

World Association for Sedimentation & Erosion Research – WASER

NEWSLETTER

Reporting WASER news to you regularly

2021 No. 4

(Dec. 20, 2021)

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NEWS

Invitation for proposals for hosting the 16th ISRS in 2025



Dear Colleagues,

As you know, the 15th International Symposium on River Sedimentation (15th ISRS) will be held in Florence, Italy from September 6-9, 2022 and we are looking forward to meeting with you there. Although it is a long way ahead, there is now a need to begin thinking about the arrangements for the 16th ISRS, which is scheduled to be held in 2025.

Let's briefly review the origin and development of the International Symposium on River Sedimentation (ISRS) conference series. The series of triennial conferences was initiated in 1980 by the Chinese Hydraulic Engineering Society with the support of UNESCO. Since its foundation, the International Research and Training Center on Erosion and Sedimentation (IRTCES) in Beijing has served as the permanent secretariat of ISRS. Fourteen such symposia have been successfully held in China (5 times), USA, Germany (Twice), India, Egypt, Hong Kong China, Russia, South Africa, and Japan. The World Association for Sedimentation and Erosion Research (WASER) was inaugurated at the 9th ISRS in 2004 with its Secretariat located in the IRTCES, and the ISRS has since then become the official Symposium of WASER. The objective of ISRS is to provide a forum for scientists, engineers, researchers and decision makers to exchange ideas, research results, and advanced techniques and to share their experiences and information, across the broad field of sediment and its management.

IRTCES and WASER are currently beginning the process of establishing the venue for the 16th ISRS. The venue and organizer will be announced in Florence in 2022. Several universities and institutes have already expressed their interest in hosting the 16th ISRS. We would welcome more proposals for hosting the 16th ISRS in 2025. Please submit your proposals to Prof. Zhaoyin Wang, President of WASER, and Prof. Guangquan Liu, Secretary-General of WASER and Deputy Director of IRTCES (see addresses below) before March 31, 2022. The final decision on the venue and organizer will be made jointly by the

permanent secretariat of ISRS (IRTCES) and WASER.

Prof. Zhaoyin Wang (E-mail: zywang@tsinghua.edu.cn; and cliu.beijing@gmail.com)

Prof. Guangquan Liu (E-mail: gqliu@iwahr.com; and CC: cliu.beijing@gmail.com)

We look forward to hearing from you.

Sincerely yours,

Zhaoyin Wang, President of WASER

Guangquan Liu, Secretary-General of WASER & Deputy Director of IRTCES

The 15th ISRS: <https://www.isrs2022.it/>

The 7th International Conference on Estuaries and Coasts held in Shanghai, China



The 7th International Conference on Estuaries and Coasts (ICEC2021) was held in Shanghai, China from October 18-21, 2021. About 260 onsite and 300 online participants from 15 countries and regions attended the Conference. The ICEC2021 was organized by the State Key Laboratory of Estuarine and Coastal Research (SKLEC) of East China Normal University (ECNU), sponsored by the International Research and Training Center on Erosion and Sedimentation (IRTCES), the United Nations Decade of Ocean Science for Sustainable Development 2021-2030, and the World Association for Erosion and Sediment Research (WASER); and co-sponsored by the International Association for Hydro-Environment Engineering and Research (IAHR), the Integrated Marine Biosphere Research (IMBeR), the Future Earth Coasts (FEC), the Anthropocene Coasts, the Shanghai Society of Hydraulic Engineering, the National Natural Science Foundation of China, and the Science and Technology Commission of Shanghai Municipality.

The opening ceremony was held in the

morning of October 19 and was chaired by Prof. Qing He, Conference Chair of the ICEC2021. Welcome speeches were made by Prof. Zhenrong Sun, Vice president of ECNU; and Guangquan Liu, Deputy Director of IRTCES.

The ICEC2021 main theme was 'Anthropocene Coasts' with the following topics:

- Hydrodynamics in estuaries and coasts: tides, waves, circulations, and their interactions;
- Sediment dynamics: sand, mud and their mixture;
- Multi-scale morphodynamics: tidal flats, estuaries, deltas, beaches, dunes, eco-morphodynamics;
- Coastal management: flood defense, ecosystem conservation, human-nature interactions;
- Estuarine and coastal modeling: physical modeling, numerical modeling of all physical and ecological processes;
- Field monitoring and technology: in-situ and remote monitoring technologies;
- Coastal ecosystem development: eco-morphodynamics, ecosystem conservation and restoration;
- Anthropocene Coasts;
- Special session: Mega-Deltas; and
- INQUA special session: Mid- to late Holocene extreme storm events and relative sea-level changes in East Asia

The programme included 9 plenary presentations chaired by Prof. Qing He (SKLEC/ECNU), Prof. Cheng Liu (IRTCES), and Prof. Hui Wu (SKLEC/ECNU), respectively; 24 invited and 142 oral presentations in parallel sessions; and 35 poster presentations. The plenary presentations were:

- Earth's sediment cycle during the Anthropocene
Prof. Jaia Syvitski, University of Colorado Boulder, USA;
- Carbon fluxes in the coastal ocean: synthesis, boundary processes and future trends
Prof. Minhan Dai, Xiamen University, China;
- Monitoring and forecasting systems for the Greater Bay Area
Prof. Dake Chen, Second Institute of Oceanography, MNRI, China;
- The WATERMAN system for Real-time Beach Water Quality Forecasting – a Ten-Year Retrospective
Prof. Joseph Hun-Wei Lee, Macau University of Science and Technology, China;

- The components of a storm surge
Prof. Charitha Pattiaratchi, University of Western Australia, Australia;
- Sediment motion thresholds in coastal environments
Prof. Yaping Wang, East China Normal University, China;
- Managing coastal ecosystems in times of climate change: challenges & opportunities for Nature-based flood defense
Prof. Tjeerd J. Bouma, Royal Netherlands Institute for Sea Research, the Netherlands;
- Nitrogen transformation and fate in estuarine and coastal wetlands
Prof. Lijun Hou, East China Normal University, China; and
- Diahaline analysis of estuarine mixing and exchange flow
Prof. Hans Burchard, Leibniz Institute for Baltic Sea Research, Germany.



The closing ceremony was organized on the afternoon of October 21. Prof. Hui Wu, SKLEC/ECNU, chaired the closing ceremony. Prof. Qing He, Conference Chair of the ICEC2021, gave a brief overview for the Conference. The Outstanding Poster Award for Young Scientists was announced, and Ms. Chunyan Zhu, Ms. Shuangzhao Li, Ms. Silu Zhou, Ms. Xiaomei Xu, and Mr. Peng Li received the awards. Prof. Guangquan Liu, the representative of the ICEC Permanent Secretariat, announced that the 8th ICEC will be held in Quebec City, Canada in 2024 and will be co-organized by the Eau Terre Environnement Research Centre of INRS, Canada and by the Water Resources Lab of Clarkson University, USA. An online presentation was made by the LOC of the 8th ICEC to welcome all participants to meet again in Quebec in 2024.

The ICEC is a triennial event initiated by the International Research and Training Center on Erosion and Sedimentation (IRTCES). Six conferences have been held in Hangzhou (China), Guangzhou (China), Sendai (Japan), Hanoi (Vietnam), Muscat (Oman), and Caen (France), respectively, from 2003 to 2018. Thanks to the

support from related international associations and active participation of experts and scholars worldwide, ICEC has attracted wide attention and become a renowned event of academic importance and global popularity.

The 4th World's Large Rivers Conference held online in August 2021



The World's Large Rivers Conference is part of the UNESCO World's Large Rivers Initiative, coordinated by UNESCO Chair and WASER vice-president Prof. Helmut Habersack. It aims to provide a global forum for wide-ranging discussion of key issues related to research on large rivers and to their effective and sustainable management, involving both scientists and decision makers especially from developing countries. Due to the ongoing Covid-19-pandemic, the 4th World's Large Rivers Conference was held from 3rd to 6th of August 2021 as an online event – allowing attendees to participate virtually. The conference was organized by the University of Natural Resources and Life Sciences, Vienna, Austria and the Lomonosov Moscow State University, Moscow, Russia. The Main cooperating partner for this conference was UNESCO-IHP, which supported the conference ideologically and financially by facilitating 100 participants from developing countries to attend the conference virtually. Other international organizations, which supported the conference ideologically, included: the International Association of Hydro-Environment Engineering and Research (IAHR), the International Association of Hydrological Sciences (IAHS), the World Association for Sedimentation and Erosion Research (WASER), the International Association of Geomorphologists (IAG), and the International Society of Limnology (SIL).

The topics of the conference included: Hydrology, Hydraulics & Hydroclimatic Impact; Sediment Transport & River Morphology; River Pollution, Ecology & Restoration; and Integrated River Basin Management. Special emphasis was given to presentations coming from different regions of the world and different scientific fields. Contributions from developing countries were especially welcomed.

A total of 566 abstracts from 55 countries were submitted. Of these, 439 presentations were presented orally or as posters (including supported contributions). Support from UNESCO helped participants from developing countries to present their research in all three of these categories. The presentations took place over four days in parallel

online sessions covering all relevant conference topics. After each presentation, there was time for discussion. More detailed discussion took place in the virtual coffee rooms during the breaks and after the official conference programme.

UNESCO-ISI Online Training Workshop on 'River Basin Sediment Monitoring and Management', Sept. 6-10, 2021



From 6th to 10th September 2021, two UNESCO Centres, the International Centre for Water Resources and Global Change (ICWRGC, Koblenz) and the International Research and Training Center on Erosion and Sedimentation (IRTCES, Beijing) and the German Federal Institute of Hydrology (BfG) hosted a five-day training workshop on "River Basin Sediment Monitoring and Management". Held as an online virtual event, sediment experts from 25 countries attended the workshop under the umbrella of the UNESCO International Sediment Initiative (ISI).

Channelizing rivers, deepening fairways and constructing dams – human activities in and along rivers have brought about fundamental changes in water discharge and sediment balances. Sustainable sediment management helps to adjust sediment surpluses or deficits of a disturbed sediment balance, thus reducing negative impacts on the ecosystem, water management, flood protection and navigation. The BfG can draw on its long-standing experience in national sediment and erosion research and advice, gained in collaboration with other agencies and organizations, in particular in the fields of sediment management and river bed development. On the international level, this issue is addressed by the UNESCO's International Sediment Initiative whose secretariat is hosted by the International Research and Training Center on Erosion and Sedimentation (IRTCES, Beijing). The ICWRGC is committed to global exchange of water data, including data on sediment.

The five-day workshop was aimed at sharing this expertise to support developing countries, in particular, in building up their own capabilities in these areas, an approach called "capacity building"

in technical language, commonly known as the idea of “helping people to help themselves”. BfG and ICWRGC staff also seized the opportunity to enter into direct dialogue with other researchers, taking advantage of their experience and skills. Co-initiator Renee van Dongen says: “We are delighted at the positive response within the expert community. In total, 36 participants from academic, governmental and non-governmental organizations and businesses, mainly from Africa and Asia, accepted our invitation.”

Challenges for international sediment management

Three interactive keynote speeches provided insights into the challenges of sediment monitoring and sediment management in large river basins. Representing the IRTCES in Beijing, Professor Liu Cheng highlighted the challenging conditions along China’s major river courses. Professor Helmut Habersack of the University of Natural Resources and Life Sciences, Vienna, reported on sediment strategies on the European Rhine and Danube rivers. The third keynote presentation, delivered by Professor Juan Restrepo of the Colombian School of Administration, Finance and Technological Institute, pointed out human pressures on sediment loads in Latin America with a focus on the Magdalena river in Colombia.

Following the keynote input, the event offered opportunities for the participants to extend their knowledge of suspended sediment and bedload monitoring and sediment balancing, as well as working with global sediment data, guided by internationally renowned specialists, including BfG and ICWRGC experts. “We have many years of experience in sediment monitoring and management, and this workshop provided an opportunity to share this expertise with our international partners”, says Thomas Hoffmann, one of the co-initiators at the BfG. The participants also discussed the results of the ongoing joint BfG/ICWRGC research project URSACHEN.

Hybrid learning

Initially planned as a face to face event in Koblenz in 2020, the Coronavirus pandemic prompted the organizers to switch to a blended-learning workshop held in collaboration with Professor Heribert Nacken’s UNESCO Chair at RWTH Aachen University and with the UNESCO International Sediment Initiative (ISI). The presentations and topical sessions had been recorded as interactive videos and were followed by “personal” conference calls offering a platform for discussion and exchange on the learning contents.

At a later stage, the lectures and tutorials recorded, including the three keynote presentations, are due to be made freely available

as Open Educational Resource (OER) material in the form of an online webinar. “The training workshop thus constitutes a contribution to the UNESCO’s Intergovernmental Hydrological Programme and an early example of the use of OER approaches that are set to become increasingly relevant in the IHP’s ninth phase adopted last July,” underlines Stephan Dietrich of the ICWRGC.

The workshop revealed that the BfG’s and ICWRGC’s expertise in the fields of sediment monitoring and sediment management is in demand. In this context, digital learning offerings, such as OER, are a strategic option to enhance the quality of learning and knowledge sharing as well as political dialogue and capacity building – i.e. helping others to help themselves – in the field of research on a global scale.

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Thomas Hoffmann (Federal Institute of Hydrology, Koblenz, Germany): thomas.hoffmann@bafg.de

Stephan Dietrich (ICWRGC, Koblenz, Germany): dietrich@bafg.de

Further information

- Project “URSACHEN” (https://www.waterandchange.org/wp-content/uploads/2020/07/2020.06_URSACHEN-Flyer_210x297_lowres.pdf)
- Open Educational Resources of RWTH Aachen University (<https://oer-hydro.de>) (by ICWRGC and BfG)

Nations along the Lancang-Mekong River work together to fight climate change impacts



A view of the Mekong river bordering Thailand and Laos is seen from the Thai side in Nong Khai, Thailand, Oct 29, 2019.

China Daily, 2021-12-08. Lancang-Mekong River countries have vowed to strengthen

cooperation on water resources management as they forge ahead to cope with common challenges in the basin, including drought caused by climate change.

Heads of water resources authorities of the six countries made the remarks as they gathered online on Tuesday for the Second Lancang-Mekong Water Resources Cooperation Forum.

Themed "Working Together to Address Challenges and Promote Common Development", the forum will end on Wednesday.

The Mekong River, known as the Lancang in China, is a vital waterway that stretches across China, Laos, Myanmar, Thailand, Cambodia and Vietnam.

"The six Lancang-Mekong countries drink water from the same river and are as close as one family. We are naturally bonded and well positioned to work together and deepen cooperation," Water Resources Minister Li Guoying said when addressing the forum's opening ceremony in Beijing.

Li noted fruitful results achieved by the six countries as they pooled their strengths to put Lancang-Mekong water cooperation onto a fast track in the past five years.

Policy dialogue and technical exchanges between the countries have been strengthened, he said, citing the establishment of the Lancang-Mekong Water Resources Cooperation Center in China as an example.

He said the strategies, standards and policies of the six countries have been further aligned, and a consensus on cooperation has been forged.

Since last year, China has been sharing the Lancang's whole-year hydrological data with Mekong countries, he said, adding that the website of the Lancang-Mekong Water Resources Cooperation Information Sharing Platform was also launched last year.

Li called on countries to focus on the common vision and work together to improve Lancang-Mekong water resources cooperation.

"The Lancang-Mekong water resources cooperation mechanism should be further upgraded, and the leading role of the ministerial meeting as an overarching framework should be brought into full play," he said.

Efforts should be made to develop the Lancang-Mekong Water Resources Cooperation Forum into an international platform for cooperation and exchange, so as to pool the "LMC wisdom" and propose the "LMC solution", he said.

Lauding the achievements made in Lancang-Mekong water resources cooperation, Lim Kean

Hor, Cambodia's minister of water resources and meteorology, also called for cooperation among Lancang-Mekong countries to be strengthened to cope with emerging challenges in the basin.

The Lancang-Mekong River provides the six countries with water and other related resources to support sustainable development in the basin, as well as peoples' sustainable livelihoods and well-being, he said via video link.

Among areas of focus, the countries have collaborated on studies and research, as well as exchanged best practices, he said.

Lim expressed Cambodia's sincere appreciation to China for the support it has provided to water resources development and management in Cambodia, including special funds through Lancang-Mekong cooperation for some water resource projects.

"This support is critically important and truly needed," he said, adding that it has helped contribute to sustainable economic development and social progress in Cambodia.

He said, however, that the shared river also faces many challenges due to population growth, increasing resource needs in each of the countries, rapid development in the basin, and climate change.

"The experience of critical drought and low water flow in the Mekong are our great concerns and has caused a big impact on the Mekong's shared resources and sustainability," he said.

In order to effectively overcome the common challenges and achieve sustainable outcomes, collective efforts, stronger collaboration and cooperative partnerships are required, Lim said.

(By HOU LIQIANG, Source: China Daily)

The 3rd IYFSWC was held online/in-presence successfully



To motivate the younger generation to think about and work on soil and water conservation, WASWAC continues to hold the International Youth Forum on Soil and Water Conservation (IYFSWC). Affected by the COVID-19 epidemic, international travel became difficult, and so the 3rd

Forum was held in hybrid form of virtual and in-presence with the strong support of the Faculty of Natural Resources and Marine Sciences of Tarbiat Modares University, Noor City, Mazandaran Province, Iran, where the conference took place. The forum received valuable support from different international and national organizations. The UNESCO branch in Tehran and the Iranian National Commission for UNESCO, the Agrohydrology Research Group (TMU), and the Kalleh Dairy Company financially supported the forum. Beijing Datum Technology Development Co., Ltd provided honorariums for the recipients of the WASWAC Youth Outstanding Paper Award (YOPA) 2021. The valuable contributions to the Forum by participants from many countries, including Iran, China, India, Serbia, Russia, Turkey, Italy, Montenegro, and Germany, were well received and greatly appreciated.

The opening ceremony was held in online and in-presence combined form on October 17. Dr. Masoud Mansour - the Deputy Minister of Jihad-e-Agriculture and Head of Forests, Range & Watershed Management Organization, Prof. Mohammad Taghi Ahmadi - the President of Tarbiat Modares University, Prof. Abdolmohammad Abedian Kenari - the Dean of the Faculty of Natural Resources and Marine Sciences (TMU), Prof. Ning Duihu - the President of WASWAC, Dr. Liu Hongguang - the representative of Jiangxi Academy of Water Science and Engineering, Prof. Hans Thulstrup - the UNESCO Representative, Prof. Seyed Hamidreza Sadeghi - the forum secretary, and Prof. Ali Salajegheh - Head of Department of Environment of Iran were given welcome addresses, speeches or technical reports, respectively.

A total number of 106 abstract/full papers were collected, of which 51 full papers were evaluated for the WASWAC Youth Outstanding Paper Award (DATUM) 2021 by senior international scientists globally. Total 140 participants including 50 in-presence and 90 online were persistently attended this forum.

(Source: WASWAC)

Increases in sediment flux in High Mountain Asia could threaten the region's food and energy security

Rivers flowing from the Tibetan Plateau and the surrounding high Asian mountains which support one-third of the world's population have experienced rapid increases in annual water and sediment runoff since the 1990s, and the volume of sediment washed downstream could more than double by 2050 under the worst-case scenario, a

team of scientists has found.



Braided River at the Yangtze headwaters. Credit: Dongfeng Li

The cause is "amplified warming": Since 1950, the High Mountain Asia area, or the region of Asia containing five mountain ranges including the Himalaya and Hindu Kush around the Tibetan Plateau, has warmed by about 2 degrees Celsius, twice the amount of warming worldwide. That warming is precipitating more glacier melt, permafrost thaw while annual rainfall is also increasing, the researchers note.

"These findings have far-reaching implications for the region's hydropower, food and environmental security," the researchers observe. The findings also highlight the under-appreciated importance of sediment fluxes and have implications for potential changes in the global carbon cycle, they add.

The research, published today in the journal *Science*, is led by the National University of Singapore and includes three researchers from the University of Colorado Boulder, including Irina Overeem, Jaia Syvitski and Albert Kettner, all researchers in the Institute of Arctic and Alpine Research. Overeem is also a CU Boulder associate professor of geological sciences, and Syvitski is professor emeritus of geological sciences.

The scientists analyzed observational data of runoff and sediment fluxes from 28 headwater basins over the past six decades.

Sediment flux is the mass of sediment that passes through a specific point in a river basin over a given time period, "like truckloads of sand being transported, in this case by water," Overeem said. Although river runoff, the amount of water entering a river system, and sediment flux are both increasing, they are rising at different rates.

In the river basins the scientists studied, runoff increased by about 5% per decade, while sediment flux increased about 12% per decade.

Overeem explained the variability is affected in two ways: "With glacial melt and permafrost thaw there are new sources of sediment, that previously had been frozen in place in the

landscape now can slump into the river. In addition, if more rainfall triggers bigger floods, you suddenly have exceeded a threshold and you can pick up so much more sediment" compared to average conditions. "If you increase the source and the proportion of a couple of these extreme events, you'll get disproportionately much more sediment. So that is maybe what's going on in this system."

River-borne sediment can benefit highly populated areas like Bangladesh, where sediment helps maintain the coastal zone. But in other areas such as Tibet or Nepal, which have hydro-electric power plants, rising levels of sediment can wear out the dams' turbines and fill reservoirs with sand and silt.

By harming existing or planned hydropower projects and reducing irrigation capacity, rising sediment fluxes can thus "threaten the region's food and energy security," the authors write. Additionally, the rising levels of sediment, which can carry nutrients, pollutants and organic carbon, can have implications for water quality and flooding, potentially affecting millions of people.

Research on the High Mountain Asia watershed was facilitated by the area's unusually good, long-term records of streamflow and sediment flux, Overeem said, adding that datasets of similar quality do not exist for Greenland or the whole Arctic.

In the Arctic, scientists have also recorded increases in water discharge from melting ice and increasing rainfall but have few measurements of sediment flux.

"What is happening on the Tibetan plateau may be happening in the Arctic as well, but we just don't have enough long records there and observational support to really know that yet," Overeem said.

More information: Dongfeng Li et al, Exceptional increases in fluvial sediment fluxes in a warmer and wetter High Mountain Asia, *Science* (2021). DOI: 10.1126/science.abi9649

(by Clint Talbott, University of Colorado at Boulder. Source: <https://phys.org/>)

Study on Ganga basin sheds light on sustainable management

Over the last two decades, after 1995, there has been a steady increase in the number of flooding events in the Upper Ganga Basin. Catastrophic landslides and floods in the basin occur more frequently.

This trend is unlikely to change with scientists predicting an increase in the magnitude of extreme flows and occurrence of flood. But advances in

technology and new types of hydraulic structures can make a difference.

These were some of the findings of a study conducted by researchers from the Indian Institute of Science (IISc), Bengaluru, and Indian Institute of Technology, Kanpur (IITK) on how climate change and human activities like building dams affect basin.

They analysed the effects of past human activity on the mountainous regions, focusing on two major tributaries, Bhagirathi and Alaknanda, which merge at Devprayag to form the Ganga.

Their findings were published in the online peer-reviewed open access journal, *Scientific Reports* (published by Nature). "Our results indicate that low and moderate flows have been significantly altered, and the flood peaks have been attenuated by the operation of hydraulic structures in the Bhagirathi (western subbasin).

The Alaknanda (eastern subbasin) has experienced an increase in extreme rainfall and flows post-1995. The downstream reaches experience reservoir-induced moderate flow alterations during pre-and post-monsoon and increasing extreme flood magnitudes during monsoon," said the researchers in the paper.

The team studied data on rainfall, water discharge in the rivers, and sediment load from hydrological stations across the Upper Ganga Basin (UGB) corresponding to the years 1971-2010.

When they analysed the data corresponding to two periods—pre-1995 and post-1995— they found a steady increase in the number of flooding events in both river basins after 1995.

"Further, the change in low flows and middle-level flows in Bhagirathi can be attributed to three major dams – Maneri, Tehri, and Koteshwar – on the river," said IISc in a press release.

The Alaknanda basin saw a doubling of water flow from 1995 to 2005 at the Joshimath hydrological station, along with an increase in the rate of flow of water, termed extreme flow.

"We observed that Alaknanda basin has a high, statistically increasing rainfall trend, unlike the Bhagirathi basin. Most of these trends were observed in the downstream region of the Alaknanda. Therefore, we have also seen an increase in the magnitude of extreme flow in these regions," said Somil Swarnkar, a postdoctoral fellow at the Interdisciplinary Centre for Water Research (ICWaR), IISc, and first author of the study.

The researchers suggested that after 2010, along with climatic changes, the building of dams in the Alaknanda region may have modified the

water activity. “Dams and reservoirs have influenced the sediment transported by the rivers. Due to abrupt changes in water flow, sediment depositions in the upper reaches of the Ganga have led to changes in the sediment composition downstream,” stated the release.

It cited Tehri dam, which plays a crucial role in the UGB region. Being a large reservoir and flow control structure, it blocks sediment flow from upstream and controls the volume of water that flows downstream.

There are currently 11 new dam projects planned in the Bhagirathi basin and 26 in the Alaknanda basin. While they may provide the much-needed hydropower to the region, these structures will likely affect the water flow and sediment transport processes in these regions, says corresponding author Pradeep Mujumdar, Professor in ICWaR.

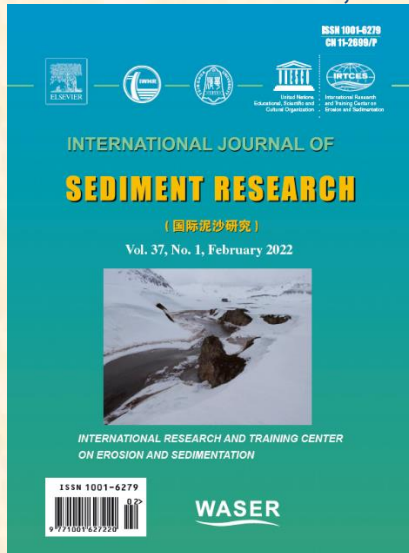
Regarding predictions of a further increase in the magnitude of extreme flows and occurrence of floods in the Ganga basin, the paper stated that advances in technology and new types of hydraulic structures can make a difference. For example, the Pashulok barrage in Rishikesh has helped prevent floods and reduce extreme flows in downstream regions. “We do not have control [over] what happens in the atmosphere. But on the ground, we have control. Flows can be predicted using hydrological models. With this knowledge, we can develop both structural and non-structural responses to mitigate [such] high flows,” said Prof Mujumdar.

The research teams hoped that the study will help in sustainable river basin management and encourage more serious work towards a better understanding of hydrology, ecology, and geomorphology in the Upper Ganga Basin.

(By Chitra Kontu. Source: <https://www.thehindu.com/>)

PUBLICATIONS

Papers Published in the International Journal of Sediment Research Volume 37, No. 1, 2022



Volume 37, Issue 1
Pages 1-138 (February 2022)

Response of Reynolds stresses and scaling behavior of high-order structure functions to a water-worked gravel-bed surface and its implication on sediment transport
Nadia Penna, Ellora Padhi, Subhasish Dey, Roberto Gaudio
Pages 1-13

Sediment transport simulation and design optimization of a novel marsh shoreline protection technology using computational fluid dynamics (CFD) modeling
Salman Sakib, Grant Besse, Peng Yin, Daniel Gang, Donald Hayes
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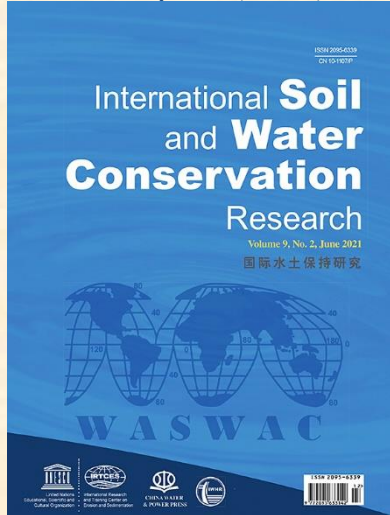
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COMING EVENTS

The 14th International Conference on Hydrosience and Engineering (Turkey, May 26-27, 2022)

Date: May 26-27, 2022

Venue: Cesme, Turkey

Invitation: We are pleased to announce that 14th International Conference on Hydrosience & Engineering, ICHE 2022, will be held on May 26-27, 2022 through face-to-face sessions at IZTECH, Urla, Turkey.

Due to the health and safety concerns, and prospective uncertainties regarding the global travel situation, we had to postpone ICHE 2022 conference which was originally planned in September, 2020.

If you haven't submitted an abstract yet, you can directly submit an extended abstract/full paper to participate ICHE 2022 by December 15, 2021.

We look forward to seeing you in İzmir. Until then, we hope that you stay safe and well.

ICHE 2022 LOC

URL: <https://www.iche2020.org/>

Contact

info@iche2022.org

importance of considering the integral water cycle to address present and future challenges.

Specific topics including Human-water relationships, Snow, river and sediment management, Environmental hydraulics and urban water cycle, Hydraulic structures, Water resources management, valuing and resilience, Computational and experimental methods, Coasts, estuaries and shelves and Extreme events: from droughts to floods will be covered in regular sessions. Special Sessions will also be organized in collaboration with worldwide experts in the different fields.

The Congress will provide a platform for science and practice to meet. A lively exhibition alongside the congress will present the latest developments in equipment, software and instrumentation as well as enhance relevant achievements from practice. Workshops and training events will be offered as well throughout the event. (Prof. Joseph Hun-wei Lee, IAHR President)

URL: <https://iahrworldcongress.org/>

Contact

Congress Secretariat

+34 913612600

Llámanos iaahr2022@kenes.com

The 39th IAHR World Congress (Spain, June 19-24, 2022)

Date: June 19-24, 2022

Venue: Granada, Spain

Invitation: On behalf of the Congress Organising Group (COG) of the 39th IAHR World Congress and the International Association for Hydro-Environment Engineering and Research (IAHR), we are delighted to invite you to join the 39th IAHR World Congress in 2022 in Granada, Spain.

Spain is a leading country in Hydro-Environment Engineering, strongly involved with IAHR. We are also a hub for Europe, Asia, Africa and the Americas, a gateway to the world. Customs procedures for coming to Spain are very easy for the majority of countries around the world, with no visa needed for over 100 nationalities. Granada has superb transportation connections – there are more than 70 international flights (destinations) from Malaga Airport and over 200 through the Madrid and Barcelona Airports – and incredible accessibility from all parts of the world.

Granada is unique: there are few places in the world where one can see so many hydro-environment engineering processes in such a small area: snow, desert, pristine rivers, spectacular reservoirs, and traditional cultural techniques alongside ultra-modern technologies. Granada is a modern city but with an impressive historical legacy. Not too large, nor too small; very well connected and affordable for everybody.

The University of Granada is the leader in Europe in international student exchanges and has vast experience organizing large-scale events. The Granada Congress Centre with its unique auditorium capable of welcoming 2.000 delegates and its modern audio-visual facilities offers a state of the art conference experience in the heart of the city. PCO Kenes Spain has the experience, knowledge and reliability that the IAHR World Congress needs.

This Congress will bring together the enthusiasm of a whole country to organize a high-level event in the field of water. For us it's not just another event, but the event of the year. The central theme of the Congress will be "From Snow to Sea", linking past with present and focusing attention on the

The 15th International Symposium on River Sedimentation (Florence, Italy, Sept. 6-9, 2022)

Date: September 6-9, 2022

Venue: Florence, Italy

Organizer: University of Florence and University of Padua

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

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

Secretariat: University of Florence, Italy

Permanent Secretariat: IRTCES

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

Symposium Theme and Topics:

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

The symposium topics include (tentative):

1. Sediment transport
2. Reservoir sedimentation
3. River morphodynamics
4. Coastal morphodynamics
5. Ecomorphodynamics
6. Sediment related disaster
7. Plastic in river and coastal systems
8. Interaction between sediment dynamics and hydraulic structures
9. Integrated Sediment Management at the River Basin Scale
10. Social, economic & political problems related to sediment and water management

URL: <https://www.isrs2022.it/>

Organisation & Contacts:

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

Organizing Committee Co-Chairs

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

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

Contacts

Costanza Carbonari, Department of Civil and Environmental Engineering, University of Florence, info@isrs2022.it

The 2022 International Symposium on Ecohydraulics (Nanjing, China, October 10-14, 2022)

Date: October 10-14, 2022

Venue: Nanjing, China

Invitation: On behalf of the International Association for Hydro-Environment Engineering and Research and the local organizing committee, we cordially invite you to the 14th International Symposium on Ecohydraulics that will be held from October 10th to 14th 2022 in Nanjing, China, an ancient capital of ten dynasties in Chinese history, boasting numerous historic sites, splendid cultural heritage, beautiful cityscape and sceneries.

Ecohydraulics is a rapidly developing inter-discipline of ecology and hydraulics brought about by the ever-growing

concern of aquatic and riparian ecology. Since its first edition in 1994, the International Symposia on Ecohydraulics have provided platforms for scientists and engineers worldwide to discuss cutting-edge scientific progress, compared and evaluated state-of-the-art technical methods, and recommended them to the end-users.

ISE 2022 covers a wide spectrum of topics related to ecohydraulics in theory and in practice, including the hydrological, hydraulic, morphodynamic, structural, ecologic, biologic, and technical aspects of the discipline. Six high-profile keynote speeches will be presented. We are expecting you to present at the symposium and share the latest advancement of your research with the international scientific community. Both oral and poster presentations are welcome. A special issue of Environmental Science & Ecotechnology focusing on this conference will be published. Traditionally, ISE features an ECoENet pre-conference workshop which helps early career researchers (ECR) working in ecohydraulics find opportunities and overcome challenges. Starting from the current edition, ISE plans to provide an interactive lecture of a helpful technical tool applied in one of these three topics (1) fieldwork, (2) lab experiments (3) numerical simulation, and rotate among them in the future. (ZHANG Jianyun, Yangtze Institute for Conservation & Development, China, Nanjing Hydraulic Research Institute, China)

URL: <https://ise2022.org/>

Contact

ISE2022 Secretariat
sec@ise2022.org
+86-25-85828956

Happy New Year 2022!

World Association for Sedimentation & Erosion Research

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