

# INTERNATIONAL SEDIMENT INITIATIVE

# NEWSLETTER

*Reporting ISI news to you quarterly*

**No. 73 December 23, 2024**

## IN THIS ISSUE

### News

- ◇ The 31st IHP regional steering committee meeting for Asia and the Pacific held from October 29-30, 2024 in Seoul, Korea 1
- ◇ International webinar for China-Europe exchange of knowledge and best practices on sediment management for sustainable hydropower. 1
- ◇ Dredged sand used as a nature-based solution to coastal erosion in Canada 2
- ◇ \$100M proposal to recycle Hudson River sediment in Rensselaer, New York, USA 4
- ◇ Chinese scientists tailor farming methods to conserve precious black soil 5

### Publications

- ◇ Contents of International Journal of Sediment Research (Vol. 39, No. 5, 2024) 7
- ◇ Contents of International Journal of Sediment Research ISWCR (Vol. 39, No. 6, 2024) 8
- ◇ Contents of International Journal of Sediment Research ISWCR (Vol. 12, No.4, 2024) 9

### Coming Events

- ◇ The 28<sup>th</sup> ICOLD Congress & 93rd Annual Meeting (China, May 16-23, 2025) 10
- ◇ The 41<sup>st</sup> IAHR World Congress "Innovative Water Engineering for Sustainable Development" (Singapore, June 22-27, 2025) 10
- ◇ The 16<sup>th</sup> International Symposium on the Interactions between Sediments and Water (France, June 30- July 4, 2025) 10
- ◇ The 16<sup>th</sup> International Symposium on River Sedimentation (USA, August 4-7, 2025) 10
- ◇ The 6<sup>th</sup> WASWAC World Conference (Morocco, September, 2025) 11
- ◇ River Flow 2026 (Greece, June 29-July 3, 2026) 11
- ◇ The 9<sup>th</sup> International Conference on Estuaries and Coasts (China, December, 2026) 11
- ◇ 11th International Symposium on Environmental Hydraulics (ISEH 2027) (USA, June 1-4, 2027) 12

## UNESCO “国际泥沙计划” 简报

### 本期内容

### 新闻

- ◇ IHP 亚太地区指导委员会第 31 届会议在韩国首尔召开 1
- ◇ 中欧可持续水电泥沙管理知识与最佳实践交流国际网络研讨会成功召开 1
- ◇ 疏浚土自然解决方案：用于防止海岸侵蚀 2
- ◇ 伦斯勒项目提案 1 亿美元用于回收哈德逊河的淤积泥沙 4
- ◇ 中国科学家为珍贵的黑土地量身定制耕作方法 5

### 出版物

- ◇ 《国际泥沙研究》2024 年第 39 卷第 5 期论文目录 7
- ◇ 《国际泥沙研究》2024 年第 39 卷第 6 期论文目录 8
- ◇ 《国际水土保持研究》2024 年第 12 卷第 4 期论文目录 9

### 会议信息

- ◇ 国际大坝委员会第 28 届大会暨第 93 届年会（中国，2025 年 5 月 16-23 日） 10
- ◇ 第 41 届 IAHR 世界大会 “创新水工程促进可持续发展”（新加坡，2025 年 6 月 22-27 日） 10
- ◇ 第 16 届泥沙与水相互作用国际研讨会（法国，2025 年 6 月 30 日-7 月 4 日） 10
- ◇ 第 16 次河流泥沙国际学术讨论会（美国，2025 年 8 月） 10
- ◇ 第 13 届国际河流水力学会议（River Flow 2026）2026 年 6 月 29 日至 7 月 3 日） 11
- ◇ 第 9 届河口海岸国际研讨会（中国，2026 年 12 月） 11
- ◇ 第 11 届国际环境水力学研讨会 (ISEH2027) (美国，2027 年 6 月 1-4 日) 12



## NEWS

### The 31<sup>st</sup> IHP Regional Steering Committee Meeting for Asia and the Pacific held from October 29-30, 2024 in Seoul, Korea



The 31<sup>st</sup> IHP Regional Steering Committee Meeting for Asia and the Pacific was held during October 29-30, 2024 in Seoul, Republic of Korea. Representatives from 14 countries from Asia and the Pacific participated in the meeting. Prof. LIU Cheng, Prof. SHI Hongling and Dr. ZHAO Ying from IRTCES attended the meeting online and provided updates on the work of the Center.

The Asia and the Pacific region played a significant role in implementing UNESCO's water programmes during the International Hydrological Decade (1965-1974) and this continued with the Intergovernmental Hydrological Programme (IHP) from 1975 to the present. The programmes contribute to achieving SDG targets and other water-related goals in the region. A key development in the ability of the Asia and the Pacific region to deliver IHP programmes was the establishment of the Regional Steering Committee (RSC-AP) in 1993. Since then, it has proved crucial in shaping UNESCO's water programmes to address water problems such as water scarcity, water-related disasters, and water education at a regional level.

The objectives of the RSC-AP main meeting and side meetings were to report, evaluate, and share knowledge and information on various activities carried out within the framework of the IHP by different members of the UNESCO Water Family in the Asia-Pacific region. During the 31<sup>st</sup> Session of the RSC-AP held on October 30, Prof. LIU Cheng from IRTCES made an online presentation summarizing and reviewing a series of water-related activities organized and carried out under the UNESCO IHP-IX Strategic Plan (2022-2029), which contribute to the 5 Priority Areas of IHP-IX, and share China's concepts, experiences, and solutions

in the field of water conservancy and sediment management with the world. At the same time, the Center's future activity plans and opportunities were introduced, expressing IRTCES's willingness to exchange and share China's wisdom and experience in water and sediment management, as well as soil and water conservation, with countries in the Asia-Pacific region, to make greater contributions to IHP-IX.

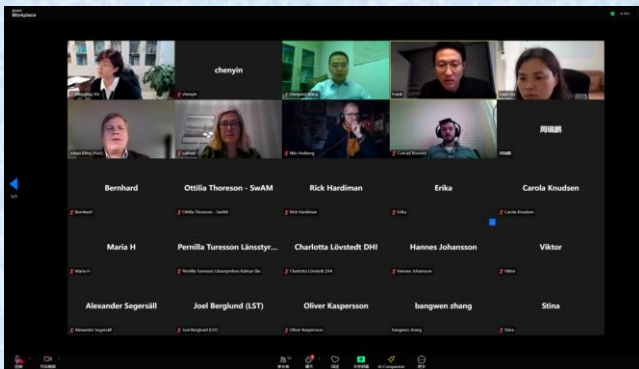


**International webinar for China-Europe exchange of knowledge and best practices on sediment management for sustainable hydropower** On December 6, an International webinar for China-Europe exchange of knowledge and best practices on sediment management for sustainable hydropower was successfully held. The webinar was organized online by the Swedish Agency for Marine and Water Management (SwAM), the China Institute of Water Resources and Hydropower Research (IWHR) and the UNESCO International Sediment Initiative (ISI). Topics addressed included "Sedimentation problems caused by hydropower in China and Europe, legislative and regulatory requirements of sediment management for hydropower in China and Europe, and technical solutions adopted by China and Europe to solve these problems".

The webinar was aimed at exchanging achievements and experiences in sediment management for hydropower in different regions of China and Europe, and promoting knowledge sharing between hydropower industries. More than



70 representatives of experts and postgraduate students from Sweden, Austria, Italy, Germany, Switzerland, Nigeria, China and other countries participated online in the exchange and discussion.



The following 6 lectures were delivered in this webinar:

- ✓ “Sedimentation process of reservoirs in sandy rivers” by Prof. Wang Dangwei from IWHR,
- ✓ “Christian Doppler Laboratory for Sediment Research and Management - economic, technical and ecological optimization of hydropower use to improve sediment management”, by Dr. Christoph Hauer from the University of Natural Resources and Life Sciences, Vienna, Austria (BOKU)
- ✓ “Sediment management techniques applied in the reservoir of the hydropower station of Pontecosi in the Serchio river, Italy” by Prof. Lorenzo Cappiotti and Prof. Luca Solari from the University of Florence (UniFI)
- ✓ “Evolution and Refinement of the Concept of Long-term Reservoir Utilization” by Dr. Le Maohua from IWHR,
- ✓ “Sediment Budgeting and Management in Germany” by Prof. Thomas Hoffmann, Member of ISI Scientific Advisory Board, from German Federal Institute of Hydrology (BfG),
- ✓ “Modeling reservoir sedimentation across Europe with the E-HYPE hydrological model” by Dr. Conrad Brendel from the Swedish Meteorological and Hydrological Institute (SMHI).

Sediment management is a critical challenge for the sustainable operation of hydropower plants. Sedimentation reduces reservoir capacity, decreases the operational efficiency of hydropower plants and has a serious impact on the environment. Effective sediment management strategies are essential to ensure the long-term sustainability of hydropower, especially in regions where

hydropower projects are a significant part of the energy system, such as Europe and China. Experts at this webinar presented different perspectives on the unique sediment management challenges faced by hydropower operations, regulatory frameworks, and innovative solutions being implemented, providing a platform for extensive exchange and sharing among participants, and providing important references for global hydropower sediment management and sustainable development.



*Prof. Thomas Hoffmann (member of ISI Scientific Advisory Board) gave a lecture*

(Source: <http://isi.irtces.org/isi/>)

### **Dredged sand used as a nature-based solution to coastal erosion**

As the country with the longest coastline in the world, Canada is at high risk of flooding, storm surges and erosion, as climate change progresses. To protect coastal areas and communities, the National Research Council Canada's Ocean, Coastal and River Engineering Research Centre is exploring nature-based solutions beyond traditional seawalls and breakwaters to enhance coastal resilience.

In 2019, CB Wetlands & Environmental Specialists (CBWES), a Canadian company in Atlantic Canada with expertise in coastal wetland restoration, was commissioned by Fisheries and Oceans, Canada's Small Craft Harbors program, to design and monitor a conservation offsetting project for piping plover habitat on the Chiasson Office spit, near Shippagan, New Brunswick. The piping plover is a small shorebird that nests and feeds along coastal sand and gravel beaches. This project arose from the Shippagan Gully dredging and breakwater construction project, which modified significant portions of the spit to address navigation hazards. CBWES proposed restoring the lost habitat using nature-based techniques and piloted Canada's first sand engine involving the reuse of the dredged material.



The NRC, in partnership with Saint Mary's University, is currently using numerical modelling tools to determine the effectiveness of this approach. The goal is to validate, demonstrate and enhance predictive tools for assessing the performance of the sand engine that will allow it to better withstand storms and reduce erosion rates in a Canadian coastal setting.

Ocean waves and currents transport sand, shifting it from one location to another. One approach for protecting the eroding sandy beaches is to resupply them with new sand. But this method often needs maintenance year after year because the ocean continuously transports the sand away. Rather than relying on conventional methods that work against ocean waves and currents, researchers can study and create computer models of sand movement in coastal areas to predict where sand needs to be placed for the ocean to naturally move it onto the beach rather than away from it. The mechanism of depositing a large volume of sand in strategic locations along the coast to be distributed gradually and naturally on nearby beaches is called a 'sand engine'.

Behnaz Ghodoosipour, a research associate at the NRC's Ocean, Coastal and River Engineering Research Centre, has designed a detailed numerical model to predict sediment transport around the Chiasson spit. The dredged sand from shipping channels (which is typically dumped offshore) has already been used in the past to create a sand engine to help to nourish the eroding beach. The purpose of this modelling task was to predict future behaviour of sediment transport in the area, making it possible to study both the positive and negative impacts of the sand engine on beach erosion and piping plover habitat. To enhance the accuracy of this model, Jubin Thomas, a postdoctoral researcher at Saint Mary's University, provided essential field measurements of waves and currents, which were integral to validating the model.

The sand engine was put in place in 2021. The observations so far have been positive: sand is continuing to accumulate on the beach, widening it. There have also been reports of piping plovers returning to the beach where their habitat has been re-established. The numerical model results will be used to improve the sand engine by predicting future changes and determining the optimal locations for dumping dredged material, thereby improving overall outcomes.



*A coastal area before and after a sand engine was built in Shippagan, New Brunswick.  
Photo credit: Courtesy of CBWES*

The NRC is well equipped to undertake such research with its expertise and resources. "With deep knowledge in the realm of coastal engineering science, our experts ensure that our computational resources are fully leveraged to tackle complex numerical modeling tasks for solving complex coastal challenges," Ghodoosipour says. "In addition, our high-performance server allows us to efficiently process complex simulations and significantly reduce runtime." This advanced infrastructure makes it possible for researchers to complete runs of sophisticated models in a fraction of the time it would take on less capable systems, ensuring timely and accurate results. And, as she says, "Our access to specialized computing resources enhances our ability to handle large-scale analyses and deliver high-quality outcomes."

Ghodoosipour considers nature-based sustainable solutions for coastal protection to be essential in the long term, especially given that Canadian coasts are often exposed to extreme events such as storms, hurricanes and heavy rainfall, all of which increase coastal erosion and flooding. "Nature-based solutions, and in this case the sand engine, a method that involves beneficial reuse of dredged material in ways previously thought ineffective, offer a sustainable approach to both safeguarding our coastlines against erosion and preserving our ecosystem."

(Source: National Research Council Canada)



## **\$100M proposal to recycle Hudson River sediment in Rensselaer, New York, USA**

*By Rick Karlin, Staff Writer Oct 22, 2024*

The Rensselaer project would turn dredged Hudson River sediment into construction aggregate.



*Former BASF site in Rensselaer, New York, seen in 2018. In 2024, a businessman wants to propose a new plant for the site that would convert Hudson River dredging sludge into aggregate that could be resold to construction companies.*

A New Jersey entrepreneur is proposing a \$100 million project that, if approved and built, would take dredged sediment from the Hudson River and other coastal areas and process it into aggregate that could be used in construction.

“The facility would be new. The technology itself is very real,” said Jeff Otto, president of Harbor Rock, the company formed to create the processing plant. It would work like Cohoes’ Norlite plant, which uses a large kiln to “cook” the shale into aggregate that is used in construction. However, rather than shale that is mined, Harbor Rock would “cook” river-bottom sediment that the Army Corps of Engineers and other government agencies regularly must dispose of after they dredge commercial waterways like the Hudson River and port areas around New York City and Newark. The sediment would be filtered for impurities and dried before it is processed.

And instead of using hazardous waste that Norlite collects to fire their kiln, this operation would use natural gas.

The company has had some talks with the Port of Albany, which owns the land next to the old BASF chemical plant on the west side of the Hudson River, for a possible location of the operation. Port officials say they are supportive of the concept, but they stressed talks have been very preliminary.

Otto, who has consulted for ports and recycling operations, said the economics of his plan make sense. While it now costs about \$130 to dispose of each cubic yard of sediment, he believes he could charge half of that. And the company would also

make money by selling the finished aggregate.

“It’s a double revenue stream,” he said, adding that most sediment is now landfilled and it’s getting harder to find space to bring the sediment along the congested East Coast.

The facility would employ about 65 people including engineers and mechanics, Otto said.

Government agencies in New York and New Jersey dredge about 4 million yards of river sediment per year, he added.

Otto said he has investors lined up in Europe and has worked with Danish engineering firm FL Smidth on design of the kiln and processing equipment that would have to be built.

There are some big obstacles though, including environmental concerns, especially given the controversy that the Norlite aggregate plant has created in Cohoes.

“This is a sludge incinerator proposal,” said Judith Enck, a former EPA regional administrator and local environmental activist. “This is the last thing the city of Rensselaer needs.”

She vowed to oppose the facility if it goes forward, due to concerns about emissions from the kiln, especially in Rensselaer, where some residents have long criticized the S.A. Dunn construction and demolition debris landfill and gas-burning power plant that is also located in this small blue collar riverfront city. The landfill borders the city school campus.

Enck has been instrumental in the battles against Norlite as well as the Dunn landfill. Norlite is currently seeking updated air emission permits but the plant has since March been on what they called a temporary shutdown of most operations.

Also opposed is Rensselaer Mayor Mike Stammel, who believes Rensselaer already struggles with enough pollution.

“It’s not something that environmentally I believe is going to benefit the air quality of the community,” said Stammel. He said he asked them a number of questions during a meeting with the company and Port of Albany officials last Spring but hasn’t heard back with the answers yet.

Otto said he realizes there are worries about the kiln, which would heat river sludge that could contain harmful PFAS chemicals as well as PCBs. But he believes the kiln operating at 2,000-degree Fahrenheit would break down the toxins.



He does, though, admit that the site's status as an EPA Superfund could pose a problem. "We're a little concerned about environmental issues with BASF," he said referring to the chemical plant that was previously at the site. Plans by another company, which had looked at the site for a potential waste-to-energy plant, have apparently faded away.

The biggest obstacle, though, is financial. To make sense, the project would have to have at least a 20-year life span and, more importantly, the business needs firm long-term commitments from potential supplier/sellers of sediment. That would mean reaching agreements with the Army Corps of Engineers as well as the Port Authority.

"These are bureaucratic institutions and it's hard to get commitments and contracts especially for something that's not up and running and proven," Otto said. "We can't just build it and hope they show up."

(Source:  
<https://www.timesunion.com/business/article/100m-proposal-recycle-hudson-river-sediment-19837508.php>)

### **Chinese scientists tailor farming methods to conserve precious black soil**

How should water flow through fields? What directions and widths are appropriate for ridge planting? Where should more fertilizer be applied, and where should less be applied? These precise considerations are now part of China's work to protect its precious farmland.

Chinese scientists have developed tailored cultivation techniques and conservation measures for the black soil in the country's northeastern provinces to support food security and ecological safety, according to the Chinese Academy of Sciences (CAS). The black soil is sometimes referred to as the "giant panda of cultivated land" due to its fertility and scarcity.

The black soil found in China's Heilongjiang, Jilin and Liaoning provinces and in some parts of the Inner Mongolia Autonomous Region covers a total area of 1.09 million square kilometers. It produces about a quarter of the country's total grain output. Hailed as the "stabilizer" and "ballast" of China's food production, it constitutes the country's most important commodity grain base.

However, the black soil has experienced varying degrees of degradation due to factors such as excessive exploitation and climate change. CAS,

together with relevant authorities in the four provincial-level regions, launched the "Black Soil Granary" program in 2021 to undertake research that would provide sci-tech support to combat the degradation of the precious soil and boost modern agricultural development. Seven technological demonstration zones have been established, covering a total area of 11,420 hectares. A total of 36 new soybean and corn varieties have been created and cultivated, and biotechnology to aid the rapid improvement of black soil fertility has been developed, according to CAS.

### *Black Soil Health Profile*

The concentrated, contiguous arable land in the Sanjiang Plain, which includes the Heilongjiang, Songhua and Wusuli rivers, faces challenges that hinder an increase in production capacity, such as soil degradation, erosion and low temperatures, said Liu Huanjun, a researcher at the Northeast Institute of Geography and Agroecology (IGA), which is under the CAS. Additionally, a lack of spatiotemporal agricultural data hampers the improvement of intelligent farming practices. The extensive development of paddy fields has led to seasonal declines in groundwater levels and the spatiotemporal mismatch of water and soil resources.

"A comprehensive solution that addresses these issues is urgently needed," Liu said. The plain has a humid environment and a large area of sloping cultivated land. The types and degrees of land degradation present are complex, as is the plain's natural geographical environment. Improper traditional farming practices have exacerbated soil erosion, resulting in the thinning and hardening of the topsoil, and soil fertility levels are also inconsistent. These problems cannot be solved using individual techniques or isolated approaches, Liu said. More than 100 scientists at the CAS have participated in research to develop an intelligent protection and utilization model for the plain's black soil, along with a systemic solution to these issues. The scientists developed a three-dimensional monitoring technique to observe the farmland, gathering data from 15 satellites, detectors on the ground, and aerial sensing using aircraft and drones. Three large-scale aerial remote sensing experiments have been carried out on the black soil, generating over 400 terabytes of data and aiming to quantitatively monitor the research area's soil, productivity, ecology and farmland degradation with meter-level precision, according to Liu. "We created a health profile for the black soil to get a clear picture of each piece of farmland, like reading palms," Liu said.





### *Precise Treatment*

Based on the multi-dimensional and high-precision data, scientists have developed a comprehensive solution that can provide a systemic understanding of black soil, as well as precise diagnoses, prescriptions and technical treatment advice. Integrating remote sensing technology, satellite positioning systems, geographic information systems, the Internet of Things and artificial intelligence technologies, scientists have developed an intelligent management and control platform and app, which can be linked to intelligent agricultural machinery and equipment. Farmers can use the app to access various information services providing

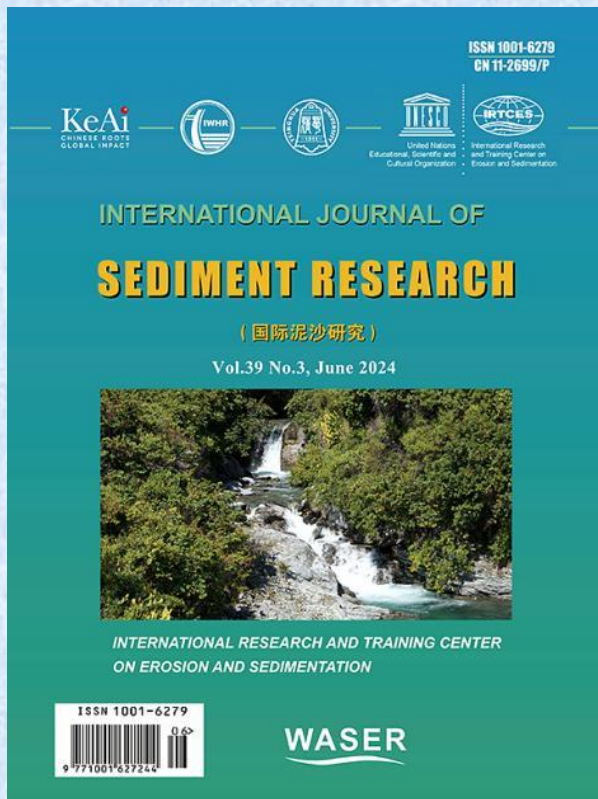
data on soil content, weather, crop growth, natural disasters and farmland yields, and to obtain precise agricultural production guidance in areas such as fertilization, pesticide spraying, sowing and irrigation. The app can also generate accurate fertilization maps based on multidimensional data on soil, crops and farmland quality at different growth stages, and send instructions to connected intelligent fertilization machinery to change amounts of fertilizer being applied, improve production efficiency and reduce pollution. In core demonstration areas, the application of fertilizers has decreased by 5 to 15 percent, and yields have increased by 5.48 to 14.2 percent. In response to the problem of water erosion on sloping farmland, scientists have carried out a series of precise "surgeries," changing the directions and widths of ridges to regulate water flows, planting grass between fields, and laying underground drainage pipes to divert water flows and prevent soil erosion.

These measures have been introduced on nine farms, helping achieve grain production increases from 5 to 22 percent and a 70 percent reduction in soil erosion, according to IGA researcher Song Chunyu.

(Source: <https://english.news.cn/20241002/6b4db5b158864d8bad334a04937c50ba/c.html>)

## PUBLICATIONS

Contents of *International Journal of Sediment Research* (Volume 39, No. 5, 2024)



Pages 683-854 (October 2024)

[Sediment transport dynamics during a super flood: A case study of the 2010 super flood at the Guddu Barrage on the Indus River](#)

Imran Aziz Tunio, Love Kumar, Sheeraz Ahmed Memon, Ali Asghar Mahessar, Abdul Wahid Kandhir

Pages 683-701

[Impact of open-cast placer mining on sediment transport across Far Eastern rivers of Russia](#)

Danila Shkolnyi, Dmitry Magritsky, Sergey Chalov

Pages 702-713

[Feasibility of digital image colorimetric methods for iron determination in river sediment](#)

Patricia Fernanda Ferreira Lovato, Eduardo Sidinei Chaves, Luciano Nassif Vidal, Poliana Macedo Santos

Pages 714-719

[Field monitoring of alluvium accumulation in the riverine floodplain of the Oka River, European Russia](#)

Aleksey Y. Vorobyov, Aleksander S. Kadyrov, Anna A. Balobina, Alexey V. Vodoretsov

Pages 720-736

[Modeling best management practices to reduce future sediment yield in the Fincha watershed, Ethiopia](#)

Motuma Shiferaw Regasa, Michael Nones

Pages 737-749

[Distribution, sources, and burial flux of black carbon in sediment of Daye lake, central China](#)

Changlin Zhan, Yongming Han, Jiaquan Zhang, Shan Liu, ... Junji Cao

Pages 750-760

[Effect of non-equilibrium parameters on the numerical modeling of settling basins](#)

Maryam Teymouri Yeganeh, Mohammad Mehdi Heidari, Rasool Ghobadian

Pages 761-773

[Grain-size distribution in suspension under non-equilibrium conditions](#)

Arun Kumar, Sourav Hossain, Sumit Sen, Shiv Mohan, Koeli Ghoshal

Pages 774-794

[Effects of tree and shrub species on soil quality, sediment detachment capacity caused by rills and surface slope stability in forest lands of Northern Iran](#)

Misagh Parhizkar

Pages 795-803

[Geochemical indices and sedimentation rates in the Pardo River basin, São Paulo state, Brazil](#)

Daniel Marcos Bonotto

Pages 804-824

[Application of SPH in rheology model for the submerged landslide](#)

Pooyan Nikeghbali, Rohan Benjankar, Mehran Kheirkahan

Pages 825-844

[Structural sediment connectivity as a tool in validating sediment fingerprinting results](#)

Atefeh Asgharpour, Saeed Najafi, Habib Nazarnejad

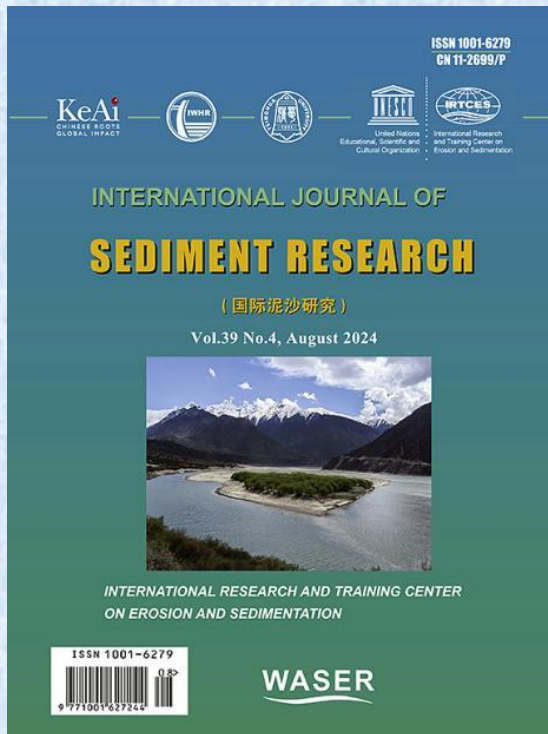
Pages 845-853

Full papers are available at ScienceDirect:

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



**International Journal of Sediment Research**  
(Volume 39, No. 6, 2024)



Pages 855-1026 (December 2024)

[Soil texture and vegetation root density assessment on regulating erosion across river floodplains](#)

Iordanis Moustakidis, Keith Schilling, Larry Weber  
Pages 855-867

[Soil erosion risk assessment of the Lakhmess watershed \(northwestern Tunisia\) via the SEAGIS model: Inferred prioritization of risky sub-watersheds](#)

Afef Marghmi, Lilia Ben Cheikha, Amina Mabrouk El Asmi, Moncef Gueddari  
Pages 868-884

[Modeling flow resistance and geometry of dunes bed form in alluvial channels using hybrid RANN-AHA and GEP models](#)

Riham Ezzeldin, Mahmoud Abd-Elmaboud  
Pages 885-902

[Formation condition for concave-bank deposition in the meanders of the Middle Yangtze River and its application](#)

Xin Liu, Junqiang Xia, Shanshan Deng, Meirong Zhou, Koen Blanckaert  
Pages 903-915

[Source-oriented health risk assessment of heavy metals in a soil-river continuum in northwest China](#)

Enqi Yang, Qingzheng Wang, Zepeng Zhang, Wenyan Shao, ... Qingyu Guan

Pages 916-928

[Defining and characterizing the phenomenon of river-bottom tearing scour \(RBTS\): A case study of the Middle Yellow River](#)

Enhui Jiang, Junhua Li, Yongtao Cao, Yanhui Liu, ... Li Pan  
Pages 929-941

[Source identification of heavy metal contamination in beach sediments of the ancient city of Phaselis in Antalya, Türkiye](#)

Ozge Ozer Atakoglu, Emirhan Berberoglu, Fusun Yalcin, Serife Gokaydin, ... Mustafa Gurhan Yalcin  
Pages 942-959

[Biogenic "phosphorus" effect of terrestrial lakes and its significance to oil shale during the Carnian period in the late Triassic](#)

Jiyuan You, Xiaohu Zhou, Yiyao Yang, Shanshan Song, ... Yunyun Bai  
Pages 960-970

[Potential reuse of fine sediment from hydroelectric dams and recycled concrete sand in road subgrades](#)

Hamza Beddaa, Saannibe Ciryle Somé, Amor Ben Fraj, Coryse Coudray, ... Amaury Cudeville  
Pages 971-983

[Response of tenuous clay-polysaccharide flocs to hydrodynamic shearing](#)

Li He, Hang Yin, Yongkang Wu, Wei Sun, Guoping Zhang  
Pages 984-997

[Soil erosion susceptibility prediction using ensemble hybrid models with multicriteria decision-making analysis: Case study of the Medjerda basin, northern Africa](#)

Asma Bouamrane, Hamouda Boutaghane, Ali Bouamrane, Noura Dahri, ... Tetsuya Sumi  
Pages 998-1014

[Quantification of bedload transport in the Hungarian Danube using multiple analysis methods](#)

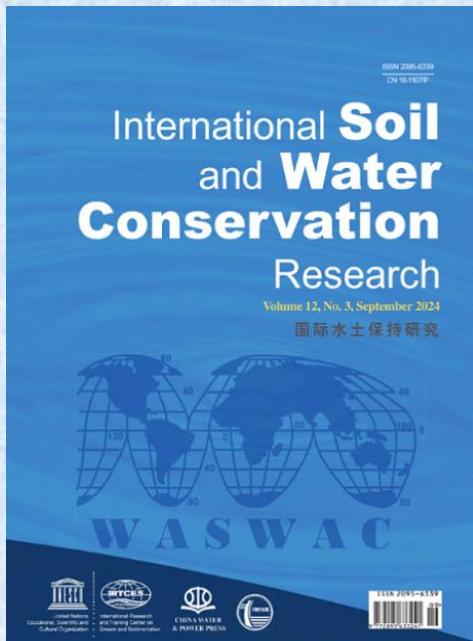
Sándor Baranya  
Pages 1015-1026

Full papers are available at ScienceDirect:

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



Contents of *International Soil and Water Conservation Research* (Vol. 12, No.4, 2024)



Pages 747-920 (December 2024)

[Modeling gully initiation by two codeless nonlinear methods: A case study in a small watershed on the Tibetan Plateau](#)

Jianjun Li, Yulan Chen, Juying Jiao, Xue Cao, ... Leichao Bai

Pages 747-760

[Automated quantification of contouring as support practice for improved soil erosion estimation considering ridges](#)

Dominik Scholand, Britta Schmalz

Pages 761-774

[Generation of runoff in an alpine meadow hillslope underlain by permafrost](#)

Shenqi Xie, Chen Zeng, Xiong Xiao, Guanxing Wang, Fan Zhang

Pages 775-785

[Agroecology-based land use/land cover change detection, prediction and its implications for land degradation: A case study in the Upper Blue Nile Basin](#)

Taye Minichil Meshesha, Atsushi Tsunekawa, Nigussie Haregeweyn, Mitsuru Tsubo, ... Samuel Berihun Kassa

Pages 786-797

[Can hydraulic-energy-indices be effectively used to describe the saturated hydraulic conductivity?](#)

Lucas Biasi Gastaldon, Sérgio Martins De Souza, Tatiana Cardoso e Bufalo, Robson André Armindo, Ole Wendroth

Pages 798-807

[Utilizing geodetectors to identify conditioning factors for gully erosion risk in the black soil region of northeast China](#)

Donghao Huang, Xinrui Zhao, Zhe Yin, Wei Qin  
Pages 808-827

[Challenges and constraints of conservation agriculture adoption in smallholder farms in sub-Saharan Africa: A review](#)

Tesfay Araya, Tyson E. Ochsner, Pearson N.S. Mkeni, K.O.L. Hounkpatin, Wulf Amelung  
Pages 828-843

[VIS-NIR spectroscopy and environmental factors coupled with PLSR models to predict soil organic carbon and nitrogen](#)

Jingrong Zhu, Yihua Jin, Weihong Zhu, Dong Kun Lee

Pages 844-854

[New empirical-point pedotransfer functions for water retention data for a wide range of soil texture and climates](#)

Aline Mari Huf dos Reis, Luiz Fernando Pires, Robson André Armindo

Pages 855-867

[National variability in soil organic carbon stock predictions: Impact of bulk density pedotransfer functions](#)

May-Thi Tuyet Do, Linh Nguyen Van, Xuan-Hien Le, Giang V. Nguyen, ... Giha Lee

Pages 868-884

[Three-dimensional spatiotemporal variation of soil organic carbon and its influencing factors at the basin scale](#)

Lingxia Wang, Zhongwu Li, Xiaodong Nie, Yaojun Liu, ... Jiaqi Li

Pages 885-895

[Divergent behaviour of soil nutrients imprinted by different land management practices in the Three Gorges Reservoir Area, China](#)

Minxin Song, Qiang Tang, Chen Han, Chuan Yuan, ... Adrian L. Collins

Pages 896-907

[Geospatial evaluation of the agricultural suitability and land use compatibility in Europe's temperate continental climate region](#)

Andrei Dornik, Marinela Adriana Chețan, Tania Elena Crișan, Raul Heciko, ... Panos Panagos

Pages 908-919

Free full papers and open access are available at ScienceDirect :

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



## COMING EVENTS

### The 28<sup>th</sup> ICOLD Congress & 93<sup>rd</sup> Annual Meeting (China, May 16-23, 2025)

**Date:** May 16-23, 2025  
**Venue:** Chengdu, China

**Theme:** Common Challenges, Shared Future, Better Dams

**Topics:**

- T1: Precautionary management of dams and river basin under climate change
- T2: Multifunctional development of dams and reservoirs
- T3: Technologies for dam construction under complex (extreme) conditions
- T4: Digital technology applied in dams and digital river basins
- T5: The role of dams in achieving the goal of reducing carbon dioxide emissions

**URL:** <https://www.icold-cigb2025.com/>

**Contact:**

**Email:** icoldcigb2025@outlook.com; icoldcigb2025@iwhr.com

### The 41<sup>st</sup> IAHR World Congress "Innovative Water Engineering for Sustainable Development" (Singapore, June 22-27, 2025)

**Date:** June 22 - 27, 2025

**Venue:** Singapore

**Organizers:** IAHR, Singapore's National Water Agency, National University of Singapore, Nanyang Technological University

**Summary:** The International Association for Hydro-Environment Engineering and Research (IAHR) World Congress is a biennial event that brings together the latest technical and scientific knowledge, practice, trends, and innovations of the global hydro-environment community. Themed "Innovative Water Engineering for Sustainable Development", the 41st IAHR World Congress in Singapore will focus on the importance of innovative water engineering towards meeting the Sustainable Development Goals (SDGs) and targets related to water resources. Held amid the International Decade for Action on "Water for Sustainable Development" 2018–2028, by the UN, the Congress will showcase the role of expert knowledge by the water engineering community to the implementation of innovation solutions to meet the SDGs, and share insights on research, technology and innovations that will create significant impact to tackle global challenges such as climate change and sea level rise.

**Theme:** Innovative Water Engineering for Sustainable Development

**Topics:**

1. Coastal Flooding and Protection
2. River and Sediment Engineering
3. Eco- and Environmental Hydraulics
4. Hydraulic Structures
5. Integrated Water Resources Management
6. Urban Water Management
7. Flood and Drought Management
8. Groundwater Management
9. Remote Sensing and Field Measurements
10. Computational and Experimental methods

11. Data-Driven Methods and Machine Learning (Hydroinformatics)
  12. Digital water
  13. Nature-based solutions
- Climate mitigation and adaptation  
**UCL:** <https://2025.iahr.org/>  
**Email:** [fulvia\\_wong@pub.gov.sg](mailto:fulvia_wong@pub.gov.sg)

### The 16<sup>th</sup> International Symposium on the Interactions between Sediments and Water (France, June 30–July 4, 2025)

**Date:** June 30 - July 4, 2025

**Venue:** Le Touquet, France

**Website:** <https://iasws2025.univ-lille.fr/>

**Main conference topics:**

1. Assessing and restoring disturbed catchments
2. Biogeochemistry in the hyporheic zone
3. Biogenic influences on sediment–water interactions from micro to macro scale
4. Carbon budgets and blue carbon ecosystems
5. Coastline, coastal erosion and solutions
6. Emerging contaminants in sediments
7. Extreme events and environments (droughts, floods, wildfires etc.)
8. Modelling suspended particles and aquatic sediments
9. Rewilding and restoration of coastal areas
10. Sediment management
11. Sediment-associated nutrients and contaminant processes
12. Water quality and organic matter along the watershed–river–sea continuum
13. Other topics related to sediment–water interactions

### The 16<sup>th</sup> International Symposium on River Sedimentation (USA, August 4-7, 2025)

**Date:** August 4-7, 2025

**Venue:** Omaha, Nebraska, United States

**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 related to the study of sediment and its management.

**Organizer:** University of Nebraska-Lincoln

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

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

**Secretariat:** University of Nebraska-Lincoln

**Permanent Secretariat:** IRTCES



**Theme:** Centennial of Modern Sediment Transport Mechanics

**Topics:**

1. Fundamentals for sediment transport (boundary layer flow, fluvial hydraulics, and hydrology)
2. Fundamentals of sediment transport (bed forms, bed load, and suspended load)
3. Experimental and computational sediment transport and fluvial processes
4. Watershed erosion and sedimentation
5. River erosion and sedimentation (case studies)
6. Scours around hydraulic structures (case studies)
7. Reservoir sedimentation
8. Estuarine and coastal sediment transport
9. Seabed sediment transport
10. Environmental and ecological sediments with climate changes

**URL:** <https://www.isrs2025.org/>

**Organization & Contacts:**

Prof. Junke (Drinker) Guo  
Department of Civil and Environmental Engineering  
University of Nebraska—Lincoln  
[jguo2@unl.edu](mailto:jguo2@unl.edu)

### The 6<sup>th</sup> WASWAC World Conference (Morocco, September 15-17, 2025)

**Date:** September 15-17, 2025

**Venue:** Rabat, Morocco

**Summary:** The World Association for Soil and Water Conservation (WASWAC), in collaboration with the Institut National de la Recherche Agronomique (INRA), is organizing the 6th WASWAC World Conference on Resilient Landscapes: Innovations and Traditions in Climate-Adaptive Soil and Water Conservation (RISE-SWC), scheduled from 15 to 17 September 2025 in Rabat, Morocco. The conference will provide an exchange platform for soil and water resources conservation on a global scale, fostering collaboration among scientists, experts, policymakers, and practitioners from around the world. The RISE-SWC conference will explore cutting-edge strategies in the context of climate change and propose practical solutions to provide strong support for addressing global climate change challenges. Participants will engage in discussions on innovative practices, integrating traditional wisdom with modern technologies, and addressing social and economic challenges. The conference aims to propose actionable solutions that can strengthen global efforts to combat climate change impacts on soil and water systems, support sustainable development, and promote technological and scientific advancements in these critical fields.

**Organizer:** The World Association of Soil and Water Conservation (WASWAC), Institut National de la Recherche Agronomique (INRA)

**Theme and Topics:** Resilient Landscapes: Innovations and Traditions in Climate-Adaptive Soil and Water Conservation (RISE-SWC)

**Sub-themes:**

1. Impact of climate change on soil erosion and coping strategies
2. The role of water resources management in addressing climate change
3. Challenges and opportunities of land use planning and management in the context of climate change
4. Integration of traditional wisdom and modern technology in soil and water management
5. Social and economic considerations in soil and water management

6. Strategic shifts in soil and water conservation practices and technologies to address climate change
7. Monitoring and early warning mechanisms in soil and water management
8. Soil and water conservation in production and construction projects

**Important dates:**

Abstract submission begin: January 1, 2025

Last date of abstract submission: May 30, 2025

Intimation of acceptance of abstracts: June 30, 2025

Registration fee payment begin: January 1, 2025

**Contacts:**

The WASWAC Secretariat:

YANG Songdi: [waswac@vip.163.com](mailto:waswac@vip.163.com)

DU Pengfei: [waswac@foxmail.com](mailto:waswac@foxmail.com)

The Conference Secretariat:

Benabdelouahab Tarik: [tarik.benabdelouahab@inra.ma](mailto:tarik.benabdelouahab@inra.ma)

**Conference updates:**

[www.waswac.org.cn](http://www.waswac.org.cn) and [www.inra.org.ma](http://www.inra.org.ma)

### River Flow 2026---

### The 13<sup>th</sup> International Conference on Fluvial Hydraulics (Greece, June 29-July 3, 2026)

**Date:** June 29-July 3, 2026

**Venue:** Thessaloniki, Greece

**Summary:** Since its inception in 2002, under the esteemed Fluvial Hydraulics Committee of the International Association for Hydro-Environment Engineering and Research (IAHR), the River Flow Conference Series has proudly stood as a premier global platform for the exchange of pioneering research and best practices in fluvial hydraulics and river engineering.

RiverFlow 2026 invites you to be part of a dynamic assembly of professionals, scholars, and industry practitioners in a vibrant forum dedicated to exploring the cutting-edge experimental, theoretical, and computational advances in river hydraulics and sediment transport processes, covering a wide range of themes spanning the areas of hydro-environment, geosciences and eco-bio-geomorphology.

**Organizers:** IAHR, Aristotle University of Thessaloniki, Division of Hydraulics and Environmental Engineering

**Theme:** Steering the future of hydro-environment research and practice

**Topics:**

1. Fundamental Flow Processes
2. Sediment Transport Dynamics and River Evolution Processes
3. Flow and Sediment Transport Through Hydraulic Structures
4. Eco-Hydraulics and River Re-naturalization
5. Pollutant Transport Processes
6. River Systems and Resilience Under a Changing Climate
7. Integrated River Basin Management

**Contacts:**

[RiverFlow2026@civil.auth.gr](mailto:RiverFlow2026@civil.auth.gr)

**URL:** <https://riverflow2026.web.auth.gr/>

### The 9<sup>th</sup> International Conference on Estuaries and Coasts (China, December, 2026)

**Date:** December, 2026

**Venue:** Qin Zhou, China

**Organizers:** Qin Zhou Municipal People's Government, Department of Water Resources of Guangxi Zhuang Autonomous Region, Department of Transport of Guangxi Zhuang Autonomous Region



**Sponsors:** International Research and Training Center on Erosion and Sediment Research (IRTCES);

**Co-sponsors:** World Association for Erosion and Sediment Research (WASER), China Institute of Water Resources and Hydropower Research (IWHR); International Association for Hydro-Environment Engineering and Research (IAHR); Guangxi University; Guangxi Normal University; Beibu Gulf University, Pinglu Canal Group Co., Ltd

**Summary:** The International Conference on Estuaries and Coasts (ICEC) is a triennial event initiated by the International Research and Training Center on Erosion and Sedimentation (IRTCES). Eight such conferences have now been held in Hangzhou and Guangzhou, China; Sendai, Japan; Hanoi, Vietnam; Muscat, Oman, Caen, France, Shanghai, China and Canada in 2003, 2006, 2009, 2012, 2015, 2018, 2021 and 2024. With support from related international associations, and with the participation of experts and scholars worldwide, the ICEC has attracted wide attention and has become an important and popular event. The ICEC provides an opportunity for scientists, engineers, researchers and decision-makers to exchange ideas, research results and advanced techniques, and develop collaboration and friendships. The 9th International Conference on Estuaries and Coasts (ICEC 2026) will be held in Qin Zhou, China during December, 2026. The ICEC 2026 will provide a venue for intellectual and enlightening discussions of ideas. The conference program will be broad with topics.

**Theme:**

Estuaries and Coasts under Modern Civilizations

**Topics of the Conference:**

1. Hydrodynamics and Sediment Transport in Estuaries and Coastal Zones: Fundamentals and Modeling
2. Monitoring, Early Warning and Forecasting of Estuarial and Coastal Hazards
3. Eco-environment Protection in Estuaries and Coastal Zones
4. Climate Change, Human Activities and Their Impacts on Estuaries and Coasts
5. Canal Constructions in Estuaries and Coastal Zones
6. Integrated and Intelligent Management of Estuaries and Coastal Zones
7. Morphological Evolutions of Estuaries, Coasts and Deltas
8. History, Culture, Socioeconomics and Policy on Estuaries and Coasts
9. Impacts of Watershed Developments on Estuaries and Coastal Zones

**URL:** <https://ICEC2026.scimeeting.cn>

## The 11<sup>th</sup> International Symposium on Environmental Hydraulics (ISEH 2027) (USA, June 1-4, 2027)

**Date:** June 1-4, 2027

**Venue:** The University of Iowa, Iowa City, IA USA

**Invitation:** We are pleased to announce that the 11th International Symposium on Environmental Hydraulics (ISEH) will be held in Iowa City, IA, USA on the 1st – 4th June 2027. Sponsored by the International Association of Hydro-Environment Engineering and Research (IAHR), the 11th ISEH will build on the success of previous ISEH symposia in bringing together international experts to present and discuss new research and technical innovations in various areas of environmental fluid dynamics research.

The symposium will be held within the University of Iowa campus, providing an ideal setting in which to share knowledge and to meet old and new friends.

The symposium will focus on the latest advances in experimental and computational methods that can be used to deepen our understanding and capacity to predict flow and the associated fluid-driven ecological processes, anthropogenic influences (e.g., heat, dissolved and suspended organic/inorganic material), sediment transport and morphodynamic processes in rivers, coastal regions and reservoirs.

We hope the ISEH symposium will provide a productive platform for fruitful scientific discussions, opportunities for younger scientists and practitioners to interact and exchange ideas with established researchers and spark new collaborations among participants. In particular, cross-fertilization among research groups, emergence of new concepts and approaches, and interdisciplinary interactions are expected to be highlights of the ISEH symposium.

We very much look forward to welcoming you in Iowa City. (Prof. George Constantinescu, Symposium Chair)

**URL:** <https://iseh.conference.uiowa.edu/>

**Contact**

ISEH Conference  
College of Engineering  
Iowa City, Iowa 52242  
Email: [iseh-2027@uiowa.edu](mailto:iseh-2027@uiowa.edu)  
Phone: +01 319 594 2817





**unesco**

Intergovernmental  
Hydrological Programme



International Sediment Initiative



**unesco**

International Research  
and Training Center on  
Erosion and Sedimentation

## **INTERNATIONAL SEDIMENT INITIATIVE (ISI)**

Intergovernmental Hydrological Programme (IHP)

UNESCO

### UNESCO IHP SECRETARIAT

|                          |                 |
|--------------------------|-----------------|
| <b>Abou Amani</b>        | UNESCO, Paris   |
| <b>(to be confirmed)</b> | UNESCO, Beijing |
| <b>Koen Verbist</b>      | UNESCO, Paris   |
| <b>Siying Tan</b>        | UNESCO, Paris   |

### ISI GLOBAL SECRETARIAT (IRTCES)

|                      |       |
|----------------------|-------|
| <b>Shi, Hongling</b> | China |
| <b>Zhao, Ying</b>    | China |
| <b>Advisor:</b>      |       |
| <b>Liu, Cheng</b>    | China |

### ISI SCIENTIFIC ADVISORY BOARD

#### Regional Coordinators

##### Western European and North American States

**Ralph Schielen**, the Netherlands  
**Thomas Hoffmann**, Germany

##### Eastern European States

**Matjaž Mikoš**, Slovenia

##### Latin American and Caribbean States

**Jose Alberto Zúñiga**, Costa Rica

##### Asian and Pacific States

**Zhiwei Li**, China  
**Hiroshi Takebayashi**, Japan

##### African States

**Omogbemi Omolaju Yaya**, Nigeria

##### Arab States

(to be added)

#### Thematic Coordinators

##### Priority 1: Erosion and Sediment Transport and Management

**William Blake**, UK  
**Thomas Hoffmann**, Germany

##### Priority 2: Sediment-related Hazard Management

**Nicola Casagli**, Italy  
**Matjaž Mikoš**, Slovenia

##### Priority 3: Glacier-related sediment, erosion and hazard management

**Vít Vilímek**, Czech Republic

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

**IRTCES:** 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/>

#### **Newsletter Layout and Production:**

The ISI Newsletter is sent quarterly to members of the ISI Scientific Advisory Board and interested experts.

**Editor:** Prof. Shi Hongling

Fax: +86-10-68411174

E-mail: [shihl@iwhr.com](mailto:shihl@iwhr.com)

**Advisor:** Prof. Des. E. Walling