

# INTERNATIONAL SEDIMENT INITIATIVE

# NEWSLETTER

*Reporting ISI news to you quarterly*

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## NEWS

### International Workshop on Soil Erosion and Riverine Sediment in Mountainous Regions was held online successfully



Organized by the Institute of Tibetan Plateau Research, the Chinese Academy of Sciences, the Research Center of Water and Soil Conservation and Ecological Environment, CAS & Ministry of Education, the Institute of Soil and Water Conservation, Northwest A&F University, the International Research and Training Center on Erosion and Sedimentation, the State Key Laboratory of Tibetan Plateau Earth System, Environment and Resources, the State Key Laboratory of Soil Erosion and Dryland Farming on the Loess Plateau, and the World Association of Soil and Water Conservation, the International Workshop on Soil Erosion and Riverine Sediment in Mountainous Regions was held successfully online during November 17-18th, 2022. The goal of this workshop was to invite well-known experts in related fields to exchange the latest research results, identify the current opportunities and challenges, and discuss the strategies to deal with climate change through online and offline means.

In the opening ceremony, Prof. Fahu Chen, from the Institute of Tibetan Plateau Research, CAS, Prof. Hao Feng, from the Research Center of Water and Soil Conservation and Ecological Environment, CAS & MOE, and Prof. Qingbin Pan, from the International Research and Training Center on Erosion and Sedimentation were invited to give opening speeches.

In total, 24 scientists presented papers and provided the online participants with very interesting, valuable and inspiring reports on their investigations.

The topics included:

- Soil erosion assessment in Pan-Third Pole (Baoyuan LIU)
- Impacts of Asia water tower changing and countermeasures (Liping ZHU)
- Scaling soil erosion estimates in time and space

(Richard Cruse)

- Soil conservation and ecosystem rehabilitation on Loess Plateau, benefit and Prospective (Guobin LIU)
- Representing global soil erosion and sediment flux in Earth System Models (Zeli TAN)
- Impact of modern climate change on fluvial sediment delivery in High Mountain Asia (Dongfeng LI)
- Freeze-thaw erosion landscape and subsurface flow observation in cold alpine critical zone on the Qinghai-Tibet Plateau (Xiaoyan LI)
- Sediments contribution to soil contamination and loss of nutrients in EU agricultural soils (Panagos Panos)
- The response of soil erosion to vegetation restoration and rainfall events in the loess hill and gully region (Juying JIAO)
- Steep-slope viticulture and climate change: threats, monitoring, sustainable management (Paolo Tarolli)
- Effects of ecological engineering projects on soil erosion and sediment yields in Southern Tibetan Plateau, China (Donghong XIONG)
- Policy implications of multiple concurrent soil erosion processes in European farmland (Pasquale Borrelli)
- Soil organic matter losses:  $\delta^{13}C$  to disentangle erosion and decomposition (Yakov Kuzyakov)
- Soil erosion and riverine sediment over the Tibetan Plateau (Fan ZHANG)
- Recent sediment budget changes in a large high mountainous drainage basin (Khawaja Faran Ali)
- Glacial erosion and GLOFs exacerbate riverine sediment (Yong NIE)
- Impact of river-bed freeze-thaw process on bed load sediment transport (Le WANG)
- Quantitative attribution of riverine sediment to hydrological, cryospheric and vegetation effects (Xiaonan SHI)
- Numerical simulation of morphodynamic processes of braided pattern in the Yarlung Zangbo River (Jian SUN)
- Sediment sources tracing in the high erodible watershed of the Northern Loess Plateau (Guangju ZHAO)
- Watershed sediment and nutrient process on the Loess Plateau (Guoce XU)
- Soil erosion quantification in the crisscross region of the Chinese Loess Plateau using radionuclide tracing (Jiaqiong ZHANG)
- Source apportionment of eroded soil organic matter on the Loess Plateau of China (Chun LIU)
- Effects of soil and water conservation measures on flood process under extreme rainstorms (Jianqiao HAN)

(Source: WASWAC website)

## IWHR solutions to global water security issues showcased by international webinar

China Institute of Water Resources and Hydropower Research (IWHR) shared with the international community its efforts and achievements in enhancing water security by the Global Water Security Webinar: Advancing the 2030 Water-related Sustainable Development Goals, which was convened on November 22, 2022 via video link.

Hosted by the Ministry of Water Resources (MWR) of China, the Webinar gathered experts worldwide to discuss issues related to water security, which has been identified as the most fundamental factor and consideration for achieving the Sustainable Development Goals (SDGs) in the United Nations 2030 Agenda. However, it is currently under threat from climate change compounded by public health emergencies such as COVID-19.

IWHR, one of China's top water thinktanks, has been contributing to the research and practices related to global water security. Dr. Peng Jing, Vice President of IWHR, introduced the institute's so-called "4+A" approach for enhancing water security and bolstering sustainable development worldwide in the Webinar.

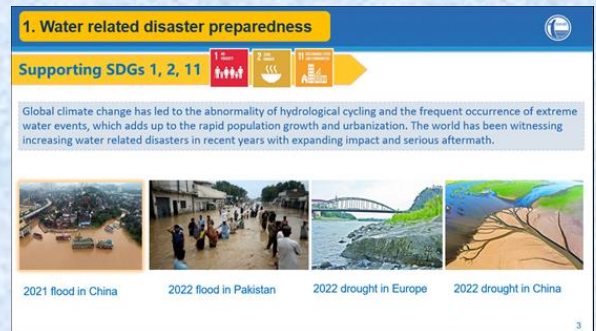


The "4" part in this approach refers to four main areas that IWHR has been focusing on:

1) **Flood disaster research.** IWHR has developed:

- A National Flash Flood Investigation and Assessment Result Database for China;

- A platform that involves monitoring, forecasting and early warning of flash floods, smart forecasting and dispatching methods for flood control for rivers and lakes, coordinated control and decision-making for urban water systems, etc.;
- Industrial standards and technical rules for flood control;
- In-depth integration of the water sector with new technologies like digital twinning, big data, artificial intelligence, etc.
- The Flash Flood Program (FFP) aimed at building global partnerships for monitoring, forecasting, control and research related to flash flood disasters;
- Concrete actions to assist Belt-and-Road countries, including Pakistan, Thailand and Myanmar, to relieve disasters caused by deadly floods.



2) **Integrated use of water resources.** IWHR's R&D efforts focus on:

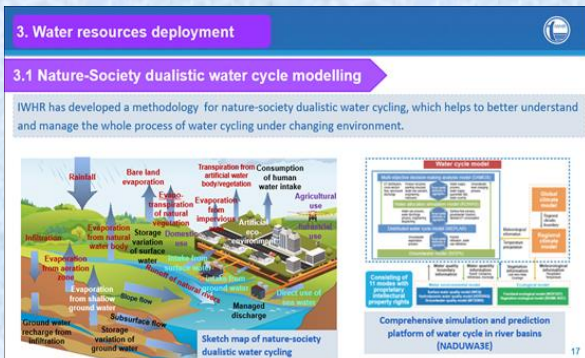
- A series of key techniques and facilities for building a water-saving society in China;
- Technical standards for water saving respectively at industry, sector and unit levels;
- Evaluation method for regulation from both supply and demand sides;
- The management system for smart water;
- Techniques for precise irrigation in agriculture;
- Techniques and facilities suitable for Lancang-Mekong countries and related demonstration projects, which are built to assist those countries in securing water supply for local people and realizing SDG 6 (Water and Sanitation).



3) **Water resources development.** IWHR has

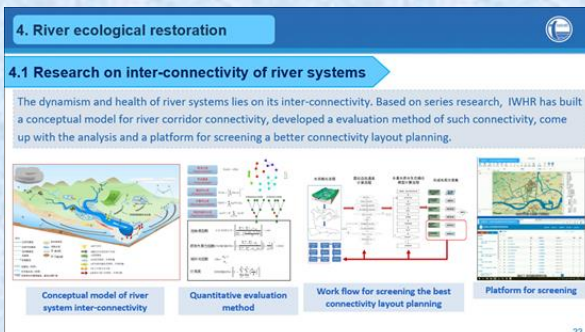
developed/initiated:

- The nature-society dualistic water cycling model that helps to better understand and manage the whole process of water cycling under a changing environment;
- The large-scale water resources dispatching model called GWAS;
- The smart urban water supply management system realizing smart routine checking and daily operation of all specific sites, including the water sources, reservoirs, pump stations, pipelines and water treatment plants;
- International projects to communicate and exchange advanced technologies and philosophies with overseas partners.



**4) River ecological restoration.** IWHR's accomplishments include:

- The conceptual model for river corridor connectivity and an evaluation method for such connectivity;
- A River Happiness Index (RHI) system to evaluate the happiness level of 15 major rivers in the world;
- Joint research with EU partners upon bio-diversity protection of rivers under the framework of the China-EU Water Platform.



The “A” refers to **international cooperation and exchange**, including international training programs to share knowledge and experience in water-security-related topics, the Water Education Series multiple language versions to help promote water science literacy among children and teenagers worldwide, online seminars and workshops, etc.



Loic Fauchon, President of the World Water Council and Gauden Galea, the Representative of World Health Organization in China, delivered their speeches in the Webinar. Live streaming of the Webinar attracted over 4,500 online viewers from 23 countries. Future international cooperation and exchange to advance the water-related SDGs were discussed.

(Source: IWHR website)

### Novel assessment shows vulnerability of arable land to soil erosion across Europe

This first-ever assessment at the European scale combines the threats from water, wind, tillage and harvesting to reveal the cumulative impact on arable land. It is a basis for developing a comprehensive monitoring system for soil health.



Soil erosion is a serious threat to soil functions leading to land productivity decline and multiple off-site effects.

New analysis using a multi model approach assesses the impact of soil erosion not only by water but by other drivers: including, wind, tillage conditions and crop harvesting. The study indicates that 43 million hectares (M ha) out of approximately 110 M ha of arable land in the EU and the UK are estimated to be vulnerable to a single driver of erosion, 15.6 M ha to two drivers and 0.81 M ha to three or more drivers.

About 3.2 M ha of arable land are vulnerable

to the possible interaction of increased flooding, drought, water, and wind erosion. The analysis, carried out by JRC scientists and the EU Soil Observatory Working Group on Soil Erosion, is published in Nature Sustainability.

Worldwide, very few national survey programmes of soil erosion exist, examples being the US National Cooperative Survey and the Chinese National General Survey Program on Soil and Water Conservation.

In the EU, the Land Use/Cover Area frame Survey (LUCAS) is the de facto soil monitoring system that collects data on gully erosion. The set of predictions used in this analysis serves as a basis for developing an efficient stratified monitoring network and informing targeted mitigation strategies under the Common Agricultural Policy 2023–2027.

The multi model approach provides estimates of gross soil displacement (soil moved annually from its original location, without considering soil deposition).

In terms of individual processes, soil displacement by water erosion is dominant both quantitatively (51% of the total displacement) and spatially (57% of the total area). Soil displacement due to water erosion in the EU is estimated to be equal to a 1 cm displacement of soil annually from an area twice the size of Belgium.

Tillage erosion is the second-largest driver of soil displacement with an estimated share of 36%, followed by wind erosion and crop harvesting accounting for 10% and 2.7%, respectively, of the total displacement.

### **The role of soil**

Healthy soil is the foundation of agriculture and ecosystem functioning. Changes in soil quality affect provision of food, water supply and regulation, and carbon sequestration. Good soil is a major microbial gene pool from which we extract biomedical resources – lower soil quality puts in question this process.

Soil erosion is a serious threat to soil functions leading to land productivity decline and multiple off-site effects. It reduces soil stability, alters soil structures, impedes soil biology, reduces water holding capacity, leads to a loss of soil nutrients and potentially reduces soil organic carbon pools, therefore impairing all major functions of soil, not only its productivity.

The ephemeral nature of erosion makes prediction and monitoring to permit a proper risk assessment and mitigation policy quite challenging. While recent modelling has been transformative in informing policy, it has been restricted to single processes. The new analysis

uses a combination of models to present a novel assessment of the spatial distribution of the combined (additive) threat of four soil erosion processes (water, wind, tillage and harvesting) across arable land in Europe.

### **Impact of soil conservation policies in EU**

The study highlights actions for reducing erosion, such as increasing vegetation cover on arable land throughout the year and reducing tillage intensity. These actions are beneficial to the functional agrobiodiversity of the farming system.

For this concern, soil-conservation standards, related to the Common Agricultural Policy (CAP), integrated into the cross-compliance mechanism are considered as relevant. Good Agricultural and Environmental Conditions (GAEC), defined at national or regional level, include a set of standards especially on minimum soil cover and soil minimum land management to limit erosion.

The modelling approach by JRC scientists and the co-authors of the analysis shows that – compared to a pre-CAP baseline scenario and assuming no implementation of soil-conservation measures – GAEC soil-conservation standards reported in a 2016 EU Farm Structure Survey could reduce soil displacement by a computed 20% for water erosion, 27% for tillage erosion and 9% for wind erosion.

Climate change projections indicate that Europe is moving toward a more vigorous hydrological cycle which will exacerbate the erosion impact. This suggests a plausible offset of the effect of current soil-conservation efforts, leading to a possible annual soil displacement in 2070, equal to or higher than the pre-CAP baseline scenario. Although the CAP and regional programmes have been narrowing the gap over the past decades, both the future geography and rates of erosion may be substantially altered by climate change.

This underlines the relevance of the new CAP framework, which has reinforced the GAEC scope and requirements, especially on soil coverage and the limitation of soil disturbance by ploughing up

The study has also indicated the need to develop strategies including further mitigation measures.

### **Erosion and soil policies in the EU**

The new EU Soil Strategy for 2030 addresses soil- and land-related issues in a comprehensive manner, and underlines the importance of land degradation and the need for a methodology to better monitor land degradation in the EU.

This study provides information that will help to set up new monitoring schemes for soil erosion estimation, deploying soil-conservation measures and soil erosion mitigation actions.

The Mission A Soil Deal for Europe, includes funding for projects to restore and protect the health of soils, will support the EU's ambition to manage land in more sustainable ways.

(Source: [https://joint-research-centre.ec.europa.eu/jrc-news/novel-assessment-shows-vulnerability-arable-land-soil-erosion-across-europe-2022-10-27\\_en](https://joint-research-centre.ec.europa.eu/jrc-news/novel-assessment-shows-vulnerability-arable-land-soil-erosion-across-europe-2022-10-27_en))

## NWA is losing 20 acres a year to erosion in the Illinois River basin, conference told

by Doug Thompson



Dr. Nicole Hardiman, executive director of the Illinois River Watershed Partnership, and Bradley Stewart with Springdale Water Utilities look at an eroded stream bank Wednesday, June 17, 2020, on a forest management property owned by Springdale Water Utilities. Go to [nwaonline.com/photos](http://nwaonline.com/photos) to see more photos. (NWA Democrat-Gazette/Ben Goff)

**SILLOAM SPRINGS** -- Twenty acres of Northwest Arkansas (NWA) erodes into the Illinois River and its tributaries every year, people attending a conference on preserving the river's watershed learned on Tuesday.

"Seventy percent of the inquiries we get from landowners are about stream bank stabilization," Leif Kindberg, executive director of the Illinois River Watershed Partnership, told the meeting. The partnership is a nonprofit group based in Cave Springs and dedicated to improving the quality of the watershed.

Kindberg was among the speakers at the first public meeting on updating the watershed-based management plan for the river.

The erosion problem is worse in Oklahoma, Shannon Phillips, director of the water quality division of the Oklahoma Conservation Commission, told the meeting. The watershed begins in Benton and Washington counties, going westward across the Oklahoma state line and through Tenkiller Lake to the Arkansas River.

Tuesday's meeting took place at the First Baptist Church in Siloam Springs. About 30 people attended. Plans for more public meetings will be scheduled and announced by the Natural Resources Division of the Arkansas Department of Agriculture and the Oklahoma Conservation Commission, representatives of those agencies told the gathering.

Revising the watershed management plan is expected to take a year to a year and four months, Phillips told the group. The watershed management plan draws up goals and recommendations for voluntary control of "nonpoint source" issues with water quality, such as erosion, livestock and poultry operations and stormwater runoff. "Point source" matters, such as wastewater treatment for cities and industry, are regulated by state agencies, such as the Arkansas Division of Environmental Quality.

The 20-acre figure derives from erosion studies at 15 different points in the watershed, Kindberg said. The partnership entered a contract with Natural State Streams, LLC of Little Rock to study stream bank erosion. Natural State Streams is a private firm offering environmental consulting and mapping services and design for erosion control projects.

The report came out in September 2021, estimating that 102,822 tons of sediment erode into the river and its tributaries every year. Contributing factors to the soil loss include higher-than-normal rainfall in recent years, clearing of trees in the watershed and harder, faster runoff as surfaces are paved or built over.

An estimated 54% of the phosphorus released into the upper portion of the watershed comes from erosion now, according to the study. Phosphorus levels in the river has been a cause of disagreement between Arkansas and Oklahoma for years. Phosphorus feeds blooms of algae that cloud the river and harm other forms of life in it. Efforts at removing chicken litter from the watershed and other sources have led to a steady drop in phosphorus levels over the years, but progress has plateaued, Tate Wentz, Water Quality Section Manager for the Arkansas Natural Resources Division, told the meeting.

One of the 15 sites selected for monitoring, the worst case, saw almost twice as much of its banks wash away as the other 14 sites combined, the study reported. The site involved is about one-half of a mile north of where Arkansas 16 crosses the Illinois River, near the Savoy community. Measurements and aerial photography confirm the bank eroded by 135 feet "laterally," or deep, between May 2019 and May 2020, the study said.

The dirt lost from that one site near Savoy from May 2019 to May 2020 amounts to 23,010

cubic yards, according to the study. In other words, enough to fill a sandbox 100 yards long, 50 yards wide and more than four and a half yards deep. The erosion is so bad that, in the downstream one-third of the river bend there, "a large number of mature trees are becoming uprooted and entering the river, causing a significant log jam," the study found.

All through the watershed, efforts to control erosion or flooding in developed areas have caused problems in other areas, speakers at Tuesday's meeting said. For instance, some areas in the floodplain of the river were built up with enough fill dirt to allow construction, Kindberg said. That prevented the development from flooding, but hemmed in the flow of water in a nearby creek bed, increasing the speed and force of water going downstream during and after storms.

Awareness of the problems are growing among landowners and cities, speakers said. For instance, the city of Rogers is encouraging forms of low-impact development that allow more water to seep into the ground or flow out more slowly, speakers said.

(Source:

<https://www.arkansasonline.com/news/2022/oct/16/nwa-losing-20-acres-a-year-to-erosion-in-the/>)

### **Million-year-old sediment could be the answer to ocean conservation - study**

Could a recently discovered sample of marine DNA from one million years ago hold the answer to the mystery of the ocean's ecosystems? After discovering the ancient marine sample in the deep-sea sediments of the Scotia Sea just north of Antarctica, scientists believe that it may hold the answers they have been looking for.

The University of Tasmania reported that an international study team led by the Institute for Marine and Antarctic Studies (IMAS) found the million-year-old marine "sedimentary ancient DNA" (sedaDNA) in samples of sediment.

These samples were collected up to 178 metres below the seafloor, during an International Ocean Discovery Program (IODP) expedition in 2019.

This discovery gives scientists a glimpse of what the ocean's ecosystem might have looked like in what was ultimately a different world. This discovery may also help predict changes that the underwater world could undergo in the years to come.

This sedimentary discovery may also point toward how marine life will respond to climate change both now and well into the future.



Icebergs in the Scotia Sea. (credit: Wikimedia Commons)

Now, thanks to further research and scientific advancement, those samples were identified in ways never previously thought possible.

"The fragments are the oldest authenticated marine sedaDNA discovered to date – and these have been preserved due to factors like very low temperatures and oxygen concentrations, and an absence of UV radiation," Dr. Linda Armbrecht said.

Armbrecht is an IMAS researcher as well as the lead researcher in the study that originally published these findings, via Nature Communications.

These sedimentary discoveries help scientific advancement in many ways. In addition to helping provide solutions for the conservation of Antarctica, one of (if not) the most vulnerable spots in the world for climate change, this discovery helps give further insight into what kinds of creatures inhabited the great big blue.

Sedimentary ancient DNA (sedaDNA) analysis, which was used to identify this ancient DNA, is a new technique that helps identify who has lived in the ocean previously, and an idea of when.

Why is this discovery so significant?

"Antarctica is one of the most vulnerable regions to climate change on Earth, so studying this polar marine ecosystem's past and present responses to environmental change is a matter of urgency," Dr. Armbrecht said.

With this discovery, the world now knows just a bit more about the ocean - which has only been 20% explored since the dawn of civilization.

(Source:

<https://www.jpost.com/science/article-719139>)

## China's largest freshwater lake records lowest water level



NANCHANG, Sept. 23 (Xinhua) -- The water level at Poyang Lake, China's largest freshwater lake in the eastern province of Jiangxi, dropped to its lowest on Friday morning since record-keeping began in 1951, said local authorities.

The water level at the lake's landmark Xingzi hydrological station receded to 7.10 meters at 6 a.m. on Friday, said the provincial hydrological monitoring center.

The previous record, set in February 2004, stood at 7.11 meters.

The center noted that the lake saw a rapid decrease in water levels due to continuous high temperatures and low precipitation in Jiangxi since late June and relatively less water flowing in from the Yangtze River.

Poyang Lake entered dry season this year on Aug. 6, 92 days earlier than the average since 1951.

The center issued a red alert for low water on Friday for the first time since the warning system was established in 2013 in Jiangxi. Red alert is the most severe warning in this system.

The alert reminds all work units and the public along Poyang Lake to strengthen preparedness and response to ensure drinking water security, production water supply, and ecological water use.

Relatively little rain is the forecast for the upcoming week in Jiangxi. The prospect will further shrink China's largest freshwater lake.

(Source: Xinhua)



## PUBLICATIONS

### Papers Published in the International Journal of Sediment Research Volume 37, No. 6, 2022



Volume 37, No. 6  
Pages 701-870 (December 2022)

1. Entrainment of *E. coli* and *Listeria monocytogenes* from sediment in irrigation canal  
Kun Qi, Erfan Ghasemi Tousi, Jennifer Guohong Duan, Patricia Marie Gundy, ... Charles Peter Gerba

2. Coupled modeling of rainfall-induced floods and sediment transport at the catchment scale  
Ronglan Huang, Yufang Ni, Zhixian Cao

3. Comparison of the graphic and moment methods for analyzing grain-size distributions: A case study for the Chinese inner continental shelf seas  
Gaocong Li, Rihong Du, Jieping Tang, Zhiqiang Li, ... Wenxiang Zhang

4. Flow fields around tandem and staggered piers on a mobile bed  
Laxmi Narayana Pasupuleti, Prafulkumar Vasharambhai Timbadiya, Prem Lal Patel

5. Multivariate statistical methods and GIS based evaluation of the health risk potential and water quality due to arsenic pollution in the Kizilirmak River

Hüseyin Cüce, Erkan Kalıpcı, Fikret Ustaoglu, İlkur Kaynar, ... Mustafa Türkmen

6. Real-time probabilistic sediment concentration forecasting using integrated dynamic network and error distribution heterogeneity  
Fangzheng Zhao, Xinyu Wan, Xiaolin Wang, Qingyang Wu, Yan Wu

7. Physical and chemical characterization of sediments from an Andean river exposed to mining and agricultural activities: The Moquegua River, Peru  
Luis de Los Santos Valladares, Juan Luis Ccamapaza, Renato Arturo Valencia-Bedregal, Luis Enrique Borja-Castro, ... Crispin H.W. Barnes

8. Multi-scale analysis for transport of fine settling particles through an ice-covered channel in a laminar flow condition  
Subham Dhar, Nanda Poddar, B.S. Mazumder, Kajal Kumar Mondal

9. Water and sediment geochemistry of an urban lake: Implications to weathering and anthropogenic activity  
Mohammad Saleem, Ghulam Jeelani, Ishfaq Ahmad Pall, Javid Ganai, Sanjeev Kumar

10. Improved lakeshore sediment microenvironment and enhanced denitrification efficiency by natural solid carbon sources  
Shihao Gong, Oscar Omondi Donde, Qijia Cai, Xingqiang Wu, ... Cuicui Tian

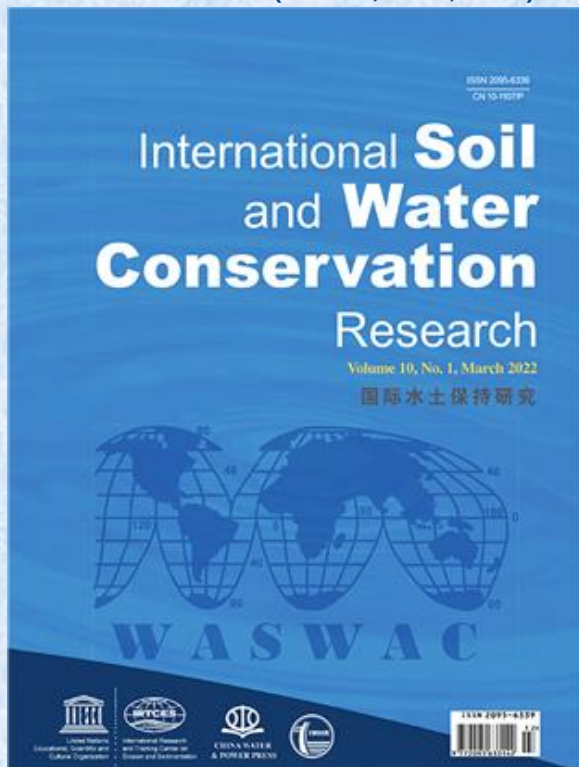
11. Assessing sediment transport dynamics from energy perspective by using the instrumented particle  
Zaid Alhusban, Manousos Valyrakis

12. Characterizing incipient motion of low fines content soils with varying compositions, water contents, and relative densities  
Mahsa Ghazian Arabi, Ali Farhadzadeh

13. Morphologic evolution of bifurcated reaches in a macrotidal estuary with mountain streams  
Jing Liu, Yongjun Lu, Liqin Zuo, Huaixiang Liu, ... Qingzhi Hou

Full papers are available at ScienceDirect:  
<https://www.sciencedirect.com/journal/international-journal-of-sediment-research>  
with free access to the paper abstracts.

**Contents of ISWCR (Vol. 10, No.4, 2022)**



Volume 10, Issue 4  
Pages 547-686 (December 2022)

Natural disaster in the mountainous region of Rio de Janeiro state, Brazil: Assessment of the daily rainfall erosivity as an early warning index  
Geovane J. Alves, Carlos R. Mello, Li Guo, Michael S. Thebaldi  
Pages 547-556

Specific ion effects on soil aggregate stability and rainfall splash erosion  
Jingfang Liu, Feinan Hu, Chenyang Xu, Wei Du, ... Fenli Zheng  
Pages 557-564

Variations in the disintegration rate of physical crusts induced by artificial rainfall in different alcohol concentrations  
Lin Chen, Chang Yang, Qingwei Zhang, Jian Wang  
Pages 565-573

Interactions between soil conservation and dryland farming of heterogeneously eroding areas in Loess Hills, China  
Boyang Sui, Xiaohu Dang, Liangxin Fan, Bo Guo, ... Guobin Liu  
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Field instrumentation for real-time measurement of soil-water characteristic curve  
Abdul Halim Hamdany, Yuanjie Shen, Alfredo Satyanaga, Harianto Rahardjo, ... Xuefeng Nong  
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Rangeland hillslope lengths: A case study at the Walnut Gulch Experimental Watershed, southeastern Arizona  
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Rangeland restoration in Jordan: Restoring vegetation cover by water harvesting measures  
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The varying fetch effect of aeolian sand transport above a gobi surface and its implication for gobi development process  
Chunlai Zhang, Guoru Wei, Xueyong Zou, Zhenting Wang, ... Xuesong Wang  
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A spatial frequency/spectral indicator-driven model for estimating cultivated land quality using the gradient boosting decision tree and genetic algorithm-back propagation neural network  
Ziqing Xia, Yiping Peng, Chenjie Lin, Ya Wen, ... Zhenhua Liu  
Pages 635-648

Soil type-dependent effects of drying-wetting sequences on aggregates and their associated OC and N  
Na Mao, Xiaorong Wei, Mingan Shao  
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Runoff- and erosion-reducing effects of vegetation on the loess hillslopes of China under concentrated flow  
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Free full papers and open access are available at ScienceDirect :  
<https://www.sciencedirect.com/journal/international-soil-and-water-conservation-research>.

## COMING EVENTS

### YMC 2023 M.S.YALIN MEMORIAL COLLOQUIUM 2023 (Italy, Jan. 26-27, 2023)

**Date:** January 26-27, 2023

**Venue:** University of Palermo (Italy)

**Hosted by:** Department of Engineering (DI)  
University of Palermo (Italy)

**Theme:** Flow-sediment-biota interactions in fluvial system: recent research trends

**First call :**

On behalf of the IAHR Committee on Fluvial Hydraulics it is our pleasure to invite you to participate at:

YMC2023 Colloquium on "Flow-sediment-biota interactions in fluvial system: recent research trends" which will be held at University of Palermo (Italy).

After the previous editions, this third edition of the Colloquium pays special attention to the interaction processes between water-biota-sediment triad in a context of climate changes.

The Colloquium will provide high quality state-of-the-art scientific information and will be characterized by a comfortable time frame for presentations and fruitful discussion.

After the Colloquium, written versions will be published in a guest-edited Special Issue.

**More Information**

For more information including on important dates, venue, travel, accommodation and registration, please visit the website: <http://ymc2023.community.unipa.it>

Themes of the colloquium include but are not limited to:

- Turbulence
- Mixing and dispersion processes
- Sediment transport
- Influence of vegetation
- Sediment-biota interactions
- Fluvial requalification
- Flow discharge and morphodynamics

**Abstract Submission**

We cordially invite you to submit the abstract of your contribution directly to both the following address:

[YalinColloq2023@gmail.com](mailto:YalinColloq2023@gmail.com)

Abstracts of maximum 300 words should be submitted. Abstract must contain the paper title, the authors names, their corresponding affiliation, postal and e-mail addresses. All submitted abstracts (please both in DOC and in PDF) should be written in English.

Abstract submission opening:

September 15, 2022

Deadline date for abstract submission:

October 30, 2022

### Global Conference on Sandy Soils—Properties and Management (America, Jun. 4-8, 2023)

**Date:** June 4-8, 2023

**Venue:** University of Wisconsin - Madison, Wisconsin, U.S.A.

**Invitation:** Sandy soils cover approximately 900 million ha worldwide, particularly in arid or semi-arid regions. There are extensive areas of sandy soils under cultivation, but the soil fertility is often low. Sandy soils – as a group of soils – have received limited research attention. With increasing global pressure on land resources, marginal soils such as

sandy soils are taken into production or cultivated more intensely. There is a need to quantify and understand the properties of sandy soils. This conference will bring together experts on sandy soils from across the world.

The deadline for Abstract submission is March 15, 2023.

Submit your abstract:

<https://sandysoils.org/submitting-an-abstract/>

The deadline for registration is April 15, 2023.

Registration is now open via

<https://uwmadison.eventsair.com/sandysoils23/reg/Site/Register>

The papers from the conference will be published in the Progress of Soil Science Series (Springer).

The conference will be held at the University of Wisconsin – Madison. Madison is the capital of the U.S. state of Wisconsin.

### 9<sup>th</sup> FRIEND-Water Global conference (Senegal, June 5-10, 2023)

**Date:** June 5-10, 2023

**Venue:** Cheikh Anta Diop University, Dakar, Senegal

**Background:**

FRIEND-Water (Flow Regime from International Experimental and Network Data) is an international collaborative network of experts of the UNESCO Intergovernmental Hydrological Programme (IHP). Established in 1985, it aims to generate new understanding about regional hydrology and multi-scale water cycle processes.

FRIEND-Water is investigating long-term variations and changes in hydrological regimes to better understand the climate and river basin controls, as well as influence of humans on the spatial and temporal distribution of water. As a flagship initiative of IHP IX (2022-2029) FRIEND-Water aims to put science to action for a Water Secure World. FRIEND-Water research is critical for: water resources management, socio-economic development, secure livelihoods, safeguard the environment, and assessing the impact of global change. The FRIEND-Water initiative is currently structured in 8 regional groups: West and Central Africa, Europe, Mediterranean, Latin America and Caribbean, Southern Africa, Asia Pacific, Nile, Congo.

The FRIEND-Water programme complements and interacts with many national and international projects and initiatives: Ecohydrology-IHP, International Sediment Initiative (ISI), the International Drought Initiative (IDI), the International Floods Initiative (IFI), the International Sediment Initiative (ISI), the Global Network on Water and Development Information for Arid Lands (GWADI), the WMO/GWP Integrated Drought Management Programme (IDMP), World's Large Rivers Initiative (WLRI), among others. The Global FRIEND conference takes place every 4 years with previous editions in Norway, Germany, Slovenia, South Africa, Cuba, Morocco, France and China.

**Abstract submission form:**

<https://forms.gle/oDZHMYguZjWVAbVM6>

**Contacts:**

ORGANIZING COMMITTEE

[friendwater2023@gmail.com](mailto:friendwater2023@gmail.com)

WEBSITE

<https://en.unesco-montpellier.org/friend-water-program>

## 5<sup>th</sup> WASWAC World Conference (Czech Republic, June 19-23, 2023)

**Date:** June 19-23, 2023

**Venue:** Palacky University, Olomouc, Czech Republic

**Topic:** Adaptation Strategies for Soil and Water Conservation in a Changing World

**The conference aims are:** To analyse the present and future situation of soil and water conservation on a worldwide scale while taking local specifics into consideration.

To analyse the effects of population growth, human activity and climate change on soil and water in the context of the demands of sustainable farming, water and food supply.

To promote and increase collaboration between scientific organisations, policymakers, the general public and practitioners.

To design goals, strategies and directions for conservation of soil and water as basic irreplaceable natural resources for current exploitation and the needs of future generations.

### Contact

Prof. Borivoj Sarapatka, Palacky University Olomouc,  
e-mail: borivoj.sarapatka@upol.cz

Dr. Jana Konecna, Research Institute for Soil and Water Conservation, Prague,

e-mail: konecna.jana@vumop.cz

Dr. Pengfei DU, the Secretariat of WASWAC

E-mail: waswac@foxmail.com

## The 40<sup>th</sup> IAHR World Congress (Austria, Aug. 21-25, 2023)

**Date:** August 21-25, 2023

**Venue:** Vienna, Austria

**Invitation:** On behalf of the International Association for Hydro-environment Engineering and Research (IAHR) I am delighted to invite you to participate in the 40th IAHR World Congress to be held in Vienna, Austria, from August 21st to 25th, 2023. For more than seventy-five years, the biennial IAHR World Congresses have brought together leading experts to help address the world's pressing water environment engineering challenges. The event has traditionally provided researchers and decision makers the opportunity to share recent advances and experiences, identify emerging technology trends, and engage in lively debates that have positively impacted our world. Following the last IAHR Congress held in 2021 in Granada, Spain under the theme "From Snow to Sea", the main theme of the 40th IAHR World Congress will be "Rivers – Connecting Mountains and Coasts" focusing attention on the importance of considering the integral water cycle to address present and future challenges. Since its

creation in 1935, IAHR is known as a leading international organization of engineers and professionals in fields related to the water environment. IAHR stimulates and promotes research and its application – by sharing new research paradigms and networks, setting industry standards, informing best water management practices, and nurturing young professionals. Through its powerful knowledge products and networks, IAHR makes important contributions to sustainable development in many ways. At the upcoming Congress, IAHR will unleash its new Strategic Plan and present exciting knowledge platforms and prominent speakers on global water environment issues including climate-induced changes to water resources, adaptive management, artificial intelligence (AI) and smart water management, Eco hydraulics, and policy

forums. I, therefore, welcome you to join us and share with us your work. I look forward to welcoming you to Vienna in August 2023! (Prof. Joseph Hun-wei Lee, IAHR President)

**URL:** <https://rivers.boku.ac.at/iahr/>

**Vienna Water Conferences 2023:** <https://rivers.boku.ac.at>

## World's Large Rivers Conference 2023 (Austria, Aug. 21-25, 2023)

**Date:** August 21-25, 2023

**Venue:** Vienna, Austria

**Invitation:** This conference aims to provide a global forum for a wide-ranging discussion of key issues related to research on large rivers and their effective and sustainable management, involving both scientists and decision-makers. We kindly ask all interested authors to submit their work on the topics of Hydrology, Hydraulics & Hydroclimatic Impacts Sediment Transport & River Morphology River Pollution, Ecology & Restoration Integrated River Management. This time, a special focus will be on Rivers in a Changing World. The goal is to establish a scientific knowledge base and develop scientific reports on the status of large rivers for a better understanding of developments, synergies, and challenges in large river basins. So far, three status reports on large rivers have been developed (Danube, Mekong, and Niger) and up to 300 rivers should follow. Furthermore, the structure of the World's Large Rivers Initiative will be discussed at the World's Large Rivers conference in Vienna 2023! Special information: In honour and celebration of the 5th anniversary of the World's Large Rivers Conference, the 40th anniversary of the IAHR World Congress and the 30th anniversary of the Danube Conference, all three conferences will be held simultaneously in Vienna under the motto "Vienna Water Conferences 2023"! You can purchase a special combined ticket to attend all three outstanding events!

**URL:** <https://worldslargerivers.boku.ac.at>

**Vienna Water Conferences 2023:** <https://rivers.boku.ac.at>

## The 15<sup>th</sup> International Symposium on River Sedimentation (Florence, Italy, Sept. 5-8, 2023)

**Date:** September 5-8, 2023

**Venue:** Florence, Italy

**Organizer:** University of Florence and University of Padua

**Sponsors:** International Research and Training Center on Erosion and Sedimentation (IRTCES); World Association for Erosion and Sediment Research (WASER)

**Co-sponsors:** International Association for Hydro-Environment Engineering and Research (IAHR).....(to be invited)

**Secretariat:** University of Florence, Italy

**Permanent Secretariat:** IRTCES

**Summary:** The triennial International Symposium on River Sedimentation (ISRS) was initiated in 1980. Since its foundation, IRTCES has served as the permanent secretariat of ISRS. WASER was inaugurated at the 9th ISRS in 2004, and the ISRS has since become the official Symposium of WASER. The objective of the ISRS is to provide a forum for scientists, engineers, researchers and decision makers to exchange ideas, research results and technical advances, and to share experience and information relating to the study of sediment and its management.

**Symposium Theme and Topics:**

The theme of the symposium is Sustainable Sediment Management in a changing Environment (tentative)

The symposium topics include (tentative):

1. Sediment transport
2. Reservoir sedimentation
3. River morphodynamics
4. Coastal morphodynamics
5. Ecomorphodynamics
6. Sediment related disaster
7. Plastic in river and coastal systems
8. Interaction between sediment dynamics and hydraulic structures
9. Integrated Sediment Management at the River Basin Scale

10. Social, economic & political problems related to sediment and water management

**URL:** <https://www.isrs2023.it/>

**Organisation & Contacts:**

Organized by the Department of Civil and Environmental Engineering, University of Florence, Italy

Organizing Committee Co-Chairs

Stefano Lanzoni, Department of Civil, Environmental and Architectural Engineering, University of Padova, Italy

Luca Solari, Department of Civil and Environmental Engineering, University of Florence, Italy

Contacts

Costanza Carbonari, Department of Civil and Environmental Engineering, University of Florence,

[info@isrs2022.it](mailto:info@isrs2022.it)



## INTERNATIONAL SEDIMENT INITIATIVE (ISI)

Intergovernmental Hydrological Programme (IHP)  
UNESCO

### ORGANISATION: UNESCO

Abou Amani	UNESCO, Paris
(to be confirmed)	UNESCO, Beijing
Koen Verbist	UNESCO, Paris

**ISI URL:** <http://www.irtces.org/isi/>

### ISI GOVERNANCE

#### Advisory Group

Manfred Spreafico (Chairperson)	Switzerland
Cheng Liu	China
Koen Verbist	UNESCO
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Abdalla Abdelsalam Ahmed	Sudan
Farhad Yazdandoost	Iran
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Rollin H. Hotchkiss	USA
Valentin Golosov	Russia
Zhao-Yin Wang	China
José Alberto Zúñiga	Costa Rica
Thomas Hoffmann	Germany

### ISI TECHNICAL SECRETARIAT

International Research and Training Center on  
Erosion and Sedimentation (IRTCES)  
under the auspices of UNESCO  
P.O. Box 366, 20 Chegongzhuang West Rd.  
Beijing, 100048, China  
Fax: +86-10-68411174  
<http://www.irtces.org/>

#### Secretary-General:

Liu, Cheng China

#### Contact

Shi, Hongling China  
Zhao, Ying China

#### Newsletter Layout and Production:

ISI Technical Secretariat  
The ISI Newsletter is sent quarterly to ISI Governance members and interested experts. Please send your contributions to the ISI Chairperson at [manfred.spreafico@gmail.com](mailto:manfred.spreafico@gmail.com) or ISI technical Secretariat at [shihl@iwhr.com](mailto:shihl@iwhr.com)

#### Editor: Prof. Shi Hongling

P.O. Box 366, 20 Chegongzhuang West Rd.  
Beijing, 100048, China  
Fax: +86-10-68411174  
E-mail: [shihl@iwhr.com](mailto:shihl@iwhr.com)

#### Advisor: Prof. Des. E. Walling

