

INTERNATIONAL SEDIMENT INITIATIVE

NEWSLETTER

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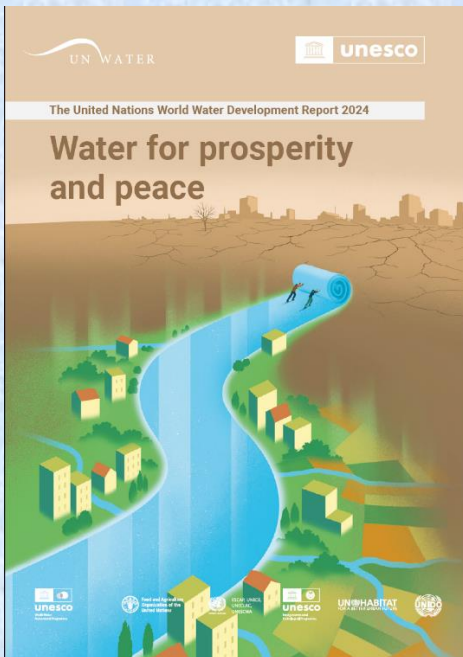
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NEWS

Water crises threaten world peace (report)



The United Nations World Water Development Report 2024, published by UNESCO on behalf of UN-Water, highlights that tensions over water are exacerbating conflicts worldwide. To preserve peace, States must boost international cooperation and transboundary agreements.

Audrey Azoulay, the UNESCO Director-General: “As water stress increases, so do the risks of local or regional conflict. UNESCO's message is clear: if we want to preserve peace, we must act swiftly not only to safeguard water resources but also to enhance regional and global cooperation in this area.”

Alvaro Lario, the President of the International Fund for Agricultural Development (IFAD), and Chair of UN-Water: “Water, when managed sustainably and equitably, can be a source of peace and prosperity. It is also the literal lifeblood of agriculture, the major socio-economic driver for billions of people.”

According to the new report published by UNESCO, on behalf of UN-Water, today 2.2 billion people still live without access to safely managed drinking water and 3.5 billion lack access to safely managed sanitation. The UN goal of ensuring this access for all by 2030 is therefore far from being attained, and there is reason to fear that these inequalities may continue to rise.

Between 2002 and 2021 droughts affected more than 1.4 billion people. As of 2022, roughly half of the world's population experienced severe water scarcity for at least part of the year, while one quarter

faced ‘extremely high’ levels of water stress, using over 80% of their annual renewable freshwater supply. Climate change is projected to increase the frequency and severity of these phenomena, with acute risks for social stability.

Girls and women are the first victims of a lack of water

The first impact is the deterioration of living conditions, leading to heightened food insecurity and health risks. Water scarcity also has consequences on social development, particularly for girls and women. In many rural areas, they are the primary water collectors, spending up to several hours a day on this task. Reduced access to water supply exacerbates this burden, which undermines women's education, economic participation and safety. This may also contribute to the higher secondary school dropout rate among girls compared to boys.

The lack of water security has also been identified as one of the drivers of migration. This displacement can, in turn, contribute to water insecurity by placing added strain on water systems and resources in settlement locations, thereby fuelling social tensions. A study conducted in Somalia indicates a 200% increase in gender-based violence against a group of displaced people.

An urgent need for transboundary agreements

This water scarcity can increase the risk of conflict. In the Sahel region, wetland degradation – often due to ill-advised water development projects – has exacerbated local disputes over access to water and productive land, causing tensions.

While approximately 40% of the world's population lives in transboundary river and lake basins, only a fifth of countries have cross border agreements to jointly manage these shared resources equitably. Many transboundary basins are already located in areas marked by current or past interstate tensions. In the Arab region, seven countries were in conflict in 2021 – some dating back many years – which has had wide-ranging implications for water supply, infrastructure, and potential cooperation on water-related issues.

Africa remains especially vulnerable to interstate tensions relating to water: 19 out of 22 states studied suffer from water scarcity, and two-thirds of the continent's freshwater resources are transboundary. Of the 106 transboundary aquifers mapped in Africa, interstate cooperation has only been formalized in seven.

Concrete progress in cooperation in several regions

In this context, cooperation on transboundary water management appears to be a powerful lever for maintaining peace. By creating conditions for regular dialogue between all parties and instituting the necessary legal frameworks, this cooperation has the potential to resolve most disputes relating to water, and therefore prevent the emergence or exacerbation of wider-ranging conflicts.

The Framework Agreement on the Sava River Basin (FASRB), signed in 2002 by Bosnia and Herzegovina, Croatia, Serbia and Slovenia, was the first multilateral, development-oriented agreement in South-East Europe. It has successfully laid the groundwork for sustainable water management. Two decades after its adoption, it has become a key driver of stability in the region, and now serves as an example of best practice for other regions of the world.

The decline in volume of Lake Chad – which has decreased in size by 90% over 60 years – has led to a broad range of economic and security challenges in the region. Yet in recent years, Cameroon, Chad, the Central Africa Republic, Libya, Niger and Nigeria have given a new impetus to the Lake Chad Basin Commission (LCBC). LCBC's mandate has expanded to ensure the most efficient use of the basin's waters, coordinate local development, and prevent the emergence of disputes that might arise among these countries and local communities. LCBC is today the most appropriate institution for addressing the specific needs of the basin, including socio-economic development and security issues.

These two examples highlight the fact that, even in complex situations, states have the means to enact policies around access to water and shared resource management that are both fair and equitable thanks to international cooperation and the support of the United Nations system.

(Source: UNESCO)

International cooperation urged on water resource management to fight climate change

By Hou Liqiang (chinadaily.com.cn) Updated: 2024-03-25

Foreign diplomats in China have called for enhancing international cooperation on the management of water resources, as the climate crisis threat looms larger around the globe.

They made the remarks at an event to celebrate World Water Day on Friday at the National Water Museum of China in Hangzhou, capital of Zhejiang province.

The event was jointly held by the UNESCO Multisectoral Regional Office for East Asia and the China Institute of Water Resources and Hydropower Research.

Martin Orlando, deputy head of mission at the Uruguayan embassy in China, said, like many other countries, Uruguay is suffering from the impact of climate change on access to water.

"My country, Uruguay, used to have plenty of water, thanks to a tropical temperate climate with considerably stable rainfall patterns... Yet due to the impact of climate change, these certainties and natural privileges long enjoyed by Uruguay are now under threat," he said.

From the second half of 2022 until the middle of last year, Uruguay suffered one of the most severe droughts in history, he said.

He stressed that international cooperation is only one way to face the problems caused by climate change.

Orlando highlighted the cooperation between Uruguay and China in water resources management.

In September, the two countries held the First Uruguay-China Joint Committee on Water Resources in Beijing, and in November a meaningful meeting was held between Uruguay's Minister of Livestock, Agriculture and Fisheries, Fernando Mattos, and Chinese Minister of Water Resources Li Guoying, he noted.

He said in April, through collaboration with China Water Resources Beifang Investigation Design and Research Co, more than 20 Uruguayan public officials will participate in a course on water resources management in China.

Mads Vesterager Nielsen, commercial consul for Water and Environment at the Danish consulate general in Shanghai, said China's experience in the industrial reuse of water can be instructive for other countries.

There are a lot of technologies and management solutions here in China in this regard. "And this is actually something that we together with Danish companies have been looking into, because we think it is a very, very interesting area where there are also some Danish companies that are able to assist in this endeavor," he said.

The industrial reuse of water is a great help for the environment and also for combating climate change in general, he noted.

(Source: China Daily)

Popular science promotion and volunteer service in Wuhan University Campus: "Preserve clear water flowing"



Enchanting spring in March, the cherry blossoms are in full bloom. March 22nd is the 32nd World Water Day, and also the first day of the 37th China Water Week. On that day, the volunteer service activity of popular science promotion themed "Gather Every Drop and Preserve Clear Water Flowing" was held at the Second Affiliated Primary School of Wuhan University. This activity is sponsored by UNESCO in the Water-Food-Environment Nexus in the Asia-Pacific Region and the Hubei Provincial Office of Water Conservation, and organized by the Communist Youth League Committee of the School of Water Resources and Hydropower Engineering, Wuhan University and Hubei Provincial Emergency Monitoring Center for Hydrology and Water Resources.

The activity is aimed at disseminating water conservation knowledge and promoting the virtue of water conservation. The idea of water conservation can take root in the hearts of students, who can become active advocates and practitioners of water conservation in the future. During the activity, Dr. Zhiwei Li who is from the School of Water Resources and Hydropower Engineering, Wuhan University, gave a very interesting lecture with the theme of "Adventure of Yarlung Tsangpo River Grand Canyon in 2011-2023". He briefly introduced the formation and evolution of the Qinghai-Tibet Plateau, the river network system of the Yarlung Tsangpo River Basin, and water resources and hydropower in the Yarlung Tsangpo Grand Canyon, and the 12-year adventures of scientific expeditions, based on his own experiences. He vividly described the mountain peaks, cliffs, glaciers, bends, torrents and waterfalls he encountered during the scientific expedition. At the end of his speech, he showed more than 10 species of wildlife and rare plants with some amazing stories. His wonderful speech sparked lively discussions and many questions from 120 students.



A keynote lecture is giving by Zhiwei Li, Associate Professor of Wuhan University

After the lecture, 10 volunteers from the School of Water Resources and Hydropower Engineering, Wuhan University led the students to experience a series of water-related experiments, popularizing the basic characteristics of water, and called on the students to cherish water resources. Finally, the volunteers gave each student a booklet on water conservation knowledge.

Dr. Zhiwei Li is one of the accepted candidates of the ISI Scientific Advisory Board Members.

(<http://hb.news.cn/>)

Vice President of WASER, Prof. Weiming Wu, visited IRTCES and presented a seminar



On December 25, Vice President of WASER, Prof. Weiming Wu from Clarkson University USA, visited the International Research and Training Center on Erosion and Sedimentation (IRTCES). During his visit, he was invited to give a seminar on "Advances in Sediment Transport Dynamics – Sediment Entrainment" at IRTCES. Experts and graduate students from IRTCES and the China Institute of Water Resources and Hydropower Research (IWHR) attended this seminar.

Prof. Qingbin Pan, Deputy Director of IRTCES, hosted the seminar. He expressed his gratitude to Prof. Weiming Wu for his long-term support for the development of WASER and for joining hands with IWHR to promote international cooperation and talent cultivation in the field of sedimentation research.

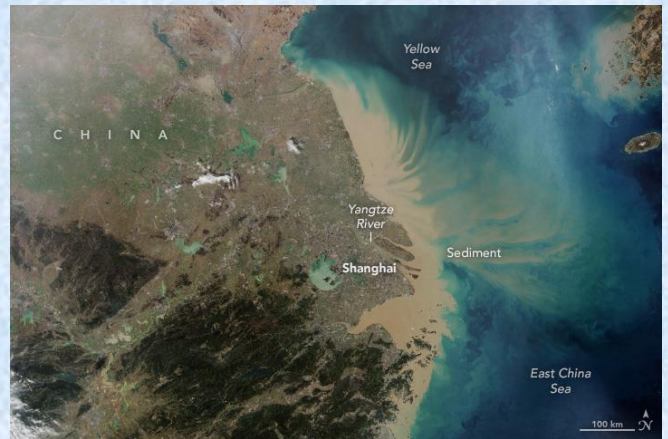


During the seminar, Prof. Wu systematically reviewed the classical theory of sediment incipient motion and its development. He introduced the threshold conditions for individual particle entrainment, evaluated the applicability of different sediment entrainment formulas, summarized the different modified expressions of the Shields Diagram, analyzed the incipient motion of nonuniform sediment with hiding and exposure correction factors, and explored the effects of exposure height, bed roughness, particle shape, shallow submergence, turbulence, and impulse duration on incipient motion.

Following his presentation, Prof. Wu had an energetic discussion with the attendees about how engineering-oriented sediment research can promote basic sediment theory research, and the differences in sediment research between China and other countries.



NASA: Sediment fans out over the Yangtze Bank



February 12, 2024.

A sediment plume extending hundreds of kilometers from the shore is a prominent feature in winter months off the coast of China's Jiangsu province. And much like the turbid water itself, the reasons for its occurrence are somewhat murky.

The VIIRS (Visible Infrared Imaging Radiometer Suite) sensor on the NOAA-20 satellite captured this image of sediments fanning out over the Yangtze Bank on February 12, 2024. Several rivers empty into the sea in this region, bringing abundant suspended material with them. The Yangtze River, the third longest river in the world, alone drains approximately 1.8 million square kilometers—an expanse equivalent to about one-fifth the area of China.

Brown, sediment-laden water is visible along this shallow, turbid stretch of coast year-round, but a vast plume like the one visible here is a characteristic feature of winter. Scientists have proposed several causes of this seasonal phenomenon.

The ebb and flow of tides contain enough energy to stir up sediments from the seafloor, a 2017 study found. While there are also tides in the summer, the models used in the study showed that sediment only rises to the surface in the winter. That's when temperatures and salinities at the sea surface and bottom are similar, allowing for vertical mixing to occur and for sediment to churn higher into the water column.

Major currents in the East China Sea and Yellow Sea also change in intensity with the seasons. Other research has suggested that the summer monsoon's influence on currents impedes the eastward flow of sediment out of the estuaries.

Despite what looks like a glut of suspended sediment in the water, the overall amount of it flowing from the Yangtze River has declined steadily

over the past several decades. The construction of dams, including the Three Gorges Dam, has been the primary driver of this trend.

Researchers are interested in tracking the movement of suspended sediment because of its range of ecological impacts. For example, some contaminants stick to sediments and may harm organisms that live in or near those sediments. Suspended material also reduces the amount of light reaching aquatic ecosystems, curtailing photosynthesis and primary productivity.

NASA's PACE (Plankton, Aerosol, Cloud, ocean Ecosystem) mission, launched in February 2024, will help scientists distinguish sediment from phytoplankton in coastal waters and better assess ocean health by providing hyperspectral observations of ocean color.

NASA Earth Observatory image by Wanmei Liang, using VIIRS data from NASA EOSDIS LANCE, GIBS/Worldview, and the Joint Polar Satellite System (JPSS). Report by Lindsey Doermann.

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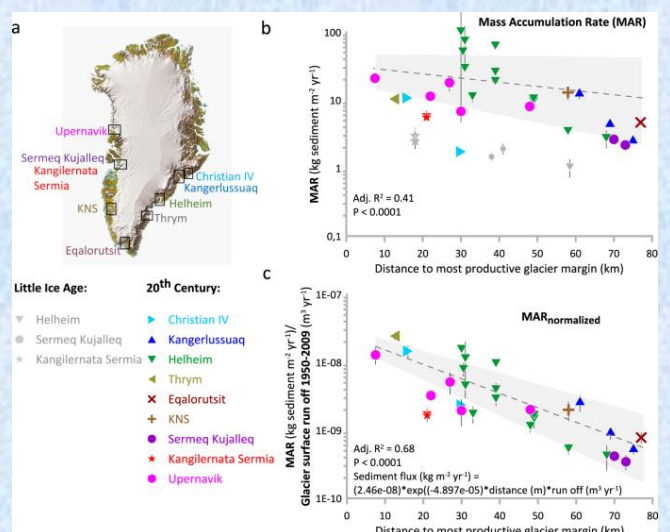
Zhou Y., et al. (2020) Tidal variation of total suspended solids over the Yangtze Bank based on the geostationary ocean color imager. *Science China Earth Sciences*, 63.

(Source: NASA)

Sediment discharge from Greenland's marine-terminating glaciers is linked with surface melt

Abstract: Sediment discharged from the Greenland Ice Sheet delivers nutrients to marine ecosystems around Greenland and shapes seafloor habitats. Current estimates of the total sediment flux are constrained by observations from land-terminating glaciers only. Addressing this gap, our study presents a budget derived from observations at 30 marine-margin locations. Analyzing sediment

cores from nine glaciated fjords, we assess spatial deposition since 1950. A significant correlation is established between mass accumulation rates, normalized by surface runoff, and distance down-fjord. This enables calculating annual sediment flux at any fjord point based on nearby marine-terminating outlet glacier melt data. Findings reveal a total annual sediment flux of 1.324 ± 0.79 Gt/yr over the period 2010-2020 from all marine-terminating glaciers to the fjords. These estimates are valuable for studies aiming to understand the basal ice sheet conditions and for studies predicting ecosystem changes in Greenland's fjords and offshore areas as the ice sheet melts and sediment discharge increases.



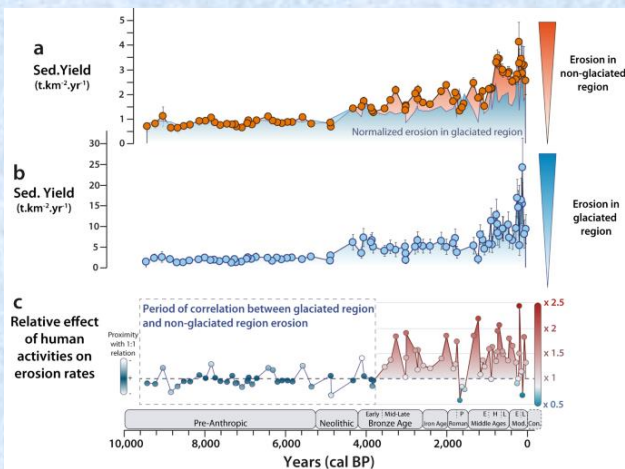
Sediment flux from Greenland's marine-terminating glaciers, as inferred from the mass accumulation rate within fjords adjacent to these glaciers, exhibits a clear connection with surface melt processes.

(Source: Andresen, C.S., Karlsson, N.B., Straneo, F. et al. (2024). Sediment discharge from Greenland's marine-terminating glaciers is linked with surface melt. *Nature Communications*, 15, 1332. <https://doi.org/10.1038/s41467-024-45694-1>)

Human-triggered magnification of erosion rates in European Alps since the Bronze Age

Abstract: A major feature of the Anthropocene is the drastic increase in global soil erosion. Soil erosion is threatening Earth habitability not only as soils are an essential component of the Earth system but also because societies depend on soils. However, proper quantification of the impact of human activities on erosion over thousands of years is still lacking. This is particularly crucial in mountainous areas, where the highest erosion rates are recorded. Here we use the Lake Bourget catchment, one of the largest in the European Alps,

to estimate quantitatively the impact of human activities on erosion. Based on a multi-proxy, source-to-sink approach relying on isotopic geochemistry, we differentiate the effects of climate fluctuations from those of human activities on erosion over the last 10,000 years. We demonstrate that until 3800 years ago, climate is the only driver of erosion. From that time on, climate alone cannot explain the measured rates of erosion. Thanks to an unprecedented regional paleoenvironmental reconstruction, we highlight that the development of pastoralism at high altitudes from the Bronze Age onwards and the extension of agriculture starting in the Middle Ages were key factors in the drastic increase in erosion observed in the Alps.



Erosion signals for non-glaciated and glaciated regions and the relative effect of human activities on erosion rates in the Lake Bourget catchment

(Source: Rapuc, W., Giguet-Covex, C., Bouchez, J. et al. (2024). Human-triggered magnification of erosion rates in European Alps since the Bronze Age. *Nature Communications*, 15, 1246. <https://doi.org/10.1038/s41467-024-45123-3>)

Review of methods of sediment detection in reservoirs

Abstract: As reservoir sedimentation is rapidly progressing on a global scale, intensified and better adapted monitoring of sediment accumulation is needed to design optimal counter measures. In the current study, different methods on how to assess the siltation status of different reservoir types are represented by including the availability of previous data. Four different techniques are described by means of detailed case studies, including topographic differencing as the most widely used method. Examples of sub-bottom profiling, dynamic free-fall penetrometer measurements, and long sediment cores are also presented. The methods are explained through the application of each technique under varying conditions. The aim of the current study was to assess the advantages and disadvantages of each method and to discuss each methods applicability, depending on the reservoir type, sediment characteristics, and sediment thickness. Based on the case studies and literature an overview table of available techniques for sediment detection was created including a qualitative estimation of the strengths and weaknesses. Additionally, a decision path is presented to choose the most promising technique dependent on the individual situation of a reservoir. With this review, sediment-related decisions are supported for dam operators and authorities as well as dredging companies.

(Source: Hilgert S., Sotiri, K., Fuchs, S. (2024). Review of methods of sediment detection in reservoirs. *International Journal of Sediment Research*, 39, 28-43. <https://doi.org/10.1016/j.ijsrc.2023.12.004>)

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Papers Published in the International Journal of Sediment Research Volume 39, No. 1, 2024



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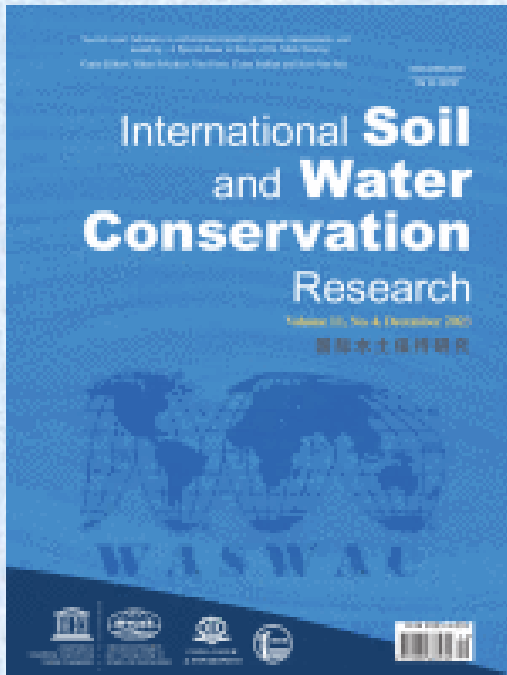
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Date: May 13-16, 2024

Venue: Delft, the Netherlands

Summary: The 9th Conference on Physical Modelling in Coastal Engineering - Coastlab24 will be held in May 13-16, 2024. Welcome to join in! The following is the detailed introduction: CoastLab is a conference whose focus is on Physical Modelling in Coastal Engineering and Science. CoastLab is organized under the auspices of and in collaboration with the Coastal and Maritime Hydraulics Committee of the International Association of Hydro-Environment Engineering and Research (IAHR). Coastlab24 builds on the success of previous conferences in Porto (2006), Bari (2008), Barcelona (2010), Ghent (2012), Varna (2014), Ottawa (2016), Santander (2018) and Zhoushan (2020).

Theme and Topics: In the coastal zone, many developments are taking place, with much attention to themes like:

- Climate change impacts, adaptation, mitigation
- Multifunctional and nature-inclusive designs
- Development of ports and marine terminals
- Wave, wind and tidal energy
- Industrial outfalls

To cater for these developments continuous development in modelling capabilities is required, in topics such as:

- Coastal hydrodynamics, coastal processes
- Coastal flooding, flood prevention, shore protection
- Coastal and ocean structures, breakwaters, revetments
- Scour, sediment transport, morphology
- Wave-structure interactions, loading, response
- Wave run-up and overtopping
- Laboratory technologies, measurement systems
- Synoptic measurement systems (e.g. laser scanning, imaging, motion tracking, Particle Image Velocimetry)
- Coastal field measurement and monitoring
- Wave synthesis, generation, and analysis
- Scale effects and uncertainty analysis
- Composite modelling and validation (physical, numerical, field, and AI)
- Extreme events – assessment and mitigation
- Tsunami hydrodynamics, impacts, and mitigation
- Mixing, water quality
- Physical modelling case studies
- Navigation, ship motions

Presentations will be given, and discussions will be held about these topics. The programme includes PhD workshops, welcome reception, technical tour plus banquet, and optional post conference tour. Moreover, an exhibition with companies and suppliers will be present.

Key dates:

Early-bird registration deadline 15 January 2024

Abstract submission deadline 1 September 2023

Notification acceptance 15 October 2023

Full paper submission deadline 15 December 2023

Conference 13-16 May 2024

URL: <https://coastlab24.dryfta.com/>

Centennial Celebration and Congress of the International Union of Soil Sciences (Italy, May 19-21, 2024)

Date: May 19-21, 2024

Venue: Florence, Italy

Summary: The custodian of soil science will celebrate its centennial contribute to the nature and human wellbeing in 2024.

The event will also empower the linkages with different disciplines, policy makers, stakeholders, institutions, and associations to effectively address civil society needs within agriculture, forestry, environment, urban planning, energy, education, and other societal issues.

The celebration will occur on May 19 and will be followed by two intense days of congress, with plenary and parallel scientific sessions. Both soil scientists and specialists from other disciplines will participate to each session, focusing on past achievements and future challenges.

The congress will be followed by technical/scientific excursions that will range from short local to long trips, spanning from Alps to Sicily.

A pre-congress visit to Villa Lubin in Rome, the historical place where the IUSS was founded, is scheduled on May 18th.

Sessions:

1. Equity, diversity, and inclusivity in soil sciences
2. Soil and humanity
3. Soil Governance
4. Soil health in achieving the Sustainable Development Goals
5. Soil in the circular economy
6. Soil in the digital era
7. Soil sciences impact on basic knowledge
8. Other

URL: <https://centennialiu2024.org/>

Contacts:

Organizing secretariat

Email: centennialiu2024@aimgroup.eu

The 15th International Conference on Hydroinformatics (Beijing, China, May 27-31, 2024)

Date: May 27-31, 2024

Venue: Beijing, China

Organizer: Ministry of Water Resources (MWR) of People's Republic of China & China Institute of Water Resources and Hydropower Research (IWHR)

Invitation: Ministry of Water Resources (MWR) of People's Republic of China and China Institute of Water Resources and Hydropower Research (IWHR) are pleased to invite the international Hydroinformatics community to the 15th International Conference on Hydroinformatics – HIC 2024, held in Beijing, China, on 27 – 31 May 2024. Hydroinformatics is defined as the study of the flow of information and the generation of knowledge related to the dynamics of water in the real world, through the integration of modelling, information technologies and artificial intelligence considering sustainability and social implications for decision support and smart management of water-based systems. International Conference on Hydroinformatics (HIC) has a long tradition, dating back to 1994 for its first edition. The next 15th HIC 2024 will

celebrate its 30th anniversary and the development of a vivid Hydroinformatics community. The conference will serve as a perfect venue and platform for practitioners, engineers, researchers, scientists, managers and decision makers from Europe, Oceania, and Americas to meet their Asian counterparts to exchange the most recent developments in the Hydroinformatics field and the urgent water related issues.

Theme and Topics: From Nature to Digital Water: Challenges and Opportunities

List of main topics:

- Technologies for water management and monitoring
- Big-data, knowledge, and water data management
- Emerging solutions in modelling methods (AI, high performance computing, cloud computing).
- Digital transformation of urban water systems
- Hydraulic and hydrological modeling
- Climate change impacts
- Environmental and coastal hydroinformatics
- Complex water systems, remote sensing and control
- COVID-19 pandemic reflected in hydroinformatics
- Water – Energy – Food nexus
- Innovation in education and training in hydroinformatics

URL: <https://hic2024.scimeeting.cn/>

Contacts: Ms. Jenny LU

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E-mail: contact@hic2024.org

The 10th International Symposium on Environmental Hydraulics (Scotland, June 25-27, 2024)

Date: June 25 – 27 2024

Venue: Aberdeen, Scotland

Invitation:

We are pleased to announce that the 10th International Symposium on Environmental Hydraulics (ISEH) will be held in Aberdeen, Scotland on 25 – 27 June 2024. Sponsored by the International Association of Hydro-Environment Engineering and Research (IAHR), the 10th ISEH will build on the success of previous ISEH symposia in bringing together international experts to present and discuss new research, technical innovations and case studies relating to the symposium's theme "environmental hydraulics for a sustainable and resilient future". The Fluid Mechanics Research Group at the University of Aberdeen are proud to host the event, bringing the symposium to the UK for the first time in its history, and to Europe for the first time since the 6th ISEH held in Athens in 2010. It will be held within the University's historic Old Aberdeen campus, providing an ideal setting in which to share knowledge and to meet old and new friends. We very much look forward to extending a warm Scottish welcome to you in June 2024.

URL: <https://abdn.eventsair.com/iseh2024/>

Contacts:

For general enquiries please contact the event administrators, CPD & Events Services Research and Innovation, Room 28, University Office, King's College, Aberdeen, AB24 3FX, Scotland

Call Us: +44(0)1224 272523

Email: iseh2024@abdn.ac.uk

The 8th International Conference on Estuaries and Coasts (Canada, August 27-29, 2024)

Date: August 27-29, 2024

Venue: Quebec City, Canada

Organizers: Hydraulic and Environmental Research Groups of INRS (Canada); Clarkson University (USA)

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)

Secretariat: Hydraulic and Environmental Research Groups of INRS (Canada)

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). Seven such conferences were held in Hangzhou and Guangzhou, China; Sendai, Japan; Hanoi, Vietnam; Muscat, Oman; Caen, France; and Shanghai, China in 2003, 2006, 2009, 2012, 2015, 2018 and 2021, 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 8th International Conference on Estuaries and Coasts (ICEC 2024) will be held in Quebec City, Canada during August 27-29, 2024. The ICEC 2024 will provide a venue for intellectual and enlightening discussions of ideas. The conference program will be broad with topics. The local program and advisory committees are working to prepare an exciting and outstanding conference. Academics, government organizations, industrial partners and interested citizens are invited to attend this conference. We look forward to welcoming you in the beautiful city of Quebec! -The ICEC organizing committee

Theme:

Resilient Estuaries and Coastal Zones under Global Challenges

Topics of the Conference:

1. Saline intrusion and sea level rise: measurements, modelling and forecasting;
2. Waves, storm surges and tsunamis: measurements, modelling, forecasting and warning systems;
3. Estuarine and coastal flows and their evolution by climate change;
4. Sediment transport and morphological change in estuaries and coastal zones;
5. Megacity developments under the threat of sea level rise and climate change;
6. Environment and ecosystem changes in estuaries and coastal zones;
7. Integrated coastal zone management for sustainable developments in the context of global change;
8. Impacts of watershed developments on estuaries and coastal zones;
9. Shoreline protection and beach nourishment;
10. Interactions between estuarine and coastal systems;
11. Resilient engineering solutions in estuaries and coastal zones.

URL: <https://icec2024.org/en>

Contacts:

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 Quebec City, Quebec
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 Toll free (Canada and U.S.): +1 800 618 8182
 Monday to Friday - 09:00 to 16:00 U.S. / Canadian Eastern
 Time
Email: icec2024@conferium.com

River Flow 2024 (UK, Sep. 2-6, 2024)

Date: September 2-6 2024

Venue: Liverpool, UK

Summary: The 12th Conference on Fluvial Hydraulics under the auspices of IAHR, River Flow 2024, will be held in September 2-6 2024 at Liverpool, UK. 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 one of the main international forum for dissemination of research and industrial practice on fluvial hydraulics and river engineering. Following on the tradition and success of previous editions of River Flow conferences, River Flow 2024 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.

Topics:

The conference will as well cover issues related, but not limited to:

1. River morphodynamics and management
2. Hydraulic structures and impacts on local and catchment sediment transport, flow regime and ecology
3. Sediment, pollutant and microplastic dynamics in rivers
4. Fluid Mechanics, numerical modelling and two-phase flow
5. Climate change and adaptation
6. Monitoring techniques and AI?

URL: <https://www.ljmu.ac.uk/conferences/river-flow>

Contacts:

If you have questions, please do not hesitate to e-mail or call: RF2024@ljmu.ac.uk.

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INTERNATIONAL SEDIMENT INITIATIVE (ISI)
Intergovernmental Hydrological Programme (IHP)
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ISI URL: <http://www.irtces.org/isi/>

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