

INTERNATIONAL SEDIMENT INITIATIVE

NEWSLETTER

Reporting ISI news to you quarterly

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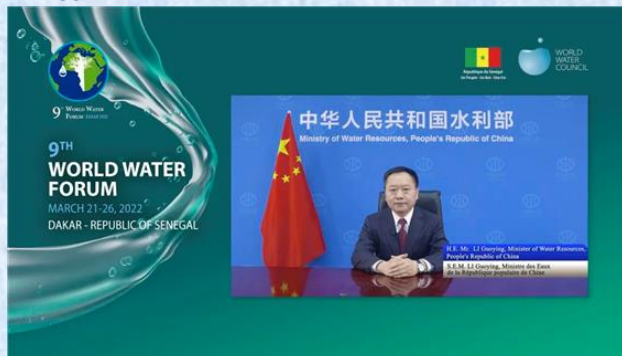
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NEWS

UNESCO & China to enhance human capacities and promoting water cooperation in Africa



Since 1997 the World Water Forum (WWF) has been organized every three years by the World Water Council with the aim to catalyze collective action regarding water issues and to provide a platform for the international water community and key decision makers to collaborate on this subject.

The ninth edition of the World Water Forum held from the 21 and 26 March 2022 in Dakar, Senegal, bringing people from all around the world, and from water-related sectors, such as academics, civil society, policy makers, utilities, among others.

During March 22nd the side-event “Enhancing capacities and water cooperation in Africa - MWR, China-UNESCO-Africa” took place at the World Water Forum. Dr. Shamila Nair-Bedouelle, Assistant Director-General for Natural Science at UNESCO, opened the event highlighting the challenges that Africa encounters when facing water disasters, such as floods and droughts, and emphasized on the need to enhance human capacities to be able to face these water related natural hazards. She further mentioned the richness of the cooperation between UNESCO, China, and Africa to address water challenges in countries of the continent.

Mr. Li Guoying, Minister of Water Resources of China, remarked on the traditional bond between China and Africa and recalled the UNESCO's Memorandum of Understanding between both countries, which embraces a Water Partnership through which technical cooperation in water resources management, disaster prevention and mitigation, and climate change adaptation is being developed.

The Secretariat of the African Ministers' Council on Water:(AMCOW) further stressed the importance of the importance of water security and sanitation in Africa. And that the expectations of the Water Cooperation shall support the

achievement of sustainable development in water issues. AMCOW's spokesman further explained that the Cooperation will bring enhancement of human capacities on water issues and strengthen water resources assessment through the understanding of the hydrogeological context in the region.

The strengthening cooperation between China and Africa, on water falls within objectives of the 9th phase of the Intergovernmental Hydrological Programme (IHP) of UNESCO which is to run from 2022 to 2029 with the main thematic focus being Science for a Water Secure World in a Changing Environment”: which is to boost international scientific cooperation among Member States.

More information:

World Water Forum:

<https://www.worldwaterforum.org/en>

UNESCO-China-Africa Cooperation:

<https://www.unesco.org/en/articles/unesco-and-china-join-hands-africa-0>

Forum on China-Africa Cooperation Dakar Action Plan (2022-2024):

https://www.fmprc.gov.cn/mfa_eng/wjdt_665385/2649_665393/202112/t20211202_10461183.html

Forum on China-Africa Cooperation:

<http://www.focac.org/eng/>



ISI Advisory Group online meeting convened to discuss ISI's role in IHP-IX (2022-2029)

On April 14, 2022, an ISI Advisory Group online meeting was organized using Microsoft Teams, to discuss ISI's role in IHP-IX (2022-2029). Participants from the Advisory Group in the meeting included Prof. Manfred Spreafico (ISI Advisory Group Chair), Prof. Des. Walling (ISI Advisory Group Member), Prof. Cheng Liu (ISI Technical Secretariat), and Dr. Anil Mishra & Dr. Koen Verbist representing UNESCO-IHP

Secretariat. Dr. Ying Zhao from IRTCES and Ms. Paulina Marcela Ramirez Quevedo from UNESCO-IHP also participated in the meeting.

First, Dr. Koen Verbist, from IHP secretariat, who now coordinating ISI instead of Dr. Anil Mishra, and Dr. Ying Zhao, who is a new contact person from IRTCES, were welcomed. Prof. Cheng Liu provided a brief summary of ISI activities and the ISI Technical Secretariat within IRTCES. Dr. Koen Verbist reported on institutional developments related to the UNESCO IHP, the upcoming 25th IHP Council meeting and the new framework for the planning, implementation and monitoring of IHP Flagship Initiatives. Streamlining ISI to fit the new Flagship Programme guidelines, and ISI's role in IHP-IX (2022-2029) were discussed.



Welcome to Dr. Koen Verbist from UNESCO Headquarters, who will be coordinating ISI from the IHP secretariat

Dr. Koen Verbist is a Programme Specialist working at the Intergovernmental Hydrological Programme (IHP) at UNESCO Headquarters in Paris, where he is responsible for supporting research programmes on Hydrological Systems, Climate Change and Adaptation, as well as supporting the implementation of the International Sediment Initiative (ISI) and the G-WADI Flagship Programme on water resources management in arid and semi-arid regions.



He has a background in soil erosion, sediment modelling and land restoration and obtained his PhD in 2011 at Ghent University, Belgium, on the improvement of water harvesting systems in drylands of Chile. He has co-authored several UNESCO publications on these topics, and has over 25 scientific papers in international journals, several related to soil erosion and land management.

He can be contacted via k.verbist@unesco.org and is active on [Linked-in](#) and [Research Gate](#).

New report: Is the solution to water crises hiding right under our feet?



Groundwater accounts for 99% of all liquid freshwater on Earth. However, this natural resource is often poorly understood and consequently undervalued, mismanaged and even abused. According to the latest edition of the United Nations World Water Development Report published by UNESCO, the vast potential of groundwater, and the need to manage it sustainably, can no longer be overlooked.

On March 21, 2022, UNESCO on behalf of UN-Water is launching the latest edition of the United Nations World Water Development Report, titled "Groundwater: Making the invisible visible" at the opening ceremony of the 9th World Water Forum in Dakar, Senegal. The authors call on States to commit themselves to developing adequate and effective groundwater management and governance policies in order to address current and future water crises throughout the globe. Groundwater presently provides half of the volume of water withdrawn for domestic use by the global population, including the drinking water for the vast majority of the rural population who do not get their water delivered to them via public or private supply systems, and around 25% of all water used for irrigation.

Huge social, economic and environmental benefits and opportunities

The quality of groundwater is generally good, which means it can be used safely and affordably, without requiring advanced levels of treatment. Groundwater is often the most cost-effective way of providing a secure supply of water to rural villages.

Certain regions, such as Saharan Africa and the Middle East for example, hold substantial quantities of non-renewable groundwater supplies that can be extracted in order to maintain water security. However, consideration for future generations and for the economic, financial and environmental aspects of storage depletion should not be overlooked.

In Sub-Saharan Africa, the opportunities offered by the vast aquifers remain largely underexploited. Only 3% of farmland is equipped for irrigation, and only 5% of that area uses groundwater, compared to 59% and 57% respectively in North America and South Asia.

As the report points out, this low use is not due to a lack of renewable groundwater (which is often abundant), but rather by a lack of investments in infrastructure, institutions, trained professionals and knowledge of the resource. The development of groundwater could act as a catalyst for economic growth by increasing the extent of irrigated areas and therefore improving agricultural yields and crop diversity.

In terms of climate change adaptation, the capacity of aquifer systems to store seasonal or episodic surface water surpluses can be exploited to improve year-round freshwater availability, as aquifers incur substantially lower evaporative losses than surface reservoirs. For example, including groundwater storage and abstraction as part of urban water supply planning would add security and flexibility in cases of seasonal variation.

Unlocking groundwater's full potential – what needs to be done?

1. Collect data

The report raises the issue of the lack of groundwater data and emphasizes that groundwater monitoring is often a 'neglected area'. To improve this, the acquisition of data and information, which is usually the responsibility of national (and local) groundwater agencies, could be complemented by the private sector. Particularly, the oil, gas and mining industries already possess a great deal of data, information and knowledge on the composition of the deeper domains underground, including aquifers. As a matter of corporate social responsibility, private companies are highly encouraged to share these data and information with public sector professionals.

2. Strengthen environmental regulations

As groundwater pollution is practically irreversible, it must be avoided. Enforcement efforts and the prosecution of polluters, however, are often challenging due to groundwater's invisible nature. Preventing groundwater contamination requires suitable land use and appropriate environmental regulations, especially across aquifer recharge areas. It is imperative that governments assume their role as resource custodians in view of the common-good aspects of groundwater to ensure that access to – and profit from – groundwater are distributed equitably and that the resource remains available for future

generations.

3. Reinforce human, material and financial resources

In many countries, the general lack of groundwater professionals among the staff of institutions and local and national government, as well as insufficient mandates, financing and support of groundwater departments or agencies, hamper effective groundwater management. The commitment of governments to build, support and maintain institutional capacity related to groundwater is crucial.

The United Nations World Water Development Report (WWDR), UN-Water's flagship publication on water and sanitation issues, focuses on a different theme every year. The report is published by UNESCO on behalf of UN-Water and its production is coordinated by the UNESCO World Water Assessment Programme. The report gives insight into the main trends concerning the state, use and management of freshwater and sanitation, based on work by members and partners of UN-Water. Launched in conjunction with World Water Day, the report provides decision-makers with knowledge and tools to formulate and implement sustainable water policies. It also offers best practice examples and in-depth analyses to stimulate ideas and actions for better stewardship in the water sector and beyond

The World Water Report:

<https://www.unesco.org/reports/wwdr/2022/en>

(Source: UNESCO)

World Water Day 2022: Groundwater



Since 1993 the World Water Day is celebrated on 22 March every year. It is an annual United Nations Observance addressed to water and with the aim to raise awareness on the 2 billion people currently living without access to safe water. It also seeks to ignite the action towards Sustainable Development Goal (SDG) 6: water and sanitation for all by 2030.

This year the World Water Day focused on groundwater with the objective to draw attention to this hidden water resource that tend not be recognized by policy makers/ and its users but

that is critically important for sustainable development.

This year's overarching message is that exploring, protecting, and sustainably using groundwater will be central to mankind's survival, adaptation to climate change and meeting the needs of a growing population.

More information:

World Water Day:

<https://www.worldwaterday.org/>

UN Water and World Water Day 2022:

<https://www.unwater.org/world-water-day-2022-groundwater/>

IWHR and UNESCO jointly organize a consultation workshop on Water Education in Cambodia



IWHR has been working with UNESCO Phnom Penh Office from 2021 to adapt the Water Education Series English version into a Khmer one for wider dissemination in local schools, aiming to promote water-related knowledge among school-age children.

To make the Khmer version an appropriate education material for young readers, the two sides co-organized a consultation workshop, which provided a platform for key experts and relevant stakeholders to openly discuss and finalize some main issues regarding the book.

Dr. PENG Jing, Vice President of IWHR, and Mr. Sardar Uma Alam, UNESCO Representative to Cambodia, delivered opening remarks for the workshop. Mr. Mok Sarom, Deputy Director General for Education, Mr. Nham Sinith, Deputy Director General for Policy and Planning, Ministry of Education, Youth and Sport, and Mr. Nget Sina, General Department of Environmental Knowledge and Education, Ministry of Environment attended the workshop. Representatives from UNICEF, academic institutes, international schools, NGOs and publishers joined the conversation and provided their input regarding the language and cultural problems in adaptation.

Dr. PENG Jing pointed out that the COVID-19 pandemic has exposed and aggravated the

increasing shortage of water resources and the subsequent harm it brought to the world. Against such a backdrop, IWHR and UNESCO decided to further cooperate and adapt the Water Education Series from the Chinese original to a multilingual series, hopefully to impart a universal love for water and a sense of urgency to protect it.

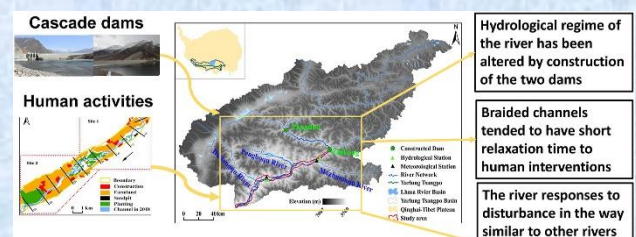
Mr. Sardar Umar Alam acknowledged the value of the books in promoting water education and sustainable development, and expressed his gratitude for IWHR's considerable support to the publication of the Khmer version. The UNESCO Phnom Penh Office wishes to take forward the application of the Khmer version in class as supplementary materials so that more teachers and students can benefit from it.

Mr. Mok Sarom provided his insights of improving the readability of the books and facilitating school dissemination in accordance with the Cambodian education system.

The participants conducted a group discussion about the language, target audience, translation of some technical terms and borrowed words, and the Cambodian water stories, proverbs, guessing words and songs that could be incorporated in the books. Valuable opinions were obtained from multiple stakeholders, including environment, education, culture, science, science publications, and citizen groups.

The Water Education Series jointly published by IWHR and UNESCO targets all age ranges of school students. The books aim to improve water literacy worldwide and share Chinese wisdom and solutions for achieving SDG 6 (Clean Water and Sanitation) and SDG 4 (Quality Education). IWHR is now working together with UNESCO to develop the versions of other UN official languages, like French and Spanish, and languages of China's neighboring countries like Khmer. (Source: IWHR)

The impact of two cascaded dams and land use change on the hydromorphology of the Lhasa River on the Qinghai-Tibet Plateau, China



A recent article entitled 'Impacts of dams and land-use changes on hydromorphology of braided channels in the Lhasa River of the Qinghai-Tibet Plateau, China', published in the *International Journal of Sediment Research*, reported that the

two cascaded dams only changed the flow regime of the immediately downstream braided reach.

Abstract: Among braided rivers developed on the Qinghai-Tibet Plateau of China at very high elevations (>3,500 m), the middle and lower reaches of the Lhasa River have been affected by comprehensive human activities mainly involving dam construction, urbanization, farming, afforestation, and mining. In the current study, the impacts of these human activities on hydrology and morphology of the four braided reaches downstream of a cascaded of two dams are investigated. The study period was divided into 1985–2006 (P1), 2006–2013 (P2), and 2013–2019 (P3), representing the natural and changed flow regimes by dams. Using available daily discharge data at two stations within the four braided reaches, dam-induced hydrological alteration was analyzed based on the indicators of hydrologic alteration and range of variability approach and key discharge proxies were calculated. Remotely sensed images also were selected in the three periods and morphological metrics extracted from them were compared for the four reaches among these periods. Attenuated hydrological regimes were found for only two reaches. The total channel width (W_c) and braiding intensity (BI_i) followed different temporal trends among the four reaches. Annual average shift rates of the main channel in the four reaches were higher in the short (P2–P3) than in the long (P1–P2 and P1–P3) periods. The longitudinal changes of W_c and the number of channels did not have any identifiable trend among the four reaches. By linking the morphological changes to quantified spatial and temporal patterns of various human activities, it was found that (1) the two dams had insignificant impact on channel morphology, suggesting that the studied braided river might have a short relaxation time and (2) the evolutionary trajectories of morphological changes in most of the four reaches were similar, suggesting that temporal trends of morphological changes due to complex human activities are not affected by the different physiographic settings of the reaches. Continuous exploitation of the valley area requires comprehensive river management strategies for coordinating various human activities.

Highlights

- The two cascaded dams only changed the flow regime of the immediately downstream braided reach.
- Channel morphology of the near-dam reach likely had a short relaxation time to recover from less intense disturbances.
- Urbanization and farming constrain the space available for the braided river to change.

- Historical trajectories of channel adjustment in response to human activities are similar among different braided reaches.

More information: You, Y., Li, Z., Gao, P., Hu, T. (2022). Impacts of dams and land-use changes on hydromorphology of braided channels in the Lhasa River of the Qinghai-Tibet Plateau, China, *International Journal of Sediment Research*, Vol. 37, No. 2, pp. 214–228.

<https://doi.org/10.1016/j.ijsrc.2021.07.003>

<https://www.sciencedirect.com/science/article/abs/pii/S1001627921000445>

Global sediment production has increased by about 467% between 1950 and 2010

Sediment production (supply) from anthropogenic soil erosion, construction activities, mineral mining, aggregate mining, and sand and gravel mining from coasts and rivers, has increased by about 467% between 1950 and 2010, according to a recent review article entitled 'Earth's sediment cycle during the Anthropocene' published in *Nature Reviews Earth & Environment*.

Abstract: The global sediment cycle is a fundamental feature of the Earth system, balancing competing factors such as orogeny, physical–chemical erosion and human action. In this Review, values of the magnitudes of several sources and sinks within the cycle are suggested, although the record remains fragmented with uncertainties. Between 1950 and 2010, humans have transformed the mobilization, transport and sequestration of sediment, to the point where human action now dominates these fluxes at the global scale. Human activities have increased fluvial sediment delivery by 215% while simultaneously decreasing the amount of fluvial sediment that reaches the ocean by 49%, and societal consumption of sediment over the same period has increased by more than 2,500%. Global warming is also substantially affecting the global sediment cycle through temperature impacts (sediment production and transport, sea ice cover, glacial ice ablation and loss of permafrost), precipitation changes, desertification and wind intensities, forest fire extent and intensity, and acceleration of sea-level rise. With progressive improvements in global digital datasets and modelling, we should be able to obtain a comprehensive picture of the impacts of human activities and climate warming.

Key points

- Sediment production (supply) from anthropogenic soil erosion, construction activities, mineral mining, aggregate mining, and sand and gravel mining from coasts and

rivers, has increased by about 467% between 1950 and 2010.

- Sediment consumption in the Anthropocene, including from reservoir sequestration, highway development and coal and concrete consumption, has increased by about 2,550% between 1950 and 2010.
- Transport of sediment from land to the coastal ocean (via rivers, wind, coastal erosion, and ice loss) has decreased by 23% between 1950 and 2010, whereas transport of fluvial particulates including organic carbon has decreased by 49% over the same period; offsets include increases in sediment delivery by icebergs and glacial melt.
- If it were not for sequestration of sediment behind dams, global rivers would have increased their particulate loads by 212% between 1950 and 2010.
- Anthropocene impacts on the marine sedimentary environment remain poorly characterized but, on the basis of the resuspension of seafloor sediment from trawling, dredging and land reclamation, anthropogenic transport seems to have increased by 780% between 1950 and 2010.
- The Earth's present Anthropocene sediment load (net land-to-sea sediment delivery and anthropogenic sediment production) exceeds 300 billion tons (Gt) per year, a mass flux that includes a small (<6%) contribution from natural processes.

More information: Syvitski, J., Ángel, J.R., Saito, Y. et al. Earth's sediment cycle during the Anthropocene. *Nat. Rev. Earth Environ.* (2022). <https://doi.org/10.1038/s43017-021-00253-w>

<https://www.nature.com/articles/s43017-021-00253-w>

Data from Mars rover Zhurong shows evidence of wind, and possibly water, erosion



A team of researchers affiliated with multiple institutions in China and one each from Canada and Germany, has studied data from the Chinese

Mars rover Zhurong over its first 60 sols, showing evidence of wind erosion and possibly impacts from water erosion, as well. In their paper published in the journal *Nature Geoscience*, they discuss what they have found thus far.

China's Mars rover Zhurong has been on the surface of Mars since May of last year. During that time, it has rolled approximately 450 meters over the course of 60 Martian days (sols). Recently, the team working with Zhurong made the data from the rover public. In this new effort, the researchers have been studying the data sent back to learn more about what it has found.

Zhurong was deployed on the planet's Utopia Planitia—a volcanic plain situated in the northern hemisphere. It is a site that some have suggested was likely once covered with water. Data from the rover's cameras showed that the part of the plain where Zhurong has been rolling along is generally quite flat, with very few boulders. And data from the wheels showed that the surface beneath the rover is covered with small, non-round rocks. Zhurong has also been collecting soil samples as it wanders—thus far, the composition of the soil in the area is similar to that collected by rovers on other parts of the planet.

Image data has also shown that the small rocks have etched grooves on them that appear to be due to wind erosion. They also found some evidence of flakiness in some of the rocks, possible evidence of water erosion.

The researchers also found evidence of mega-ripples on the surface—features formed by wind—similar to sand dunes on Earth. They found the ripples appeared as bright streaks when viewed from an orbiting craft. They theorize that the reason the ripples appear so bright is because they have been covered by a very thin layer of dust. If that turns out to be the case, they note, it would suggest that the wind that had formed the ripples was no longer present.

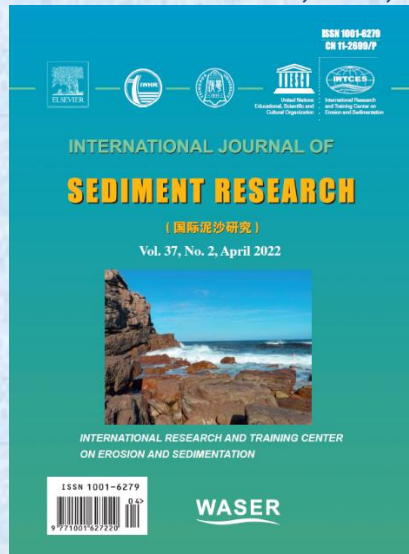
More information: Ding, L., Zhou, R., Yu, T. et al. Surface characteristics of the Zhurong Mars rover traverse at Utopia Planitia. *Nat. Geosci.* 15, 171–176 (2022). <https://doi.org/10.1038/s41561-022-00905-6>

<https://www.nature.com/articles/s41561-022-00905-6>

(by Bob Yirka, Phys.org: <https://phys.org/>)

PUBLICATIONS

Papers Published in the International Journal of Sediment Research Volume 37, No. 2, 2022



Volume 37, Issue 2
Pages 139-286 (April 2022)

Invisible face of COVID-19 pandemic on the freshwater environment: An impact assessment on the sediment quality of a cross boundary river basin in Turkey
Cem Tokatli
Pages 139-150

Sediment transport mechanisms and selective removal of soil particles under unsteady-state conditions in a sheet erosion system
Elham Sirjani, Majid Mahmoodabadi, Artemi Cerdà
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Theory of delayed response in river morphodynamics: Applicability and limitations
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Distribution of heavy metals in water and sediment of an urban river in a developing country: A probabilistic risk assessment
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Characteristics and variation law of wind-blown sand delivered to the Ningxia–Inner Mongolia reach of the Yellow River under a changing environment
Zhichun Yue, Ximin Yuan, Lugan Cao, Fuchang Tian, ... Hongwu Zhang
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Trace elements migrating from tailings to rock

varnish laminated sediments in an old mining region from Nelson, Nevada, USA
Douglas B. Sims, Amanda C. Hudson, John E. Keller, Michael Strange, ... Sean Torres
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Impacts of dams and land-use changes on hydromorphology of braided channels in the Lhasa River of the Qinghai-Tibet Plateau, China
Yuchi You, Zhiwei Li, Peng Gao, Tiesong Hu

Process-based suspended sediment carrying capacity of silt-sand sediment in wave conditions
Liqin Zuo, Dano Roelvink, Yongjun Lu, Guanghui Dong
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Quantifying the actual sediment load flux into Lake Baikal: A case study of the main tributary – The Selenga River (Russia)
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Implications of turbulent shear on clay floc break-up along the Atlantic estuary (Bouregreg), Morocco
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Pages 248-257

Porosity of bimodal and trimodal sediment mixtures
Chamil Perera, Weiming Wu, Ian Knack
Pages 258-271

Gravel excavation and geomorphic evolution of the mining affected river in the upstream reach of the Yangtze River, China
Yi Xiao, Wenjie Li, Shengfa Yang
Pages 272-286

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

Papers Published in the International Journal of Sediment Research Volume 37, No. 3, 2022



Volume 37, Issue 3
Pages 287-410 (June 2022)

Detailed bed topography and sediment load measurements for two step down flows in a laboratory flume
Daniel Wren, Roger Kuhnle, Tate Mcalpin, David Abraham, Keaton Jones
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Spatio-temporal deposition profile of an experimentally produced turbidity current with a continuous suspension supply
Shun Nomura, Giovanni De Cesare, Mikito Furuichi, Yasushi Takeda, Hide Sakaguchi
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Nutrients and organic matter in the surface sediment of a submerged macrophyte zone in a eutrophic lake: Implications for lake management
Jiancai Deng, Xin Lu, Weiping Hu, Zhihong Xu
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Approximate velocity for mulaoover mobile sediment bed induced by velocity-skewed waves and current
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Collar performance in bridge pier scour with debris accumulation
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Spatial distribution of trace elements associated with organic carbon along the Beiyun River basin, Beijing, China
Farhan Iftikhar, Shiliang Liu, Yongxiu Sun, Yixuan Liu, Muhammad Imran
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Sorption and desorption behavior of residual antidepressants and caffeine in fresh water sediment and sewage sludge
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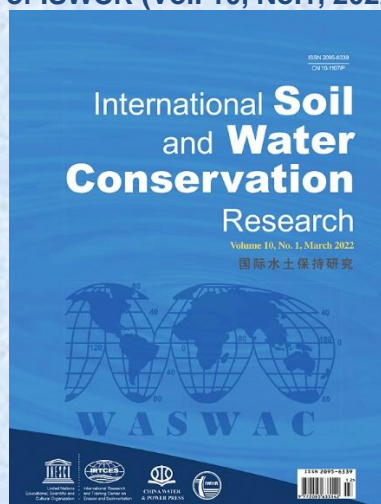
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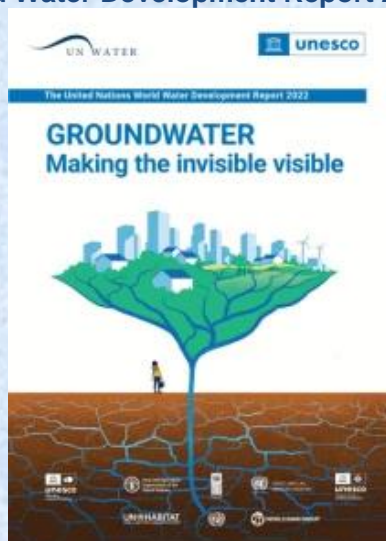
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Free full papers and open access are available at ScienceDirect :

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

UN World Water Development Report 2022



The United Nations World Water Development Report 2022: Groundwater: Making the invisible visible

The 2022 edition of the United Nations World Water Development Report (UN WWDR 2022) entitled 'Groundwater: Making the invisible visible' describes the challenges and opportunities associated with the development, management and governance of groundwater across the world.

Corporate author: UNESCO World Water Assessment Programme

ISBN: 978-92-3-100507-7

Collation: 225 pages

Language: English

Also available in: French

Year of publication: 2022

Webpages:

<https://www.unesco.org/reports/wwdr/2022/en>

Available in the UNESCO Digital Library:

<https://unesdoc.unesco.org/ark:/48223/pf00003807>

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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

IAHS 2022 (Montpellier, France, May 29 – June 3, 2022)

Date: May 29 – June 3, 2022

Venue: Montpellier, France

Organizer: International Association of Hydrological Sciences (IAHS), International Center for Interdisciplinary Research on Water Systems Dynamics (ICIRWaRD), University of Montpellier (UM), French National Centre for Scientific Research (CNRS)

Summary: the objective will be to provide an opportunity to communicate, exchange and project on all major topics in the hydrological sciences within the framework of sessions organized by all IAHS Commissions and Working Groups. It will also be an opportunity to make a first assessment of the Panta Rhei initiative (2013-2022) which deals with changes in hydrology and society. The progress of the UPH initiative, "Unsolved Problems in Hydrology", established in 2017-2019, will be another highlight of this Assembly.

"IAHS 2022" will also celebrate IAHS's 100th anniversary year. The Assembly will provide an opportunity for both retrospective and prospective synthesis and debate on the discipline and its interfaces with other scientific fields and societal challenges. This event will be accompanied throughout this week by many other "water-related" events for scientists, the general public and schoolchildren.

The event seeks 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.

The Assembly will count with 33 sessions covering major issues on hydrological sciences such as floods, socio-hydrology, water contaminants, among others, and 8 workshops will take place during the event.

URL: <http://www.iahs2022.org/index.asp>

Contact: IM2E / Centre UNESCO Montpellier - Université Montpellier – Case MSE , contact@iahs2022.org

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 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

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Llamanos iaahr2022@kenes.com

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

1st IACRR International Conference on Coastal Reservoirs and Sustainable Water Management (Nanjing, China, October 17-20, 2022)

Date: October 17-20, 2022

Venue: Nanjing, China

Summary: The 1st International Conference on Coastal Reservoirs and Sustainable Water Management will be held by Hohai University in Nanjing (China) in November 6th-9th, 2023. Coastal reservoirs could provide a solution to the water problems of many coastal cities, but their successful development faces various challenges. These challenges require close cooperation between scientists, engineers, water resources managers and policy makers. In this regard, the conference will provide a forum bringing together participants from academia, consulting firms, local, provincial and national government agencies, and offering them an opportunity to interact in an informal and relaxed environment. The conference will provide students an

opportunity to discuss with renowned and well-established researchers and professionals in this field.

Hohai University, founded in 1915, has the largest number of researchers studying water-related problems in the world and has gained worldwide reputation for its focus on water. Hohai is a state key university under the direct administration of the Ministry of Education of China. The university has been collaborating closely with various academic organizations including the International Association for Hydro-Environment Engineering and Research (IAHR). Seven colleges at Hohai are relevant to the topic of coastal reservoirs, including the College of Environment, College of Hydrology and Water Resources, College of Water Conservancy and Hydropower Engineering, College of Harbor, Coastal and Offshore Engineering, College of Oceanography, College of Civil and Transportation Engineering, and College of Mechanics and Materials. Professor Hongwu Tang, the Chair of the University Council and the Founding-chair of the China Chapter of the International Association for Coastal Reservoir Research (IACRR), cordially invites you to attend the conference.

URL: <http://www.iacrr2020.com/>

Contact

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Consultation mailbox: iccr@hhu.edu.cn

River Flow 2022 (Online, Nov. 8-10, 2022)

Date: Nov. 8-10, 2022

Venue: Online

Invitation: Welcome to River Flow 2022, the 11th International Conference on Fluvial Hydraulics. Organized since 2002 under the auspices of the Fluvial Hydraulics Committee of the International Association for Hydro-Environment Engineering and Research (IAHR), the River Flow Conference Series has become the main international event focusing on fluvial hydraulics and river engineering. River Flow 2022 will be a unique occasion to present and discuss the latest experimental, theoretical and computational findings on fundamental river flow and transport processes, river morphology and morphodynamics. The conference will as well cover issues related, but not limited to: the effects of hydraulic structures on flow regime, river morphology and ecology; sustainable river engineering practices (including stream restoration and re-naturalization); and effects of climate change including extreme flood events. Given the present uncertainty related to COVID-19, the conference will be held virtually.

Following on the tradition and success of previous editions of River Flow conferences, River Flow 2022 will feature a day devoted to Master Classes for young researchers, daily keynote lectures, ample time for the presentation and discussion of accepted contributions (full papers and extended abstracts), and the presentation of the Stephen E. Coleman Award distinguishing the best paper first authored by a young researcher.

URL: <https://www.rf2022.com/>

Contacts:

The LOC of River Flow 2022

➡ Follow us on Twitter: @riverflow2022

riverflow2022.org@queensu.ca

The 15th International Symposium on River Sedimentation (Florence, Italy, Sept. 5-8, 2023)

Date: September 5-8, 2023

Venue: Florence, Italy

Organizer: University of Florence and University of Padua

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

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

Secretariat: University of Florence, Italy

Permanent Secretariat: IRTCES

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

Symposium Theme and Topics:

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

The symposium topics include (tentative):

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

URL: <https://www.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

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INTERNATIONAL SEDIMENT INITIATIVE (ISI)
Intergovernmental Hydrological
Programme (IHP)
UNESCO

ORGANISATION: UNESCO

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

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

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Jiudu River in Beijing, China (by Yaojuan Yang)