

WASWAC

## HOT NEWS

ISSUE 6, 2020



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## June 17 World Day to Combat Desertification and Drought

### ---- A universe within a universe

**José Luis Rubio**

Vice-President of the World Association for Soil and Water Conservation (WASWAC)

Former President of the European Society for Soil Conservation (ESSC)

*English Revision by Mike Fullen*

Human beings have always felt the attraction of discovering and exploring new worlds. For decades, exploration of remote and exotic places on Earth captured the attention of generations. Today, exploration of the cosmos remains a powerful focus. But humans, in their eagerness to look far, forgot to look close.

About 400 million years ago, in the Silurian period, plants ventured to colonize the emerged lands. With them, a transformation of profound implications began on the surface of the planet. The desolate landscapes of rocky fragments and lifeless mineral formations of those geological times began to transform. Beneath its surface, the creation of a vast organism began, the fruit of life and creator of life, which gradually began to spread and interconnect the entire surface of the planet. In the superficial layer of the Earth, a kind of internal and hidden matrix began to form that was colonizing and changing the physiognomy of the planet forever. Over millions of years, the active collaboration between the mineral world, atmospheric forces, plants, microorganisms and animals created a living organism in which everyone participated.

A frontier of connection between the mineral

and organic world was established in which its components contributed by exchanging in



*Desertification pictures from Valencia, Spain.*

*(Pictures by José L. Rubio)*

formation, food and energy. Something mobilized the common work of infinite species of microorganisms, fungi, lichens, algae, plants and animals. In this gigantic hidden organism everything was interconnected and working with mill metric precision in unperturbed cycles that have been tirelessly repeated since the beginning of terrestrial life and whose secret codes we barely understand.

Well, this living organism that embraces, interconnects and gives life to the planet is called the soil. It is a universe within another universe. A universe that we do not see but that is there and that is as unknown as it is essential for the continuity of life on the planet. But it is



as everyday and familiar as it is ignored. Regardless of our indifference, their activity never stops. Soil is always tirelessly busy and bustling with activity with infinite chemical transformations, fights between organisms, biochemical battles, conflicts over available resources and collaboration and cooperation between very different species. All this occurs



*Desertification pictures from Las Bardenas Reales, Spain (Picture by J.Doncel )*

under a mandate that has not been revealed to us, unstoppable and without us realizing it, under our feet.

This hidden universe is interconnected throughout the land emerged in networks of fungal mycelia, roots, mycorrhizae, humus macromolecules, chemical transmitters, and electrochemical signals, which resemble a neural network.

Its design is brilliantly simple and functional. Weathered rock fragments provide the anchorage and mechanical support for plant growth. But it is not just physical roots; a microcosm is created on the border between the mineral and

organic world through fascinating transformations of living tissues that unite clay particles with humic molecules. A structure, part mineral and part organic, is created, which ensures the vital functions of the soil. It enables plant roots to absorb moisture retained in the micropores, that the plants acquire the nutrients from the soil solution, that it maintains its stability and resilience to natural and anthropogenic impacts and that it can provide benefits and ecosystem services to nature in general and to human beings in particular.

The roots, the humic compounds, the micropores, the mineral elements and the microorganisms, are like the modules of a fabulous biological reactor that is the basis for the continuity of life on the planet. This reactor recycles biological compounds and connects all the biomes on earth, becoming a great organism of enormous dimensions that permanently renews the basic elements of life.



*Grassland degradation in arid areas  
Alxa League of Inner Mongolia  
Autonomous Region, China*

The planet's surface has given rise to very different types of soils due to its climatic and geological variations. Thus, we have soils of tundra, taiga, steppes, savannahs, temperate for



*Degradation of artificial forestland in semi-arid area  
Youyu County, Shanxi province, China*

ests, jungles, soils of humid zones, semi-arid soils and even desert soils. Each of them has different characteristics and properties, to which different types of plants adapt to create the basis of the planet's biodiversity. In fact, the soil constitutes the richest zone of biodiversity on Earth. In one gram of soil there can be more microorganisms than drops of water in the Mediterranean Sea!

The underground universe that represents the ground also has the power to influence transcendental aspects that occur on the planet's surface. Among others, these include food production, territorial stability and resilience, freshwater regulation, climate regulation, chemical composition of the atmosphere and biodiversity. A separate chapter would include the cultural, affective and psychological

aspects linked to human perception of the environment and the landscape, at the root of which is the soil.

However, and also occurring without receiving the necessary attention, this natural component essential for the functioning of the planet, is currently seriously threatened. Probably one of the most serious consequences of the global warming trend is the impact on desertification and soil degradation processes of the planet's arid zones and, in turn, the feedback of these processes on climate change. The arid and semi-arid zones of the planet cover approximately 44% of the Earth's land surface and in them live about 2500 million people, many of them in precarious subsistence conditions. We find a perverse spiral that affects the stability, functionality and productivity of almost half the planet, and involves environmental security problems (reduced harvests,



*Desert of Tabernas, Almeria, Spain*

*(Picture by J. Doncel)*

famines, social and political instability, forced migration, conflicts and wars) and significant damage and socioeconomic consequences. These are all due to the disruption of the buffering role of the soil in the face of extreme climatic phenomena (droughts, torrential rains, floods, landslides, forest fires and heat-waves).

The natural heritage accumulated over millions of years that shapes the identity, the support of the landscape and the means of production of 90% of the food we consume, is in danger, without us being aware of it. Soil is a living memory of Earth's history. He has been the faithful companion of human society who keeps the memories of the human adventure on the planet. Today, 17 June, the United Nations reminds us of our age-old connection to the Earth and our responsibility to present and future generations. It is time to improve our perception and accelerate solutions. It will cost us dearly if we don't!

### *Want to know more about Desertification?*

Check United Nations website:

<https://www.un.org/en/observances/desertification-day/background>

*Desertification is a phenomenon that ranks among the greatest environmental challenges of our time. As one of global issues, desertification is with serious implications worldwide for biodiversity, eco-safety, poverty eradication, socio-economic stability and sustainable development.*

*The issue of desertification is not new though – it played a significant role in human history, contributing to the collapse of several large empires, and the displacement of local populations. But today, the pace of arable land degradation is estimated at 30 to 35 times the historical rate.*

*Some two billion people depend on ecosystems in dry land areas, 90% of whom live in developing countries. A downward spiral is created in many underdeveloped countries, where overpopulation causes pressure to exploit drylands for farming. These marginally productive regions are overgrazed, the land is exhausted and groundwater is over drafted.*

### *Some actions could help to reduce desertification:*

- *Reforestation and tree regeneration.*
- *Water management – saving, reuse of treated water, rainwater harvesting, desalination, or direct use of seawater for salt-loving plants.*
- *Buttressing the soil through the use of sand fences, shelter belts, woodlots and windbreaks.*
- *Enrichment and hyper-fertilizing of soil through planting.*
- *Farmer Managed Natural Regeneration (FMNR), enabling native sprouting tree growth through selective pruning of shrub shoots.*



## Upcoming meeting: LASOSU2021

*August 21-23, 2021, in Dalian, China*

### Land Degradation, Soil Conservation and Sustainable Development, 2021

The 2030 Agenda for Sustainable Development, adopted by all UN Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet through the Sustainable Development Goals (SDGs). The goals call for a deep international collaboration for the understanding of the main global problems and the search of strategic solutions, giving great importance to environmental questions. In this regard, severe soil degradation (e.g. soil erosion), as one of the most critical phenomena affecting the Earth's surface, has been attracted more and more attentions. The International Forum on Land Degradation, Soil Conservation and Sustainable Development, 2021 (LASOSU2021) will be held on August 21-23, 2021 in Dalian, China, to provide an opportunity for scientists to discuss pressing issues on soil loss facing our profession and society. The official website of LASOSU2021 is [http://meeting.dlut.edu.cn/meeting/index\\_en.asp?id=2710](http://meeting.dlut.edu.cn/meeting/index_en.asp?id=2710).

#### THEME

Green Mountain & Clear Water

#### TOPICS

Topic 1 Soil Conservation in Construction of the Belt and Road

Topic 2 Soil Conservation and Sustainable Development

Topic 3 Nature-based Solutions for Soil and Water Conservation

Topic 4 Remote Sensing and Big Data in Land Degradation Analysis

Topic 5 Smart Monitoring Information System for Soil and Water Conservation

Topic 6 Decision-Making Information System for Soil and Water Conservation

Topic 7 Land Resource Management

Topic 8 Conservation Agriculture as Sustainable Food Production System

Topic 9 Other Topics on Soil and Water Conservation or Ecological Sustainability

## ORGANIZERS

Dalian University of Technology (China)

University of Padova (Italy)

## SCHEDULE & VENUE

(1) Arrival: 21 August 2021 (Friday)

Schedule: Opening Ceremony, Scientific Sessions, and Closing Ceremony 21-23 August 2021

(2) Venue: Dalian, China. Please refer to the coming second circular for details.

(3) The scientific and organizing committees will be published in the second circular.

## CALL FOR SESSION PROPOSALS

Session proposals may be submitted by 30 November 2020. Attached please find the template of the session proposal.

## REGISTRATION FEE

(1) The registration fee includes:

- Access to conference and parallel sessions
- Lunch and refreshment breaks as scheduled in the conference program
- Symposium dinner

(2) The accommodation during the conference will be arranged by the executive committee at your own expense.

(3) The payment method will be informed in the second circular.

Participant	Early bird (before/on 22 May 2021)	Regular registration (after 22 May 2021)
Regular participant	€250 (CNY ¥2000)	€288 (CNY ¥2300)
Student or accompanying person	€150 (CNY ¥1200)	€188 (CNY ¥1500)

## CONTACTS

(1) Dalian University of Technology (China)

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(2) University of Padova (Italy)

Professor Paolo Tarolli; Phone: +39 049 8272677; E-mail: [paolo.tarolli@unipd.it](mailto:paolo.tarolli@unipd.it).

(3) World Association of Soil and Water Conservation

Dr. Pengfei Du; Phone: +86 10 68785769; E-mail: [waswac@foxmail.com](mailto:waswac@foxmail.com).

### Template of the session proposal in LASOSU2021

1. Number and title of the selected topic
2. Title of the suggested session
3. Keywords (3-5 keywords)
4. Convener (Name, institute, e-mail, homepage)
5. Co-Conveners (Name, institute, e-mail, homepage; Not more than three Co-Conveners)
6. Session description (Not less than 100 words and not more than 200 words)



## Soil biodiversity: a nature-based solution?

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In order to observe the International Day for Biological Diversity, on 22nd May 2020 the Global Soil Partnership (GSP) organized the Webinar “Soil Biodiversity: a nature-based solution?”.

The webinar consisted of two keynote presentations and a presentation of the global status of soil biodiversity. This interactive webinar invited participants to react with comments and questions during the entire webinar through the chat and by answering polls presented after each speaker’s presentation.

The webinar, which was attended by over 1318 participants from 146 countries, aimed to reconnect people with soil biodiversity. The webinar acted as an essential platform to raise awareness on the importance of soil biodiversity for achieving several global goals, including the ones related to food security and nutrition, human health, climate change adaptation and mitigation, land degradation neutrality, and ecosystem restoration. The webinar also gathered people with different expertise and allowed participants worldwide to exchange information and expand their networking opportunities.

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### KEYNOTE PRESENTATION – IS SOIL BIODIVERSITY A NATURE-BASED SOLUTION?

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#### Mr. Wim van der Putten

Mr. Wim van der Putten from the Netherlands Institute of Ecology provided the first presentation. Mr. van der Putten highlighted that we are all benefiting from soils in different ways. Everything that we eat, drink, breath, clothes that we wear, also constructions, pass through soil biodiversity over and over again. Almost half of the SDGs are affected by soils. Therefore, soil biodiversity is a solution for sustainability, and we can learn from nature. For that, it is necessary to think beyond numbers (quantity of organisms and microorganisms) and to take into consideration that restoring soil biodiversity requires ecosystem management since it englobes numerous ecosystem services provided by soil biota.

Recent studies have shown the dramatic reduction of insects, but before that, studies in Europe already had signalized to the loss of soil biodiversity due to intensive agricultural practices. He brought to attention the example of recovering soil biodiversity in abandoned lands with several

succession stages. For current agricultural lands, some responses to increasing soil biodiversity include reduced tillage, soil organic carbon increase, cover crops, and pesticide reduction. Mr. van der Putten explained that in order to maximize the intake of nutrients from plants, besides increasing soil biodiversity, it is necessary to have the right plant species and crops in the same soil system. Currently, several lines are being explored to help crops to make use of enhanced soil biodiversity. One line is about going back to wild crop relatives to understand how they make use of soil microbiomes and if those traits can be restored. The second line is to study wild plants species along successional gradients to understand how plants can be more productive in high diversity soils.

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### KEYNOTE PRESENTATION - WHY SHOULD WE CARE ABOUT SOIL BIODIVERSITY? LINKS TO HUMAN-HEALTH AND FOOD SECURITY

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**Ms. Daphne Miller**

Ms. Daphne Miller from the Department of Family Medicine of the University of California provided the second presentation. Ms. Miller started showing how the ecosystem approach of micro-organisms (virus and bacteria) in the human body is similar to the soil ecosystem. Moreover, the ecosystem approach is something new for treatments, and it is the type of solution that is, in general, needed. Pesticides and antibiotics, along with other intensive agricultural techniques (i.e. plowing, monoculture, livestock, and reduction of genetic variety), have caused biodiversity loss and resistance to external inputs. She presented several successful cases that are keeping soil covered, promoting plant diversification, integrating livestock, and causing minimal disturbance to the environment.

Oklahoma is an area in the USA that has had critical soil loss, and it is also a nutrient insecure area of the country, where the population has low nutritional intakes due to the limited access to fresh food, with high rates of obesity, diabetes and heart diseases. Farmers from Oklahoma are innovating by using a mix of edible cover crops ("three sisters" style) to protect and nurture the soil while offering fresh food to the local community. Another example is the new study about the link between mental health and healthy soils. The discovery of a new medication from the isolation of soil bacteria (*Mycobacterium vaccae*) with immune-regulatory and stress release properties. The third example provided links between grazing, livestock, and benefits for human

health. Some studies have shown that children raised on healthy dairy farms could have better responses from their immune system. Even urban areas that can reproduce those farms environment microbiome can benefit, for instance, with the reduction of asthma and immune modulation. Ms. Miller also highlighted the importance of the conservation of some wild and riparian areas in agricultural lands to prevent diseases spillover through those buffering interfaces with nature. To close, Ms. Miller showed amazing similarities between the layers, the system structure, and the functioning of our body system with the soil system.

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## KEYNOTE PRESENTATION - GLOBAL SOIL BIODIVERSITY: STATUS, GAPS AND WAY FORWARD

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### Ms. Monica Kobayashi

Ms. Monica Kobayashi from the GSP Secretariat, FAO, provided the third presentation. Ms. Kobayashi recalled the importance of restoring the link between humans and soil biodiversity. She started by reminding all that the UN Decade on Biodiversity is coming to an end, but many successful milestones with regards to soil biodiversity were achieved. It includes the establishment of the GSP, the International Year of Soils, the launch of the European Commission Soil Biodiversity Atlas, the FAO Voluntary Guidelines for Sustainable Soil Management, and now, the preparation of the Global Report on Soil Biodiversity by FAO.

There is a significant momentum to raise awareness and leverage the importance of the below-ground biodiversity through the GSP 2020 campaign “Keep soil alive, protect soil biodiversity” and the Global Symposium on Soil Biodiversity in February 2021. Additionally, soil biodiversity can play an important role in the next decade with the upcoming post-2020 Biodiversity Framework, the new Plan of Action for the International Initiative on Soil Biodiversity, the UN Decade on Ecosystems Restoration and supporting the achievements of all Sustainable Development Goals. The FAO Soil Biodiversity Report, which will be released in December 2020, presents the soil biota (from megafauna to microorganisms), their interactions, the ecosystem functions and services provided by them and the connection with aboveground biodiversity. Ms. Kobayashi also highlighted some new findings, such as the global distribution of some soil organisms. Some key messages of the Report are the practical application of soil biodiversity, the status and the main threats, as well as some responses, which include new technological approaches.

## Call for applications: Empowering women in geospatial information technology – Pakistan

Dear friends,

The International Centre for Integrated Mountain Development (ICIMOD) invites applications to a theoretical and hands-on training on the use of Earth observation and geospatial information technology. This training is exclusively for women in Pakistan who have completed a bachelor's degree or are enrolled in a university-level curriculum.

ICIMOD has been organizing the “Empowering women in geospatial information technology” training under its SERVIR Hindu Kush Himalaya (SERVIR-HKH) Initiative for the past two years. In light of the ongoing COVID-19 pandemic, ICIMOD piloted a remotely organized version of the four-day in-person training for women in Nepal in May 2020. In its fourth iteration, the training course is being extended exclusively to eligible women in Pakistan and will provide them with theoretical and practical knowledge in the use of EO data and GIT using real-world examples from the HKH region.

Upon completion of the training, the participants will have a better understanding of the concepts and applications of GIS and RS, which will enable them to use the knowledge gained professionally.

A total of 20 young women participants with an academic background in the fields of geography, science, engineering, survey, environmental science and/or information technology are expected to participate in this training.

Interested candidates may apply for the participation using the application form available [here](#). Additional information is available on our website at the following URL: [bit.ly/WomenGITPak](https://bit.ly/WomenGITPak)

The deadline for submission of applications is **26 June 2020**. Selected candidates will be intimated via email by 3 July 2019.

For additional details, please contact:

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[servirhkh@icimod.org](mailto:servirhkh@icimod.org)



## Statistics of submitted and published for ISWCR

### *International Soil and Water Conservation Research*

Open Access

Scopus coverage years: from 2013 to present

Sponsors: International Research and Training Center on Erosion and Sedimentation,  
China Water and Power Press & China Institute of Water Resources and Hydro  
power Research

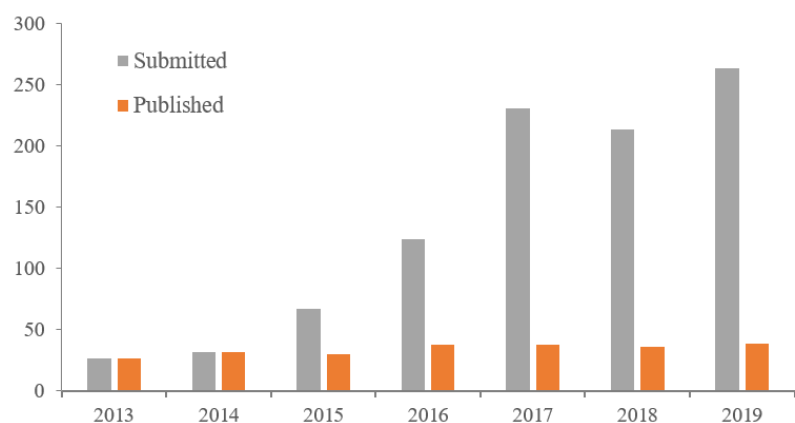
ISSN: 2095-6339

Subject area: Environmental Science: Water Science and Technology  
Environmental Science: Nature and Landscape Conservation  
Agricultural and Biological Sciences: Agronomy and Crop Science  
Agricultural and Biological Sciences: Soil Science

### *Past years*

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

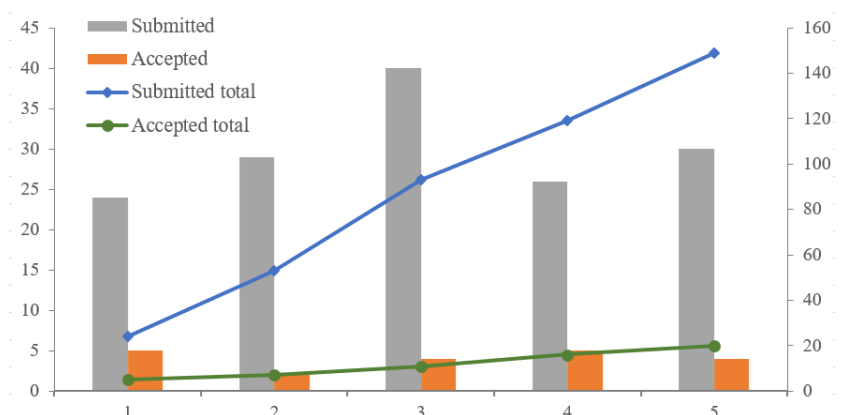
Total submitted and published papers

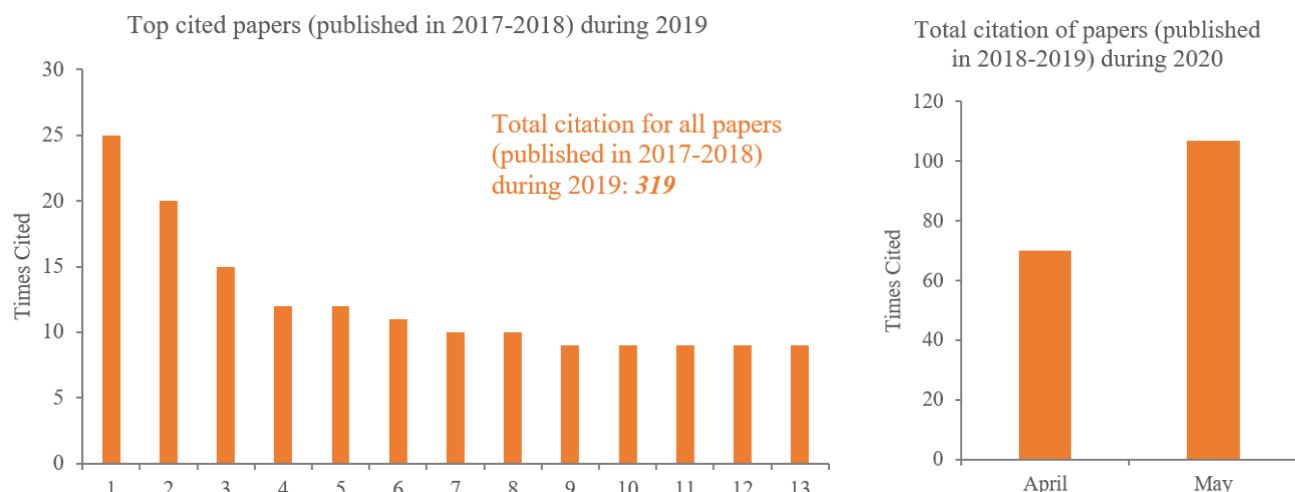


### *Year 2020*

Month	Submitted	Accepted
1	24	5
2	29	2
3	40	4
4	26	5
5	30	4

Submitted and accepted in 2020





### List of top cited papers (published in 2017-2018) during 2019

1	Natural and anthropogenic rates of soil erosion
2	Effect of land use land cover dynamics on hydrological response of watershed: Case study of Tekeze Dam watershed, northern Ethiopia
3	Integrated universal soil loss equation (USLE) and Geographical Information System (GIS) for soil erosion estimation in A Sap basin: Central Vietnam
4	Land use and land cover changes and Soil erosion in Yezat Watershed, North Western Ethiopia
5	Awareness and adoption of land, soil and water conservation practices in the Chinyanja Triangle, Southern Africa
6	Impact of urbanization on groundwater recharge and urban water balance for the city of Hyderabad, India
7	Grid-cell based assessment of soil erosion potential for identification of critical erosion prone areas using USLE, GIS and remote sensing: A case study in the Kapgari watershed, India
8	Factors affecting adoption of soil and water conservation practices: The case of Wereillu Woreda (District), South Wollo Zone, Amhara Region, Ethiopia
9	Impact of dam on inundation regime of flood plain wetland of punarbhaha river basin of barind tract of Indo-Bangladesh
10	Soil and water conservation effects on soil properties in the Middle Silluh Valley, northern Ethiopia
11	Determinants of farmers' perception to invest in soil and water conservation technologies in the North-Western Highlands of Ethiopia
12	The effect of grid size on the quantification of erosion, deposition, and rill network
13	Factors influencing the adoption of physical soil and water conservation practices in the Ethiopian highlands

## Contents of Issue 2, 2020 for ISWCR

### **The application of proximal visible and near-infrared spectroscopy to estimate soil organic matter on the Triffa Plain of Morocco**

Ayoub Lazaar, Abdul Mounem Mouazen, Kamal EL Hammouti, Michael Fullen, ... Abdelilah Monir

Pages 195-204

<https://www.sciencedirect.com/science/article/pii/S2095633920300253>

### **Effect of joint structure and slope direction on the development of collapsing gully in tuffaceous sandstone area in South China**

Yusong Deng, Xiaoqian Duan, Shuwen Ding, Chongfa Cai

Pages 131-140

<https://www.sciencedirect.com/science/article/pii/S209563392030023X>

### **Using high-resolution aerial images to study gully development at the regional scale in southern China**

Honghu Liu, Georg Hörmann, Bingyu Qi, Qiuxing Yue

Pages 173-184

<https://www.sciencedirect.com/science/article/pii/S2095633920300204>

### **Surface runoff and soil erosion in a natural regeneration area of the Brazilian Cerrado**

Karina dos Santos Falcão, Elói Panachuki, Felipe das Neves Monteiro, Roniedison da Silva Menezes, ... Paulo Tarso S. Oliveira

Pages 124-130

<https://www.sciencedirect.com/science/article/pii/S2095633920300241>

### **Institutional performance and participatory paradigms: Comparing two groups of watersheds in semi-arid region of India**

Biswajit Mondal, N. Loganandhan, S.L. Patil, A. Raizada, ... G.L. Bagdi

Pages 164-172

<https://www.sciencedirect.com/science/article/pii/S2095633920300228>

### **A systematic review of soil erosion control practices on the agricultural land in Asia**

Nur Syabeera Begum Nasir Ahmad, Firuza Begham Mustafa, Safiah @ Yusmah Muhammad Yusoff, Gideon Didams

Pages 103-115

<https://www.sciencedirect.com/science/article/pii/S2095633920300216>

### **Distinct and combined impacts of climate and land use scenarios on water availability and sediment loads for a water supply reservoir in northern Morocco**

Fatiha Choukri, Damien Raclot, Mustapha Naimi, Mohamed Chikhaoui, ... Yannick Pépin

Pages 141-153

<https://www.sciencedirect.com/science/article/pii/S2095633920300198>

## Contents of Issue 2, 2020 for ISWCR

### Atrazine removal from water by activated charcoal cloths

Javier M. Gonzalez, Lynnette R. Murphy, Chad J. Penn, Veera M. Boddu, Laura L. Sanders

Pages 205-212

<https://www.sciencedirect.com/science/article/pii/S2095633920300186>

### Combating wind erosion through soil stabilization under simulated wind flow condition – Case of Kuwait

Hana'a Burezq

Pages 154-163

<https://www.sciencedirect.com/science/article/pii/S2095633920300174>

### Experimental study on the effects of multiple factors on spring meltwater erosion on an alpine meadow slope

Xiaonan Shi, Fan Zhang, Li Wang, Muhammad Dodo Jagirani, ... Guanxing Wang

Pages 116-123

<https://www.sciencedirect.com/science/article/pii/S2095633920300150>

### Tillage and no-tillage effects on physical and chemical properties of an Argiaquoll soil under long-term crop rotation in Buenos Aires, Argentina

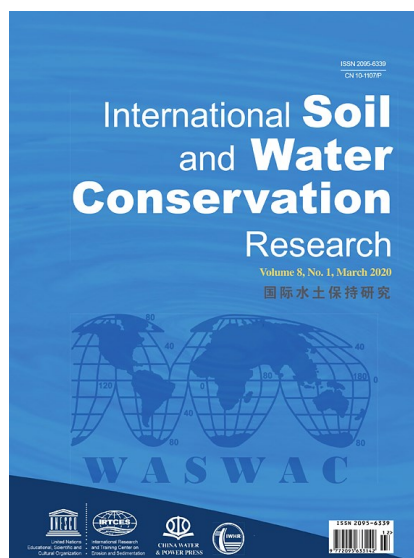
Ana Clara Sokolowski, Barbara Prack McCormick, Javier De Grazia, José E. Wolski, ... Mónica B. Barrios

Pages 185-194

<https://www.sciencedirect.com/science/article/pii/S2095633920300162>

*All papers are free to download at:*

<https://www.sciencedirect.com/journal/international-soil-and-water-conservation-research/vol/8/issue/2>





## Contents of Issue 4, 2020 for IJSR

Papers Published in the *International Journal of Sediment Research* Volume 35, No. 4, 2020  
Pages 315–430 (August 2020)

### **Modeling the effect of sediment concentration on the flow-like behavior of natural debris flow**

Leonardo Schippa  
Pages 315-327

### **Stochastic evolution of hydraulic geometry relations in the lower Yellow River of China under environmental uncertainties**

Xiaolong Song; Deyu Zhong; Guangqian Wang; Xiaonan Li  
Pages 328-346

### **Numerical simulation of sediment deposition and trapping efficiency estimation in settling basins, considering secondary flows**

EsmailLakzian, HassanSaghi, OmidKooshki  
Pages 347-354

### **Computational fluid dynamics modeling of abutment scour under steady current using the level set method**

Mohammad Saud Afzal; Han Bihs; Lalit Kumar  
Pages 355-364

### **Sediment dynamics and temporal variation of runoff in the Yom River, Thailand**

Matharit Namsai; Butsawan Bidorn; Seree Chanyotha; Ruetaip Mama; Nathamon Phanomphongphaisarn  
Pages 365-376

### **Performance of riffle structures on the stabilization of two successive knick points over a sandy bed**

Afshin Fouladi Semnan; Mohammad Reza Jaefarzadeh  
Pages 377-385

### **A GPU-based numerical model coupling hydrodynamical and morphological processes**

Jingming Hou; Yongde Kang; Chunhong Hu; Yu Tong; Baozhu Pan; Junqiang Xia  
Pages 386-394

### **A time-splitting pressure-correction projection method for complete two-fluid modeling of a local scour hole**

Kambiz Farahi Moghadam; Mohammad Ali Banihashemi; Peyman Badiei; Ali Shirkavand  
Pages 395-407

## Contents of Issue 4, 2020 for IJSR

### Soil erosion and sediment interception by check dams in a watershed for an extreme rainstorm on the Loess Plateau, China

Leichao Bai; Nan Wang; Juying Jiao; Yixian Chen; Bingzhe Tang; Haolin Wang; Yulan Chen; Xiqin Yan; Zhijie Wang  
Pages 408-416

### Hydrodynamics and suspended particulate matter retention in macrotidal estuaries located in Amazonia-semiarid interface (Northeastern-Brazil)

Vinicius Henrique Maciêdos Santos; Francisco José da Silva Dias; Audálio Rebelo Torres; Rômulo Araújo Soares; Laís Costa Tertoa Antônio Carlos Lealde Castro; Ricardo Luvizotto Santos; Marco Valério Jansen Cutrimd  
Pages 417-429

### Full papers are available at ScienceDirect:

<https://www.sciencedirect.com/journal/international-journal-of-sediment-research> with free access to the paper abstracts.

*International Journal of Sediment Research (IJSR)*, the Official Journal of The International Research and Training Center on Erosion and Sedimentation and The World Association for Sedimentation and Erosion Research, publishes scientific and technical papers on all aspects of erosion and sedimentation interpreted in its widest sense.

The subject matter is to include not only the mechanics of sediment transport and fluvial processes, but also what is related to geography, geomorphology, soil erosion, watershed management, sedimentology, environmental and ecological impacts of sedimentation, social and economical effects of sedimentation and its assessment, etc. Special attention is paid to engineering problems related to sedimentation and erosion.





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