisciplinary scientific research cooperation, striving to bring scientific knowledge into the public domain, innovating in science education and outreach, or promoting the free and responsible practice of science. The ISC Awards are conferred every three years during the ISC General Assembly in five categories. One is the **Science-for-Policy Award** for outstanding contribution to, stimulation of, support for or communication of the findings of international scientific research and scholarship relevant to international policy challenges.

Prof. Winfried Blum received this award for his enormous achievements in the field of knowledge transfer to policy and society. He made a major contribution to raising



IUSS President Laura Bertha Reyes Sánchez presenting Prof. Blum with a Diploma in recognition of a lifetime dedicated to soil sciences (© Daniel Blum)

awareness of soil at national, European and international level as a natural asset worthy of protection and as the basis of human life. The development of the concept of soil functions and the establishment of the International Soil Day on 5 December each year are two outstanding examples of his contribution. Winfried Blum developed the scientific-technical basis for improving sustainable soil and land management and environmental protection from a global perspective.

During the online ceremony Prof. Blum gave the following speech:

Distinguished Audience,

I thank the International Science Council for conferring to me the “Science-for-Policy Award 2021”, thus recognizing not only my scientific achievements, but also the importance of my field of science, the soil, as the basis of life.

This award is the highlight of my professional career as a forest engineer and natural scientist. It also confirms my way in developing new concepts through the combination and application of different kinds of knowledge.

In the future, science can support and promote the sustainable development of human societies, if it is able to explain in an understandable way, the complex interdependencies between nature and the social, economic, and technical impacts of human activities to the broad public and to politics.

Read more: <https://council.science/current/news/2021-isc-award-winners/>.

On the occasion of the ISC award IUSS president Prof. Laura Bertha Reyes Sánchez took the opportunity to present Prof. Blum with a **Diploma in recognition of a lifetime dedicated to** knowledge, research, promotion, and dissemination of **Soil Sciences**.



ISC Science-for-Policy Award (© ISC)

2021 Australian Laureate Fellowship for Alex McBratney

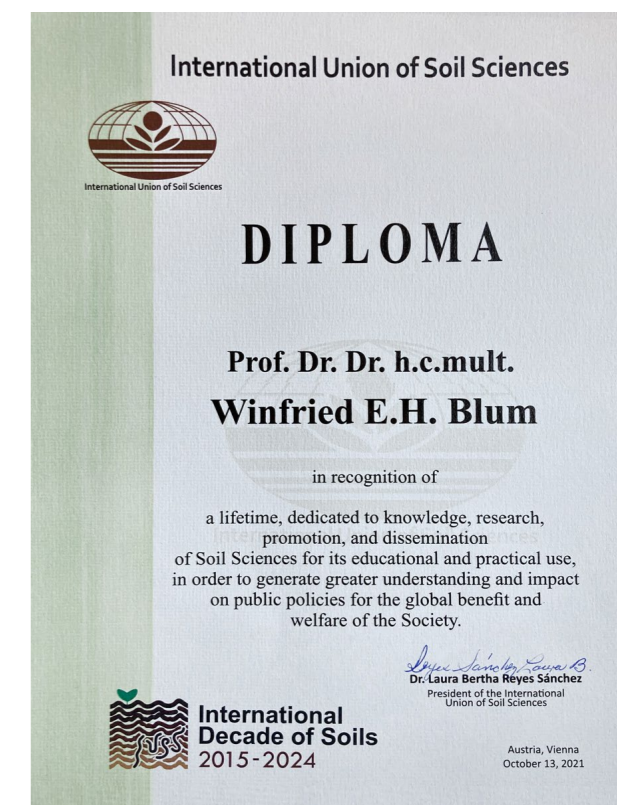
Dochuchaev Award winner Prof. Alex McBratney (<https://www.iuss.org/about-the-iuss/awards-prizes/dokuchaev-award/dokuchaev-award-2014/>) has been awarded an Australian Research Council Laureate Fellowship, one of the most prestigious research awards nationally, for a project aiming to deliver a comprehensive systematic soil monitoring system within a world-first soil security framework.

More information about his proposed work can be found on the [ARC website](#).

Read more about the objectives of the [Australian Laureate Fellowships](#) scheme: <https://www.arc.gov.au/grants/discovery-program/australian-laureate-fellowships>.

Awards from the Soil Science Society of America (SSSA) to Bal Ram Singh

The Secretariat is pleased to announce that Prof. Bal Ram Singh, Chair of IUSS Division 3 – Soil Use and Management and IUSS Honorary Member, has been awarded the [Soil Science Distinguished Service Award](#) and the [Soil Science Applied Research Award](#) in recognition of his contributions and achievements. SSSA is proud to include Bal Ram Singh in their 2021 Awards Hall of Fame.



Diplom awarded on the occasion of the ISC Award (© IUSS)

Election of IUSS Division and Commission Officers 2022-2026

Election of IUSS Division and Commission Officers 2022-2026

Nominations were sought for all Division and Commission positions (2022-2026), except Division vice-chairs. IUSS Full Members (national soil science societies who paid the membership fees) were encouraged to participate in this call to seek and nominate candidates to the Divisional Nominating Committees. More than 112 nominations were received from 26 countries and discussed in the Divisional Nominating Committees. The Electoral Committee ensured a broad geographical representation of candidates and finalized the ballots and collection of

biographies. Mid of July the ballots and guidelines for the voting procedure were sent to the IUSS Full members who were requested to carry out national elections from September until December 2021.

The voting system will close 31 December 2021. The Presidents of the IUSS Full members are asked to provide the name of the candidate for each position who received the most votes in the national voting to the Electoral Committee until 28 January 2022. The new IUSS officers are expected to be announced by 28 February 2022.

Other IUSS News

WASWAC-IUSS Position Paper on the Interlinkages of Soil and Climate Change

The following invitation to support the WASWAC-IUSS Position Paper on the Interlinkages of Soil and Climate Change in relation to the COP26 was published in IUSS Alert 196 (October 2021):

Invitation to support the WASWAC-IUSS Position Paper on the Interlinkages of Soil and Climate Change in relation to the COP26

Soils in good health are an essential part of our life support system, along with the health and quality of our biodiversity, and the interface to the atmosphere and groundwater. Soil is an engine of the economy, but also a source of many ecosystem services, including mitigation of climate change.

The loss of soil not only implies the loss of areas for sufficient food production, filter and buffer capacities for clean water, but also of vegetation that photosynthetically captures carbon dioxide and soil organisms responsible

for its storage and recycling. Therefore, loss of soil implies losing two of the largest compartments with a natural capacity to capture CO₂ and mitigate climate change. Considering that the FAO's report on the state of the world's soil resources estimates that 33% of our soils are degraded due to rapid population growth, imminent rising demand for food, and ongoing competition for land uses (FAO, 2015), the International Union of Soil Sciences, following the Call of the United Nations Conference on Climate Change (COP26) 'Uniting the world to tackle climate change', invites the soil science community and scientists of all branches to support the WASWAC-IUSS Position Paper on the Interlinkages of Soil and Climate Change: Protecting the Soil is Protecting the Climate. Download the position paper: https://www.iuss.org/index.php?rex_media_type=download&rex_media_file=waswac-iuss_position_paper.pdf.

The IUSS kindly invites you to co-sign our Position Paper no later than October 31, 2021 at: <https://www.iuss.org/newsroom/iuss-waswac/>.

Soil Science Societies and Institutions are invited to support this Position Paper. If your institution is willing to join with its logo, please send it to the IUSS Secretariat at iuss@umweltbundesamt.at.

At the start of the COP 26 on October 31, 2021 the WASWAC-IUSS Position Paper with the logos of **50 Soil Science Societies and Institutions** and the list of **805 individual supporters** were sent to the President and the Executive Secretary of COP 26. The IUSS thanks all institutional and individual supporters for their engagement. The **list of supporters** can be downloaded from the IUSS website: <https://www.iuss.org/newsroom/iuss-waswac/>.

IUSS Vice-Chairs Centennial selected

The executive board of the Italian Soil Science Society ISSS, who will be hosting the IUSS Centennial celebrations in 2024, selected four Italian soil scientists with proved scientific experience to cover the role of vice-chair IUSS Centennial:

- Stefania Cocco (Division I)
- Stefano Mocali (Division II)
- Giuseppe Lo Papa (Division III)
- Maria Costanza Calzolari (Division IV)

Read more: <https://www.iuss.org/organisation-people/people/current-officers/#DCO>.

Paleopedology Newsletter

The Paleopedology Newsletter No. 30, a joint initiative of IUSS Commission 1.6 – Paleopedology and INQUA Palaeopedology Working Group, is now available. Among others, it includes the Annual report of the IUSS Commission 1.6. Then Peter N. Eze provides his interpretation for a pedo-stratigraphic section in northern Botswana.

Georges Stoops, Roger Langohr and Eric Van Ranst share the paleopedology part of their meta-analysis micromorphological study from Belgium. And Curtis Monger delineates a global view on soil's potential for sequestering CO₂ as soil inorganic carbon.

Read more: <https://www.iuss.org/newsroom/newsletters/paleopedology-newsletters-commission-16/>.

IUSS contributes to ISC GeoUnions Standing Committee on Disaster and Risk Reduction

The International Science Council (ISC) GeoUnions Standing Committee on Disaster Risk Reduction was established in July 2020 to strengthen the long-standing ISC leadership in advancing Disaster Risk Reduction (DRR). The Committee identifies and encourages activities of global scientific communities for the implementation of the Sendai Framework, as further defined by the ISC. Prof. Takashi Kosaki, IUSS Past President, and Dr. Edoardo Costantini, IUSS President Elect, were appointed as IUSS representatives to this new committee. The presence of the IUSS in the Committee is aimed at highlighting the role played by soil as an anthropogenic factor that regulates natural disasters and to advise multiple stakeholders through the ISC. One of the activities of the Committee is the publication and broad distribution of policy briefs related to events of global relevance connected to DRR. The website of the committee is <http://www.iscgdr.com/>. The current policy brief no. 5 talks about how to communicate anthropogenic factors that contribute to natural disasters.

Download the policy brief: https://www.iuss.org/media/isc_gu_sc_drr_policy_brief_5.pdf.

IUSS President Patronage

Under the patronage of the IUSS President IUSS and Soil Science Society of Poland invites you to participate in 4th international conference of young scientists: Soil in the environment to be held on 29 May to 01 June 2022, in Torun, Poland

Read more: <https://sites.google.com/view/site-torun-2020>

Under the patronage of the IUSS President IUSS, Spanish Soil Science Society and FAO-GSP invited to participate in the International Online Seminar on the Multilingual Dictionary of Soil Science. December 9, 2021

15:00 – 17:30 CET

Registration: https://fao.zoom.us/webinar/register/WN_f11Gh7mTTSQ7dFM_jmXwA.

Programme: https://www.iuss.org/media/agenda_dicmcs.pdf.



International Decade of Soils (2015-2024)

World Soil Day 2021

Activities of the IUSS President on World Soil Day 2021

The IUSS President, Laura Bertha Reyes Sanchez, was invited to offer greetings as a speaker at different days and times of World Soil Day (WSD) celebrations:

- *December 2:* World Soil Day Celebration and 100th anniversary of the Research Institute of Soil Science and Agrochemistry. Uzbekistan.
 - *December 3:* FAO WSD Celebration. Rome, Italy.
 - *December 3:* WSD International Conference; “Soil, climate, biodiversity in the Aral Sea basin: urgent problems and innovative solutions”. Senate of the Uzbekistan Republic, International Center on Biosaline Agriculture, Environmental Center for Central Asia, and Branch of the Dokuchaev Soil Science Society of Uzbekistan.
 - *December 3:* WSD Celebration “Thus are the Soils of my Country”: CREA, INTA, FAO-Argentina, and Argentine Association of Soil Science.
 - *December 3:* WORLD SOIL DAY Commemorative Forum. Benemérita Universidad de Puebla and Mexican Soil Science Society.
 - *December 3:* 2nd Colloquium for World soil day: “Protect the soil, protect your future”. University of San Nicolás de Hidalgo, Michoacán and Mexican Soil Science Society.
 - *December 5:* 8th World Soil Day in China. Institute of Soil Science, Chinese Academy of Sciences.
 - *December 6:* WSD EMBRAPA Solos Celebration. Brazil.
 - *December 6:* WSD Celebration and award ceremony and closing of the 4th Mexican Soil Evaluation Contest.
 - *December 6:* WSD Celebration: “The Soil framework Law and the legislative challenge for the national congress of Chile”. Senate of the Republic of Chile in conjunction with the Chilean Society of Soil Science.
 - *December 9:* International online seminar on the multilingual Dictionary of Soil Science. Spanish Soil Science Society, IUSS, and FAO-GSP.
 - *December 9:* Presentation of 4 children’s booklets published in the framework of the IUSS-FAO competition. Education Commission of the Argentine Association of Soil Science
 - *December 9:* First Soil Festival of Mexico City: Citizenship and Regeneration. Government of Mexico.
- WSD Celebration: *Podcast* recording: “*Sustainability and education in Soil Science*”. IUSS Stimulus Fund Project.

World Soil Day 2021 – poster and children’s booklet contest on salt-affected soils

In the framework of World Soil Day (WSD) 2021, the Food and Agriculture Organization of the United Nations (FAO), the International Union of Soil Sciences (IUSS) and the Global Soil Partnership (GSP) launched a scientific children’s booklet contest and a poster contest on salt-affected soils with the motto ‘Halt soil salinization, boost soil productivity’.

Children’s Booklet Contest:

We have invited anyone who is interested in soil to submit a children’s booklet on the impacts of salinization, its consequences on the livelihood and welfare of the affected populations and ecosystems by affecting food production. The winner will receive a cash prize of 1 000 USD, second and third prize will receive a cash prize of 500 USD and 250 USD, respectively, from IUSS and FAO’s GSP. The winners were announced on World Soil Day, 5th December 2021. Deadline for submission: 07 November 2021.

Read more: <http://www.fao.org/world-soil-day/booklet-contest/en/>.

Poster contest by kids for kids:

We have invited children and teens, from ages 5 to 14, living in areas affected by soil salinization, to use their imagination and create a poster for kids that illustrates how soil salinization affects their daily lives. The two winning posters (one per each category) were selected and announced on the FAO WSD and IUSS websites on the 5th December 2021, World Soil Day. Deadline for submission: 15 November 2021.

Read more: <http://www.fao.org/world-soil-day/poster-contest/en/> and <https://www.iuss.org/international-decade-of-soils/the-iuss-goes-to-the-school/>.

(See screenshot on the top of the next page.)



Screenshot:
Announcement of the
winners of the poster
contest by Laura
Bertha Reyes Sanchez,
IUSS President
(© IUSS Secretariat)

Other activities celebrating World Soil Day

In the framework of the World Soil Day, the National Autonomous University of Mexico and the Mexican Soil Science Society have created the 2021 edition of the International Workshop and Mexican Contest on Soil Judging (in Spanish). Both activities were held online.

2nd International Soil Judging Workshop

November 29th – December 3rd, 2021; Online, in Spanish
Register: <https://cutt.ly/aRoi7Sp>.

4th Mexican Soil Judging Contest

December 4th, 2021; Online, in Spanish
Register: <https://cutt.ly/oRooqrX>.

SCHEDULE					
2 nd INTERNATIONAL SOIL JUDGING WORKSHOP					
TOPICS: Why study soils? Soils in space and time Case studies					
NOVEMBER					
HOUR	MONDAY 29TH	TUESDAY 30TH	WEDNESDAY 1ST	THURSDAY 2ND	FRIDAY 3RD
8:50 - 9:00	Opening				
9:00 - 10:30	Carmen Gutiérrez Soil genesis Postgraduate College	Rosa Poch The thin section in soil studies University of Lleida	Sergey Sedov Soil memory: paleosols and climate change National Autonomous University of Mexico	Lorenzo Vázquez Soils and geomorphology National Autonomous University of Mexico	Gabriel Velázquez Anthrosols and Technosols Institute of Research on the Peruvian Amazonia
10:30 - 10:40	Break	Break	Break	Break	Break
10:40 - 12:10	Helena Cotler Soil ecosystem functions Center of Research on Geospatial Information Sciences	Agustín Merino The fire impact on soils University of Santiago de Compostela	Elizabeth Solleiro Soils in the Mexican karstic landscapes National Autonomous University of Mexico	Peter Schad WRB-based soil classification National Autonomous University of Mexico	Norma García Soil salinization and chinampas National Autonomous University of Mexico
12:10 - 12:20	Break	Break	Break	Break	Break
12:20 - 13:50	Christina Siebe Soil monitoring National Autonomous University of Mexico	Bruno Chávez Soil organic matter National Autonomous University of Mexico	Serafín Sánchez Soil evaluation in archaeological contexts National School of Anthropology and History	Mario Guevara Digital mapping of soil carbon/Pedometrics National Autonomous University of Mexico	Gilberto Vela Correa Soil fertility in Andosols Metropolitan Autonomous University
13:50 - 14:00	Break	Break	Break	Break	Break
14:00 - 14:30				Workshop: How to fill out a soil evaluation sheet	
14:30 - 14:40				Closure	

Programme
of the 2nd
International
Soil Judging
Workshop
(© UNAM)

Stop Soil Degradation and the IUSS educative project to achieve it

On December 5th 2015, celebrating the World Soil Day and the International Year of the Soils, the International Union of Soil Sciences, through the Vienna Declaration, launched the “International Decade of Soils: 2015- 2024”¹, defining as two of its most important tasks to stop the land degradation on our planet, and to put the main focus of our activities on school-age children² to achieve it. In line with these main goals, on **World Soil Day, December 5, 2020**, the IUSS launched the Project “THE IUSS GOES TO THE SCHOOL” with the objective of informing children and young people about the importance of the soil resource in our lives and the urgency to protect it.

IUSS Calendar ‘Soilutions’ printfile available

IUSS considers stopping soil degradation as one of its most important tasks, and invited to propose ‘Soilutions’ in the form of a poster in order to preserve this unique resource and life itself.

The ideas and proposals were to represent the role of the soil as an essential natural resource to preserve the environment. This is very relevant for reaching many of the Sustainable Development Goals (SDGs). The contest was an initiative under the umbrella of the International Decade of Soils 2015-2024, which shall increase the awareness about the importance of soil. Based on the best 12 posters a permanent calendar was produced.

You can download the print file here:
[iuss_calendar_def_printing_version.pdf \(59 MB\)](#).

Spanish Soil Science Society

On the occasion of the World Soil Day Celebration, the Soil Teaching and Citizen Awareness Section organizes the conference ‘Soils affected by salts and climate change’ which will be given by Jorge Batlle-Sales (president of the International Network of Soils Affected by Salinity (INSAS) on December 2 at 12:30 p.m. Celebrating the WSD, the **Soil Teaching and Citizen Awareness Section of the Spanish Soil Science Society** organized a **drawing contest “Soil and Food”** for children and young people.

¹ Horn, R. WSD 2015, Vienna and 2017, Rome, Italy.
² International Decade of Soils Programme.
2016. IUSS Inter-Congress Meeting Document, p.121-123.

Celebración del Día Mundial del Suelo

CONFERENCIA

“Los suelos afectados por sales y el cambio climático”

Dr. Jorge Batlle-Sales

Profesor Titular de Edafología y Química Agrícola. Universitat de València
Presidente de la Red Internacional de Suelos Afectados por Salinidad (INSAS)

2 diciembre 2021 12:30h

Salón de Actos ETSIAMN-UPV (edificio 3G)

Más información
edafoeduca@upv.es

Flyer for conference ‘Soils affected
by salts and climate change’ (© SECS)

Flyer for drawing
contest ‘Soil and Food’ (© SECS)

CONCURSO DE DIBUJO ESCOLAR

El suelo y los alimentos

Las bases las podéis ver en <http://www.edafoeduca.es>.
Esperamos vuestros dibujos para antes del **30 de noviembre de 2021**. edafoeduca@upv.es

The IUSS GOES TO SCHOOL project

Concurso de Dibujo Escolar “El Suelo y los alimentos” 2021

La Sociedad Española de la Ciencia del Suelo a través de su Sección de Enseñanza del Suelo y Concienciación Ciudadana organiza un concurso escolar de dibujo en el marco de la celebración el día 5 de diciembre del Día Mundial del Suelo. El Día Mundial del Suelo está promovido por la Organización de las Naciones Unidas para la Alimentación y la Agricultura (FAO) y por la Alianza Mundial por el Suelo (AMS) con la colaboración de otros organismos nacionales e internacionales.

El objetivo de este concurso es sembrar entre los niños y los jóvenes el interés por conocer y proteger los suelos.

El suelo es una de las bases de nuestra vida. Gran parte de nuestros alimentos se han cultivado en los suelos. En los suelos hay nutrientes para las plantas y no lo olvidemos también para los organismos que viven en el suelo (bacterias, hongos, etc.). Los suelos guardan agua para las plantas y en sus poros también encontramos oxígeno. El oxígeno lo necesitan para respirar tanto las raíces como muchos de los organismos del suelo. Los suelos son el soporte para las raíces y la planta.

Los alimentos nutritivos y de buena calidad solo se pueden producir en suelos sanos. La falta de cualquiera de los 15 nutrientes necesarios para el crecimiento vegetal puede limitar el rendimiento del cultivo. Fuente: <https://www.fao.org/3/i4405s/i4405s.pdf>




Varios de los Objetivos de Desarrollo Sostenible (ODS) están vinculados al suelo — poner fin al hambre (ODS 2), garantizar el agua limpia (ODS 6), combatir el cambio climático (ODS 13), preservar la vida de los ecosistemas terrestres (ODS 15) —, y sin un suelo sano estos ODS no podrán lograrse.

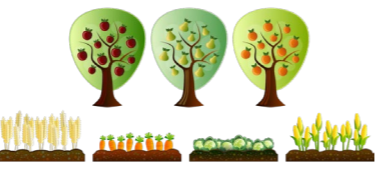
A detailed outline of the Drawing contest ‘Soil and Food’, which may serve as an example for a successful event educating children and adolescents about the importance of the soil for food production and a healthy life (© SECS)

Mexican Soil Science Society

The ‘First Festival of Soils of the CDMX: Citizenship and Regeneration’ will take place on Thursday 9, Friday 10 and Saturday 11, December 2021.



“Las estimaciones actuales indican que cerca de 690 millones de personas en el mundo padecen hambre, es decir, el 8,9 % de la población mundial”. “Con más de 250 millones de personas que podrían encontrarse al borde de la hambruna, es necesario actuar rápidamente para proporcionar alimentos y ayuda humanitaria a las regiones que corren más riesgos”. “El aumento de la productividad agrícola y la producción alimentaria sostenible son cruciales para ayudar a aliviar los riesgos del hambre”. “Desde el inicio de los años 1900, alrededor del 75 % de la diversidad de cultivos ha desaparecido de los campos de los agricultores. Un mejor uso de la biodiversidad agrícola puede contribuir a dietas más nutritivas, mejorar formas de vida en las comunidades agrícolas y ayudar a que los sistemas agrícolas sean más resistentes y sostenibles”. “Todos queremos que nuestras familias tengan suficientes alimentos para comer, y que estos sean seguros y nutritivos”. Fuente: <https://www.un.org/sustainabledevelopment/es/hunger/>



Bases del Concurso

- Tema: desafío “Los suelos y los alimentos”.
- Dibujos a COLOR o B/N, COLLAGES, dibujos con distintos suelos, dibujos hechos con tabletas digitales, etc.
- Se admitirá 1 dibujo por alumno/a.
- Los dibujos deberán ser inéditos. No se admitirán dibujos que hayan sido premiados en otros concursos o estén participando actualmente en otros eventos similares.
- Categorías: 3 (10-11 años, 12-14 años, 15-17 años).
- Envío de los dibujos: se enviarán desde los centros educativos a edafoceduca@uvp.es, indicando: nombre y apellidos del alumno/a, edad, centro escolar, persona de contacto en el centro escolar.
- Plazo de envío: hasta el 30 de noviembre de 2021.
- Premios: Diploma más lote de libros. Un premio para cada categoría.

Material informativo (FAO): [Los suelos sanos son la base para la producción de alimentos saludables. Los suelos constituyen la base de la vegetación.](#) Video: [Soil: An essential ingredient to healthy food and nutrition.](#)

Chilean Soil Science Society

During the WSD 2021 celebrations, the Chilean Soil Science Society will present to the Senate of the Republic the activities carried out by high school students within the framework of the educational project ‘The IUSS GOES TO THE SCHOOL’.



Recent activities in THE IUSS GOES TO THE SCHOOL educative project include:

- IUSS and FAO-GSP Poster drawing contest by kids for kids on salt-affected soils by promoting it at children's schools in the framework of WSD 2021.
- IUSS and FAO-GSP Children's booklet contest on salt-affected soils in the framework of WSD 2021.
- In the framework of the 45th Congress of the Mexican Soil Science Society, the XV Symposium on Educational Innovations in Soil Science Teaching was held online on October 6th, with the participation of children from Spain, Italy and Mexico.

Read more: www.iuss-goes-to-school.org.mx and www.slcs.org.mx.

© IUSS

SOCIEDAD MEXICANA DE LA CIENCIA DEL SUELO
COMISIÓN DE EDUCACIÓN Y ENSEÑANZA DE LA CIENCIA DEL SUELO

El proyecto educativo “Así son los Suelos de mi Nación”, como participante del proyecto educativo “LA IUSS VA A LA ESCUELA”, invita a niños y jóvenes a participar en el:

XV Simposio de Innovaciones Educativas en la Enseñanza de la Ciencia del Suelo
conforme a la siguiente CONVOCATORIA:

6 y 7 de Octubre

Objetivo: Difundir y divulgar los trabajos de investigación que realizan los niños de México en sus diferentes niveles educativos básicos relacionados con la Ciencia del Suelo, así como fomentar el acercamiento entre las instituciones de educación básica y los expertos en el tema.

BASES:

Las categorías y temáticas:

- **Preescolar, 1º a 3º de Primaria:**
Tema: El suelo y la biodiversidad
Tipo de trabajo: Dibujo con la explicación de la ilustración escrita o descrita por los niños.
- **4º a 6º de Primaria:**
Tema: El suelo y la producción de alimentos
Tipos de trabajos: Cuento, Historieta, Poema, Canción.
- **Secundaria:**
Temas: El suelo y los objetivos del desarrollo sustentable, el suelo y el cambio climático.
Tipos de trabajos que se solicitan: Infografías, juegos de mesa, obras de teatro con títeres.
- **Preparatoria:**
Temas: El suelo y los objetivos del desarrollo sustentable, el suelo y el cambio climático.
Tipos de trabajos: Infografías, apps móviles, juegos de mesa, obras de teatro con títeres.

Registro

Los interesados en registrarse en las categorías: de **Preescolar hasta Secundaria**, deben realizar una pre-inscripción a la siguiente liga <https://forms.gle/Gw95XtZywkaww88>. A partir de esta pre-inscripción el Comité académico de cada categoría seleccionará los trabajos que podrán ser presentados de forma virtual en el Simposio.

Los interesados en registrarse en la categoría de **Bachillerato** deben enviar un resumen de 300 palabras como máximo al siguiente correo electrónico: simposio.suelo@gmail.com. Las características del resumen y plantilla las puedes consultar en la siguiente liga https://drive.google.com/file/d/1rM47yWthZ2mv70tenO_NTO_PuqGEM-Vx/view?usp=sharing

Resultados

Los resultados de todas las categorías serán dados a conocer vía correo electrónico a todos los participantes el **16 de agosto**.

Los trabajos de las categorías: Preescolar hasta Secundaria, deberán enviar su propuesta final el **24 de septiembre** en un video en power point con duración mínima de 5 minutos y máxima de 10 minutos.

Presentación virtual de los trabajos:

Los trabajos de preescolar hasta secundaria se presentarán en video; es importante que estén presentes los alumnos con sus profesores, padres o tutores para auxiliarnos en responder preguntas sobre sus trabajos.

Los jóvenes de bachillerato presentarán en power point de forma oral con un tiempo de exposición de 10 minutos.

Fechas importantes:

Pre-Registro y envío de resumen: 9 de agosto
Resultados: 16 de agosto
Envío de videos de las categorías de preescolar a secundaria: 24 de septiembre

Todos los participantes contarán con su Constancia de ponentes.

Informes: comision.educacion.smc@gmail.com, simposio.suelo@gmail.com
Costo: Gratuito

#EducaParaConservar
#SueloUnMundoPorDescubrir
#EdafologosEnseñando

Left: Poster of the XV Symposium on Educational Innovations in Soil Science Teaching.

Right: Invitation for children to participate in the XV Symposium on Educational Innovations in Teaching Soil Science (both: © Educative Commission of the Mexican Soil Science Society)

Sociedad Mexicana de la Ciencia del Suelo
Comisión de Educación y Enseñanza de la Ciencia del Suelo

El proyecto educativo “Así son los Suelos de mi Nación”, como participante del proyecto educativo “LA IUSS VA A LA ESCUELA”, invita a niños y jóvenes a participar en el:

XV Simposio de Innovaciones Educativas en la Enseñanza de la Ciencia del Suelo
conforme a la siguiente CONVOCATORIA:

6 y 7 de Octubre 2021

Objetivo: Difundir y divulgar los trabajos de investigación que realizan los niños en sus diferentes niveles educativos básicos relacionados con la Ciencia del Suelo, así como fomentar el acercamiento entre las instituciones de educación básica y los expertos en el tema.

BASES del Simposio:

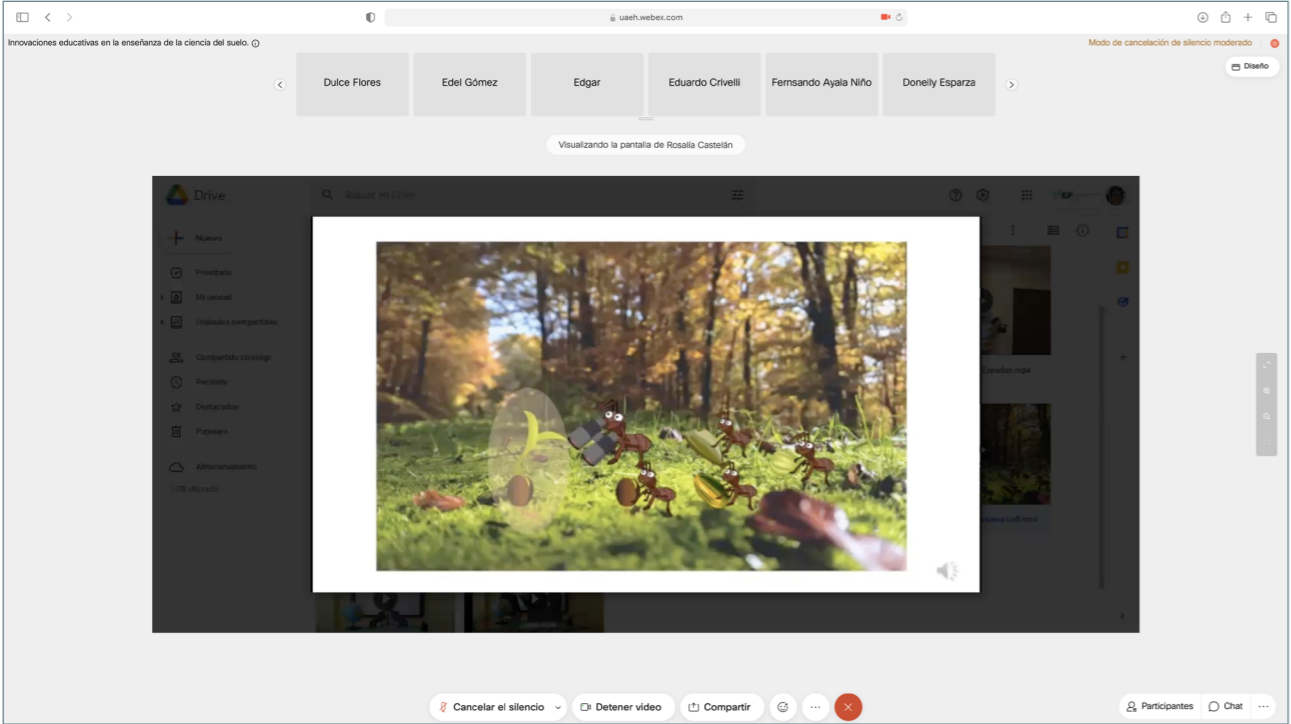
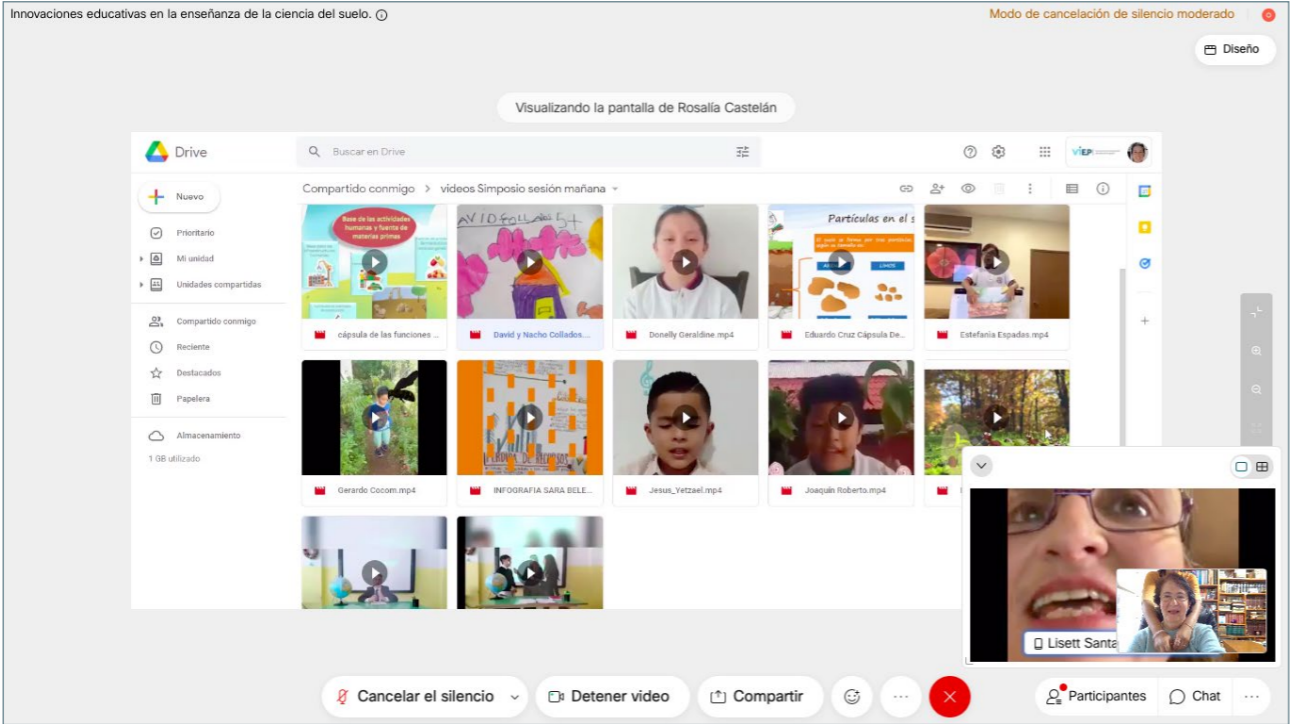
Se convoca a la presentación de trabajos escolares relacionados con la ciencia del suelo desde el nivel preescolar hasta bachillerato. Las contribuciones pueden ser realizadas con la participación de un niño o en equipos; es necesario contar con la asesoría de profesores, padres de familia o tutores.

Las categorías y temáticas:

La selección se realizará según las siguientes temáticas a abordar por categoría:

- 1) Preescolar, 1º a 3º de Primaria:**
Tema: El suelo y la biodiversidad
Tipo de trabajo: Dibujo con la explicación de la ilustración escrita o descrita por los niños.
- 2) 4º a 6º de Primaria:**
Tema: El suelo y la producción de alimentos
Tipos de trabajos: Cuento, Historieta, Poema, Canción.
- 3) Secundaria:**
Temas: El suelo y los objetivos del desarrollo sustentable, el suelo y el cambio climático.
Tipos de trabajos que se solicitan: Infografías, juegos de mesa, obras de teatro con títeres.
- 4) Preparatoria:**
Temas: El suelo y los objetivos del desarrollo sustentable, el suelo y el cambio climático.

On October 6, 2021, the XV Virtual Symposium on educational innovations in the teaching of soil science was held virtually within the framework of the 45th Mexican Congress of Soil Science, with the participation of children and young people from Mexico, Spain and Italy. The presentations were divided into four categories, from preschool to high school.



Screenshots of the XV Virtual Symposium on educational innovations in the teaching of soil science
(© Laura Bertha Reyes Sánchez)



Screenshot of the XV Virtual Symposium on educational innovations in the teaching of soil science
(© Laura Bertha Reyes Sánchez)



Conference and Meeting Reports

3rd International Scientific Symposium on Sustainable Land Management

By DI KIBA, President of the Soil Science Society of Burkina Faso

The 3rd International Scientific Symposium on Sustainable Land Management was held from **17 to 20 May 2021 in Ouagadougou, Burkina Faso**, with a face-to-face attendance of about 300 experts from Burkina Faso and via internet of about fifty experts from several countries including Benin, Côte d'Ivoire, Ghana, Japan, Madagascar, Mali, Morocco, Niger, Senegal, Togo.

The Symposium was organized by the Soil Science Society of Burkina Faso (S.S.S.B.F), in collaboration with the National Academy of Sciences, Arts and Letters of Burkina Faso (ANSAL-BF) and the Permanent Interstate Committee for Drought Control in the Sahel (CILSS).

The opening ceremony was chaired by the minister in charge of the Agriculture of Burkina Faso on behalf of the Prime minister.

The symposium registered 292 face-to-face and 48 online participations and recorded 45 communications on soil fertility and fertilization, 11 on soil pollution and degradation, 23 on socio-economic aspects of soil degradation and 7 posters. In total 22 private and public institutions dealing with soil management including NGOs, presented their works in exhibition booths during four days. Key notes from the experts, very enriching round table discussions and scientific presentations from researchers documented the constraints, initiatives and perspectives in the field of sustainable land management at national, sub-regional and international levels. Finally, an **Ouagadougou Declaration** encouraging the creation of a Regional Centre of Excellence on Sustainable Land Management was issued.



Group photo during after the opening ceremony (© Ouédroago Salifou)

The **Centre of Excellence** should build on the expertise and national initiatives on sustainable land management of the different public and private institutions in Burkina Faso. It should be a platform where a database on land management, land degradation, technologies and innovations is developed and accessible by all land management stakeholders. It should also serve as a financial resource mobilization platform for sustainable land management. Finally, it should evolve into a regional Centre of Excellence by inspiring and coordinating the establishment of a synergy of action in sustainable land management at the sub-regional level.

The organizing committee of the Symposium is grateful to JST all the donors for their technical and financial support. More information on: [Symposium GDT Officiel](#) | [Facebook](#).



Participants during the opening ceremony
(© Ouédrogo Salifou)

International Scientific Symposium on Sustainable Land Management (© S.S.S.B.F.)

First IUSS Conference on Sodic Soil Reclamation

By Tibor Tóth and Zhichun Wang, organizers

During two days, **July 31 and August 1**, two connected meetings were organized in **Changchun, China**, the First IUSS Conference on Sodic Soil Reclamation and the annual meeting of the Salt-affected Soil Commission of the Soil Science Society of China. In Northeastern China, inside the Songnen Plain, there are areas with extreme levels of sodicity and alkalinity, but on the other hand in some areas irrigation is spreading, therefore a varied picture of salt-affected lands is present there, and that motivated the organizers to have the meeting in the Northeast Institute of Geography and Agroecology, where long experience has been accumulated on the Songnen Plain. The conference was originally scheduled to take place between Sept. 17 and 19 in 2020, but due to the world lockdown following COVID19 pandemic outbreak, it was postponed to May 10-12, 2021. Due to still ongoing strict restrictions it was at last re-postponed to July 31 – Aug. 1, 2021, the fixed date of the conference. Pandemic is not yet over, international and domestic travel is still complicated with COVID19 tests and quarantines, therefore the conference was organized in a hybrid manner, some participants were physically present, others online abroad or sitting in quarantine. Additionally several presentations were prerecorded. To facilitate online international participation the registration was free. Conference registration was available at <http://ssr.csp.escience.cn>, but the **Abstract Book** is downloadable at <https://tibortothsoil.members.iif.hu/abstr/1stIUSSSodicReclamation2021.pdf>. More than thirty presentations were held each day in front of some two hundred domestic participants in a Conference Hall in downtown Changchun, plus several posters were pre-

sented. In the online space some thirty participants contributed to the event from more than ten countries, but with the domination of Chinese reports. The combination of offline, online, prerecorded talks was a challenge not only for the organizers, but also for the strength of the internet system.

The quality of the talks was high and both days best representatives of the theory and practice of sodic soil reclamation gave presentations. Selecting only **three milestones from the conference**, these can be i) the proven adequacy of the index “Cation Ratio of Structural Stability” over earlier “Sodium Adsorption Ratio”, ii) the large number of parallel running complex projects on salt-affected soils all over China, iii) the complexity of such projects to result in a final commercial product through developing varieties/machinery/industrial technologies in such areas. The conference was jointly organized by Commission 3.6 Salt-affected Soils of the International Union of Soil Sciences, the Salt-affected Commission of the Soil Science Society of China, the Chinese Academy of Sciences and the People’s Government of Jilin Province, China. It was hosted by the Northeast Institute of Geography and Agroecology, Chinese Academy of Sciences. Although the conference is over, the newest travel restrictions oblige some participants to stay in Changchun until fresh COVID test results will authorize them to use airplane to travel back to their hometown. Nevertheless we think that was a lucky moment to organize these meetings in a relatively quiet period and wish fast recovery from the pandemic with general vaccination and to have face-to-face meetings as soon as possible.



Colleagues present at the conference venue (© Salt-affected Commission of the Soil Science Society of China)

Global Symposium on Salt-affected Soils (GSAS21): 'Halt soil salinization, boost soil productivity'



By Mousquer, Julia (FAOBR)

The Symposium took place over three days on **20, 21 and 22 October 2021** from **13:00 to 16:00 CEST**.

Symposium highlights

Distinguished guests during the high-level opening session: Mr QU Dongyu, FAO Director-General; H.E. Jamshid Khodjaev, Minister of Agriculture, Government of Uzbekistan; The Honourable Penelope Wensley AC, National Soils Advocate, Australia; Mr Ibrahim Thiaw, Executive Secretary, United Nations Convention to Combat Desertification – UNCCD; Mr Aziz Karimov, Head of the International Center for Biosaline Agriculture – ICBA – Regional Office for Central Asia and South Caucasus; and Ms Laura Bertha Reyes Sánchez, President of the International Union of Soil Sciences – IUSS.

Five eminent keynote speakers: Mr John Triantafyllis, Ma-naaki Whenua Landcare Research; Mr Piet Nell, Agricultural Research Council; Ms Kristina Toderich, International Platform for Dryland Research and Education, Tottori University; Mr Raul Lavado, University of Buenos Aires and Ms Angelica Kaus, University of Groningen.

- Launch of the Global map of salt-affected soils (GSSmap) v1.0 Over 70 presentations from speakers worldwide;
- Three hours of plenary sessions (in the six FAO official languages) 17 hours of presentations and interactive discussions (in English) Poster contest;
- Live quiz on salt-affected soils and prizes to grab for the top 10 winners Launch of a photo contest with public voting;
- Join the discussion through a dedicated virtual café.

Organisation

The GSAS21 was divided into a plenary session and four parallel technical sessions. These sessions covered the three key themes of the meeting while the last one was dedicated to good management practices from the field:

- *Theme 1:* Assessment, mapping, and monitoring of salt-affected soils;
- *Theme 2:* Integrated soil-water-crop solutions in rehabilitation and management of salt-affected areas;
- *Theme 3:* Agenda for action to prevent and rehabilitate salt-affected soils, protect natural saline and sodic soils, and scale-up sustainable soil management practices.
- *Testimonies from the field:* Best practices to manage salt-affected soils.

Plenary sessions

The plenary sessions featured leading scientists and representatives from international organizations, academia, NGOs, civil society and the private sector, who provided an overview of the state of salt-affected soils worldwide, and the latest advances in assessment, management and monitoring of salt-affected soils. The sessions were organized in a webinar format.

Simultaneous interpretation was provided in the six UN official languages (Arabic, Chinese, English, French, Russian, and Spanish) on the first day (20 October). The rest of the sessions were conducted in English only.

After the keynote speakers' presentations, a Q&A session was held.



Interactive Quiz

At the end of the first day of the plenary session, participants were invited to participate in an interactive quiz. The top 10 winners received soil-related prizes.

Poster session

Throughout the Symposium, there was an exhibition of over 70 posters covering the GSAS21 themes. The posters were accessible and open for voting from the *Symposium webpage during the 3-day symposium*. Participants were encouraged to check out the posters and vote for their favourite(s). The most popular posters received a prize consisting of the GSAS21 kit.

Virtual Café

At the end of the first day, GSAS21 invited all participants to meet, debate and exchange in an informal and open space the topic of salt-affected soils. The virtual café made it possible to connect with poster authors, and GSAS21 speakers but also to meet informally with a colleague or to establish new networks, and this for the entire duration of the Symposium.

After the Symposium

All materials (photos, presentations videos and recordings) were shared online, together with the GSAS21 Outcome Document and the GSAS21 Proceedings.

FOLLOW US: #SoilSalinization and #GSAS21

Digital assessment of soil salinity across Paraguay

Encina Rojas, A.¹, Sevilla, V.², Guevara, M.³, Ríos, D.⁴, Moriya, M.K.⁵

¹Soil and Territorial Ordering Área, Facultad de Ciencias Agrarias, Universidad Nacional de Asunción- Paraguay, ²Universidad Central de Venezuela, ³Centro de Geociencias - Universidad Nacional Autónoma de México, ⁴ Soil and Territorial Ordering Área, Facultad de Ciencias Agrarias, Universidad Nacional de Asunción-Paraguay, ⁵Ministerio de Agricultura y Ganadería-Paraguay

INTRODUCTION

Salinization represents an important form of soil degradation. According to FAO and GTIS, 2015, salinity and sodicity are one of the most important threats to soil health. Paraguay has two different edaphoclimatic regions. The Western Region with dry climate, 850mm average rainfall and the Eastern Region with humid climate (Grassi, B. 2020). Although the presence of salts is known in Paraguay, a soil salinity map is not available. Therefore soil salinity mapping is a first step to generate new knowledge and monitor the expansion of soil salinity. Thus, the main objective of this study is to develop a digital soil salinity map at the national level in Paraguay.

METHODOLOGY

The methodology used to map salt affected soils (SAS) was based on the Global Soil Partnership approach proposed by the Global Soil Partnership (Omuto et al., 2021), which emphasizes three steps: a) harmonization of input data, b) spatial modelling of input soil indicators using spatial predictors, and c) classification of soils affected by salts. The study data included 80 soil sampling sites with measured EC values and 204 sites with measured pH and PSI values that are standardized to 0-30 deep. Environmental predictors remote sensing imagery, thematic maps, geomorphometry and climate surfaces. The algorithm used for modeling is an ensemble of regression trees based on bagging known as Quantile Regression Forest.

Table 1. Percentages of coverage of each class of Electric Conductivity in soils of Paraguay, from 0 to 30 cm deep

Electric Conductivity (EC) 0 - 30 cm.		
Class	%	
0.02 - 0.75	99	
0.75 - 2.00	0.9	
2.00 - 2.30	0.1	

RESULTS

Most of the soils of Paraguay (97.49%), at depths of 0 to 30 cm, do not present salinity or sodicity. However, low sodium levels can be observed in soils of the lower chaco, likewise low salinity levels are found east of the middle chaco, occupying only 1.60% and 0.91% of the national territory, respectively. Thus our results represent a first benchmark to assess the expansion of salt affected soils across the country. The presence of salts and sodium in soil of Paraguay could indicate relation to the level of soil moisture. Bannari, Abderrazak and Zahra M. Al-Ali 2020 also mention that the amount of precipitation is closely related to the salinization of soils.

Table 2. Percentages of coverage of each class of Exchangeable Sodium Percentage, in soils of Paraguay, from 0 to 30 cm deep.

Exchangeable Sodium Percentage		
Class	%	
0 - 15	98.40	
15 - 30	1.60	

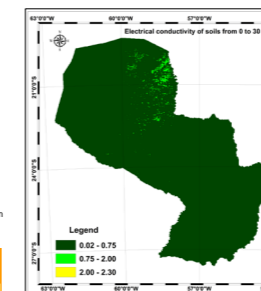


Fig 1. Soil Electric Conductivity map, 0 to 30 cm. deep in Paraguay

CONCLUSIONS

The first salinity and sodium map of soils in Paraguay shows the highest concentrations are found in the western region or the Paraguayan Chaco. Considering the scale of this first work, the low quantity and little updating of available data, as well as the depth superficial study, it is recommended to promote monitoring programs with information more detailed, updated and with more in-depth studies.

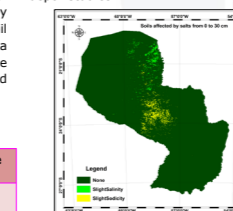


Fig 2. Map of soils affected by salts 0 to 30 cm. deep in Paraguay

ACKNOWLEDGEMENTS

We thank the Food and Agriculture Organization of the United Nations (FAO) and the Global Soil Partnership (GSP) and South American Soil Partnership (SASP) for their funding for data digitization, training and those efforts made this study possible.

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GLOBAL SYMPOSIUM ON SALT-AFFECTED SOILS

20 - 22 October, 2021

Winning poster from
GSAS21 Poster Session
(© GSAS21)

Sustainable Management of Cultural Landscapes in the context of the European Green Deal

By Dominique Serrani, PhD, Polytechnic University of Marche (Italy)

Report on the 1st ESSC – EURECYS International Joint Congress, Santo Stefano di Camastra (Italy); 10-14 November 2021



The 1st ESSC and EURECYS International Joint Congress was celebrated in Santo Stefano di Camastra, a village close to Palermo, Sicily (Italy), from November 10 to 14, 2021. The congress took place at the Cinema Glauco and the Museum of Ceramics, kindly made available by Santo Stefano di Camastra Municipality, and was attended by over 100 scientists from 19 EU and non-EU Countries. The principal theme of the Congress was to give a comprehensive overview on the importance of preserving our landscapes and sustainably managing our lands in the context of the European Green Deal. This was successfully achieved through 54 oral presentations and four poster sessions showcasing an impressive body of international research. The Congress was endorsed by the Università degli Studi di Palermo, Parco dei Nebrodi, Gaia Education, Comune di Santo Stefano di Camastra, and Göteborg University. The opening ceremony commenced with welcome speeches by Carmelo Dazzi (ESSC President) and by Tamas Komives (ECOCYCLES President) (Figure 1 and 2). The plenary keynote speech was given by Professor Emeritus at the Weizmann Institute of Science in Rehovot (Israel), Jonathan Gressel (Figure 3), about the unexpect-

ed potentiality of microalgae cultivation in the circular economic and ecological systems to offset and mitigate against ongoing food security and climate change challenges. The first day concluded with the welcome cocktail served in the Museum of Ceramics facilitated by the professional work of Istituto Alberghiero Angelo Florena's students, who kindly served traditional meals and drinks for the entire duration of the Congress.

Scientific Programme

The Congress was organized in four scientific sessions, characterized by a great variety of research frameworks. The first one, titled "Linking Europe's Green Deal to Soil care", was introduced by the scientific lecture of Professor Edoardo A.C. Costantini, from the CNR-IBE – Biology, Agriculture and Food Sciences Department, Sesto Fiorentino (Italy) (Figure 4). His keynote lecture showed the linkages between the European Green Deal and the soil care document, underlining that soil health is the starting point for the transformation of the entire food chain. He also expressed his personal concern about the goals since they appear to be very ambitious.

The second session, titled "Agriculture and natural resource management", was opened by Professor Zoltán Péter Alföldi (Figure 5) from the Hungarian University for Agriculture & Life Sciences, Georgikon Campus (Hungary). Professor underlined the importance of citizen science against global problems, reporting a significant practice example of how qualified and reliable amateur (citizen) scientists can expand and increase scientific knowledge. May East from the UN House Scotland Director of Cities programme (United Kingdom) introduced the third session "Principles and issues in sustainable regional development". The keynote speech explored the scope for policy-makers, urban planners, and practitioners to learn from the eco-communities living laboratories, striving to demonstrate low-carbon, place-based values, and practices for 20-minutes human settlements to thrive. The fourth session was opened by Professor Bosse Lagerqvist (Figure 6) from the Department of Conservation at the University of Göteborg (Sweden), titled "Cultural Landscapes and Heritage Science". The lecture presented the concept of integrated conservation to sustainably manage landscapes and the relation between top-down and bottom-up processes. Posters were exhibited at Cinema Glauco throughout the duration of the event, organized in sessions as for the oral presentations. On the final day, after scientific sessions concluded, Professor Sándor Némethy, Secretary-General of EURECYS, introduced the participants to the ESSC – EURECYS International Joint Congress 2022 to be hosted in the Balaton region (Hungary). Professor Giuseppe Lo Papa, in charge for the organization, and Professor Carmelo Dazzi, the ESSC President, expressed

their gratitude to the collaborators, workers, and participants who contributed to the successful congress. The last moment was dedicated to awarding three young researchers who obtained an ESSC grants of €500 each. The awardees were (1) Shachi Pandey (Figure 7), from the Forest Research Institute (Dehradun, India), for her study on "Assessing alterations in soil erosion vulnerability status based on water quality using Multinomial Logistic Regression", in collaboration with Raman Nautiyal, Parmanand Kumar, Vijender Pal Panwar; (2) Mauro de Feudis (Figure 8), from the Alma Mater Studiorum – University of Bologna (Bologna, Italy), for his research on the "Relationships between canal water, bed sediments, and surrounding soils: A preliminary study for the artificial canals network of Bologna floodplain (Italy)", with the participation of Gloria Falsone, Chiara Poesio, Andrea Morsolin, Michele Solmi, and Livia Vittoria Antisari; and (3) Dominique Serrani (Figure 9), from Polytechnic University of Marche (Ancona, Italy), for her investigation on "Soil omics approach highlights on slash and burn sustainability", written with Ilario Ferrocino, Cristiana Garofalo, Andrea Osimani, Maria Rita Corvaglia, Vesna Milanović, Lucia Aquilanti, Stefania Cocco, Valeria Cardelli, Rogério Borguete Alves Rafael, Elena Franciosi, Kieran Tuohy, Francesca Clementi, and Giuseppe Corti.

Social Programme and Field & Cultural Excursions

On Wednesday 10th a cocktail was served in the Museum of Ceramics in Santo Stefano di Camastra to welcome the attendants. On Thursday 11th, the day ended with a convivial social dinner at the Hotel Za' Maria, where traditional Sicilian food was served. Delegates were entertained by the folk music and dance group *Amastra*.



Figure 1: Prof. Carmelo Dazzi



Figure 2: Prof. Tamas Komives



Figure 3: Prof. Jonathan Gressel



Figure 4: Prof. Edoardo Costantini



Figure 5: Prof. Zoltán Péter Alföldi



Figure 6: Prof. Bosse Lagerqvist



Figure 7: Shachi Pandey awarded by Edoardo Costantini



Figure 8: Mauro de Feudis awarded by Giuseppe Lo Papa



Figure 9: Dominique Serrani awarded by Carmelo Dazzi

The Scientific and Cultural Excursion was on Saturday, 13th and included visits to three unique sites: the Cupitur Farm, the San Teodoro Cave, and Nebrodi Natural Park. The first stop was at the Cupitur Farm, located in Caronia (Messina), which is one of the most important examples of subtropical fruit production in Italy, and definitely one of the pioneers in this field (Figure 10). The farm has a continuous and profitable collaboration with the Department of Agricultural, Food, and Forest Sciences (UNIPA) to improve the cultivation techniques. The second stop was at the San Teodoro Cave, close to Acquedolci (Messina)

(Figure 11). The Cave dates back 10 million years ago and, represents a very important paleontological and paleo-anthropological site in Sicily due to the findings of ancient animals and human bones. The final stop was in the Nebrodi Park (Figure 12), where delegates had the opportunity to observe the rich variability and beauty of the landscape before reaching the *Passo del Re* restaurant, where an authentic “country lunch” was served. The excursion concluded approximately at 5 pm and the group returned to Santo Stefano di Camastra to say goodbye until next year.



Figure 10: The first stop of the excursion: the Cupitur Farm

Sponsors

The Congress was also sponsored by the International Union of Soil Sciences (IUSS), the International Soil Conservation Organization (ISCO), the World Association of Soil and Water Conservation (WASWAC), the Global Soil Partnership (GSP), the Erasmus+ programme, the Associazione Italiana Società Scientifiche Agrarie (AISSA), the World Agricultural Heritage Foundation (WAHF), the Italian Society of Soil Science (SISS), the Mediterranean Agronomic Institute of Bari (CIHEAM), the Italian Society of Pedology (SIPE), the Italian Society of Agricultural Chemistry (SICA),

the Italian Society of Silviculture and Forest Ecology (SISEF), the European Confederation of Soil Science Societies (ECSSS), the Associazione Italiana di Geografia Fisica e Geomorfologia (AIGeo), the Italian Society of Ecology and Landscape (SIEP), the Consulta Ordini Ingegneri Sicilia, the Ordine Regionale Geologi di Sicilia, the Associazione Italiana per l'Ingegneria Naturalistica (AIPIN), the Federazione ordine dei Dottori Agronomi e dei Dottori Forestali di Sicilia, the Ministero della Transizione Ecologica, and the European Joint Programme EJP-SOIL.



Above: Figure 11: The second stop of the excursion: the San Teodoro Cave
Below: Figure 12: The third stop of the excursion: the Nebrodi Park (all photos: © ESSC)

Annual Convention 2021 of the Indian Society of Soil Science

The National Seminar on Advances in Soil Science and Annual Convention from the Indian Society of Soil Science was held 16-19 November in physical as well as virtual form, with Scientific deliberations, award distribution, farmers and scientists interactions, and cultural programmes. During the Convention the President of the Indian Society of Soil Science conveyed to the participants the WASWAC-

IUSS Position Paper on the "Interlinkages of Soil and Climate Change" submitted successfully to COP26 with the commitment and support from 45 national soil science societies.

The photos below depict the President of the Indian Society of Soil Science, its board, awards and cultural activities during their Soil Science Seminar and Annual Convention.



Above and left:
Board of the
Indian Society of Soil Science
(© Ashok Patra, President,
Indian Society of Soil Science)



Board of the
Indian Society of Soil Science
(© Ashok Patra, President,
Indian Society of Soil Science)



Left: Award ceremony.
Below: Cultural performance
(© Ashok Patra, President,
Indian Society of Soil Science)





IUSS Alerts

June 2021 – November 2021

Information for and from the global soil science community

IUSS Alerts are e-mailed to more than 2,900 individual subscribers and 80 national soil science societies globally. Please forward the IUSS Alerts to your friends and colleagues. Send information for IUSS Alerts to iuss@umweltbundesamt.at. Below are still relevant contributions that appeared in the IUSS Alerts between June and November 2021.

Soil without life discovered for the first time on Earth

A pair of mountains in Antarctica might literally be the loneliest place in the world. Not even bacteria or fungi live at the top of these freezing peaks, National Geographic reports. Researchers found no signs of life in soil from the mountains, which they analyzed by testing for the presence of DNA in the samples they collected. The sites are the first places on Earth's surface that host no microbial life, the team reported last month in the Journal of Geophysical Research: Biogeosciences. What's more, experts say the conditions resemble the surface of Mars, and so could help future explorers learn more about conducting missions on the Red Planet.

Read more: <https://www.sciencemag.org/news/2021/06/soil-without-life-discovered-first-time-earth>.

[From: ASA-CSSA-SSSA Science Policy Report: 23 June 2021]

World's soils 'under great pressure,' says UN pollution report

The world's soils, which provide 95% of humanity's food, are "under great pressure", according to a UN report on soil pollution. Soils are also the largest active store of carbon, after the oceans, and therefore crucial in fighting the climate crisis. But the report said industrial pollution, mining, farming and poor waste management are poisoning soils, with the "polluter pays" principle absent in many countries. Pollutants include metals, cyanides, DDT and other pesticides, and long-lasting organic chemicals such as PCBs, the report said, making food and water unsafe, cutting the productivity of fields and harming wildlife. However, it said most releases of pollutants that end up in soils are not easily quantified and therefore the true damage remains highly uncertain.

Read more: <https://www.theguardian.com/environment/2021/jun/04/soils-great-pressure-un-pollution-report-food-farming-mining>.

[From: ASA-CSSA-SSSA Science Policy Report: 9 June 2021]

How farmers are using NASA technology to reduce carbon emissions

Farmland offers a benefit beyond food: carbon sequestration. Emerging regenerative agriculture practices have been experimenting with new ways to draw carbon from the air, store it in soil, and help farmers sell this benefit as carbon credits. But until last year, it was impossible to verify how much carbon is being sequestered without collecting soil samples and sending them to a lab, which is expensive, difficult to scale, and doesn't show how carbon levels vary across a field. Three-year-old Cloud Agronomics, based in Boulder, Colorado, can assess an entire field using hyperspectral imaging, invented by NASA. Specially equipped aircraft fly over a field twice a year – before planting and after harvest – to measure soil organic carbon.

Read more: <https://www.fastcompany.com/90630072/how-farmers-are-using-nasa-technology-to-reduce-carbon-emissions>.

[From: ASA-CSSA-SSSA Science Policy Report: 9 June 2021]

A few common bacteria account for majority of carbon use in soil

Just a few bacterial taxa found in ecosystems across the planet are responsible for more than half of carbon cycling in soils. These new findings, made by researchers at Northern Arizona University and published in Nature Communications this week, suggest that despite the diversity of microbial taxa found in wild soils gathered from four different ecosystems, only three to six groups of bacteria common among these ecosystems were responsible for most of the carbon use that occurred.

Read more: https://www.eurekalert.org/pub_releases/2021-06/nau-afc060421.php.

[From: ASA-CSSA-SSSA Science Policy Report: 9 June 2021]

Why does soil inoculation work if soil microbes are such great dispersers?

This has been something Dr. Jasper Wubs, ETH Zürich, Switzerland, has been wondering for a while. In the following article he explores the conundrums of microbial presence, colonization, and establishment. Read more: <https://www.globalsoilbiodiversity.org/blog-beneath-our-feet/2021/5/30/why-does-soil-inoculation-work-if-soil-microbes-are-such-great-dispersers>. [From GSBI Newsletter – June 2021]

ISC at the United Nations High-level Political Forum (HLPF) on Sustainable Development

Access the recordings, slides and related materials if you have missed our two side events facilitated in the frame of the 2021 UN HLPF:

- Unleashing Science: Delivering Missions for Sustainability – <https://council.science/events/science-funding-missions-hlpf/>.
- Enhancing Policy-making During an Emergency: Lessons Learned from the COVID-19 Pandemic – <https://council.science/events/policymaking-emergency-covid-hlpf/>.

More information on the 2021 HLPF can be found at <https://council.science/hlpf/2021-2/>. [From: ISC Newsletter, 19 July 2021]

What do we know and don't know about soil fauna communities' response to soil pollution?

In the *GSBI Blog "Beneath Our Feet"* Léa Beaumelle, INRAE, France, discusses her new paper in *Ecography*: The adverse effects of contaminants are most often studied in simplified experimental conditions, at the organism and population levels. Such studies are highly valuable to derive standard toxicity values and understand the mechanisms by which contaminants affect organisms. However, in real-world scenarios, species are not alone in their test tubes, they interact with each other and with their abiotic environment. At this ecological scale, the adverse effects of contaminants can emerge through indirect effects mediated by species interactions. Read more: <https://www.globalsoilbiodiversity.org/blog-beneath-our-feet/2021/6/30/what-do-we-know-and-dont-know-about-soil-fauna-communities-response-to-soil-pollution>. [From GSBI Newsletter – July 2021]

Mercury stocks and fluxes to river-basins and sea outlets

JRC scientists modelled the Hg pool in EU topsoils, which totals about 44.8 Gg, with an average density of 103 g ha⁻¹. As a following step, we coupled the estimated Hg stocks in topsoil with the pan-European assessment of soil loss due to water erosion and sediment distribution. In the European Union and UK, we estimated that about 43 Mg Hg yr⁻¹ are displaced by water erosion and c.a. 6 Mg Hg yr⁻¹ are transferred with sediments to river basins and eventually released to coastal Oceans. The Mediterranean Sea receives almost half (2.94 Mg yr⁻¹) of the Hg fluxes to coastal oceans and it records the highest quantity of Hg sediment. This publication couples soil diffuse contamination of an emerging pollutant (mercury) with sediment distribution models at continental scale. This work contributes to new knowledge in support of the policy development in the EU on the Zero Pollution Action Plan and the Sustainable Development Goal (SDGs) 3.9 and 14.1. Data are available: Read more: <https://esdac.jrc.ec.europa.eu/content/mercury-content-european-union-topsoil>. [From: European Soil Data Centre Newsletter No.132 (July 2021)]

Soil letters

Have you already read the latest #SoilLetters? This series of publications aims to provide concise and clear information on topics linked to the work and activities led by the Intergovernmental Technical Panel on Soils (ITPS). Towards a definition of soil health: <http://tiny.cc/b62auz>. Soil organic carbon and nitrogen: <http://tiny.cc/c62auz>. Salt-affected soils are a global issue: <http://tiny.cc/n62auz>.

Online trainings on topics related to soil analysis

The Global Soil Laboratory Network (GLOSOLAN) is launching a series of online trainings on topics related to soil analysis. This capacity development programme will start with a cycle of webinars on dry chemistry/soil spectroscopy, first training on 6 September 2021. Learn more about it and register for the trainings: <http://www.fao.org/global-soil-partnership/resources/highlights/detail/en/c/1414152/?fbclid=IwAR0u2qJEQn1dC3qcsutWhYxPEb9nOKaHlmSai7mC1KKLkLNVIPFZGkeMjo>.

Soil Security for the European Union

Soil security has emerged during the recent years as a new paradigm for addressing sustainable soil management. Soil security was first presented in the literature in 2013–2014 (Koch et al., 2013; McBratney et al., 2014). Both publications defined soil security as the maintenance and improvement of the world's soil resources so that they can continue to provide food and fresh water, make major contributions to energy and climate sustainability, and help maintaining biodiversity and the overall protection of ecosystem goods and services. After the first publications on soil security, some regional studies addressed the subject in Australia (Bennett et al., 2019) and Tasmania (Kidd et al., 2018). Meanwhile, soil security starts to gain the momentum as it is linked to crop production and global climate (Beerling et al., 2018), soil contamination and human health (Carre et al., 2017; Brevik et al., 2017), farming and ecosystem services (Dazzi et al., 2019) and with the Sustainable Development Goals (Bouma, 2020). Read more: https://www.sciencedirect.com/science/article/pii/S266700622100006X?fbclid=IwAR3Aq8nM1EckTym6JKOWBk5EFC6NU95FPsH0SI9Kr27_J_kJLdrsMnyJj3o.

International Forum on Black Soils Conservation and Utilization

The International Forum on Black Soil Conservation and Utilization was held in Jilin Province, People's Republic of China from 21 to 23 July 2021. Organized by the Ministry of Agriculture and Rural Affairs of the People's Republic of China (MARA) in partnership with the International Network of Black Soils (INBS) of FAO, it served to promote international cooperation on black soils' protection and sustainable future. Read more: <http://www.fao.org/global-soil-partnership/resources/highlights/detail/en/c/1418291/>. [From Global Soil Partnership Newsletter No. 32, August 2021]

SOPs video tutorials on organic carbon

The Global Soil Laboratory Network (GLOSOLAN) harmonizes Standard Operating Procedures (SOPs) ensuring the replicability of measurement, credibility and traceability of data. Thanks to the support of some network members – (BSWM Philippines and LDD Thailand), GLOSOLAN has also released videos offering step-by-step instructions on how to perform laboratory analyses. Read more: <http://www.fao.org/global-soil-partnership/resources/highlights/detail/en/c/1415856/>. [From Global Soil Partnership Newsletter No. 32, August 2021]

ITPS SOIL LETTERS | Salt-affected soils are a global issue

Discover the third ITPS letter! It focuses on the salinity and sodicity levels of soil that are dangerously increasing in many areas of the world. Although naturally saline or sodic soils host valuable ecosystems, an increase in salt content of the soil can affect its health and fertility. Effects of salinization will likely be exacerbated by climate change and have further impacts on the prices of commodities produced in those vulnerable areas. Read more: <http://www.fao.org/global-soil-partnership/itps/itps-soils-letter/en/>. [From Global Soil Partnership Newsletter No. 32, August 2021]

Keep soil alive, Protect soil biodiversity – GSOBI Outcome Document now available

Look for the Outcome Document of *The Global Symposium on Soil Biodiversity* held 19-22 April 2021, FAO Headquarters, Rome, Italy, soon from FAO publishing (PWS)! The outcome document of the Symposium is a step in bringing attention to soil biodiversity and its threats. The document will have recommendations for implementation of the International Initiative for the Conservation and Sustainable Use of Soil Biodiversity and recommendations from previous documents, such as the *"State of Knowledge of Soil Biodiversity, Status, Challenges, and Potentialities"*. Read more: <http://www.fao.org/3/cb6005en/cb6005en.pdf>. [From GSBI Newsletter – August 2021]

A Look at International Gender Equity in Soil Science

Diversity, equity, and inclusion (DEI) is important to provide a wide range of perspectives in all fields, including soil science. This is because maximizing our investigations into the opportunities and challenges in our discipline requires us to include people from a wide range of backgrounds and perspectives. However, soil science has traditionally been a male-dominated field, and data on gender equity issues for soil science are rare. Therefore, the authors decided to investigate the international gender equity situation and found that only 32% of the overall membership of the 44 national soil science societies who responded to this request for data were women, and men outnumbered women in 37 of the 44 societies. Read more: <https://www.globalsoilbiodiversity.org/blog-beneath-our-feet/2021/8/1/a-look-at-international-gender-equity-in-soil-science>. [From GSBI Newsletter – August 2021]

Sustainable futures over the next decade are rooted in soil science

Since the founding of the Sustainable Development Goals in 2015, there has been growing recognition about the importance of soils for driving development. With less than ten years left before the SDGs are aimed to be achieved, now is a critical point to determine where we are, and what we need to do in this next decade. In this paper, we synthesise the key achievements in soil science over the past decade, with particular focus on five major environmental challenges: food security, water security, urban development, ecosystem conservation, and climate change. With limited resources and budget at our disposal over the next decade, we propose three major ways that soil scientists can support efforts to secure sustainable development by 2030. These include a greater implementation of research into policy, interdisciplinary partnerships to evaluate function trade-offs and synergies between soils and other environmental domains, and integrating monitoring and modelling methods to ensure soil-based policies can withstand the uncertainties of the future. Read more: <https://onlinelibrary.wiley.com/doi/10.1111/ejss.13145>.

Belowground microbial solutions to aboveground plant problems

Researchers of the Max Planck Institute for Plant Breeding Research have discovered that signalling occurring from the response of plant leaves to light, and plant roots to microbes, is integrated along a microbiota-root-shoot axis to boost plant growth when light conditions are suboptimal. Read more: <https://www.mpipz.mpg.de/pr-haquard-2021>.

Bacterial survival kit to endure in soil

Soil bacteria have amazing strategies to attain energy in order to withstand stressful times. Researchers investigated how acidobacteria, which are widespread in soils, can survive under adverse conditions. Read more: <https://medienportal.univie.ac.at/presse/aktuelle-pressemeldungen/detailansicht/artikel/bacterial-survival-kit-to-endure-in-soil/>.

The Land and Soil Management Award 2021/22

The Land and Soil Management Award 2021/22 call: For good agriculture and environmental conditions is now open! The prize rewards land use and soil management practices mitigating soil threats i.e. soil degradation, erosion, reduction of organic matter content, diffuse contamination, and compaction as well as the reduction of soil biodiversity, salinization, sealing, flooding and landslides. In doing so, the award sheds light on outstanding achievements, encouraging new concepts of land and soil protection and their implementation in land management, as well as enhancing awareness about the importance of land and soil functions. Farmers, landowners, land managers, groups of farmers, on their own or in collaboration with research institutes, universities and/or private companies can apply. 5.000 € is awarded to the winning project every year. The Jury can also award a Diploma of Recognition. Deadline: 15 January 2022. Download the Application Form from [here](https://www.europeanlandowners.org/awards/soil-land-award?mc_cid=84ec1c4f90&mc_eid=c738904ccb). Read more: https://www.europeanlandowners.org/awards/soil-land-award?mc_cid=84ec1c4f90&mc_eid=c738904ccb.

The blind spots of soil macroecology

Carlos Guerra, SoilBON Co-Lead, Germany, discusses his new paper in *Nature Communications*. Soils are often seen as being locally driven, with many researchers focusing on looking at them through microscope lenses, but nowadays we are discovering new global patterns of soil biodiversity and ecosystem functions and starting to talk about soil biogeography. Read more: <https://www.globalsoilbiodiversity.org/blog-beneath-our-feet/2021/8/29/the-blind-spots-of-soil-macroecology>. [From GSBI Newsletter – September 2021]

Project GloWorm

Attention Canadian soil biodiversity researchers! Project GloWorm, a global project investigating the distribution earthworm species, is requesting earthworm samples from certain areas of Canada for their survey. For more information, including the requested method for preservation of specimens, please see pg. 12 of the recent newsletter of the *Biological Survey of Canada*. Read more: <https://biologicalsurvey.ca/newsletter/bsc.vol40.1.pdf>. [From GSBI Newsletter – September 2021]

Why does corn grow so well? Scientists think soil microbes play a role

Bountiful harvests of corn and other major crops rely on a mysterious phenomenon known as hybrid vigor. When highly inbred varieties are crossed, their offspring are taller, hardier, and bear more grain. Now, researchers report that this vigor is somehow influenced by microbes in the soil, perhaps via a plant's immune system. Read more: <https://www.science.org/news/2021/07/why-does-corn-grow-so-well-scientists-think-soil-microbes-play-role>. [From: ASA-CSSA-SSSA Science Policy Report: 4 August 2021]

Soil maps help scientists dig up dirt in criminal investigations

Any ordinary person looking at the rainbow-colored map of Canberra, Australia, would see just a map – or maybe, the following day's weather forecast. But Patrice de Caritat sees something entirely different: a detailed landscape of soils, with different colors revealing areas of earth rich in elements like carbon, nitrogen, and phosphorus. The geochemist has spent more than 2 decades making geochemical atlases to help other researchers track down rare minerals or understand an area's changing environment. Now, a new group is showing an interest in these maps: law enforcement agencies. Read more: <https://www.science.org/news/2021/08/soil-maps-help-scientists-dig-dirt-criminal-investigations>. [From: ASA-CSSA-SSSA Science Policy Report: 1 September 2021]

Projections of soil loss by water erosion in Europe by 2050

Soil loss by water erosion is projected to increase by 13–22.5% in the EU and UK by 2050, mainly due to increased rainfall intensity. This soil loss is expected to be greatest in central and northern Europe, which could see losses of up to 100% in some areas. Soil erosion in southern Europe is projected to be largely unchanged due to a decline in precipitation patterns. Authors used 19 Global Climate Models and three different Representative Concentration Pathways – RCP2.6, 4.5, 8.5) to project soil loss by water erosion in Europe by 2050. They also simulated the crop dynamics and land use changes with CAPRI model. More details in a JRC-led article. Data available here: <https://esdac.jrc.ec.europa.eu/content/water-erosion-europe-2050>. [From ESDAC Newsletter No 133 (August 2021)]

Approaches to delineate aggregates in intact soil using X-ray imaging

Soil structure refers to the spatial arrangement of primary soil particles and pores, and is known to influence a variety of soil functions including carbon sequestration and water holding capacity. At present, research in this field is often divided, focusing either on pores where pore networks are investigated in undisturbed soil or on solids where isolated soil aggregates are commonly studied. The choice of approach depends on the needs and traditions in different disciplines of soil science. While there is much debate regarding how well these viewpoints relate to each other, there have been only marginal research efforts undertaken to compare them quantitatively. In this study, we presented and evaluated methods to identify 3-D subunits in X-ray images of eight undisturbed soil samples that we interpreted as macroaggregates, and compared these to results from drop-shatter tests. Here, we exploited the cohesive forces of water that induces shrinkage cracks under drying. Despite promising trends, comparisons between image and drop-shatter test derived aggregate properties remained inconclusive. Nevertheless, our results encourage further investigations on larger sample sets and different observation scales. The here presented and discussed aggregate delineation methods illustrate an approach to harmonize soil structure characterization in terms of both pore-networks and soil aggregation. For example, respective extended approaches may be developed to evaluate the locations of microaggregates within macroaggregates. Read more: <https://www.sciencedirect.com/science/article/pii/S0016706121004407>.

Amazon deforestation boosts the presence of bacteria with antibiotic resistance genes in soil

Dr. Lucas William Mendes, University of Sao Paulo, Brazil, discusses his new paper in Soil Biology and Biogeochemistry. The Amazon rainforest is the largest reservoir of macro and micro biodiversity on Earth. However, in the last years, it has been disappearing due to deforestation for agriculture and cattle pastures. Many researchers sought to understand the effects of deforestation on the climate, animal and plants species, as well as on the microbiome. In previous studies, it was shown that the conversion of native forest to areas of agriculture and pasture affects the structure, composition, and diversity of the microbial communities, with negative impacts on ecosystem

functions. Thus, to give a step forward to disentangle the effects of deforestation on the soil microbial communities, the authors focused on the soil resistome.

Read more: <https://www.globalsoilbiodiversity.org/blog-beneath-our-feet/2021/8/31/amazon-deforestation-boosts-the-presence-of-bacteria-with-antibiotic-resistance-genes-in-soil>.

[From GSBI Newsletter – October 2021]

Opportunity to review IPBES framework and methodological guidance

The GSBI encouraged researchers with expertise in soil biodiversity to participate in the external review of the draft nature futures framework and methodological guidance document, which was open for review until 31 October 2021. This is an opportunity for soil biodiversity experts to encourage wording and concepts to keep soil biodiversity science at the forefront of environmental policy and decision making.

Read more: <https://ipbes.net/>.

[From GSBI Newsletter – October 2021]

Measured soil moisture improves grassland yield models

While soil moisture is a fundamental driver of plant growth, key roadblocks limit the use of measured soil moisture data in grassland yield models. Novel methods of using soil moisture for this purpose have not been developed. Plus, existing mechanistic models that rely on precipitation-based water balance estimates of soil moisture were not designed to assimilate measured soil moisture data. In *Agronomy Journal*, researchers report quantified statistical relationships between in situ soil moisture data and grassland-biomass yield in Oklahoma. Read more: <https://acsess.onlinelibrary.wiley.com/doi/epdf/10.1002/csan.20544>.

New observatory to probe the mysteries of Earth's 'forgotten' subsoil

Just a meter or two down, below the topsoil that nurtures crops, is a little known part of the ecosystem that may be critical to the planet's climate future. But this deep soil is surprisingly hard to study. Last month, the U.S. National Science Foundation announced funding for a new \$19 million research facility, called the Deep Soil Ecotron that aims to make studying this frontier easier. Ultimately, researchers hope to use the ecotron facility to study a wide range of questions, including how the deep soil might release carbon and accelerate climate change, how soil

microbes and plants interact, and how torrential summer rains and hard winter freezes influence the birth and growth of soil.

Read more: <https://www.science.org/content/article/new-observatory-probe-mysteries-earth-s-forgotten-subsoil>.

[From: ASA-CSSA-SSSA Science Policy Report: 13 October 2021]

Soil microbial biomass and respiration

Using the LUCAS soil biodiversity samples in EU, we developed datasets predicting potential soil basal respiration at 20°C, soil microbial biomass as estimated by substrate-induced respiration, and soil microbial respiratory quotient (the ratio between potential basal respiration and microbial biomass) across Europe. Predictions were performed with structural equation models fit using the following predictive variables (published in the paper): mean annual temperature, annual precipitation, mean temperature, annual precipitation, soil sand content, soil water content, pH, soil organic carbon content, elevation, and latitude. We make available the datasets (for year 2018) of potential soil microbial basal respiration (bas), microbial biomass (Cmic), and respiratory quotient (qO2) predicted across Europe. Monthly maps for bas and Cmic are also available.

Read more: <https://esdac.jrc.ec.europa.eu/content/soil-microbial-biomass-and-respiration>.

[From ESDAC Newsletter No 135 (October 2021)]

Manure and Soil biodiversity

In the European Union (EU-27) and UK, animal farming generated annually more than 1.4 billion tonnes of manure during the period 2016–2019. Of this, more than 90% is directly reapplied to soils as organic fertiliser. We reviewed the impact of manure from farmed animals on soil biodiversity by considering factors that determine the effects of manure and vice versa. In this review paper we explored the impact of manure from farmed animals on soil biodiversity and vice versa. This review considered 407 published papers and relevant legislative provisions. In addition, we evaluated whether benefits and risks on soil biodiversity are considered in manure management. This dataset includes the spatial distribution of manure in EU and UK (per country, animal type) plus the database of the literature used.

Read more: <https://esdac.jrc.ec.europa.eu/content/manure-and-soil-biodiversity>.

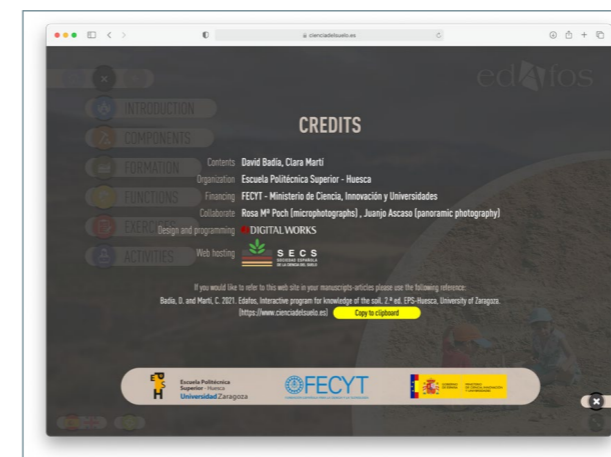
[From ESDAC Newsletter No 135 (October 2021)]

EDAFOS, an interactive programme on Soil Science

The EDAFOS programme is an interactive, multiplatform programme that allows you to acquire knowledge about Soil Science and practice with self-evaluating exercises and activities. It is available in Spanish and in English.



EDAFOS can be used online, as a self-learning tool or directed by teachers. In this programme, the components, the soil formation factors and processes and the ecosystem services of the soils are reviewed. Edafos can be useful at different educational levels, from High School to University and, given the interdisciplinary and transversal nature of Soil Science, it can be used in multiple disciplines related to Natural Sciences.



Screenshots of the EDAFOS website
(© Badía, David and Martí, Clara)

Find out more: www.cienciadelsuelo.es.

2022 GFFA Science Slam – Soil and land in focus

From 24 to 28 January 2022, the Federal Ministry of Food and Agriculture (BMEL) will host the Global Forum for Food and Agriculture (GFFA) for the 14th time. The GFFA is the world's leading international conference on key issues regarding the future of the global agri-food in-

dustry. The 14th GFFA will focus on the topic "Sustainable Land Use: Food Security Starts with the Soil".

The "Think Aloud! GFFA Science Slam" is a competition during which presenters ("slammers") introduce their scientific research topics, which should match the GFFA topic, in an entertaining way.

Students, doctoral researchers and scientists were invited to submit their applications by 5 November.

Read more about the content:

<https://www.iuss.org/meetings-events/>.

Registration: <https://www.gffa-berlin.de/forms/index.php/756615?lang=en>.

America's Geoheritage II: Identifying, Developing, and Preserving America's Natural Legacy – proceedings published

The National Academies of Sciences, Engineering, and Medicine have released the proceedings of the workshop *America's Geoheritage II: Identifying, Developing, and Preserving America's Natural Legacy*.

America is endowed with places that embody a rich geoheritage, from sites where indigenous people subsisted for millennia, to mines that furnished the raw materials that built U.S. industry, to mountain ranges and river gorges with unparalleled recreational opportunities, to field sites where students can truly understand a geological process, to places of aesthetic or spiritual value, and many more across all states and territories. In order to assess the status of geoheritage and the activities of its practitioners in the United States in light of social, political, and environmental changes over the past ten years, the National Academies of Sciences Engineering and Medicine convened a series of virtual webinars and a workshop.

This publication, released on September 22, summarizes the presentations and discussion of the webinars and workshop and is now freely available on the National Academies Press website (<https://nap.edu/26316>).

Additionally, it is linked on the workshop webpage, <https://www.nationalacademies.org/our-work/americas-geoheritage-ii-a-workshop>.

[From GSBI Newsletter – September 2021]

The Call for abstracts to the EGU General Assembly 2022 is now open

Please, submit the results of your research in one of the sessions promoted by the Soil System Sciences (SSS) division.

Read more: <https://meetingorganizer.copernicus.org/EGU22/sessionprogramme>.

Call for experts to join the EGU's Biodiversity Task Force

In October 2021, Biodiversity was selected by the EGU Science for Policy Working Group and approved by the EGU Council as the 2022-2024 Policy Priority Area due to its relevance to many EGU divisions, current and future policy relevance, and the need for information and continued scientific support in the creation of new European legislation and establishment of new European and national initiatives. Now EGU is launching a call for experts to join the EGU's Biodiversity Task Force that will support these activities and allow EGU to contribute to the EU's upcoming biodiversity policies and activities. For more info on how to submit your application, visit <https://www.egu.eu/news/875/join-the-egu-new-biodiversity-task-force/>.

ISC position paper released: Science as a Global Public Good

The ISC is committed to a vision of science as a global public good. It is a vision with profound implications for the ways that science is conducted, how it is used and the roles that it plays in society. These implications, the ways they influence the responsibilities of scientists, both individually and collectively, and how they apply in the different settings in which science is practiced, are elaborated in this paper: <https://council.science/current/news/science-as-a-global-public-good/>.

New ISC paper launched: Public perceptions and understandings of science

The International Science Council published an occasional paper in the frame of the ISC project on the Public Value of Science, outlining key ideas and recent trends emerging from studies of science communication, including the links between communication and public perceptions. The paper aims to stimulate discussion for science academies and unions by exploring the structure and characteristics of engagement with science in the global public sphere, with public perceptions as the unit of analysis. Read more: <https://council.science/publications/public-perceptions-and-understandings-of-science/>.

World Soil Day Campaign – 5 December 2021 – “Halt soil salinization, boost soil productivity”

One of the key ingredients for a food secure future is a healthy soil beneath our feet. To ensure food security and improved nutrition, join the movement, halt soil salinization and boost soil productivity!

Whether you're a government, company, NGO, city, school, or an individual, FAO and the Global Soil Partnership (GSP) invite you to join and spread the call for action! Campaign materials are online to support your event/activity. Check out the page often as we will continue to produce material until December!

Read more: <https://www.fao.org/world-soil-day/en/>.

[From Global Soil Partnership Newsletter No. 33, November 2021]

Pin your event on the WSD map

Advertise your event on the World Soil Day 2021 Interactive Map of Events. Organizing a quiz? A workshop? A class? A podcast? Shooting a documentary? A Wiki 'Edit-a-thon' event? A theater performance or a TED Talk? A documentary film festival? A carbon-free initiative, a soil samples collection or a Soil Doctors training? Share your event on the WSD e-map! Read more: <https://www.fao.org/world-soil-day/worldwide-events/en/>.

Global Symposium on Salt-affected Soils, 20-22 October 2021

A digital success! With over 5 500 registered participants from more than 180 countries, the GSAS21 held on 20-22 October 2021 succeeded in catalyzing efforts to prevent, mitigate and adapt to soil salinization and sodification – a fast-growing threat to our planet's soils. More than 100 major media outlets picked up the news. Discussions focused on how policy and scientific evidence can be translated into concrete actions to sustainably manage salt-affected soils (SAS) to nurture food security, ecosystems' health and the achievement of the Sustainable Development Goals (SDGs). Throughout 20 hours of interactive plenary and parallel sessions, a total of 70 presentations and 58 scientific posters illustrated the most recent studies and testimonies on SAS. A poster contest was a hit, gathering over 70,000 votes. Congratulations also to the winners of the photo contest on soil salinization. The GSAS21 Outcome document “Halt salinization, boost soil productivity” and the “Proceedings” will be published soon. Read more: <https://www.fao.org/events/global-symposium-on-salt-affected-soils/en/>. [From Global Soil Partnership Newsletter No. 33, November 2021]

Global map of Salt-affected soils (GSASmap) V1.0

On 20 October 2021 FAO's GSP launched the *Global Map of Salt-Affected Soils*, a country-driven effort to map salinity and sodicity which is a key tool for halting salinization and boosting productivity. The map estimates that there are more than 833 million hectares of Salt-affected soils (SAS) around the globe (8.7% of the planet). Most of them can be found in naturally arid or semi-arid environments in Africa, Asia and Latin America. However, the map also shows that between 20 to 50 percent of irrigated soils in all continents are too salty, meaning over 1.5 billion people worldwide face significant challenges in growing food due to soil degradation. Download the flyer: <https://www.fao.org/documents/card/en/c/cb7247en>. Read more: <https://www.fao.org/global-soil-partnership/gsasmap/en>. [From Global Soil Partnership Newsletter No. 33, November 2021]

Global Soil Organic Carbon Sequestration Potential map

Country-driven map on SOC sequestration potential in agricultural soils released on 8 September 2021. FAO has launched practical tools to encourage soil organic carbon sequestration. FAO Director-General, QU Dongyu says: “healthy soils are crucial for sustainable agri-food systems”. The Global Soil Organic Carbon Sequestration Potential Map (GSOCseq) allows for the estimation of topsoil soil organic carbon sequestration potential in agricultural areas under four soil management scenarios: a business as usual and three sustainable soil management scenarios. GSOCseq is one of the most cost-effective nature-based solutions for climate change mitigation and adaptation. However, unlocking this potential relies on the establishment of strong mechanisms to monitor, report and verify (MRV) changes in SOC stocks. Read more: <https://www.fao.org/soils-portal/data-hub/soil-maps-and-databases/global-soil-organic-carbon-sequestration-potential-map-gsocseq/en/>. [From Global Soil Partnership Newsletter No. 33, November 2021]

GSBI submits position paper to the Executive Secretary of the UN Convention of Biological Diversity on the need to protect soil biodiversity

The Global Soil Biodiversity Initiative Secretariat and Scientific Advisory Committee recently submitted a position paper to Executive Secretary of the UN Convention of Biological Diversity (CBD), Elizabeth Maruma Mrema, urging science policy officials at the UN CBD to protect, restore, and promote soil biodiversity. Read more: <https://www.globalsoilbiodiversity.org/>. [From GSBI Newsletter – Nov/Dec 2021]

Changes in the relative abundance of fungal functional groups and dominant taxa due to soil warming are associated with losses in total soil carbon

Global warming poses major challenges to the health and functioning of forests, with the direction and strength of such effects on forest ecosystem processes such as carbon cycling remaining uncertain. The authors built upon previous research in temperate deciduous forests and assessed changes in the diversity and composition of soil fungi following soil warming. Since fungal responses to warming have been previously shown to be associated with changes in soil chemistry, a secondary objective was to assess key soil chemical properties and examine any relationships between soil fungi and soil properties. Read more: <https://www.globalsoilbiodiversity.org/blog-beneath-our-feet/2021/10/31/changes-in-the-relative-abundance-of-fungal-functional-groups-and-dominant-taxa-due-to-soil-warming-are-associated-with-losses-in-total-soil-carbon>. [From GSBI Newsletter – Nov/Dec 2021]

EU Mission: A Soil Deal for Europe

In September 2021, the EU published the *EU Mission “Soil Deal for Europe.”* The EU Missions are initiatives that promise concrete solutions to pressing environmental issues by 2030. Please see the following documents on the “Soil Deal for Europe.” Details on the *communications from the Commission on European Missions and implementation strategies* are available online. Read more: https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/missions-horizon-europe/soil-health-and-food_en. [From GSBI Newsletter – Nov/Dec 2021]

EU Soil Strategy for 2030: reaping benefits of healthy soils for people, food, nature and climate

The new EU Soil Strategy sets out a framework and concrete measures for the protection, restoration and sustainable use of soils, in synergy with other European Green Deal policies. It also sets a vision and objectives to achieve healthy soils by 2050 and announces a new Soil Health Law by 2023. Key actions include: the promotion of Sustainable Soil Management, boosting the circular economy, restoration of degraded soils, prevent desertification, increase of research, the monitoring of soil and associated data collection, mitigation and adaptation in relation to Climate change and the mobilisation of societal engagement and financial resources. Read more: https://ec.europa.eu/environment/publications/eu-soil-strategy-2030_en. [From ESDAC Newsletter No 136 (November 2021)]

Land degradation debt data

We provide data for global land degradation in a 'debt' based approach. Environmental Debt is the difference between the natural potential condition and the current condition. Naturally, there could be 4.6 Gha of tree cover but currently there are only 3.2 Gha (Global tree cover debt is 1.4 Gha). The natural rate of soil erosion would be 10 Gt per year, but currently, it is 36 Gt (debt is 26 Gt – rising). Above-ground biomass would be naturally 871 Gt C, but currently, it is only 601 Gt C (debt 270 Gt C). Below-ground carbon, naturally, there would be 899 Gt C, but currently, there are only 863 Gt C (Debt 36 Gt C). This study contributes to the developments towards an improvement of Land Degradation Methodologies. Read more: <https://esdac.jrc.ec.europa.eu/content/land-degradation-debt>. [From ESDAC Newsletter No 136 (November 2021)]

Copper accumulation and export in European vineyard soils

Copper-based fungicides are used in European (EU) vineyards to prevent fungal diseases. Soil physicochemical properties locally govern the variation of the total copper content in vineyards. Using a machine learning model, a study found that the main variables to predict the Cu distribution in EU vineyards are precipitation, aridity and soil organic carbon. The estimated average net accumulation and net export of Cu in topsoil in European vineyards are respectively 24.8 and 0.29 kg Cu per ha. Data: <https://esdac.jrc.ec.europa.eu/content/copper-distribution-topsoils>. [From ESDAC Newsletter No 136 (November 2021)]

Upcoming Conferences & Meetings

Due to the Corona pandemic and ensuing travel restrictions many of the events planned for 2020 and 2021 had to be cancelled or postponed. For a current list of upcoming events, please consult the IUSS website: <https://www.iuss.org/meetings-events/>.

2022

8th Intensive Training Course on Soil Micromorphology

17–28th January 2022

Tremp, Spain

Download the 1st Circular https://www.iuss.org/media/8th_intensive_training_course_on_soil_micromorphology-first_circular.pdf.

Winter School

Global Forum for Food and Agriculture (GFFA) – Theme “Sustainable Land Use: Food Security Starts with the Soil”

Monday, 24 January 2022 to Friday, 28 January 2022

Virtual event



IUSS expert panel **“Global perspectives on sustainable soil management towards food security”**, 24 January 2022, from 5:00 to 6:30 p.m. (CET)
The IUSS expert panel will deal with the following issues:

- Pressure on available areas for food production leads to high pressure on cultivated soils. We must protect soil better for changed precipitation and runoff conditions to secure land for food production and minimize pollution of surface, drinking water.
- Clear planning for soil management and re-use is critical in retaining the potential value of soils. This requires knowledge of the soils and specialist input to soil handling strategies, and wider understanding of how new developments can be designed to maximise the extent of soil included, the health of that soil and how it can be used to support the community, from green spaces for climate adaptation to local food production.
- In urban environments, quantities of wastes and wastewater are produced, which are assets to increase agricultural productivity and construct soils of gardens, green roofs and green areas. The reuse of treated wastewater in periurban agriculture sets high quality water free for human consumption. It has become mandatory to recognize and preserve urban soil functions to achieve sustainability.
- Based on the concept of regenerative agriculture and agroecology, the Green Revolution of the 21st century must be soil centric, ecosystem based, and aimed at producing more from less, practicing nutrition-sensitive agriculture, and returning some land and water back to nature. It is also important to grow soil C as a farm commodity that can create another income stream for land managers.

Panel details: https://www.gffa-berlin.de/en/fachpodien_2022/iuss/.

Read more: <https://www.gffa-berlin.de/en/>.

Sustainable land management and Earth Critical Zone (ECZ): a journey from ECZ characterization, modelling and Geospatial Decision Support Systems

14-18 February 2022, Portici Royal Palace
(Portici, Napoli, Italy)

This winter school aims at developing basic knowledge about (i) understanding and processing ECZ data as acquired by field observation, lab analysis and remote sensing techniques. This includes raster, vector data and datacube technologies, (ii) ECZ modelling such as water flows and pollutants transport in the vadose zone-soil-plant-atmosphere system, crop growth, land take, etc., and (iii) developing WEBGIS or S-DSS applications by using data-modelling pipelines.
Website: www.landsupport.eu.

XXV Dokuchaev Conference for Young Scientists – Soil is life

1–3 March 2022, St. Petersburg, Russia

The conference form will be face-to-face reports with live stream on Zoom and on-line. Languages of the conference will be Russian and English. Topics of the conference: Soil degradation and recultivation; Soil ecosystem services; Soil conservation farming; Healthy soil – healthy nation; Popularization of soil science; School session: «Soil and ecosystems».

Informational letter: http://www.dokuchaevskie.ru/wp-content/uploads/2021/07/Info-letter-%E2%84%96-1_2022.pdf
Read more: <http://www.dokuchaevskie.ru/>.

EGU General Assembly 2022

3-8 April 2022, Austria Center Vienna, Austria plus enabled virtual attendance
The call-for-sessions for the next EGU was open until 6 September 2021.

Read more: <https://meetingorganizer.copernicus.org/EGU22/programme>.

The Soil Classification Congress of the IUSS Commission Soil Classification in Mexico (ISCC 2020+2)

March 25 – April 8, México 2022,
Coahuila • Nuevo León • San Luis Potosí • Querétaro
We are pleased to welcome to Mexico for the VI International Soil Classification Congress (March 25 to April 8, 2022). This congress is part of the events organized by Commission 1.4 of the International Union of Soil Sciences (IUSS) and is composed of a five-day field

workshop beginning in Cuatro Ciénegas and ending with a three-day conference in Querétaro.
Our main objective is to provide a forum to continue the works and discussions from previous meetings about soil classification systems as a medium to communicate soil functions and management. The particular aim is to present options for conserving and improving soils in areas with subhumid, semiarid, and arid climates. For that reasons we invite leading soil scientists, students and professionals interested in analyzing in depth the indicators, indexes, and models that will improve soil classification as a tool for soil conservation, global change, mitigation, and communication to stakeholders at multiple cartography scales.
Conference website: <http://iscc2020.org/>.

Save our soils: Decision-supporting tools towards SDG's policy implementation

27-28 April 2022, Portici Royal Palace (Portici, Napoli, Italy)
Aim: Recent progress in Geospatial modelling and Geospatial Decision Support Systems promises to deliver smart operational land planning and management tools for supporting land sustainability policies from small to large areas such as required by SDGs and New Green Deal.
This conference aims at bringing together current research on this topic. This may include the findings from the H2020 LANDSUPPORT project as well as other International, European and national projects (e.g. Horizon 2020, Horizon Europe, LIFE+).
Additional information will be provided in due course.
Read more: www.landsupport.eu.

International seminar Soil and water conservation under changing climate in Northern and high-altitude conditions

4-6 May 2022, Ås, Norway
The objective of the seminar is to bring new knowledge on soil and water conservation under changing climate in Northern or high- altitude conditions (cold climate).
Climate change is expected to bring changes in precipitation, rainfall, frozen soils, snowmelt conditions, drought periods and extreme weather that will affect runoff and hydrological pathways in the agricultural landscape. Also, soil functions and soil health will face new challenges. These changes will influence losses of nutrients and erosion processes- and put pressures on the need of efficient measures. Best farming and management practices must be revised and developed to expected changes in climate. The seminar will also address monitoring, modelling and

development of planning tools for analysing effects and planning for adaptation measures. Topics:

- Soil and water conservation challenges
- Soil functions and soil health
- Changes in hydrological pathways
- Best farming and management practices
- Monitoring, modelling and planning tools

The seminar is organised in cooperation with IUSS (International Union of Soil Science), the Norwegian Society of Soil Science (Norsk Jordforening), ESSC (European Society for Soil Conservation), NJF (Nordic Association for Agricultural Science), Norwegian extension Service (NLR), [NIBIO](http://nibio.no) and [NMBU](http://nmbu.no).
Deadline of abstract submission: 15 January 2022
Read more: <https://nibio.pameldingssystem.no/soil-and-water>.

4th International Conference of Young Scientists – Soil in the Environment (SITE 2020)

29 May – 1 June 2022
Toruń, Poland
Conference website:
<https://sites.google.com/view/site-torun-2020>.

InterPore2022

30 May 2022 to 2 June 2022
Abu Dhabi, United Arab Emirates and online
Deadline for submitting abstracts: 3 January 2022
Flyer: https://www.iuss.org/media/interpore2022_flyer.pdf.

The flyer for InterPore2022 Hybrid Conference is for the 14th Annual Meeting & Short Courses, held from 30 May to 02 June 2022 in Abu Dhabi, UAE & Online. It is a hybrid conference format. The scientific program includes subjects related to porous media and range from pore-scale modelling, pore-scale imaging, to experimental and numerical methods on larger scales, to sensitivity and uncertainty analysis. Presentations will be given in 24 minisymposia on a wide variety of porous media processes in highly diverse applications. The conference will be held at Khalifa University's state-of-the-art campus in the heart of Abu Dhabi. Abu Dhabi, the bustling high-rise capital of the United Arab Emirates is a melting pot of culture, history, heritage, nature, beaches, luxury, wildlife and shopping. In order to accommodate those who, for various reasons, may be unable to join in the physical meeting, InterPore2022 will offer the option to participate online as well. Satellite short courses will be offered on 29 May and 03 June. The flyer lists plenary speakers (Laura Di Lorenzo, Adam Weber, Peng Xu, Lawrence Berkeley National Laboratory, etc.), invited speakers (Eduardo Cardoso de Abreu, Sojit S. Datta, etc.), and the program committee (Chair: Patrick Jenny, etc.). It also includes a table for registration fees (Early bird fee, Standard fee, Late fee) and a table for deadlines (Early bird, Standard, Late). The flyer is sponsored by Khalifa University and features the logo of the International Union of Soil Sciences (IUSS).

Conference website:
<https://events.interpore.org/event/40/>.

Global Conference on Sandy Soils

30 May – 3 June 2022 (*postponed from 2020*)
University of Wisconsin-Madison, USA
Deadline for Abstract submission is March 31, 2022.

The papers from the conference will be published in the Progress of Soil Science Series (Springer).
Read more: <https://sandysoils.org/>.

ISCRAES 2022 – The 2nd International Symposium on Climate-Resilient Agri-Environmental Systems

7-10 June 2022, Dublin, IRELAND
The main theme 'Implementing the New Green Deal: The Path Towards Sustainable Agriculture', is to achieve a sustainable Europe and the planet by tackling current environmental, climate, and societal challenges faced by the world.
Abstract submission deadline: December 31, 2021
Early bird registration deadline: January 31, 2022
Symposium website: <https://www.iscraes.org>.

The flyer for ISCRAES 2022 is for the 2nd International Symposium on Climate-Resilient Agri-Environmental Systems, held from 7-10 June 2022 in Dublin, Ireland. The theme is 'Implementing the New Green Deal: The Path Towards Sustainable Agriculture'. The flyer includes an 'About' section, an 'Abstract submission' section, a 'Registration' section, and a 'Further information' section. The 'Abstract submission' section lists six themes: 1. Arable Cropping Systems, 2. Grassland Systems, 3. Agro-Silvo-Pastoral Systems, 4. Decision Support Tools, 5. Novel Farming Systems, 6. Carbon Farming & Nature-based Solutions. The 'Registration' section includes a table for registration fees (Early bird fee, Standard fee, Late fee) and a table for deadlines (Early bird, Standard, Late). The 'Further information' section includes contact details for the organizing committee (Prof. Bruce Osborne, etc.) and the organizing committee (Prof. Bruce Osborne, etc.). The flyer is sponsored by the Irish Government and features the logo of the International Union of Soil Sciences (IUSS).

Contact email: info@iscraes.org.
Download flyer: https://www.iuss.org/media/iscraes_2022_flyer_03-04-22.pdf.

ONE – Health, Environment, Society – Conference 2022

21 to 24 June 2022, Brussels, Belgium (and via live web streaming)
Abstract submission deadline was 15 September 2021
Conference website: <https://www.one2022.eu/>.

12th International Symposium on Earthworm Ecology

July 10-15, 2022, in Rennes, France

The symposium will include sessions on the following topics: earthworm evolution and biodiversity; earthworm eco-immunology, eco-physiology and stress response; earthworms and soil functioning; earthworms and sustainable agriculture; earthworm community ecology and ecological network; earthworm ecotoxicology. Abstract submissions are open now through December 31, 2021.

Registration from 1 December 2021 to 30 June 2022

Read more: <https://isee12.symposium.inrae.fr/>.

[From GSBI Newsletter – Nov/Dec 2021]

International Symposium on Managing Land and Water for Climate-Smart Agriculture

25-29 July 2022, Vienna, Austria

The International Atomic Energy Agency (IAEA) is organizing an International Symposium on Managing Land and Water for Climate-Smart Agriculture. Approximately 400 participants from IAEA Member States and invited international organizations are expected to attend this event. The purpose of the event is to review recent development of nuclear, isotopic and related techniques to improve land and water management practices, provide information on the development of tools and technology packages to build soil resilience, adapt farming practices to the impact of climate change, as well as to nuclear or radiological emergencies; and to identify knowledge gaps, research needs and new opportunities to develop climate-smart agricultural practices to build capacities and transfer of technologies to Member States. The event is aimed at scientists, academics, research managers and laboratory personnel, policy makers from governmental, non-governmental and international organizations, donor agencies and potential partners.

Call for abstracts open until January 31, 2022:

<https://www.iaea.org/newscenter/news/call-for-papers-international-symposium-on-managing-land-and-water-for-climate-smart-agriculture-2022>.

Conference website: <https://conferences.iaea.org/event/270>.

22nd World Congress of Soil Science 2022

Sunday, 31. July 2022 to Friday, 5. August 2022

Glasgow, United Kingdom

Congress website: <https://22wcsc.org/>.

Invitation video: https://www.iuss.org/media/world_congress_of_soil_science_-_welcome_sept_2021.mp4.

16th International Conference on Soil Micromorphology

September 4 to 8, 2022

Kraków, Poland

Details

Postponed from 2020!

Early registration and call for abstracts opens:

October 1, 2021

End of the abstract submission: February 28, 2022

Read more: <http://www.icosm2020.sggw.pl/>.

11th international conference of the IUSS Working Group on Soils of Urban, Industrial, Traffic, Mining and Military Areas (WG SUITMA)

‘Soils in the food-water-energy-nexus’

September 5 – 9, 2022, Berlin, Germany

The topic of SUITMA 11 is SUITMA – Soils and the food, water, energy nexus. In a world of ecologic, economic and social challenges soils and their management are part of both the major problems and the starting points for its solutions. Soils play a crucial role in the cycles of nutrients, water and energy – in all its forms and manifestations. They act as sources, sinks, habitats, storage, buffers and transformation systems. SUITMAs are influenced by anthropogenic activities which alters – enhances, decreases – their functionalities in these cycles. SUITMAs, different to more natural soils also offer the opportunity for optimizations – which opens the field for a discussion on aims and targets.

Call for sessions until Dec. 15, 2021 to

suitma2022@gmail.com.

SUITMA 11 website: <https://suitma11.org/>.

Soil Classification and Education Conference

12-14 September 2022, Toruń, Poland

Globalization and global environmental issues, as well as unification of scientific research and teaching on the European Union and global levels require harmonization of technical languages, such as the terminology used in soil science. An important part of our technical language is soil description and classification. The long-term development of the unified system – World Reference Base for Soil Resources (WRB), is an important challenge for teaching of soil science related subjects in Europe and the World. National/local focus in soil sciences teaching still dominates which complicates exchange of information, students and professionals. The aim of this conference is to present solutions for international education in soil

science, elaborated within the Erasmus+ SYStem project, to discuss the new attempts at soil description and classification and to share ideas on how to educate Youth and Adults for the benefit of society and environment. Another aim is to raise awareness of global pedosphere-related threats like soil depletion, erosion, salinization and desertification. Participants’ experiences and thoughts related to soil science teaching would be a frame for both indoor and outdoor discussions.

Conference website:

<https://sites.google.com/view/soil-classification/home>.

LuWQ2022 – 5th International Interdisciplinary Conference on LAND USE AND WATER QUALITY: Agriculture and the Environment

12-15 September 2022, Maastricht, The Netherlands.

A conference on the cutting edge of science, management and policy to minimise effects of agriculture and land use changes on the quality of groundwater and surface waters. Target groups (professionals, fields of expertise, audience) are scientists, managers and policy makers involved in the policy cycle for water quality improvement.



For the complete list of upcoming events, please see the event calendar on the IUSS website:

<https://www.iuss.org/meetings-events/>.

The key strength of the conference is twofold. On the one side, Land Use and Water Quality conferences have a well-defined narrow focus on ‘agriculture and water quality’. On the other side, the conferences are broadly oriented with regard to the various professional disciplines related to the conference topics. It is just the diversity in professional background of participants which results in a multi-faceted conference programme.

Deadline of abstract submission: 7 February 2022.

Download conference flyer: https://www.luwig2022.nl/wp-content/uploads/2021/05/LuWQ2022_Flyer_A4page_4pages_17-05-2021.pdf.

Conference website: <https://www.luwig2022.nl/>.

10th International Symposium on Forest Soils – ISFS 2022

‘Forest Soils under Global Change: Processes, Biodiversity and Ecological Services’

October 17-21, 2022, Hangzhou, P. R. China

The objectives of this conference are

1. to bring together scientists, educators and practitioners working in the areas of forestry, forest soil science and global change biology to discuss issues of common interest, and to present the most up-to-date research findings on forest soil properties, processes, biodiversity and ecological services under the influence of global change;
2. to facilitate the development of international linkages, scientific exchange and strategic alliances in forest soils research and education; and
3. to discuss policy implications of forest management practices and climate change impacts on soil properties, forest productivity, and ecosystem processes and services.

Deadline for Submission of Abstracts: May 30, 2022.

Read more: <http://isfs2021.csp.escience.cn/>.

2023

Third Global Soil Biodiversity Conference

13-15 March 2023

Dublin, Ireland

Conference website: <https://gsb2021.ie/>.



New Publications

Biofertilizers Volume 1: Advances in Bio-inoculants

Edited by Amitava Rakshit, Vijay Meena, Manoj Parihar, H.B. Singh, A.K. Singh. 1st Edition published by Woodhead Publishing on 24 March 2021, 440 pages, eBook ISBN: 9780128230305, Paperback ISBN: 9780128216675, price eBook EUR 187.43 (incl. VAT) or USD 204.00 (excl. VAT), print paperback EUR 187.43 (incl. VAT) or USD 204.00 (excl. VAT), bundle: EUR 231.00 (incl. VAT) or USD 240.00 (excl. VAT). This book provides state-of-the-art descriptions of various approaches, techniques and basic fundamentals of BI used in crop fertilization practices. The book presents research within a relevant theoretical framework to improve our understanding of core issues as applied to natural resource management. Authored by renowned scientists actively working on bio-inoculant, biofertilizer and bio-stimulant sciences, the book addresses the scope of inexpensive and energy neutral bio-inoculant technologies and the impact regulation has on biofertilizer utilization. This book is a valuable reference for agricultural/environmental scientists in academic and corporate environments, graduate and post-graduate students, regulators and policymakers.
Read more: <https://www.elsevier.com/books/biofertilizers/rakshit/978-0-12-821667-5>.

Sustainable Soil and Land Management and Climate Change

Edited By Shah Fahad, Osman Sonmez, Shah Saud, Depeng Wang, Chao Wu, Muhammad Adnan, Veysel Turan, Published June 16, 2021 by CRC Press, 194 pages, ISBN 9780367623180, price hardback GBP £125, VitalSource eBook GBP £40.49. The third volume of Sustainable Soil and Land Management and Climate Change presents a complete overview of plant soil interactions in a climate affected by greenhouse gas emissions and organic carbon. It presents approaches and managements strategies for the stabilization of soil organic matter. The latest in the respected Footprints of Climate Variability on Plant Diversity series, this book enhances the reader's knowledge of the preservation of organic matter through microbial approaches as well as through soil and plant interactions. Written by teams of specialist scientists, it presents research outcomes, practical applications and future challenges for this important field. This book is written for students of agronomy, soil science and the environmental sciences as well as researchers interested in management technologies to improve soil fertility.

Read more: <https://www.routledge.com/Sustainable-Soil-and-Land-Management-and-Climate-Change/Fahad-Sonmez-Saud-Wang-Wu-Adnan-Turan/p/book/9780367623180>.

Advances in measuring soil health

Edited by: Professor Wilfred Otten, Cranfield University, UK. 1st edition published 22nd June 2021 by Burleigh Dodds Science Publishing, 382 pages, ISBN 9781786764263, price hardback GBP £180, VitalSource eBook GBP £180. This new book reviews the development of better analytical techniques to measure the biological, physical and chemical properties of soils and discusses their implications for better management of farm soils. The collection also surveys developments in measuring soil physical properties through advances in visual, imaging and geophysical techniques, as well as the methods used to measure chemical properties such as soil organic carbon.



***SPECIAL OFFER*.**

Benefit from 20% off the purchase of the book if purchased via the [Burleigh Dodds website](https://www.burleighdodds.com). Enter code IUSS20 at checkout to receive this saving. Valid until 31st July 2021.

Read more: <https://shop.bdspublishing.com/store/bds/detail/workgroup/3-190-89124>.

Soil Fertility and Nutrient Management – A Way to Sustainable Agriculture

By A.S. Jadeja, D.V. Hirpara, L.C. Vekaria, H.L. Sakarvadia. Published June 24, 2021 by CRC Press, 268 pages, ISBN 9781032060057, price hardback GBP £120, VitalSource eBook GBP £108.

The book entitled Soil Fertility and Nutrient Management is a compilation work and most of the information was farmed very critically covering all the main topics of plant nutrition. The book will be serve as useful reference to students, teachers, researchers scientists, policy makers and other interested in soil science, agronomy, crop science, environmental sciences and agriculture.

Read more: <https://www.routledge.com/Soil-Fertility-and-Nutrient-Management-A-Way-to-Sustainable-Agriculture/Jadeja-Hirpara-Vekaria-Sakarvadia/p/book/9781032060057>.

Exploring a Dynamic Soil Information System – Proceedings of a Workshop

Published by the National Academies of Sciences, Engineering, and Medicine in 2021.

120 pages | 7 x 10, price paperback USD 45.00, pdf free for download; ISBN: 978-0-309-49167-9, DOI: <https://doi.org/10.17226/26170>.

Soils are a critical natural resource and support a wide range of human activities, but current systems for monitoring soils do not provide an accurate picture of changes in the soil resource over time. This new publication captures highlights of a workshop held to envision a Dynamic Soil Information System that would collect and regularly update data about soils and the factors that influence them. Participants discussed the need for the system to gather information on soil properties as well as land use and land management, moisture, weather, and other variables that affect soil. Discussants also explored the level of detail needed by potential users and how information can be most effectively collected, combined, and curated over time.

Read more: [Exploring a Dynamic Soil Information System: Proceedings of a Workshop | The National Academies Press \(nap.edu\)](#).

Soils and Stones Report

By Society for the Environment – Soils and Stones Task Group, published 23 April 2021.

This report reinforces the importance of soils and stones as essential to our everyday lives and the health of our planet, identifying the issues that currently hamper the

work of environmental professionals in developing and applying good practices. Such practices are necessary to address soil quality and health issues, unlocking the opportunities to implement at scale the necessary and urgent action for change. We highlight the need to achieve a marked shift towards recognition of soils and stones as valuable resources and materials, rather than to be discarded as waste or mistreated. Added to that is the requirement for better regulation and guidance, supported by monitoring and enforcement to ensure consistent adoption of good practices. To achieve the scale of change required, we must facilitate greater cross-sector collaboration, ensuring improved access to knowledge platforms, existing online tools, and shared good practice. The report provides a limited but illustrative resource, with web links to regulations, guidance, standards, case studies, best practice, tools, data sources and supporting reference sources.

Read more: https://cdn.ymaws.com/socenv.org.uk/resource/resmgr/files/soilsandstones/21FINAL_Soils_and_Stones_rep.pdf.

[From Digging Deeper with BSSS: Issue 2, June 2021]

The Soils of Libya

Edited by Hamdi A. Zurqani, World Soils Book Series by Springer, 2021, XIV, 134 pages, Hardcover ISBN 978-3-030-66367-4, Softcover ISBN 978-3-030-66370-4, eBook ISBN 978-3-030-66368-1, price hardback EUR 142.99, eBook EUR 106.99.

This book presents the soil pedodiversity in Libya. Soils are the source of all life; there can be no life without them. Further, each soil has its own history and its present conditions, which have been shaped by many different factors (e.g. climate, biota, parent material, and relief or topography). The book, divided into eight chapters, provides extensive information on Libyan soils. It demonstrates the problems that the country is currently facing as a result of climate change, soil erosion, salinization, and pollution, and outlines potential remedies to improve local food security. Bringing together the perspectives and expertise of many distinguished scientists from various universities and institutions in and outside of Libya, the book represents a unique and highly valuable resource.

Read more: <https://link.springer.com/book/10.1007/978-3-030-66368-1#about>.

Soils of the Laurentian Great Lakes, USA and Canada

By James G. Bockheim, Springer, 2021, XVII, 227 pages, Hardcover ISBN 978-3-030-52424-1, Softcover ISBN 978-3-030-52427-2, eBook ISBN 978-3-030-52425-8, price hardback EUR 120.99, softcover EUR 87.99, eBook EUR 93.08.

This book introduces the reader to the Great Lakes and considers their soil-forming factors and processes, taxonomic structure of the soils, soil geography and pedodiversity, while also addressing the importance and protection of soils in the Great Lakes Coastal Zone. The Great Lakes are an important part of the USA and Canada. Home to 33 million people, including 90% of all Canadians, the Great Lakes account for 20% of the world's surface freshwater and 90% of the USA's freshwater. Key industries include shipping, steel and automobile production, energy generation, fishing, pulp and papermaking, agriculture, and recreation. To date, there has been no comprehensive inventory of the region's soils, which are now subject to dramatic climate change and environmental degradation.

Read more: <https://link.springer.com/book/10.1007/978-3-030-52425-8>.

Soils Under Stress – More Work for Soil Science in Ukraine

Edited by Yuriy Dmytruk and David Dent, Springer, 2021, Hardcover ISBN 978-3-030-68393-1, Softcover ISBN 978-3-030-68396-2, eBook ISBN 978-3-030-68394-8, XIX, 255 pages, price hardback EUR 131.99, eBook EUR 96.29. Dokuchaev carried out most of his research in Ukraine. His student and friend, Volodymyr Vernadsky, went on to create trans-disciplinary environmental sciences and the concept of Earth as a living organism, famously taken up by James Lovelock. That spring of ideas still flows and the researches captured in this volume are relevant to present-day problems, and not only in Ukraine.

Soils have always been under stress but, in the Anthropocene, mankind is in the driving seat. As a sequel to Soil Science Working for a Living: Applications of soil science to present-day problems, we consider issues of policy as well as soil genesis, attributes and functions in various environments, natural and man-made. We consider human impacts on the soil cover through its use and misuse, highlight methods of research and assessment of soil quality, and the threats of soil degradation. The distinguished contributors also describe and propose various options for evaluation and remediation of

degraded soils, drawing on the latest methods of modelling and cartography as well as long-term field experiments and long experience.

Read more: <https://link.springer.com/book/10.1007/978-3-030-68394-8>.

Soil Science: Fundamentals to Recent Advances

Edited by Rakshit, A., Singh, S.K., Abhilash, P.C., Biswas, A.; 1st edition published by Springer in 2021, XXII, 902 pages, 144 illus., 86 illus. in colour, ISBN 978-981-16-0917-6, price hardcover 169,99 € | £149.99 | \$219.99, price eBook 139,09 € | £119.50 | \$169.00.

This compilation has been designed to provide a comprehensive source of theoretical and practical update for scientists working in the broad field of soil science. The book explores all possible mechanisms and means to improve nutrient use efficiencies involving developing and testing of nanofertilizers, developing consortia based microbial formulations for mobilization of soil nutrients, and engineering of nutrient efficient crops using molecular biology and biotechnological tools. This is an all-inclusive collection of information about soil science. This book is of interest to teachers, researchers, soil scientists, capacity builders and policymakers.

Read more: <https://www.springer.com/de/book/9789811609169>.

Conservation Agriculture: A Sustainable Approach for Soil Health and Food Security

Edited by Jayaraman, S., Dalal, R.C., Patra, A.K., Chaudhari, S.K., 1st edition published by Springer in 2021, XV, 632 pages, 120 illus., 91 illus. in colour, ISBN 978-981-16-0827-8, price hardcover 219,99 € | £199.99 | \$279.99, price eBook 181,89 € | £159.50 | \$219.00.

Feeding the increasing global population, which is projected to reach ~10 billion by 2050, there has been increasing demands for more improved/sustainable agricultural management practices that can be followed by farmers to improve productivity without jeopardizing the environment and ecosystem. Indeed, about 95% of our food directly or indirectly comes from soil. It is a precious resource, and sustainable soil management is a critical socio-economic and environmental issue. Maintaining the environmental sustainability while the world is facing resource degradation, increasing climate change and population explosion is the current challenge of every food production sectors. Thus, there is an urgent need to evolve a holistic approach such as conservation

agriculture to sustain higher crop productivity in the country without deteriorating soil health.
Read more: <https://www.springer.com/gp/book/9789811608261>.

Geoethics: Status and Future Perspectives

Edited by Di Capua G., Bobrowsky P.T., Kieffer S.W. and Palinkas C. (2021). Geological Society, London, Special Publications, 508, <https://doi.org/10.1144/SP508>, price hardcopy GBP 120.00.
This is the second volume focused on geoethics published by the Geological Society of London, under the MoU with the IUGS. This is a significant step forward in which authors address the maturation of geoethics. The field of geoethics is now ready to be introduced outside the geoscience community as a logical platform for global ethics that addresses anthropogenic changes. Geoethics has a distinction in the geoscientific community for discussing ethical, social and cultural implications of geoscience knowledge, research, practice, education and communication. This provides a common ground for confronting ideas, experiences and proposals on how geosciences can supply additional service to society in order to improve the way humans interact responsibly with the Earth system. This book provides new messages to geoscientists, social scientists, intellectuals, law- and decision-makers, and laypeople. Motivations and actions for facing global 3 anthropogenic changes and their intense impacts on the planet need to be governed by an ethical framework capable of merging a solid conceptual structure with pragmatic approaches based on geoscientific knowledge. This philosophy defines geoethics. The book is dedicated to Jan Boon.
Read more: <https://sp.lyellcollection.org/content/508/1>.
[From: IUGS E-Bulletin#176 – July 2021]

Sustainable Soil Management in Eurasia

FAO and the Eurasian Centre for Food Security (ECFS) are launching the publication “Sustainable soil management (SSM) in the Eurasian region”. Prepared in the framework of the Eurasian Soil Partnership together with the ECFS of the Lomonosov Moscow State University, this book collects Eurasian country experiences in the application of the recommendations contained in the *Voluntary Guidelines for Sustainable Soil Management*. In Eurasia soils face serious degradation processes associated with low technological level of farming as well as excessive pressure from high-tech cultivation and use of chemicals.

This book aims to provide a common basis for enhanced conservation and protection of soil resources.
Read more: <http://www.fao.org/global-soil-partnership/resources/highlights/detail/en/c/1418765/>.
[From Global Soil Partnership Newsletter No. 32, August 2021]

A Visual Atlas for Soil Micromorphologists

By Eric P. Verrecchia, Luca Trombino. Published by Springer in 2021, XIX, 177 pages, 1 b/w illustrations, 81 illustrations in colour, Hardcover ISBN 978-3-030-67805-0, Softcover ISBN 978-3-030-67808-1, eBook ISBN 978-3-030-67806-7, DOI <https://doi.org/10.1007/978-3-030-67806-7>, price hardcover: EUR 54.99 (incl. VAT), softcover: EUR 43.99 (incl. VAT),
This open access atlas is an up-to-date visual resource on the features and structures observed in soil thin sections, i.e. soil micromorphology. The book addresses the growing interest in soil micromorphology in the fields of soil science, earth science, archaeology and forensic science, and serves as a reference tool for researchers and students for fast learning and intuitive feature and structure recognition. It provides hundreds of images and photomicrographs to help practicing soil micromorphologists and students. Focuses on the diversity of soil elements and features, rather than feature interpretations, to assist with recognition.
Read more: <https://link.springer.com/book/10.1007/978-3-030-67806-7#about>.

Safe and Sustainable Crop Protection

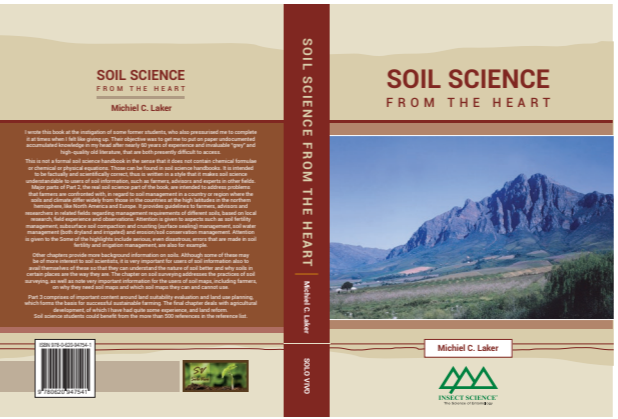
Edited by Kari Lynn, Mingming Ma, Qiang Yang, and Qi Yao, published in the ACS Symposium Series by Oxford University Press on 3 August 2021, 152 pages, 254x178mm, ISBN: 9780841235519, price hardback GBP 115.00.
As the world population grows, agrochemical researchers continue to innovate. This volume contains select innovations and advances in crop protection technology from the ACS Division of Agrochemicals. Contributed chapters focus on biochemistry, such as microbiomes and antibiotics, as well as workflows, including separation, characterization, and analysis.
Read more: https://global.oup.com/academic/product/safe-and-sustainable-crop-protection-9780841235519?q=soil&facet_narrowbypubdate_facet=Last%20%32%20months&lang=en&cc=at.

A Guide to Forensic Geology

Edited by L.J. Donnelly, D. Pirrie, M. Harrison, A. Ruffell and L.A. Dawson. Published by the Geological Society of London, 26 August 2021, 218 pages, hardcover ISBN: 978-1-786204882, price GBP 80.00.
Forensic geology is the application of geology to aid the investigation of crime. This book was written by the International Union of Geological Sciences (IUGS), Initiative on Forensic Geology (IFG), which was established to promote and develop forensic geology around the world. This book presents the first practical guide for forensic geologists in search and geological trace evidence analysis. Guidance is provided on using geological methods during search operations. This developed following international case work experiences and research over the last 25 years for homicide graves, burials associated with serious and organised crime and counter terrorism. With expertise gained in over 300 serious crime investigations, the guidance also considers geological trace evidence, including the examination of crime scenes, geological evidence recovery and analysis from exhibits and the reporting of results. The book also considers the judicial system, reporting and requirements for presenting evidence in court. Included are emerging applications of geology to police and law enforcement: illegal and illicit mining, conflict minerals, substitution, adulteration, fraud and fakery.
Read more: <https://www.geolsoc.org.uk/MPGFG>.
[From: IUGS E-Bulletin#178, September 2021]

Soil Science from the Heart

By Michiel C. Laker, published in October 2021 by SOLOVIVO (Pty) Ltd. ISBN number: 978-0-620-94754-1, costs: R400 SA Rand, excluding postage.
The book can be ordered from SOLOVIVO (Pty) Ltd, Tel: +27 83 501 8680, email: gerhard@solovivo.co.za.



According to the author, the main aim of this book is to try to fill some of the vacuums in regard to accessible soil knowledge, information and practical insights at least partially by means of rendering existing inaccessible knowledge, information and insights accessible. It is intended for users of soil information, both soil scientists and non-soil scientists. It is not intended to be a formal soil science handbook for use at any level. On the other hand it is also not intended to be a popular style book that can be understood by non-scientists. The intention was to write an easy to read and easy to understand book in semi-popular scientific style, while retaining scientific integrity and factual correctness.
This book is much needed and overdue for Southern African soil scientists, farmers, natural scientists, environmentalists and everyone interested in soil science. It reads like a story book, with much information specifically for farmers, and for the academically oriented more than 500 references. The book has 17 chapters, covering all fields of soil science, as well as land suitability evaluation, land use planning, agricultural development and land reform.

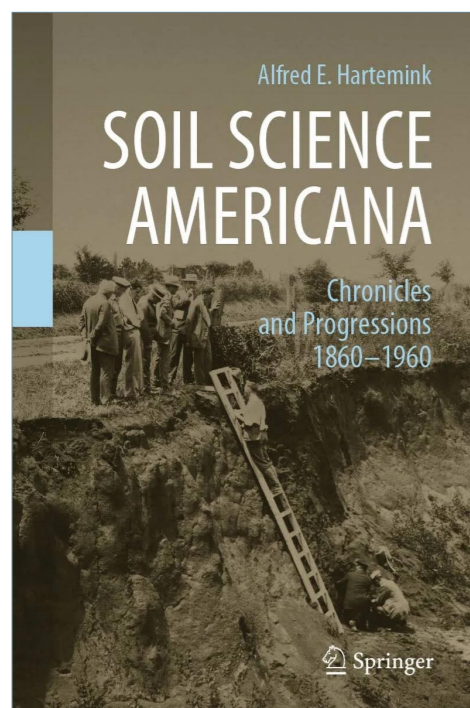
The Soils of Nepal

Edited by Roshan Babu Ojha, Dinesh Panday. Published in October 2021 by Springer, ISBN: 978-3-030-80999-7, price e-book EUR 117.69, price hardcover 153.99.
Serves as a comprehensive book consolidating all relevant information on soils of Nepal. Includes real field-based color photos of soil profile; useful for all professionals (researcher, academia, and developmental organization) working on soils.
Read more: <https://www.springer.com/gp/book/9783030809980>.

Soil Science Americana – Chronicles and Progressions 1860-1960

By Alfred E. Hartemink. Dordrecht: Springer; 2021. 623 pages, ISBN 978-3-030-71134-4, price hardcover Euro 43.99.
This book narrates how the study of the soil became a science and institutionalized in the USA between 1860 and 1960. The story meanders through the activities, ideas, publications, and correspondence of people who influenced the progressions, that led to the budding and early blossoming of American and international soil science. Interwoven is a tale of two farm boys who grew up 900 km apart in the Midwest USA in the late 1800s and early 1900s. The book also details the founding of

the International Society of Soil Science (ISSS) and the role of American soil science in the ISSS; progress of all world congresses in 1927, 1930, 1935, 1950, 1954, 1956 and 1960 are reviewed.



Read more: <https://rd.springer.com/book/10.1007/978-3-030-71135-1>.

Understanding Soils in Urban Environments

By Pam Hazelton and Brian W Murphy. 2nd edition published by CABI in November 2021, hardback, 192 pages, ISBN 9781789249934, price £85.00 | €100.00 | \$120.00. Understanding Soils in Urban Environments is a concise book explaining how urban soils develop, change and erode. Soils provide the foundation for buildings and infrastructure, and the medium for plant growth in fields, parks and gardens. They can act as a sink for waste, and can be contaminated in urban areas by heavy metals, organic chemicals and other contaminants. Soil properties such as water retention, salinity and acidity can cause environmental and structural problems for buildings and other engineering works. This text recognises and draws attention to the particular nature of soils in urban environments and discusses their distinctive management needs.

Since the first edition was published in 2011, it has been used across a wide range of disciplines, many of which require an understanding of urban soil and specific soil properties that cause environmental concern. Urban soils are now recognised as much more important now

than they were ten years ago, when they were seen as a poor relation to agriculture. The need for better understanding of all aspects of this topic has become evident especially at conferences in the last 5 years in Australia and internationally, where urban soils are now included as specific sections, not just as subsets such as contamination.

Read more: <https://www.cabi.org/bookshop/book/9781789249934/>.

Global Soil Laboratory Assessment 2020 – Laboratories' capacities and needs.

By Benedetti, F., Caon, L., published by FAO in Rome in 2021. 38 pages.

The Global Soil Laboratory Network (GLOSOLAN) has published two important reports on the capacities and needs of soil laboratories worldwide. The first report 'global soil laboratory assessment' is the result of a survey submitted by 241 laboratories operating in 142 countries. The second report 'global soil spectroscopy assessment' focuses on soil spectral data submitted by 97 laboratories from 56 countries. Both documents provide an overview of the state of laboratories worldwide and will be used to improve the GLOSOLAN work plan in terms of activity planning, budget allocation and country-specific policy support. They are essential for mobilising financial resources and better developing national and regional soil laboratory work plans.

Read more: <https://www.fao.org/documents/card/en/c/cb6395en>.

[From Global Soil Partnership Newsletter No. 33, November 2021]

Global Soil Spectroscopy Assessment. Spectral soil data – Needs and capacities

By Benedetti, F., van Egmond, F., published by FAO in Rome in 2021, 42 pages, ISBN: 978-92-5-134830-7.

The publication reports the information collected in the survey on the capabilities and needs of soil laboratories for collecting and managing soil spectral data. The text provides an overview of the current expertise, capabilities, needs and priority areas for labs that want to start or improve their spectral measurements and modelling, both for MIR and VNIR regions.

Read more: <https://www.fao.org/documents/card/en/c/cb6265en>.

[From Global Soil Partnership Newsletter No. 33, November 2021]

Recarbonizing global soils – A technical manual of recommended management practices

This technical manual is the first attempt to gather, in a standardized format, the existing data on the impacts of the main soil management practices on SOC content in a wide array of environments, including the advantages, drawbacks and constraints. This manual introduces different sustainable soil management practices in different contexts, supported by case studies that have been shown with quantitative data to have a positive effect on SOC stocks and successful experiences of SOC sequestration in practical field applications.

- Volume 1: Introduction and methodology
- Volume 2: Hot spots and bright spots of soil organic carbon
- Volume 3: Cropland, Grassland, Integrated systems and farming approaches – Practices overview
- Volume 4: Cropland, Grassland, Integrated systems and farming approaches – Case-studies
- Volume 5: Forestry, Wetlands, Urban Soils – Practices overview
- Volume 6: Forestry, Wetlands, Urban Soils – Case-studies

Read more: <https://www.fao.org/global-soil-partnership/areas-of-work/soil-organic-carbon-manual/en/>.

[From Global Soil Partnership Newsletter No. 33, November 2021]

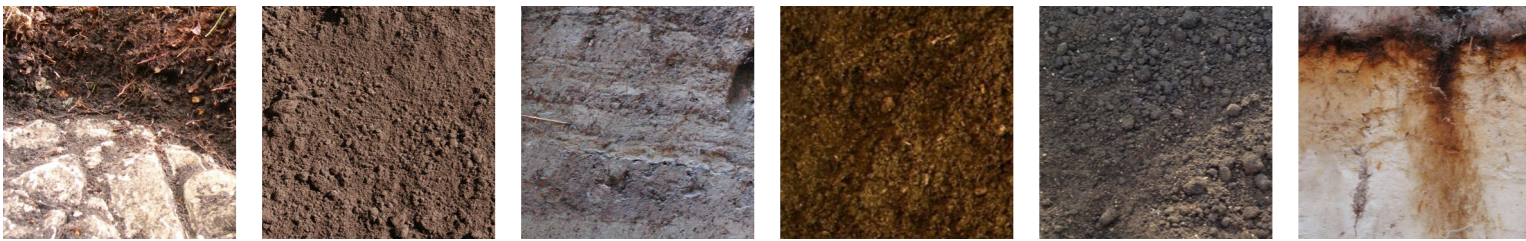
Salty experiments with soil for children and guide for teachers

Published by FAO in Rome, Italy in 2021. 20 pages, download for free.

In the framework of the World Soil Day 2021 campaign "Halt soil salinization, boost soil productivity", the booklet compiles a series of experiments and information for children on soil salinization.

Read more: <https://www.fao.org/documents/card/en/c/cb7681en>.

[From Global Soil Partnership Special announcement No. 35, November 2021]



Miscellaneous

MapBiomas launches working group on soils in Brazil

By Prof. Alessandro Samuel-Rosa, Universidade Tecnológica Federal do Paraná, Brazil.

Brazil, with its extensive land area, landscape diversity, and natural resources, still lacks adequate soil information to evolve strategically and sustainably. Most of the Brazilian soil data produced so far are published in scientific journals and the primary soil data is usually either unavailable or difficult to access for the technical and general public. This has been hampering and preventing data reuse and its practical applications. As a consequence, a lot of data is currently underutilized. Addressing this issue, a group of Brazilian soil scientists and the MapBiomas Network joined together to create a working group interested in maintaining freely accessible, interoperable, and harmonized soil data and mapping soil information, in space and time, for the entire Brazilian territory. MapBiomas (<https://mapbiomas.org/en>) is a multi-institutional network of universities, NGOs, think tanks, and tech companies dedicated to understanding landscape transformation in Brazil. Using remote sensing, cloud computing, and machine learning, MapBiomas offers the most complete historical series of land-cover and land-use annual maps in Brazil, with 25 classes mapped since 1985 at a scale of 30 m resolution, among other mapping products (<https://plataforma.brasil.mapbiomas.org/>). Freely and openly available for public use, its platform and data assist in developing policies to protect the peoples of the forest and biodiversity; fighting deforestation; agribusiness in a sustainable way; epidemiological surveillance; etc. All the technical and collaborative innovations of MapBiomas in Brazil have allowed the expansion of

MapBiomas Network to other countries encouraging local institutions to replicate in their countries, such as in Amazon, Chaco, and Indonesia regions. The working group currently consists of researchers from the MapBiomas Network and the Federal University of Technology – Paraná (UTFPR, <http://www.utfpr.edu.br/>) and the University of São Paulo (USP, <http://www.en.esalq.usp.br/>). During the next years, the working group will pursue the following objectives:

1. Rescue legacy soil data to improve spatial and temporal coverage of open soil data in Brazil;
2. Support the provision of findable, accessible, interoperable, and harmonized soil data;
3. Identify potentials and limitations of digital soil mapping in Brazil;
4. Promote the development of soil properties maps through intense scientific collaboration.

The working group closely cooperates with soil researchers and other initiatives at regional and national levels to achieve its goals. By involving local partners, the data quality is expected to be promoted using local knowledge. Furthermore, the incentive to use the data and systems by local agents will make the implementation more effective. Since the project is designed based on freely available open data, scientists, growers, government agents, and other stakeholders can benefit from its results. This effort is expected to guide society to more efficient and sustainable actions that will benefit the environment and global soil health.



In Memoriam

Anthony Roger (Tony) Dexter

(1942–2021)



Tony Dexter 1996 (© former Silsoe Research Institute, UK)

Anthony Roger (Tony) Dexter was born on 30 December 1942 in Bedford in the heart of England. Tony completed his BSc in physics (electronics) at City University, London in 1965 before being awarded a PhD in physical chemistry at the University of Essex in 1970 for a thesis titled “The high-frequency mechanical response of super-cooled liquids”. At the end of 1969 Tony married Caroline and they moved to Scotland where he continued his research on mechanical properties of super-cooled viscous liquids as a post-doctoral fellow at the Bio-Engineering Unit at Strathclyde University. Tony was appointed to the National Institute of Agricultural Engineering, Silsoe in his native Bedfordshire in late 1971.

In 1973 Tony and Caroline emigrated to Adelaide where Tony had accepted the post of lecturer in soil physics. This appointment was in the Department of Agricultural Chemistry and Soil Science of the University of Adelaide – with Soil Science becoming a separate department soon after. Tony and Caroline established themselves in the small town of Mt Barker about 20 km away. Sons Tom and David arrived. We’re not sure exactly when Tony joined ISTRO but certainly he attended the 8th conference in Hohenheim in 1979. This was a scientifically productive time for Tony. He generated substantial external funding

from the cereal and oilseed industries, and this supported his work on plant roots. The funding and the prodigious scientific output saw Tony rapidly promoted to Senior Lecturer then Reader/Associate Professor. It was during this time that the seminal work on soil friability began. He supervised a succession of PhD students, and took advantage of sabbaticals to collaborate with people in the Netherlands (B. Kroesbergen), Germany (Rainer Horn), Sweden (Inge Håkansson), Canada (Bev Kay) and the USA (Jerry Radke). His grants employed post-doctoral scientists including John Hewitt and Bent Jakobsen. Tony’s work on plant roots was acknowledged through the Department of Botany at the University of Adelaide with the award of a DSc in 1988.

In August 1990 Tony returned to Silsoe to head a group on soil physics. The work of the group focused on the environmental impact of mechanized agriculture on soil function and the wider environment. The study of processes controlling soil function is highly complex, requiring a multi-disciplinary approach, so many links were formed with scientists not only in the UK but throughout Europe and beyond. As with all Tony’s work the golden thread running throughout was soil structure, its form, stability and resilience.

Tony met soil scientist Ewa Czyż and took a sabbatical to the Institute of Soil Science and Plant Cultivation (IUNG) in Puławy, Poland. This started a collaboration between his group at Silsoe, UK and IUNG, Puławy, Poland. In 1997 Tony moved to the post of Professor at IUNG leading the Soil Physics Group in the Department of Soil Science, Erosion and Land Protection Puławy, Poland. He continued his research, working closely with Ewa and they collaborated widely on soil and plant-water management, soil physics and environmental protection. The result of his research and international collaboration over the period 1997-2004 was a series of three publications (in 2004), the result of which was the development of a universal indicator of the physical quality of soil, "S". This work was the basis for the Director's award at IUNG for 2004. In 2004 Tony spent time at the University of Sao Paulo, Brazil working with Alvaro Da Silva and colleagues



and in 2008 he spent a year at INRA, Orleans, France collaborating with Guy Richard and others. Tony was appointed a full professor by President Lech Kaczyński in October 2007. He retired in 2012 although he continued to publish until at least 2019. In retirement Tony divided his time between Ewa and Poland and a house in Brightlingsea on the Essex coast. He was a keen sailor and skilled mariner and taught sailing to disadvantaged young people. He was also a keen radio ham. He was widely read and always good company. He was in Brightlingsea when the Covid pandemic hit and was unable to return to Poland. He passed in mid-October. Tony's scientific legacy is outstanding. He published more than 250 papers in refereed international scientific journals and at the time of writing has a Hirsch index of $H = 50$. His writing style was clear and succinct and he had an ability to simplify science to enable understanding. Tony took teaching responsibilities seriously and always seemed to have time to interact with students and young researchers. Tony's research covered a range of topics that he grouped into topic areas including the physics of soil/plant-root interactions; research on the physics of soil biology interactions (including earthworms and microbes); research on soil structure; soil hydraulic properties and soil physical quality. He had deep understanding of the physical, chemical and biological principals controlling soil function and used this understanding to explain soil behaviour. Those of us lucky enough to have worked with Tony will certainly miss him as a friend, but his many published papers will be a lasting memorial to a great scientist.



By Blair McKenzie, Chris Watts and Ewa Czyż (with help from Caroline, Tom and David Dexter).

Read more:
<https://www.iuss.org/about-the-iuss/iuss-history/obituaries-to-great-soil-scientists/>.

Above: Tony at Ephesus as part of the 2009 ISTRO conference, Izmir Turkey. Left: Tony during nomination for Professor by the President of the Republic of Poland Lech Kaczyński, Warsaw, 2007 (both: © Ewa Czyż).

Adrien Herbillon

(1934-2021)

The IUSS Secretariat was sad to learn that our distinguished colleague Prof. Dr. Adrien Herbillon passed away on the 19th of June 2021. He was 87 years old. He was a leading scientist in soil processes and colloidal mineralogy at the European Union and world level. He had been the President of the Belgian Soil Science Society and the General Secretary of the *Association Internationale pour l'Étude des Argiles* (AIPEA). He was Professor at the *Université catholique de Louvain* (Belgium) and the *Université Henri Poincaré – Nancy I* (France) while directing the CNRS *Centre de Pédologie Biologique* funded earlier by Philippe Duchaufour in Nancy. Author and co-author of a number of scientific articles, text books and book chapters, Adrien Herbillon was a scientist of great culture who will remain a reference: he was a real lively library and an exceptional source of inspiration for many students and soil scientists. Acting from field to lab, he was an out-

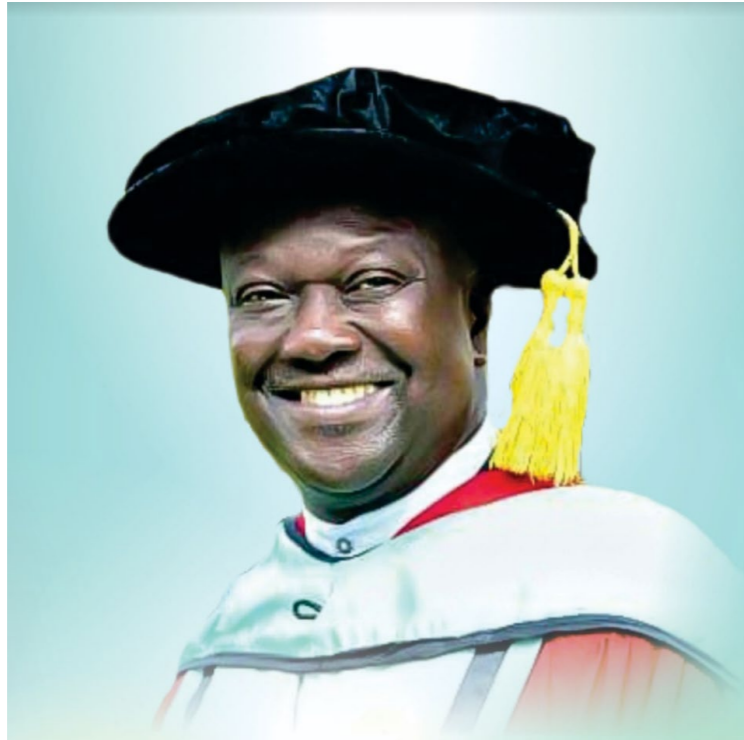
standing soil scientist and one of the pillars of numerous scientific networks on soil processes. Beyond his undeniable scientific skills, he was deeply human, a very social person. His kindness, availability and great modesty have always made us admiring him. We all lose a competent colleague and a friend. His death is a tremendous loss for the soil science community and for soil science in general.

Messages to his family can be addressed to:
 Mrs. Brigitte Herbillon and family
 rue des Ourdons, 7
 1457 Tourinnes-Saint-Lambert
 Belgium

By Bruno Delvaux,
 Emeritus Professor UCLouvain, Belgium.

Daniel Theophilus Akwa Okae-Anti

(1934-2021)



Daniel Theophilus Akwa Okae-Anti (© Andy Kwakye Okae-Anti)

The IUSS Secretariat was sad to learn about the demise of Professor Daniel Theophilus Akwa Okae-Anti, which occurred on the 20th of June, 2021. He was 65 years old.

He had been the Vice President of the Soil Science Society of Ghana. He was an Associate Professor with the Department of Soil Science, School of Agriculture, University of Cape Coast in Ghana. He was also a Commonwealth Fellow. Prof. Okae-Anti had over 50 publications to his credit in reputable journals all over the world. His contribution, notably "Significance of microtopography in a Gleysol" presented at the 2010 WCSS at Brisbane,

Australia, to the Soil Science Community will forever be cherished. His numerous graduated students hold key positions across the globe.

His death is a tremendous loss for the Soil Science Community and for Soil Science in general.

Messages to the family can be emailed to aokae-anti@ucc.edu.gh.

*By Mr. Andy Kwakye Okae-Anti,
University of Cape Coast, Ghana.*

Tengiz Urushadze

(1940-2021)



Gizo Urushadze and soil profile (© Teo Urushadze)

With great sadness we inform that Professor Dr. Tengiz (Gizo) Urushadze passed away unexpectedly on the 12th of November 2021 at the age of 81 years. Gizo Urushadze studied at the Georgian Agricultural University in Tbilisi forestry, agriculture and soil sciences, followed by studies in Russia at the Institute of Geography and at the Lomonosov Moscow State University in Moscow.

Amongst many other functions and duties, he was director of the Michail Sabashvili Institute of Soil Science of the Agricultural University of Georgia as well as professor at the Ivane Javakhishvili Tbilisi State University. In these functions, he was not only President of the Georgian Society of Soil Science, but also scientific advisor of the President of Georgia.

As member of the Georgian National Academy of Sciences, he was vice-president of the Georgian National

Committee of the UNESCO programme "Man and Biosphere". He published more than 500 scientific papers including more than 50 books and textbooks with special interest in soils of mountain areas in Georgian, Russian and English language.

Moreover, he was member of the editorial board of several international scientific journals and main editor of the international journal "Annals of Agrarian Science", which he founded in 2003. In 2018, he was elected Honorary Member of IUSS.

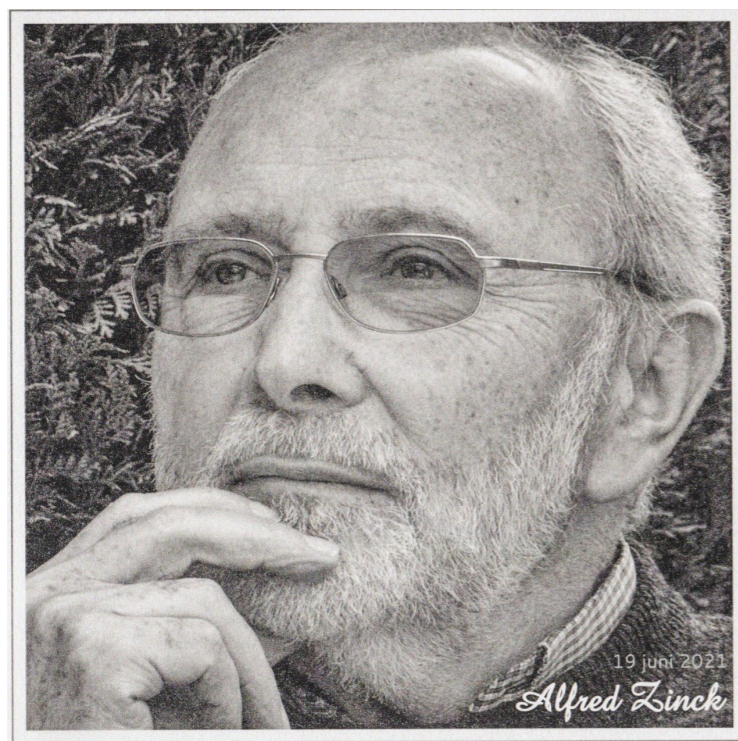
For all his scientific achievements, he received numerous national and international distinctions and awards, including two Honorary Doctoral degrees.

The International Union of Soil sciences will remember him as friend, colleague, and outstanding scientist.

By Winfried Blum, IUSS Honorary Member.

Joseph Alfred Zinck

(1938-2021)



Joseph Alfred Zinck (© Zinck family)

It is with great sadness that we inform you that last Saturday, June 19, Dr. Joseph Alfred Zinck passed away in the Netherlands. He was born on 10th February 1938 in Bilwisheim, France. Prof. (em.) Dr. Joseph Alfred Zinck was a soil scientist with a BSc in geography (1960) and a MSc in phytosociology-pedology (1962) from the University of Strasbourg (France) and a Ph. D in regional planning (1981) from the University of Bordeaux (France). In 1963-64, he was at the University of Bahia (Brazil) with a fellowship from the International Rotary Foundation.

Between 1982 and 1985, he was on a post-doctoral programme in soil science at the University of California (Berkeley and Davis). He started and developed his professional career in Venezuela as an expert in technical cooperation of the French Government, working with the Ministry of Public Works (1965-77) and with the Ministry of Environment and Natural Resources (1977-81) in soil survey and land use planning projects. During the

same periods, he was also involved in part-time teaching at post-graduate level at the Central University of Venezuela (Caracas and Maracay).

From 1986 until his retirement in 2003, he worked at the International Institute for Geo-Information Science and Earth Observation (ITC) in Enschede (the Netherlands) as full professor in Soil Survey and head of the Soil Science Division. He carried out consulting and research work in several countries, including Argentina, Bolivia, Brazil, Cameroon, China, Colombia, Iran, Kenya, Mexico, Spain, Thailand and Venezuela.

Thematic fields covered include: (1) soil formation, classification, mapping and interpretation for multi-purpose uses, (2) soil-geomorphology relationships, (3) soil information systems, (4) soil degradation, (5) land use planning and sustainable land management in tropical and sub-tropical areas, and (6) ethnopedology.

He has published 166 papers in scientific and large-public journals, 20 soil survey reports, and nine books (four being co-authored). He was teacher of countless researchers from all over the world. With a serene temperament, was a brilliant scientist, demanding with his disciples, a human and sensitive teacher. Extremely affectionate, with his words and his gestures, measured but deep and sincere.

Man of great sensitivity and fine humor. Not only did he speak several languages, but he enjoyed the subtleties of the words. “Los Llanos, un paisaje abierto a pérdida de vista, donde tierra y cielo se funden en un lejano horizonte, dando la sensación de una libertad total mezclada con

algo de soledad. Libertad y soledad inspiradas por la posibilidad de caminar leguas y leguas sin cruzar un alma”. These words are the beginning of a preface he has written for a Venezuelan book “Llanos Venezolanos” which shows how well he combined science with poetry, describing his beloved adopted country. Today, the scientific community loses one of the greats. But his legacy lives on, not only in his numerous publications, but also in each of those who had the opportunity to meet him and be formed by him.

*By María Cristina Frugoni,
from Universidad Nacional del Comahue, Argentina.*



IUSS Honorary Members and Award Winners

IUSS Honorary Members

Year	Member	Country
1924	L. Cayeux †	France
	K. Glinka †	USSR
	Jos. Kopecky †	Czechoslovakia
	G. Murgoci †	Romania
	E. Ramann †	Germany
	Sir John Russell †	UK
	S. Winogradski †	USSR
1927	P. Treitz †	Hungary
1935	E.A. Mitscherlich †	Germany
	A. d'Sigmond †	Hungary
	J. Stoklasa †	Czechoslovakia
	G. Wiegner †	Switzerland
1950	A. Demolon †	France
	D.J. Hissink †	Netherlands
	W.P. Kelley †	USA
1954	S. Mattson †	Sweden
	E. Truog †	USA
1956	G. Bertrand †	France
	E.C.J. Mohr †	Netherlands
1960	F.A. Bear †	USA
1964	J.A. Prescott †	Australia
1968	F. Hardy †	UK
	W.L. Kubiena †	Germany
	L.A. Richards †	USA
	A.A. Rode †	USSR
1974	R. Bradfield †	USA
	G.V. Jacks †	UK
	Ch.E. Kellogg †	USA
	M.K. Kononova †	USSR
	A. Oudin †	France
	F. Scheffer †	Germany
1978	G. Barbier †	France
	V. Ignatieff †	Canada
	Y. Ishizuka †	Japan
	L. Krolkowski †	Poland
	L. Vettori †	Brazil

Year	Member	Country
1982	Ph. Duchaufour †	France
	W. Flaig †	Germany
	V. Kovda †	USSR
	E. Mueckenhausen †	Germany
	E.W. Russell †	UK
1986	H. Jenny †	USA
	D. Kirkham †	USA
	S.K. Mukherjee †	India
	R. Tavernier †	Belgium
1990	G. Aubert †	France
	E.G. Hallsworth †	Australia
	J.S. Kanwar	India
	P. Schachtschabel †	Germany
	R.W. Simonson †	USA
	I. Szabolcs †	Hungary
1998	G.H. Bolt †	Netherlands
	R. Dudal †	Belgium
	K.H. Hartge †	Germany
	M. Kutilek †	Czech Rep.
	J. Quirk	Australia
	W.G. Sombroek †	Netherlands
	K. Wada	Japan
	D.H. Yaalon †	Israel
	S.V. Zonn †	Russia
2002	Richard W. Arnold	USA
	Gleb V. Dobrovolsky †	Russia
	Wilford Gardner †	USA
	Hassan M. Hamdi †	Egypt
	Luis A.L. Sarmiento	Colombia
	Fiorenzo Mancini †	Italy
	Boris S. Nosko	Ukraine
	Ramon Rosell †	Argentina
	Alain Ruellan †	France
	Akira Tanaka †	Japan
	Bernard H. Tinker	UK

Year	Member	Country
2004	Winfried E.H. Blum	Austria
	Hans-Peter Blume	Germany
	Johan Bouma	Netherlands
	Seong-Jin Cho †	S Korea
	Jan Glinski †	Poland
	Marcel G.H. Jamagne †	France
	Donald R. Nielsen †	USA
	Hans V. van Baren †	Netherlands
	Larry P. Wilding †	USA
2008	Christian Feller	France
	Kikuo Kumazawa	Japan
	Kazutake Kyuma	Japan
	John Ryan	Ireland
	Bob A. Stewart	USA
	Victor Targulian	Russia
	György Varallyay †	Hungary
	Jai Singh Pal Yadav †	India
	Jai-Joung Kim	Korea
2012	John M. Kimble	USA
	Ahmet Ruhi Mermut	Canada
	Nicola Senesi	Italy
	Donald L. Sparks	USA
	Robert E. White	Australia
	I. P. Abrol	India
	Jaume Bech	Spain
	Maria Gerasimova	Russia
	Martin H. Gerzabek	Austria
2016	Mary Beth Kirkham	USA
	Josef Kozak	Czech Republic
	Stephen Nortcliff	United Kingdom
	Marcello Pagliai	Italy
	Piotr Sklodowski	Poland
	Karl Stahr	Germany
	Roger Swift	Australia
	Tengiz F. Urushadze †	Georgia
	Jae Yang	Korea

Year	Member	Country
2020	Jozef A. (Seppe) Deckers	Belgium
	Flavio Anastacio de Oliveira Camargo	Brazil
	Rainer Horn	Germany
	Carmelo Dazzi	Italy
	Kazuyuki Inubushi	Japan
	Kye-Hoon 'John' Kim	Korea
	Bal Ram Singh	Norway
	Pavel Krasilnikov	Russia
	Rosa M. Poch Claret	Spain
	Alfred Hartemink	USA

IUSS Award Winners

Dokuchaev Award		
Year	Member	Country
2006	Victor Targulian	Russia
2010	Dan Yaalon †	Israel
2014	Alex McBratney	Australia
2018	Johan Bouma	Netherlands

Von Liebig Award		
Year	Member	Country
2006	Rattan Lal	USA
2010	Don Sparks	USA
2014	Magdi Selim †	USA
2018	John Ryan	Ireland

Jeju Award		
Year	Member	Country
2018	John Bennett	Australia

