

World Association for Sedimentation & Erosion Research – WASER

NEWSLETTER

Reporting WASER news to you regularly

2024 No. 4

(Dec 23, 2024)

IN THIS ISSUE

News

- ✧ The 31st IHP Regional Steering Committee meeting for Asia and the Pacific was held in Seoul, Korea 1
- ✧ The competing controls of glaciers, precipitation, and vegetation cover on high-mountain fluvial sediment yields 1
- ✧ Soil erosion susceptibility prediction using ensemble hybrid models with multicriteria decision-making analysis: case study of the Medjerda basin, northern Africa 2
- ✧ Chinese scientists tailor farming methods to conserve precious black soil 4
- ✧ WASER Vice President Prof. Subhasish Dey published two books: Fluvial Hydrodynamics & Solutions Manual 5

Publications

- ✧ Contents of IJSR (Vol. 39, No. 5, 2024) 7
- ✧ Contents of IJSR (Vol. 39, No. 6, 2024) 8
- ✧ Contents of ISWCR (Vol. 12, No.4, 2024) 9

Coming Events

- ✧ 28th ICOLD Congress & 93rd Annual Meeting (China, May 16-23, 2025) 11
- ✧ 41st IAHR World Congress "Innovative Water Engineering for Sustainable Development" (Singapore, 22-27 June 2025.) 11
- ✧ 16th International Symposium on the Interactions between Sediments and Water (France, 30 June to 4 July, 2025) 11
- ✧ 16th International Symposium on River Sedimentation (USA, August, 2025) 11
- ✧ The 6th WASWAC World Conference (Morocco, September, 2025) 12
- ✧ River Flow 2026 (Greece. June 29–July 3, 2026) 12
- ✧ 9th International Conference on Estuaries and Coasts (China, December, 2026) 12
- ✧ 11th International Symposium on Environmental Hydraulics (ISEH 2027) (USA, June 1-4, 2027) 13

WASER membership application/renewal form 15

世界泥沙研究学会简报

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
- ✧ 冰川、降水和植被对高山河流泥沙的共同影响 1
- ✧ 多目标决策下利用综合集成模型预测土壤侵蚀易发性：北非梅杰达流域案例研究 2
- ✧ 中国科学家为珍贵的黑土地量身定制耕作方法 4
- ✧ 国际泥沙研究学会副主席 Subhasish Dey 教授出版两本新书：《河流动力学》与《解答手册》 5

出版物

- ✧ 《国际泥沙研究》2024 年第 39 卷第 5 期目录 7
- ✧ 《国际泥沙研究》2024 年第 39 卷第 6 期目录 8
- ✧ 《国际水土保持研究》2024 年第 12 卷第 4 期目录 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） 11
- ✧ 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） 11
- ✧ 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） 11
- ✧ 第 16 次河流泥沙国际学术讨论会（美国，2025 年 8 月） 11
- ✧ 世界水土保持学会第六届国际研讨会 12
- ✧ 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） 12
- ✧ 第 9 届河口海岸国际研讨会（中国，2026 年 12 月） 12
- ✧ 第 11 届国际环境水力学研讨会(ISEH2027)(美国，2027 年 6 月 1-4 日) 13

WASER 会员申请/续新表 15

NEWS

The 31st IHP Regional Steering Committee meeting for Asia and the Pacific was held in Seoul, Korea

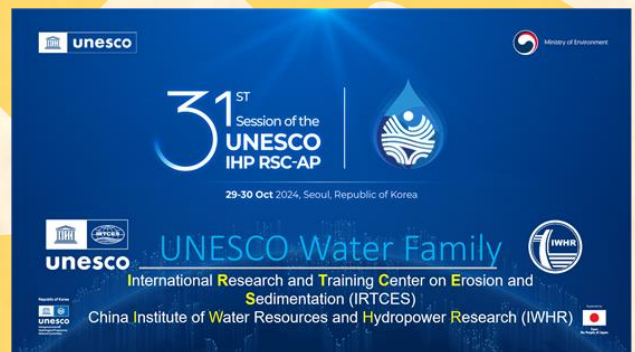
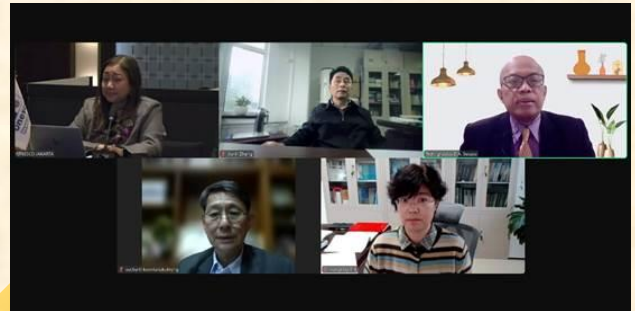
The 31st IHP Regional Steering Committee Meeting for Asia and the Pacific was held during October 29-30, 2024 in Seoul, Republic of Korea. Representatives from 14 countries from Asia and the Pacific participated in the meeting. Prof. LIU Cheng, Prof. SHI Hongling and Dr. ZHAO Ying from IRTCES attended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



The Asia-Pacific region has long played a significant role in implementing UNESCO's Water Programmes through the International Hydrological Decade (1965-1974) and continuing through the Intergovernmental Hydrological Programme (IHP) from 1975 to the present. The programmes contribute to achieving the targets of the Sustainable Development Goals (SDGs) and those of other water-related goals in the region. A key development in Asia and the Pacific for delivering IHP programmes has been the establishment of the Regional Steering Committee (RSC-AP) in 1993. Since then, the Committee has been 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 associated side meetings are to report, evaluate, and share knowledge and information on various activities carried out within the framework of IHP by different actors of the UNESCO Water Family in the Asia-Pacific region. During the 31st 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, experience, and

achievements in water conservancy and sediment management with the world. At the same time, the Center's plans for future activities 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.



The competing controls of glaciers, precipitation, and vegetation on high-mountain fluvial sediment yields

Recently published research explores how glaciers, precipitation, and vegetation cover influence the sediment yield of rivers in high mountain areas. Through field investigations and model analyses, the study reveals the interactions among these factors and how they individually or collectively affect the dynamics of river sediment. The significance of this research lies in its provision of a new perspective for understanding environmental changes in high mountain regions, particularly in the context of global climate change, which is crucial for predicting and managing mountain hydrology and ecosystems. Additionally, the study emphasizes the importance of considering the interactions of multiple factors in environmental management.

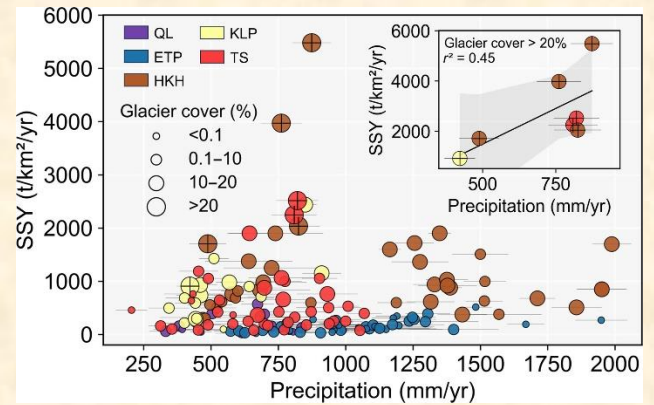
The following text and figures are cited from the original published paper:

Abstract

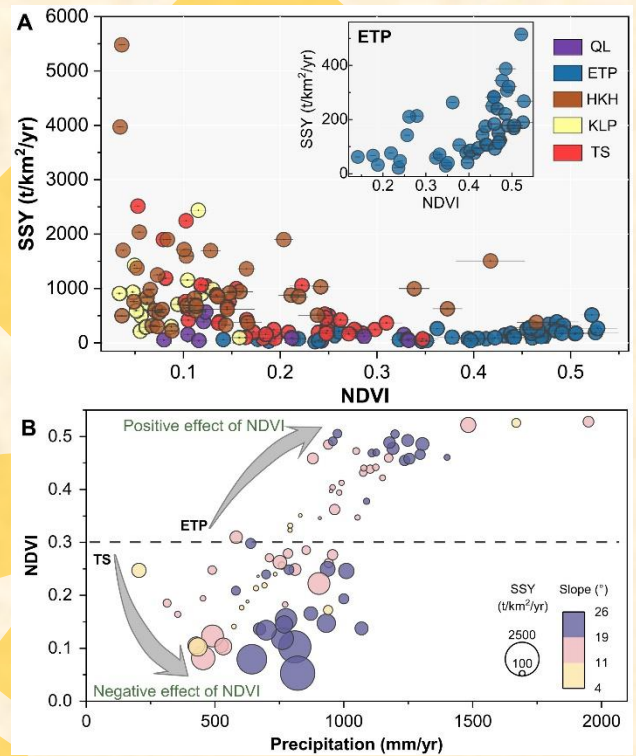
Investigating erosion and river sediment yield in high-mountain areas is crucial for understanding landscape and biogeochemical responses to environmental change. We compile data on contemporary fluvial suspended sediment yield (SSY) and 12 environmental proxies from 151 rivers in High Mountain Asia surrounding the Tibetan Plateau. We demonstrate that glaciers exert a first-order control on fluvial SSYs, with high precipitation nonlinearly amplifying their role, especially in high-glacier cover basins. We find a bidirectional response to vegetation's influence on SSY in the Eastern Tibetan Plateau and Tien Shan and identify that the two interacting factors of precipitation and vegetation cover explain 54% of the variability in SSY, reflecting the divergent roles of vegetation in promoting biogenic-weathering versus slope stabilization across bioclimatic zones. The competing interactions between glaciers, ecosystems, and climate in delivering suspended sediment have important implications for predicting carbon and nutrient exports and water quality in response to future climate change.

Implications and summary

In conclusion, this study provides regionally extensive constraints on how multiple environmental factors influence present-day mountain erosion and fluvial sediment yields in glacierized catchments. We highlight the importance of Asia's glacierized mountain rivers in providing not only strategically important water resources but also the large potential for delivering high sediment loads and fine-sediment-associated carbon, nutrients, and contaminants. Our work elucidates the multiple competing factors in controlling basin-scale fluvial sediment yields and implies that the more accurate prediction of future fluvial sediment yields should rely on the explicit consideration of not only climate change but also glacier dynamics and vegetation change as well as their interactions with slope. Such findings have important socio-ecological policy implications and suggest the necessity of using a systematic whole-basin approach for climate change adaptation in high-mountain areas, given the fundamental impacts of changing mountain erosion and fluvial sediment yields on agriculture, water quality, flood management, as well as the development of hydropower and other river-related infrastructure.



The observed relationship between SSY and mean annual precipitation conditioned by glacier cover (circle sizes)



The observed relationship between SSY and vegetation cover (NDVI) and precipitation.

(Source: Dongfeng Li, Ting Zhang, Desmond E. Walling, Stuart Lane, Bodo Bookhagen, Shang Tian, Irina Overeem, Jaia Syvitski, Albert J. Kettner, Edward Park, Michèle Koppes, Rafael J. P. Schmitt, Weiling Sun, Jinren Ni, Todd A. Ehlers. The competing controls of glaciers, precipitation, and vegetation on high-mountain fluvial sediment yields. *Science Advances*, 2024; 10 (48) DOI: [10.1126/sciadv.ads6196](https://doi.org/10.1126/sciadv.ads6196))

Soil erosion susceptibility prediction using ensemble hybrid models with multicriteria decision-making analysis: case study of the Medjerda basin, northern Africa

Recently published research reports the prediction of soil erosion susceptibility in the Medjerda basin in northern Africa using ensemble hybrid models combined with multicriteria decision-making

analysis. This research enhances the assessment of soil erosion by integrating deep learning and analytical hierarchy process (AHP) techniques, resulting in improved accuracy. Key factors such as rainfall erosivity and proximity to rivers are identified crucial in erosion processes. The findings provide valuable tools for effective erosion mitigation strategies, which is particularly important in semi-arid regions where soil erosion can lead to ecosystem and human life instability.

The following text and figure are cited from the original published paper:

Highlights

- Enhanced soil erosion assessment using a hybrid multicriteria decision-making model (MCDM) with improved accuracy.
- Deep Learning with analytical hierarchy process (AHP) boosts soil erosion prediction.
- Rainfall erosivity, river proximity are key factors in erosion.
- Findings provide tools for effective erosion mitigation.

Abstract

Soil erosion is considered one of the most prevalent natural hazards in semiarid regions, leading to the instability of ecosystems and human life. The main purpose of this research was to investigate and analyze soil erosion susceptibility maps in the Medjerda basin in northern Africa. This study utilizes four ensemble models based on the analytical hierarchy process (AHP) multicriteria decision-making analysis, namely, deep learning neural network AHP (DLNN-AHP), frequency ratio AHP (FR-AHP), Monte Carlo AHP (MC-AHP), and fuzzy AHP (F-AHP). Eight predictor variables were considered as inputs to the model, namely, the slope degree, digital elevation model (DEM), topographic wetness index (TWI), distance to river (DFR), distance to road (DFRD), normalized difference vegetation index (NDVI), rainfall erosivity (R), factor and soil erodibility factor (K). Soil erosion inventory maps were developed from field surveys and satellite images. The dataset was randomly divided into 70% for training and 30% for testing. The performances of the utilized models were compared using a receiver operating characteristic (ROC) curve. The results highlighted that all the models utilized exhibited good performance, with DLNN-AHP (93.1%) exhibiting slight superiority, followed by FR-AHP (90.9%), F-AHP (88.9%), and MC-AHP (88.5%). Among the influencing factors, the distance to the river and rainfall erosivity had the most significant impacts on the incidence of soil erosion. Moreover, the current findings revealed that 38.3% of the study area is extremely highly susceptible to soil erosion. The results of this study can aid in developing decision-support tools for planners and managers

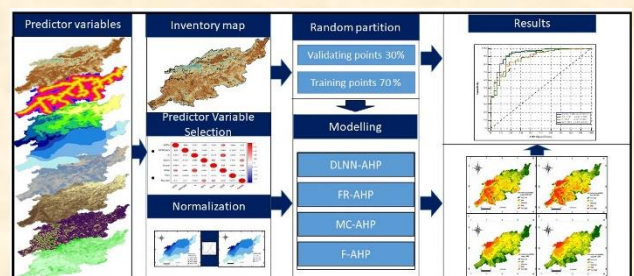
aiming to mitigate the adverse effects of soil erosion.

Conclusions

This research utilized four ensemble multicriteria decision analysis (MCDA) methods to develop soil erosion susceptibility maps for the transboundary Medjerda basin in North Africa. For this purpose, eight predictor variables and an inventory map were chosen as input data to build the models. The initial dataset was randomly divided into 70% for training and 30% for testing. The present research results showed that the soil erosion susceptibility (SES) maps derived from all the models exhibited excellent accuracy, with remarkable superiority associated with DLNN-AHP and FR-AHP due to their ability to model complex relations. As a result of this research, it was observed that DTR and rainfall erosivity are the most influential factors determining soil erosion susceptibility in the study area. According to the natural breaks classification, 11.24% (Fig. 10) of the study area is very highly susceptible to soil erosion, according to the DLNN-AHP. According to all the models, this region is located in the northwest of the basin. Rugged mountains with high drainage density and heavy precipitation dominate these areas. In summary, the results of this research can be affected by several limitations, especially those related to land use dynamics and development patterns, which can significantly influence hydrological processes within the study area.

Another limitation of this research may also affect the results because of the inherent uncertainty associated with the spatial resolution of rainfall data due to the limited number of rainfall stations in the basin. However, one potential improvement avenue is adding more rainfall stations with reliable data, which may improve the accuracy and robustness of the results.

This research is expected to help decision-makers implement sustainable plans for conservation measures and development, not only at the regional scale but also for other areas with similar conditions. In future studies, research could focus on incorporating other causal variables under future climate change scenarios and land use/land cover change scenarios using different machine learning models.



Graphic abstract

(Source: Asma Bouamrane, Hamouda Boutaghane, Ali Bouamrane, Noura Dahri, Habib Abida, Mohamed Saber, Sameh A. Kantoush, Tetsuya Sumi, Soil erosion susceptibility prediction using ensemble hybrid models with multicriteria decision-making analysis: Case study of the Medjerda basin, northern Africa, International Journal of Sediment Research, Volume 39, Issue 6, 2024, Pages 998-1014. <https://doi.org/10.1016/j.ijsrc.2024.08.003>.)

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

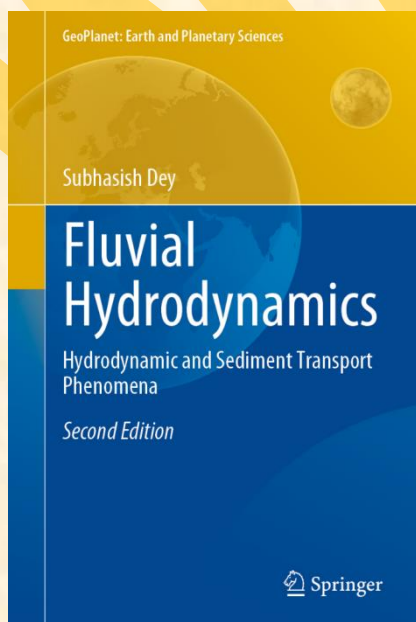
Based on the multi-dimensional and high-precision data, scientists have developed a comprehensive solution that can provide a systemic understanding of black soil, as well as precise diagnoses, prescriptions and technical treatment advice. Integrating remote sensing technology, satellite positioning 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.

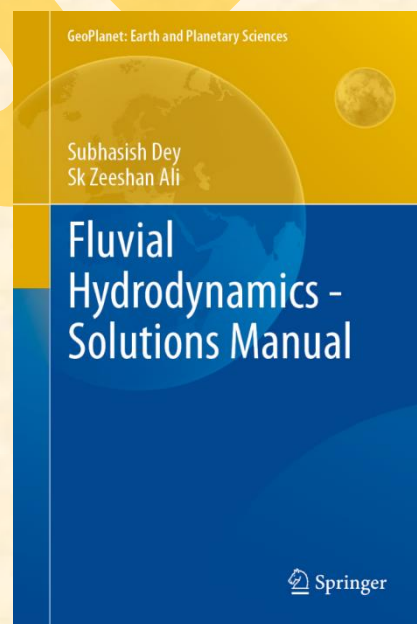
These measures have been introduced on nine farms, helping achieve grain production increases from 5 to 22 percent and a 70 percent reduction in soil erosion, according to IGA researcher Song Chunyu.

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

WASER Vice President Prof. Subhasish Dey published two books: *Fluvial Hydrodynamics & Solutions Manual*



The second edition (expanded) of famous book *Fluvial Hydrodynamics* by Prof. Subhasish Dey was published by Springer, Switzerland in November, 2024. The state-of-the-art in fluvial hydrodynamics can be examined only through a careful exploration of both theoretical foundations and advanced engineering applications. Emphasizing the most up-to-date research findings in the field, the book provides a thorough focus on the research aspects that involve a comprehensive knowledge of sediment dynamics in turbulent flows. It begins with the fundamentals of hydrodynamics and particle motion, followed by turbulence characteristics related to sediment motion. Then, the sediment dynamics are described from a classical perspective, incorporating both the mean bed shear approaches and the statistical methods to account for the turbulence effects. The book finally addresses local scour problems at hydraulic structures and scale models. Designed as a course textbook for graduate and research levels, it also serves as a practical guide for field engineers, keeping pace with modern technological developments. It contains 11 chapters (893 pages): introduction, hydrodynamic principles, turbulence in open-channel flows, sediment threshold, bedload transport, suspended-load transport, total-load transport, bedforms, total load, fluvial processes: meandering and braiding, scour, and dimensional analysis and similitude.



The companion book *Fluvial Hydrodynamics - Solutions Manual* by Prof. Subhasish Dey and Dr. Sk Zeeshan Ali was also published by Springer, Switzerland in November, 2024. The book provides solutions to the unsolved problems given in the aforementioned book, covering problems from Chapters 1 to 11 across 294 pages. It serves as a research-cum-practical guide for graduate

students, researchers, and field engineers tackling complex problems in fluvial hydrodynamics. Readers are expected to have a fundamental understanding of fluvial hydrodynamics as outlined in the abovementioned book, along with a foundation in basic mechanics and calculus.

Prof. Subhasish Dey is a hydraulician and an educator. He is internationally known for his research and acclaimed for his contributions to developing theories and solution methodologies for various problems in hydrodynamics and sediment transport. He currently holds the position of distinguished professor of Indian Institute of Technology Jodhpur. His areas of research interest include applied hydrodynamics, turbulence, and sediment transport, in which he has over 40 years of experience. He was conferred with the Hans Albert Einstein Award from the American Society of Civil Engineers in 2022.

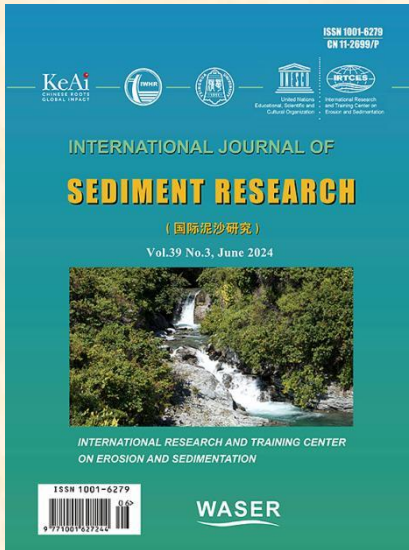


Prof. Subhasish Dey

Dr. Sk Zeeshan Ali is a researcher and an academic. Currently, he is an Assistant Professor in the Department of Civil Engineering at the Indian Institute of Technology Hyderabad, where he teaches fluid mechanics, hydraulic engineering, open-channel flow, and sediment transport. Dr. Ali contributes to the field of classical and applied hydrodynamics. He is one of the leading collaborators of the first author of this book. His areas of research interest include boundary layer flows, turbulent flows, scaling laws of turbulence, fluvial hydraulics, sediment transport, and morphodynamic instabilities.

PUBLICATIONS

Contents of IJSR (Vol. 39, No. 5, 2024)



Volume 39, Issue 5
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. Vodoretzov
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](#)

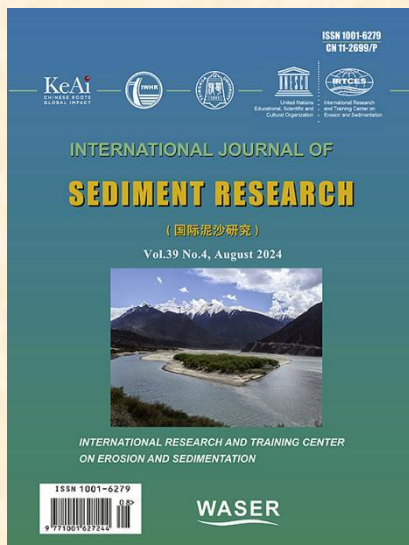
Daniel Marcos Bonotto
Pages 804-824

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

Pooyan Nikeghbali, Rohan Benjankar, Mehran Kheirkhahan
Pages 825-844

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

Atefeh Asgharpour, Saeed Najafi, Habib Nazarnejad
Pages 845-853



Volume 39, Issue 6
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

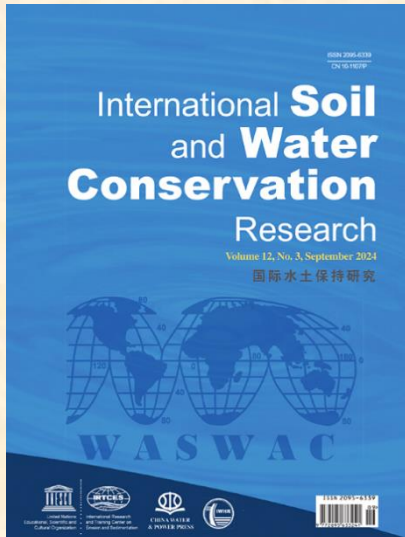
[Soil erosion susceptibility prediction using ensemble hybrid models with multicriteria decision-making analysis: Case study of the Medjerda basin, northern Africa](#)

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

Contents of ISWCR (Vol. 12, No.4, 2024)



Volume 12, Issue 4
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. Mnkeni, 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>.

WATER

COMING EVENTS

28th ICOLD Congress & 93rd Annual Meeting (China, May 16-23, 2025)

Date: May 16-23, 2025

Venue: Chengdu, China

Organizers: Ministry of Water Resources of the People's Republic of China, International Commission on Large Dams (ICOLD), The People's Government of Sichuan Province

Hosted by: Chinese National Committee on Large Dams (CHINCOLD), Chengdu Municipal People's Government

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

41st IAHR World Congress "Innovative Water Engineering for Sustainable Development" (June 22-27, 2025. Singapore)

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

16th International Symposium on the Interactions between Sediments and Water (France, June 30–July 4, 2025)

Date: June 30th - July 4th, 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

Other topics related to sediment–water interactions

16th 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

The 6th 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
 DU Pengfei: waswac@foxmail.com
 The Conference Secretariat:
 Benabdellouahab Tarik: tarik.benabdellouahab@inra.ma

Conference updates:

www.waswac.org.cn and www.inra.org.ma

River Flow 2026, The 13th 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

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

9th International Conference on Estuaries and Coasts (China, December 2026)

Date: December 2026

Venue: Qinzhou, China

Organizers: Qinzhou 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 Sedimentation and Erosion 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, and 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 been held in Hangzhou and Guangzhou, China; Sendai, Japan; Hanoi, Vietnam; Muscat, Oman, Caen, France, Shanghai, China, and Quebec City, Canada in 2003, 2006, 2009, 2012, 2015, 2018, 2021 and 2024, respectively. 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 Qinzhou, China during December, 2026. The ICEC 2026 will provide a venue for intellectual and enlightening discussions of ideas. The conference program will cover broad 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>

11th 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
Phone: +01 319 594 2817

World Association for Sedimentation & Erosion Research

WASER

WASER COUNCIL

President

Habersack, Helmut Austria

Vice Presidents

Dey, Subhasish India
Liu, Cheng China
Wu, Weiming USA

Council Members

Brils, Jos The Netherlands
Golosov, Valentin Russia
He, Qing China
Melville, Bruce New Zealand
Minella, Jean Brazil
Solari, Luca Italy
van der Waal, Benjamin South Africa
Xu, Mengzhen China

Ex-officio Council Member

Fang, Hongwei IJSR Chief Editor
Liu, Guangquan Secretary-General
Zhang, Wensheng Representative of Dept.
of Hydrology, MWR

Co-opted Council Members

Di Silvio, Giampaolo Past President
Walling, Desmond E. Past President
Wang, Zhaoyin Past President
Guo, Junke 16th ISRS LOC

WASER SECRETARIAT



United Nations
Educational, Scientific and
Cultural Organization



International Research and
Training Center on Erosion
and Sedimentation

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/>

CONTACTS

Prof. LIU Guangquan
Secretary-General
P.O. Box 366, 20 Chegongzhuang West Rd.
Beijing, 100048, China
Tel: +86-10-68786410(O) Fax: +86-10-68411174
E-mail: gqliu@iwahr.com

Prof. LIU Cheng
Executive Secretary-General
P.O. Box 366, 20 Chegongzhuang West Rd.
Beijing, 100048, China
Tel: +86-10-68786410(O) Fax: +86-10-68411174
E-mail: chliu@iwahr.com; cliu.beijing@gmail.com

Prof. SHI Hongling
Treasurer
P.O. Box 366, 20 Chegongzhuang West Rd.
Beijing, 100048, China
Tel: +86-10-68786408(O) Fax: +86-10-68411174
E-mail: shihl@iwahr.com;

Dr. ZHAO Ying
Secretary
P.O. Box 366, 20 Chegongzhuang West Rd.
Beijing, 100048, China
Tel: +86-10-68786412(O) Fax: +86-10-68411174
E-mail: zhaoying@iwahr.com;

WASER URL: <http://www.waser.cn>

=====
Newsletter Editor: Zhao Ying
P.O. Box 366, 20 Chegongzhuang West Rd.
Beijing, 100048, China
Fax: +86-10-68411174
E-mail: zhaoying@iwahr.com

Advisor: Prof. Des. E. Walling

Newsletter Layout and Production:

WASER Secretariat
The WASER Newsletter is sent regularly to members
of the WASER community and interested experts.
Please send your contributions to the WASER
Secretariat at zhaoying@iwahr.com.

=====



**WORLD ASSOCIATION FOR
SEDIMENTATION AND EROSION
RESEARCH**

MEMBERSHIP APPLICATION/RENEWAL FORM

I wish to apply/renew my membership of WASER

Name: _____ Date of birth _____

Position/Affiliation: _____

Address: _____

E-mail: _____ Telephone: _____ Fax: _____

Membership dues for 6 years (\$US or Chinese RMB, or equivalent Euros) :

[IJSR Printed copy] Regular (\$480 or RMB3000) Corporate (\$660 or RMB 5000)

[IJSR E-copy] Regular (\$80 or RMB500)

Membership dues for 3 years (\$US or Chinese RMB, or equivalent Euros):

[IJSR Printed copy] Regular (\$250 or RMB1600) Corporate (\$340 or RMB2800)

[IJSR E-copy] Regular (\$40 or RMB250) Student (\$20 or RMB140)

Membership dues for 1 year (\$US or Chinese RMB, or equivalent Euros):

[IJSR Printed copy] Regular (\$90 or RMB600) Corporate (\$120 or RMB1000)

[IJSR E-copy] Regular (\$15 or RMB100) Student (\$8 or RMB50)

(Note: IJSR – International Journal of Sediment Research. The subscription fee for IJSR is USD 96 or RMB 900 per year.)

Bank transfer

Beneficiary: World Association for Sedimentation and Erosion Research

Bank: Industrial and Commercial Bank of China, Beijing Municipal Branch, Beijing, PRC

Account No: 0200001409089020987 Swift code: ICBKCNBJBJM

Message on bank sheet: WASER, Member's Name and Country

NOTE:

All members will receive newsletters, and enjoy discounted registration for the International Symposia on River Sedimentation and other International Conferences organized by WASER, and will receive IJSR and other publications at a preferential price.

PLEASE SEND THIS FORM BY MAIL, EMAIL, OR FAX TO:

IRTCES, P. O. Box 366, No.20 Chegongzhuang Road West, Beijing, 100048, China Fax:
+86-10-68411174 Tel: +86 10 68786412

E-mail: zhaoying@iwhr.com or irtces@outlook.com

WASER website: <http://www.waser.cn>

(For Chinese colleagues, please fill the form in Chinese which can be downloaded at the WASER website.
中国申请者请填写中文申请表, 中文申请表请在 WASER 网下载。)