

WASWAC

HOT NEWS

➤➤➤ **ISSUE 8, 2021**



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The Secretariat of WASWAC
No. 20 Chegongzhuang Road West
Beijing 100048 P. R. China
www.waswac.org.cn
Tel: +86-10-68786579
Fax: +86-10-68411174
Email: waswac@vip.163.com
waswac@foxmail.com

Editors:
Ying Zhao
Pengfei Du

LASOSU2021: an Online International Conference for Land Degradation, Soil Conservation and Sustainable Development Held in Dalian on 21-23 August, 2021

LASOSU2021 held successfully



LASOSU2021, the International Forum on Land Degradation, Soil Conservation and Sustainable Development, 2021, was successfully held as an online conference on 21-23 August 2021. The conference is supervised by the World Association of Soil and Water Conservation (WASWAC), Italian Association of Agricultural Engineering (AIIA) and Soil Erosion Division of CSWCS (China) and the conference is organized by Dalian University of Technology (China)

and University of Padova (Italy). Thirteen other famous institutes are involved in co-organizing the conference, e.g., the Institute of Soil and Water Conservation of CAS & MWR (China), Beijing Normal University (China), Xi'an University of Technology (China), Italian Association for Soil and Water Bioengineering (Italy), etc.

Thoughtful reports and hot discussions have been carried out focusing on the cutting edge topics for the effects of climate change on land

degradation, remote sensing and big data in land degradation analysis, soil conservation and sustainable development, nature-based solutions for soil and water conservation, smart monitoring information system for soil and water conservation, decision-making information system for soil and water conservation and land resource management. 259 papers have been accepted and 10 outstanding participants have been awarded in LASOSU2021. The conference programme includes a welcoming ceremony, 2 slots for keynote presentations, 1 slot for focus group discussion, 23 slots for parallel sessions, and a closing ceremony. 241 participants from 19 countries in the field of soil and water conservation and sustainable development have been involved in the online communication during 22-23 August, including 53 chairpersons, 169 oral presenters and 19 poster presenters, 82 of which are at the level of professors, and 84 of which are from outside of China. In the conference, 6 preeminent scientists, including one member of the Chinese Academy of Sciences and one member of the American Academy of Arts and Sciences, have given keynote speeches, and another 23 experts have given solicited parallel-session presentations. During the conference, a total of 2263 participants were recorded in the

VooV meeting, Innovation China, and CNKI Online Lectures.

The presidents of the Organizing Committee of LASOSU2021 are Professor Duihu Ning (International Research and Training Center on Erosion and Sedimentation, China) and Professor Paolo Tarolli (University of Padova, Italy). President Duihu Ning, chaired the welcome ceremony, which was addressed by Professor Chi Zhang, Dean of the Faculty of Infrastructure Engineering, Dalian University of Technology, Mr. Weiguo Li, Director of the Water Bureau of Dalian Government (China), Professor Paolo Tarolli (Italy), Chairperson of the Organizing Committee, Professor Wenlong Wang, Director of the Soil Erosion Division, CSWCS, and Professor Giacomo Scarascia Mugnozza, President of the Italian Association of Agricultural Engineering. Academician Jianguo Liu (USA), Academician Bojie Fu (China), Professor Vincenzo D'Agostino (Italy), Professor Chongfa Cai (China), Professor Paulo Alexandre da Silva Pereira (Lithuania) and Professor Roberto A Peiretti (Argentina) presented keynote speeches in the conference. Also an innovative slot, the Focus Group Discussion (FGD), was adopted in LASOSU2021. Professor Fenli Zheng (China) led an interesting discussion

concerning Global Soil Conservation and Food Production together with 5 esteemed professors from 4 countries, Chi-hua Huang (USA), Baoyuan Liu (China), Paolo Tarolli (Italy), Altaf Ali Siyal (Pakistan), Fei Wang (China). It's worth noting that, the number of participants had reached the maximum capacity of 300 in a single Tencent/VooV meeting during this period. Finally, the closing ceremony was presided over by Professor Wenlong Wang. Professor Xiaoying Liu, the Secretary General of World Association of Soil and Water Conservation, announced the list of award recipients. Dr. Chao Qin from Tsinghua University (China), who won one of the outstanding papers, made a speech on behalf of the conference participants. The summary of the conference was made by Professor Federico Preti, president of Soil and Water Conservation Division of the Italian Association of Agricultural Engineering, and Professor Guanghui Zhang, Vice Director of the Soil Erosion Division, CSWCS. By the end of the conference, Professor Xiangzhou Xu, the head of the conference team in Dalian, delivered a speech to extend his thanks and delights in organizing the LASOSU2021. LASOSU2021 is a characteristic international meeting. The smooth network and communication during LASOSU2021 illus-

trate that to hold an online international conference at a large scale is practical in promoting the international exchange under the present COVID situation. In addition, LASOSU2021 is highly internationalized. All oral presentations and posters are in English, and the presenters and chairpersons from outside of China account for 35% of the 241 presenters/chairpersons.

LASOSU2021 has not only a large number of participants but also a high academic level. The presenters/chairpersons at the professor level or above account for 34% of the total. The conference was also supported by various social forces: 18 famous universities, institutes and associations from China and other countries participated in the preparation and organization of LASOSU2021. Among them, Northwest A&F University, Shenyang Agricultural University and University of Florence (Italy), convened 5, 3, and 2 slots of parallel sessions, respectively. Moreover, two enterprises sponsored the conference, and a leader of the local government also participated in the core slot of the conference. Especially, the professionalism and impartiality have been realized in selecting the outstanding attendances which have been approved by all participants.

In conclusion, LASOSU2021 has received wide attentions in the field of soil conservation and sustainable development. It is said that "LASOSU2021 is a high-level international academic conference held under the epidemic situation of COVID-19". Maybe LASOSU2021 has made a promotion in improving the general studies and starting the key projects in the field.

LASOSU2021 has played a positive role in providing a global perspective and strategic thinking to dissolve the problem of serious soil degradation described in the 2030 Agenda for Sustainable Development, a document adopted by all UN Member States in 2015. (Conference Team of LASOSU2021)

Attachment: List of Award Recipients in LASOSU2021

Opening Ceremony



Duihu Ning



Chi Zhang



Weiguo Li



Wenlong Wang



Giacomo Scarscia Mugnozza



Paolo Tarolli

A Welcome Speech from Water Bureau of Dalian Government
Weiguo Li
Water Bureau of Dalian Government
22 August 2021

A Welcome Speech from LASOSU2021
Professor Wenlong Wang
Institute of Soil and Water Conservation, CAS & MWRR

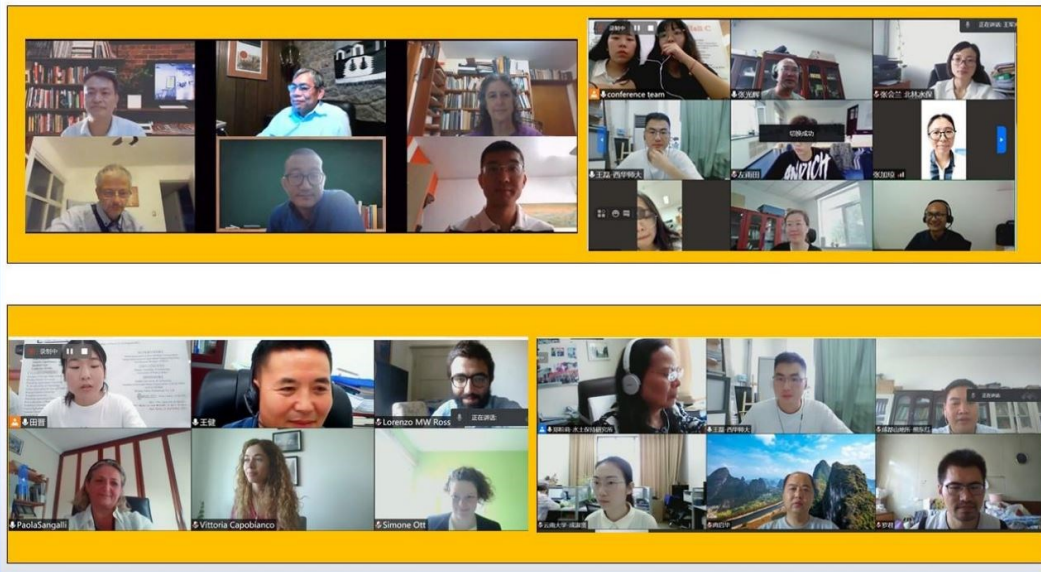
Welcome AIHA and the Contribution of AIHA to the Topic Treated in the Conference
Professor Giacomo Scarscia Mugnozza
Italian Association of Agricultural Engineering (ISA) and University of Bari

LASOSU 2021
22-23 August 2021
Dalian, China

Keynote Sessions

<p>Qiangguo Cai</p>  <p>Zhanbin Li</p>  <p>Rui Li</p>  <p>Guobin Liu</p>	<p>Jianguo Liu</p> <p>Metacoupling: Framework and Applications</p> <p>全程耦合: 框架及其应用</p>  <p>Jianguo Liu Center for Systems Integration & Michigan State Univ liujg@msu.edu</p>	<p>Bojie Fu</p> <p>China's Ecosystem Restoration and Management</p>  <p>Bojie Fu Research Center for Eco-Environmental Sciences Chinese Academy of Sciences</p>	<p>Vincenzo D'Agostino</p>  <p>Vincenzo D'Agostino Challenges for land and soil protection in mountain areas</p>
<p>Chongfa Cai</p>  <p>Chongfa Cai Huazhong Agriculture Wuhan Hubei cfcai@mail.hz</p>	<p>Paulo Alexandre da Silva Pereira</p>  <p>Paulo Pereira Mykolas Romeris University Lithuania</p>	<p>Roberto A. Peiretti</p>  <p>Roberto A. Peiretti 2021 - Conservation Agricultural Model based on the No-till LASOSU 2021 Conference Dalian, China August 22-23, 2021</p>	

Parallel Sessions



Closing Ceremony

Wenglong Wang

Xiaoying Liu

Guanghui Zhang

Chao Qin

Federico Preti

Xiangzhou Xu

List of LASOSU 2021 Award Recipients

1. Outstanding Papers

- (1) Chao Qin, Baosheng Wu, Guangqian Wang, Ge Wang. At-many-stations hydraulic-geometry for six major rivers originated from the Qinghai-Tibet Plateau.
- (2) Yulei Ma, Xiangzhou Xu, Peiqing Xiao, Qiao Yan, Chao Zhao. Expansion on the loess gully sidewall: Processes and mechanisms.

2. Outstanding Oral Presentations

- (1) Zhulu Lin (USA), Assessing ecological security network for the urban agglomeration around Hangzhou Bay (China) .
- (2) Vittoria Capobianco (Norway), NBS and traditional erosion and landslide mitigation measures in LaRiMiT database: pooling of expert scores.
- (3) Hongguang Liu, Utilization of arbuscular mycorrhizal fungi for controlling soil erosion.
- (4) Paolo Di Pietro (Italy), Hydraulic tests and interpretation of test data for erosion protection systems in open channel flow.

3. Outstanding Poster Presentations

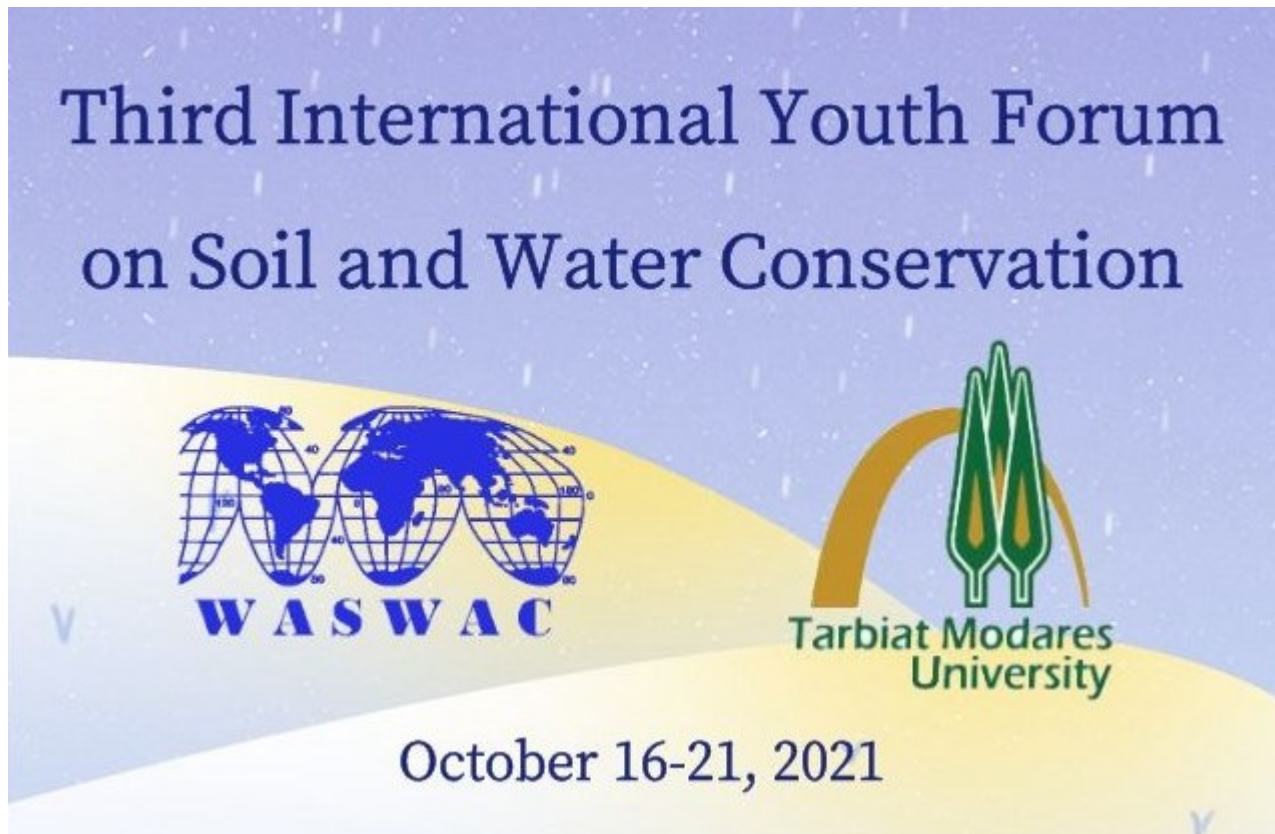
(None)

4. Outstanding Conference Organizations

- (1) Yihang Li, Dalian University of Technology.
- (2) Mingyang Liu, Dalian University of Technology.
- (3) Tian Li, Dalian University of Technology.
- (4) Lin Chen, Northwest Agriculture & Forestry University.



Welcome to Attend the Third International Youth Forum on Soil and Water Conservation (3rd IYFSWC) Online or Offline



The Third International Youth Forum on Soil and Water Conservation (3rd IYFSWC), sponsored by the World Association of Soil and Water Conservation (WASWAC), will be held in the Faculty of Natural Resources and Marin Science, Tarbiat Modares University, IRAN, from **16 to 21 October 2021**.

The main theme of the conference is *Soil and Water Conservation under Changing Environments*.

Keynote Speakers

<https://iyfswc.modares.ac.ir/page/87/keynote-speakers>

Oral Presentation and Poster Templates:

Oral Presentation Template:

https://iyfswc.modares.ac.ir/files/site1/files/3rdIYFSWC_Oral_Template.pptx

Poster Presentation Template:

https://iyfswc.modares.ac.ir/files/site1/files/3rdIYFSWC_Poster_Template.pptx

Conference Online Rooms:

The conference will be held online using Adobe Connect via the following rooms:

<https://vc1.modares.ac.ir/iyfswc-mainpage/>

<https://vc1.modares.ac.ir/iyfswc-1>

<https://vc1.modares.ac.ir/iyfswc-2>

<https://vc1.modares.ac.ir/iyfswc-3>

The rooms will be available for the test during the following schedule:

27 September 2021	8:00 - 9:00Tehran Time (GMT+3:30)	11:30 - 12:30Tehran Time (GMT+3:30)
4 October 2021	8:00 - 9:00Tehran Time (GMT+3:30)	11:30 - 12:30Tehran Time (GMT+3:30)
11 October 2021	8:00 - 9:00Tehran Time (GMT+3:30)	11:30 - 12:30Tehran Time (GMT+3:30)

All participants are invited to log in to the rooms as the guest with their full names.

Using the Adobe Connect application in your systems (Windows, Android, etc.) is highly recommended to have the room environments more user-friendly and with complete tools and access-
es.

Meanwhile, it is also possible to enter the rooms using updated Chrome, Firefox, or Microsoft Edge browsers.

A guide to using the Adobe Connect software will soon be available on the homepage of the conference website (<http://iyfswc.modares.ac.ir/>).

Improving soil carbon measurements empowers African farmers

By Susan V. Fisk

The amount of carbon in farm soils is important to farmers. Soils with high carbon contents tend to provide better yields. They also tend to have more resilience to weather-



One of the research team testing a soil sample for soil carbon. Soil carbon is critical for good crop development and food security. Credit: Regis Chikowo

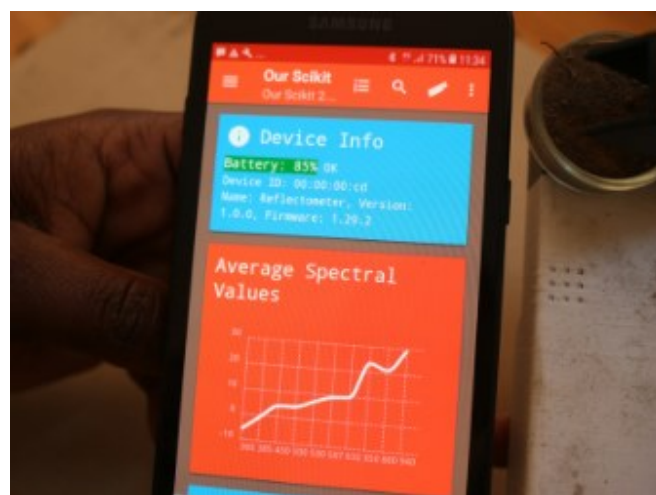
related crop failure. But measuring the amount of carbon in soil can be expensive and involve several steps. That can make it hard to collect this critical information in regions like sub-Saharan Africa.

Sieglinde Snapp, a fellow of the Soil Science Society of America, has been working with African farmers to improve growing conditions and provide better measurements for several decades. She and her colleagues recently published a paper in Soil Science Society of America Journal about a device they've tested that provides inexpensive, fast and accurate soil carbon measurements.

"Soil organic carbon varies at fine scales across fields," says Snapp. "Farmers require detailed information to better understand how crops will respond to nutrients and water management. Both processes are regulated by soil organic carbon."

"In sub-Saharan Africa, typical farm sizes are under one hectare (about 2.5 acres)," says Snapp. These are called smallholder farms. They are also often divided further across numerous, smaller fields.

"Soils in this region vary greatly in characteristics," says Snapp. "Their fertility is highly sensitive to management." Many farms have degraded soils and are being managed by



The research team calibrated data collected by reflectance to lab soil samples. The application developed provides accurate information to farmers in real time, not needing a good phone connection. Credit: Regis Chikowo

farmers with limited resources. “This can cause unstable food supplies in the region. Restoring the soils’ productivity through management that increases soil carbon is a major policy goal.”

The research team looked for ways to help farmers assess their soil carbon in a quick, inexpensive way. They evaluated a low-cost



Dr. Sieglinde Snapp with students at Michigan State University. They are testing a device that can provide soil carbon information to farmers at a reasonable cost. Credit: Derrick Turner

portable “reflectometer.” The reflectometer the team evaluated collects infrared reflectance at ten wavelengths, which allows a hardware cost of \$400. For comparison, a highly accurate laboratory method can require an investment of over \$100,000 for equipment. They calibrated this device with lab tests to verify the data they collected.

“We found that the reflectometer predicted soil carbon levels precisely,” says Snapp. “It gave sufficient accuracy to inform soil man-

agement practices. What is unique about this handheld sensor is that it provides the data directly in the field, in the absence of a good phone connection.”

“With minimal training, extension staff can use the reflectometer to carry out assessment of soil carbon in real time with farmers in their field,” says Snapp. “This represents a significant step forward in improving agronomic management in data-poor locations. Access to such immediate and locally relevant soil data can empower Malawian farmers to make more informed management decisions based on their unique contexts.”

Future research will focus on calibrating the device for different regions, or different sampling techniques. The team may also look at incorporating qualitative information collected by farmers and on improving measurements with machine learning.

“We expect that as these tools become even more reliable and accessible, farmers will be better able to make informed management decisions. Policy can be more responsive to on-the-ground needs, with the ultimate outcome of improved livelihoods and improved food security.

Sources: <https://www.soils.org/news/science-news/improving-soil-carbon-measurements-empowers-african-farmers>

Helping engineers better predict clay landslides

By Susan Sandrine Perroud, Ecole Polytechnique Federale de Lausanne

Norway experiences dangerous landslides due to its clay-rich soil. For her Master's thesis in civil engineering at EPFL, Mathilde Metral outlined steps that the country's geotechnical engineers can take to improve the predictive computer model they're currently developing.

The heavy rains that sweep across Europe with growing frequency can be particularly damaging in Norway, where the clay-rich soil is susceptible to landslides. As part of her Master's thesis in civil engineering, Mathilde Metral worked with the Norwegian Geotechnical Institute (NGI) to test the computer model that engineers there are developing to predict clay landslides. "I wanted to apply geotechnical concepts to help prevent natural disasters," she says. "My interest in this topic stems from the challenge of investigating these complex phenomena as well as from the mountaineering activities I enjoy doing." Metral teamed up with EPFL's Laboratory of Soil Mechanics (LMS), headed by Prof. Lyesse Laloui, for her research. The suggestion to work with NGI—known around the world for its expertise in clay soils—came from Alessio Ferrari, a research associate at LMS and Metral's thesis advisor.

Norway has experienced three major landslides in the past 12 years due to the unstable

nature of its quick clay. The first event took place in Kattmarka on 13 March 2009, when a landslide carried off several buildings and one section of a highway. Then, on 10 November 2016, a flowing mass of quick clay killed three construction workers in Sorum. And on 30 December 2020 in Gjerdrum, a village with 5,000 residents northeast of Oslo, a landslide leveled 30 homes. That disaster left nine dead, with one person still missing and around 1,000 people having to be evacuated.

A technological challenge

Engineers in Norway have been working for several years to develop a computer model that can predict such catastrophes. But the mechanisms involved are complex, and modeling them involves quite a bit of research, trial and error. Metral's Master's thesis entailed testing the robustness of the engineers' model by seeing how well it could replicate the 2009 and 2016 landslides. She performed back calculations, running the model based on the parameters used at the time to determine what the model would have predicted and what was still needed for an accurate prediction.

"Norway's clay slopes are stable only in marine environments. But since Norway's climate is changing and heavy rains are removing the salt that's naturally present in the soil,



In Kattmarka, buildings and a stretch of highway were washed away by the clay sludge. Credit: NGI

the soil can easily collapse like a house of cards," says Metral. "It's a real threat for nearby houses and infrastructure." Much of what makes quick-clay landslides so difficult to predict is that engineers must apply the fundamental laws of fluid mechanics to classical geotechnical substances. The range of variables they have to factor into their equations include soil topography and density, yield stress in the soil's intact and fluid states, and the quality of soil-composition data obtained during ground surveys.

The limitations of software

"I was able to identify where the deposition areas were for the 2009 and 2016 events and calculate the likely time interval for the landslides," says Metral. "The NGI model did a good job of replicating the Kattmarka one. But for Sorum, it was hard to know what the soil conditions were at the time, because the topographic maps there are older and con-

struction work was going on at the time." By testing effects that hadn't been studied previously and that aren't yet operable, Metral helped the NGI engineers refine their selection criteria and better understand the limitations of their software.

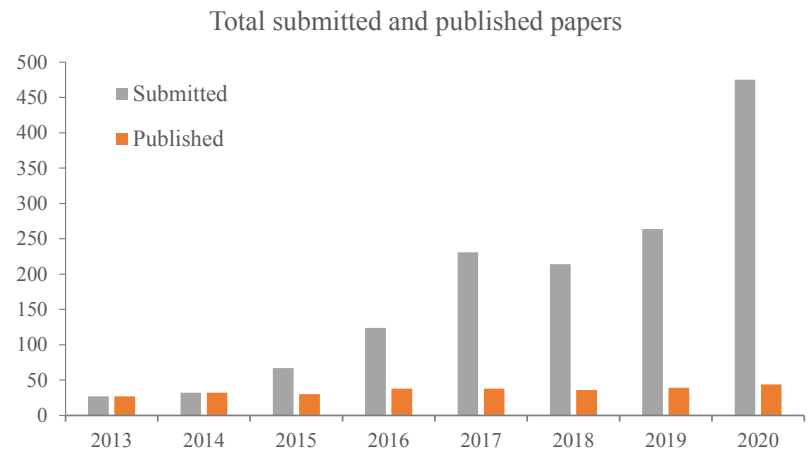
These kinds of predictive models are becoming increasingly important as global warming gains pace, according to Ferrari: "Global warming is amplifying phenomena such as extreme rainfall events, permafrost degradation and increased snow melting. As a consequence, the impact of landslides will likely grow in susceptible areas. By developing and refining modeling software—like what Mathilde did for her Master's thesis—we will be better able to anticipate the potential consequences of landslides and mitigate the related

Sources: <https://phys.org/news/2021-08-clay-landslides.html>

Updated submission data of ISWCR in August 2021

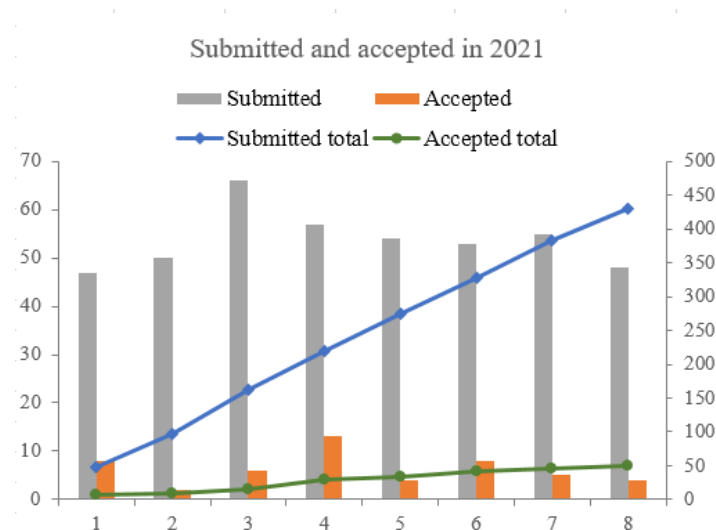
Annual Volume of Submissions and Publishing since 2013

Year	Published	Submitted
2013	27	27
2014	32	32
2015	30	67
2016	38	124
2017	38	231
2018	36	214
2019	39	264
2020	44	475



Monthly Submissions & Acceptance in the current year (2021)

Month	Submitted	Accepted
1	47	8
2	50	2
3	66	6
4	57	13
5	54	4
6	53	8
7	55	5
8	48	4



The International Soil and Water Conservation Research (ISWCR), initiated in June 2013, is a quarterly academic journal in English and publishes in Science Direct of Elsevier with open access globally. Since initiation, ISWCR has developed rapidly and established a good reputation in both international academia and publishing industry. It was indexed by Chinese Science Citation Database (CSCD) in April 2015, covered by SCOPUS in January 2017, and was indexed by Emerging Sources Citation Index (ESCI) of Clarivate Analytics in October 2017. In July 2019, ISWCR was officially indexed by SCIE. The Impact factor of ISWCR is 3.770 in 2019, and **6.027 in 2020**.

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Recent advances in assessment of soil erosion vulnerability in a watershed

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A hillslope version of the revised Morgan, Morgan and Finney water erosion model

Geert Sterk

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Is the runoff coefficient increasing or decreasing after ecological restoration on China's Loess Plateau?

Haiyan Zheng, Chiyuan Miao, Guanghui Zhang, Xiaoyan Li, ... Jiaojiao Gou

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Advantages and disadvantages of terracing: A comprehensive review

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Soil conservation and sustainable development goals(SDGs) achievement in Europe and central Asia: Which role for the European soil partnership?

Hakkı Emrah Erdogan, Elena Havlicek, Carmelo Dazzi, Luca Montanarella, ... Ronald Vargas

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How to model the effect of mechanical erosion control practices at a catchment scale?

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Small dams/reservoirs site location analysis in a semi-arid region of Mozambique

António dos Anjos Luís, Pedro Cabral

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Characteristics of unsaturated soil slope covered with capillary barrier system and deep-rooted grass under different rainfall patterns

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The soil configuration on granite residuals affects Benggang erosion by altering the soil water regime on the slope

Xiaoqian Duan, Yusong Deng, Yu Tao, Yangbo He, ... Jiazhou Chen

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Soil erosion assessment by RUSLE with improved P factor and its validation: Case study on mountainous and hilly areas of Hubei Province, China

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Generation of a long-term daily gridded precipitation dataset for the Upper Indus Basin (UIB) through temporal Reconstruction, Correction & Informed Regionalization-“ReCIR”

Asim Jahangir Khan, Manfred Koch

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In-depth analysis of soil management and farmers’ perceptions of related risks in two olive grove areas in southern Spain

José A. Gómez, Ana Sánchez Montero, Gema Guzmán, María-Auxiliadora Soriano

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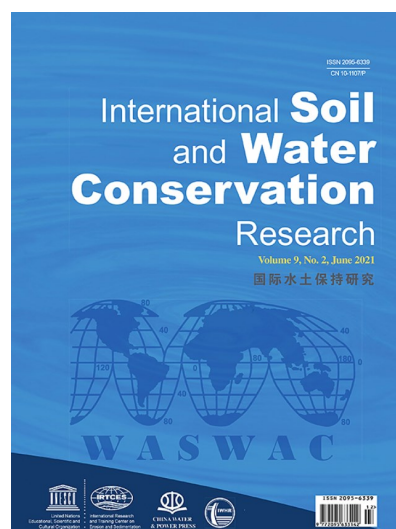
<https://www.sciencedirect.com/science/article/pii/S2095633921000137>

Rainfall partitioning in young clonal plantations Eucalyptus species in a subtropical environment, and implications for water and forest management

Décio Oscar Cardoso Ferreto, José Miguel Reichert, Rosane Barbosa Lopes Cavalcante, Raghavan Srinivasan

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Erosion-control mechanism of sediment check dams on the Loess Plateau

Zhaoyin Wang, Zuyu Chen, Shu Yu, Qiang Zhang, ... Jianwei Hao

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The Secretariat of WASWAC

No. 20 Chegongzhuang Road West, Beijing 100048, P. R. China

Tel: +86-10-68786579

Fax: +86-10-68411174

Email: waswac@vip.163.com

WASWAC Website: www.waswac.org.cn

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José Luis Rubio (Spain)

Julian Dumanski (Canada)

Kingshuk Roy (Japan)

Laura Bertha Reyes Sanchez (Mexico)

Mahmoud A. Abdelfattah (Egypt)

Mark Nearing (USA)

Mike Fullen (UK)

Miodrag Zlatic (Serbia)

Moshood Tijani (Nigeria)

Panos Panagos (Greece)

Peter Strauss (Austria)

Rachid Mrabet (Morocco)

Roberto Peiretti (Argentina)

Rui Li (China)

Sanjay Arora (India)

Sergey R. Chalov (Russia)

Sevilay Hacıyakupoglu (Turkey)

Seyed Hamidreza Sadeghi (Iran)

Shabbir Shahid (Kuwait)

Suraj Bhan (India)

Surinder Singh Kukal (India)

Syaiful Anwar (Indonesia)

Ted Napier (USA)

Tingwu Lei (China)

Valentin Golosov (Russia)

Velibor Spalevic (Montenegro)

Wanwisa.Pansak (Thailand)

Wencong Zhang (China)

Xiaoying Liu (China)

Zachary Gichuru Mainuri (Kenya)