

INTERNATIONAL SEDIMENT INITIATIVE

NEWSLETTER

Reporting ISI news to you quarterly

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NEWS

The role of the International Research and Training Center on Erosion Sedimentation in promoting sustainability is applauded

By Hou Liqiang | chinadaily.com.cn | Updated: 2024-09-23



Officials have applauded the International Research and Training Center on Erosion and Sedimentation (IRTCES) for its significant contribution to promoting sustainability, especially as the threat from the global climate crisis looms larger.

They made the remarks at an event held in Beijing on September 24, 2024 to celebrate the 40th anniversary of the Center, which was jointly established by the Chinese government and the United Nations Educational, Scientific, and Cultural Organization on July 21, 1984.

Since its founding, IRTCES has devoted itself to research and training to solve scientific and engineering problems related to erosion and sedimentation. It has conducted many international and domestic technical cooperative research and consulting programs and projects in this field and organized international and domestic training courses, symposia and workshops.

Sediment and soil erosion are not just technical issues. They are existential threats to food security, human livelihoods, and the health of our ecosystems, UN Resident Coordinator in China Siddharth Chatterjee stressed when addressing the event.

The loss of fertile topsoil, the clogging of waterways and the destruction of agricultural land all contribute to a vicious cycle that increases poverty, decreases food security, displaces communities and destabilizes these regions. "This is why the work of IRTCES has been vital," he noted.

Over the past four decades, IRTCES has brought together experts and contributed to global research and capacity building in erosion and sedimentation management by developing cutting-edge tools for monitoring sediment transport, the UN official said. By providing crucial training programs, it has played a key role in supporting countries around the world in managing their natural resources and sustainability.

"Today, as we reflect on these achievements, we must also look ahead to the challenges that remain as we approach the deadline for the Sustainable Development Goals. Climate change continues to exacerbate soil erosion with more intense storms, rising sea levels and changing precipitation patterns," he emphasized.

"As these challenges intensify, the need for integrated, innovative solutions becomes even more urgent... We all have a responsibility to future generations to safeguard the health of our planet's soil and water systems," he said.

Li Liangsheng, Vice Minister of Water Resources, has especially highlighted the role of IRTCES in promoting technological advancement and academic exchange in the domain of erosion and sedimentation management.

The Center has hosted over 50 international training sessions, with more than 5,000 participants from over 40 countries across five continents, he said.

"This has provided valuable experiences for global sediment management research and decision-making in addressing the issue, offering robust technical support for socioeconomic development, and the construction of ecological civilization in China and across the globe," he said.

By hosting many international seminars on the management of river and estuary sediment, and conservation of water and soil, the Center has established a global academic exchange platform for sediment and soil erosion research, he said.

To date, IRTCES has cooperated with more than 50 countries, international organizations, research institutions, universities, and other Category 2 Centers under the auspices of UNESCO, and has signed over 10 cooperation agreements, he disclosed, adding that it has been visited by over 2,000 international representatives.

(Source:
<http://isi.irtces.org/isi/NewsEvents/news/webinfo/2024/09/1723115406829149.htm>)

The 2nd International Sediment Initiative Advisory Board Meeting held in Beijing on September 24, 2024



The 2nd International Sediment Initiative (ISI) Advisory Board Meeting was held in Beijing on September 24, 2024, along with a series of academic activities of the 40th Anniversary of the International Research and Training Center on Erosion and Sedimentation (IRTCES) during September 23 – 25, which provided an opportunity to reflect on past achievements and look forward to future endeavours in the field of erosion and sedimentation research and training.

The inaugural meeting of the ISI Advisory Board for IHP-IX took place on 23 and 24 April, 2024 in Paris, France. The meeting served as a platform to discuss and finalize the new ISI strategy and the workplan for its implementation during the IXth phase of the IHP. The 2nd meeting focused on the official nomination of the ISI Advisory Board and further discussion and implementation of the workplan. About 20 participants attended the meeting, both in person and on-line, including members of the new ISI Advisory Board, representatives of the Secretary of the UNESCO – IHP, and the ISI Global Secretariat (IRTCES).

Chaired by Dr. Siying Tan, Junior Professional Officer of UNESCO – IHP, Prof. Jianli Zhang, Deputy Director of IRTCES, opened the session and welcomed all participants in person and online. Dr. Koen Verbist, Programme Specialist of the UNESCO – IHP, presented the current ISI Workplan and the IHP-IX reporting system. Prof. Hongling Shi, Deputy Division Chief of IRTCES, provided a progress update and an overview of proposed IRTCES activities. Progress updates and overviews of proposed activities were also provided by representatives of the Regional Coordinators and the Thematic Priority Coordinators. These included

Group I (Western European and North American States): Prof. Ralph Schielen, Utrecht University, the Netherlands & Prof. Thomas Hoffmann, Federal

Institute of Hydrology, Germany;

Group II (Eastern European States): Prof. Matjaž Mikoš, UNESCO Chair on Water-related Disaster Risk Reduction, Slovenia;

Group III (Latin American and Caribbean States): Prof. Jose Alberto Zúñiga, University of Costa Rica;

Group IV (Asian and Pacific States): Prof. Zhiwei Li, Wuhan University, China;

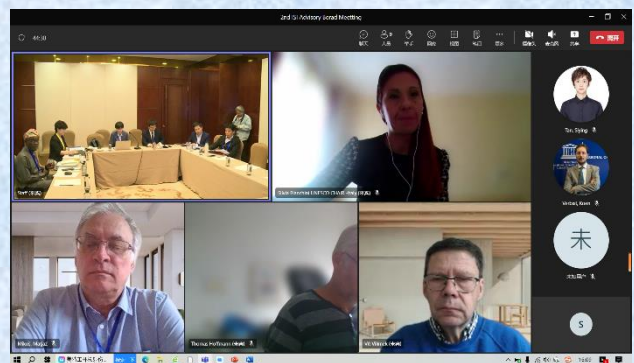
Group Va (African States): Prof. Omogbemi Omololu Yaya, UNESCO Category 2 Centre - Regional Centre for Integrated River Basin Management, Nigeria;

Thematic Priority 1 (Erosion and Sediment Transport and Management): Prof. Thomas Hoffmann, Federal Institute of Hydrology, Germany & Prof. William H Blake, University of Plymouth, UK;

Thematic Priority 2 (Sediment-related Hazard Management): Ms. Silvia Bianchini, UNESCO Chair on Prevention and Sustainable Management of Geo-Hydrological Hazards, Italy & Prof. Matjaž Mikoš, UNESCO Chair on Water-related Disaster Risk Reduction, Slovenia; and

Thematic Priority 3 (Glacier-related sediment, erosion and hazards management): Prof. Vít Vilímek, Charles University, Czech.

The Implementation of the ISI workplan was discussed, and participants, including Prof. Cheng Liu, former member of the ISI Advisory Group, provided suggestions relating to future ISI activities. Dr. Koen Verbist wrapped up the meeting and the way forward in his closing remarks.



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

The 8th International Conference on Estuaries and Coasts held from August 26-30 in Québec City, Canada

The 8th International Conference on Estuaries and Coasts (ICEC2024) was held in Québec City, Canada from August 26-30, 2024. About 150 participants attended. The ICEC2024 was organized

by the Hydraulic and Environmental Research Groups of INRS (Institut National de la Recherche Scientifique, Canada) and Clarkson University (USA), sponsored by the International Research and Training Center on Erosion and Sedimentation (IRTCES), the World Association for Sedimentation and Erosion Research (WASER), and co-sponsored by Lasalle|NHC, Ocean Group, UBERTONE, AdapT, Ecole de Technologie Supérieure, BGC Engineering, CM Québec, the International Association for Hydro-Environment Engineering and Research (IAHR) and the government of Québec City.

The opening ceremony was held on the morning of August 27 and was chaired by Prof. Damien Pham Van Bang, Conference Chair of the ICEC2024. Welcome speeches were made by Prof. Pham, Prof. Hongwei Fang, representing IRTCES, and Ms. Vallières-Roland, Deputy Mayor of Québec City.



Opening Ceremony

The ICEC2024 main theme was “Resilient Estuaries and Coastal Zones under Global Challenges” with the following topics:

1. Saline intrusion and sea level rise: measurements, modelling and forecasting;
2. Waves, storm surges and tsunami: 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 development in the context of global change;
8. Impacts of watershed development 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.

The program included 5 keynote lectures, 71 oral presentations and 11 poster presentations in parallel sessions. The keynote speakers were:

Prof. Hongwei Fang, Tsinghua University, and Provost of Southern University of Science and Technology, China

Prof. Ioan Nistor, University of Ottawa, Canada

Prof. Jack A. Puleo, University of Delaware, USA

Prof. Nina Stark, University of Florida, USA

Prof. Qing He, East China Normal University, China



Presentations at the conference

The closing ceremony was organized in the morning of August 29. Prof. Damien Pham Van Bang, chaired the closing ceremony and gave a brief overview for the Conference. Prof. Weiming Wu, the representative of the ICEC Permanent Secretariat, announced that the 9th ICEC will be held in Qinzhou, China in 2026, and the conference will be co-organized by the Department of Water Resources and Department of Transport of Guangxi Zhuang Autonomous Region. Dr. Xiongchang Wang, Mayor of the Qinzhou Municipal People’s Government, made a presentation on the venue of the 9th ICEC and welcomed all participants to meet again in Qinzhou, China in 2026. A promotion video was also showed to introduce the 9th ICEC and Qinzhou City.



Closing Ceremony

The ICEC is a triennial event initiated by the International Research and Training Center on Erosion and Sedimentation (IRTCES). Seven conferences have been held in Hangzhou (China), Guangzhou (China), Sendai (Japan), Hanoi (Vietnam), Muscat (Oman), Caen (France), and Shanghai (China), from 2003 to 2021. Thanks to the support from related International Associations and the active participation of experts and scholars worldwide, ICEC has attracted wide attention and become a renowned event of academic importance and global popularity.

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

Water security solutions are worth sharing

By Wang Xiaoyu | China Daily | Updated: 2024-09-25



China's successes in tackling flooding, conserving water and building smart irrigation systems are worth sharing with other countries as climate change and rapid urbanization exacerbate water issues around the world, experts said on Tuesday.

Yun Seog-dae, President of the Asia Water Council, said that Asian countries are particularly vulnerable to water problems, and collaboration and knowledge sharing play an important role in helping to advance sustainable development.

He spoke during the opening ceremony of the Third Asia International Water Week in Beijing on September 24, 2024.

Water Resources Minister Li Guoying said in his keynote speech that water security risks have emerged as a global challenge under the twin effects of climate change and human activities.

"China is confident and capable of coping with severe water security issues and is willing to share its experiences and action plans with the rest of the world," he said.

For instance, as flooding has become increasingly acute and abnormal in recent years, Li

said that China has built a flood control system comprising reservoirs, embankments and flood storage areas, and has also enhanced its rainfall monitoring, forecasting and early warning abilities.

"In the past decade, the proportion of flood disaster losses to gross domestic product dropped from 0.51 percent to 0.24 percent," he said. "This year, China's major rivers have experienced 25 significant flood events — the highest since records began in 1998 — and effective measures have been implemented to protect people's lives and properties and minimize related losses."

Li said that China, with only 6 percent of the world's freshwater resources, has succeeded in ensuring water supply for nearly 20 percent of the global population and generating over 18 percent of the world's economic output.

He attributed the success to promoting water conservation across all aspects of society and constructing an efficient, safe and intelligent national water resources network.

Li added that China has advanced modernization of irrigation areas and improved agricultural water conservancy infrastructure to make them more automated, efficient, precise and intelligent.

"In 2022, the Yangtze River region — a conventional area with abundant water resources — experienced its most severe drought since 1961," he said.

"Through scientific management, we precisely controlled 75 large and medium-sized reservoirs to meet irrigation needs for 12.2 million hectares of autumn grain crops and achieved a bountiful harvest that year."

Based on Chinese experiences, Li called on all Asian countries to promote comprehensive innovative efforts such as proactively improving water conservancy infrastructure, strengthening research into early warning of flooding and droughts, water conservation technologies and the protection and restoration of river and lake ecosystems.

On Tuesday, Yun and Li jointly signed a document called the Beijing Declaration that calls for innovation-driven and cooperative solutions to address water problems.

(Source: China Daily)

Submarine sediment helps Chinese researchers delve into secrets of the Antarctic Ocean

Submarine sediment samples collected in the Antarctic Ocean by Chinese researchers are helping unveil the geological and oceanographic secrets of the region.

The warehouse at the First Institute of Oceanography under the Ministry of Natural Resources in east China's Shandong Province is home to an impressive collection of sediment cores gathered from Antarctica and other marine regions.

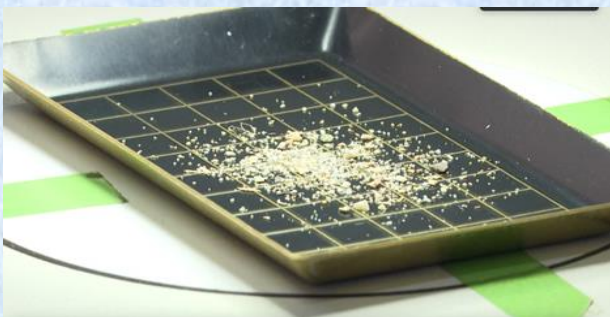


Researchers call these cylinders "secret scrolls without visible texts," eagerly awaiting interpretation and decoding.

"Why is it called the 'secret scroll without visible texts?'" Because it contains much information covering remains of organisms, vestiges of life, chemical composition and physical properties of some substances. The information is likely to record the evolution of life and environmental change in Antarctica at a specific time," said Xiong Zhifang, a researcher at the institute.

These sediment cores, varying in length and thickness, were gathered from the seabed in the Antarctic Ocean from depths as great as 4,000 meters.

Researchers can identify when and how the sediments were formed based on their color and structure and through a range of analyses and tests.

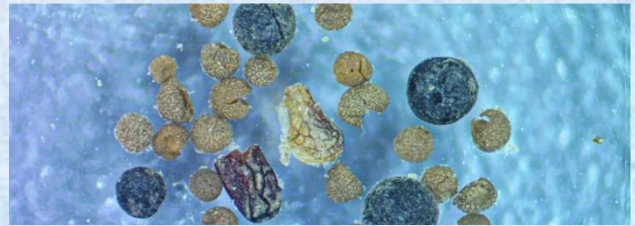


In order to advance their research, scientists need to conduct a series of procedures on the sediment cores, including washing, drying and other necessary steps. The last step is the microscopic examination of each individual component.

"We call it ice rafted debris. We can measure its content and shapes. These features can reflect whether the ice sheet was expanding or contracting," said Xiong.

(Source: <https://news.cgtn.com/news/2024-02-21/Submarine-sediment-helps-Chinese-experts-study-Antarctic-Ocean-1n4hrJUO5i/p.html>)

New study reveals evidence of ice-free times at the center of the Greenland Ice Sheet



A new paper published in the Proceedings of the National Academy of Sciences shows direct evidence of Greenland being ice-free within the last 1.1 million years. This NSF-funded study analyzed sediment obtained by drilling through the Greenland Ice Sheet at NSF Summit Station, located at the apex of the ice sheet, in 1993.



Halley Mastro (G'24 in Bierman Lab) looking at fossilized materials found in soil from the GISP2 ice core under a microscope.

Credit: University of Vermont

This sediment, known as glacial till, was found 3 kilometers below the current ice sheet and was discovered to contain plant fragments, wood, insect parts and fungi. These inclusions, along with dating information provided by the analysis, show that within the last 1.1 million years this region was completely covered in tundra vegetation. Instead of ice, this area was a cold, dry environment where snow would last into the summer.

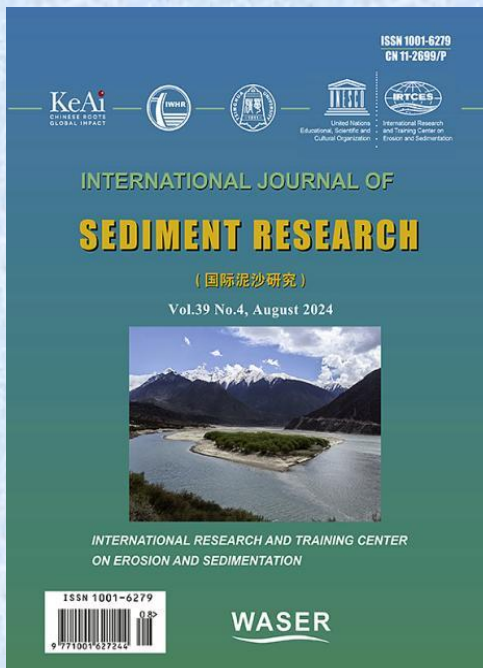
These results have implications for the Greenland Ice Sheet today. As the region faces warming climates, scientists now know that the Greenland Ice Sheet has the potential to completely melt.

Plant, insect, and fungi fossils under the center of Greenland's ice sheet are evidence of ice-free times | PNAS

(Source: <https://new.nsf.gov/news/new-study-reveals-evidence-ice-free-times-center-greenland#image-caption-credit-bloc>)

PUBLICATIONS

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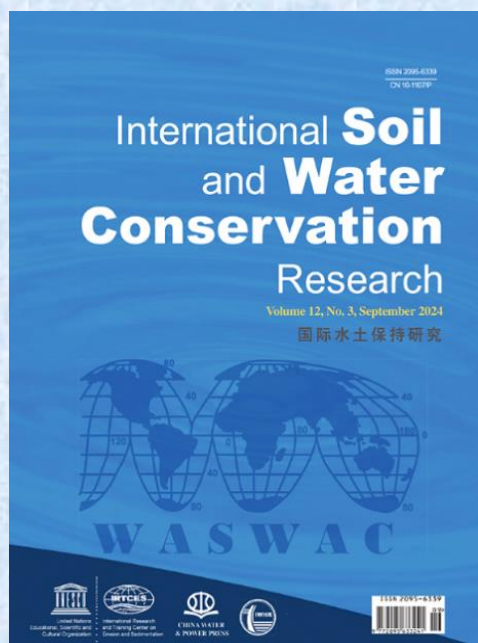
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Full papers are available at ScienceDirect:
<https://www.sciencedirect.com/journal/international-journal-of-sediment-research> with free access.

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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>.

COMING EVENTS

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

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

Theme: Common Challenges, Shared Future, Better Dams

Topics:

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

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

Contact:

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

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

Date: June 22 to 27, 2025

Venue: Singapore

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

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

Theme: Innovative Water Engineering for Sustainable Development

Topics:

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

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

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

Date: 30th June to 4th July 2025

Venue: Le Touquet, France

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

Main conference topics:

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

16th International Symposium on River Sedimentation (USA, August 4-7, 2025)

Date: August 4-7, 2025

Venue: Omaha, Nebraska, United States

Website: <https://www.isrs2025.org/>

Theme: Centennial of Modern Sediment Transport Mechanics

Topics:

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

River Flow 2026--- The 13th International Conference on Fluvial Hydraulics Thessaloniki, Greece.

Date: June 29 to July 3, 2026

Venue: Fluvial Hydraulics Thessaloniki, Greece

Organizers: IAHR and chaired by Assoc. Prof. Manousos Valyrakis and Emeritus Prof. Panayotis Prinos

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

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

Date: December, 2026

Venue: Qinzhou, China

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

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

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

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

Theme:

Estuaries and Coasts under Modern Civilizations

Topics of the Conference:

1. Hydrodynamics and Sediment Transport in Estuaries and Coastal Zones: Fundamentals and Modeling
2. Monitoring, Early Warning and Forecasting of Estuarial and Coastal Hazards
3. Eco-environment Protection in Estuaries and Coastal Zones
4. Climate Change, Human Activities and Their Impacts on Estuaries and Coasts

5. Canal Constructions in Estuaries and Coastal Zones
6. Integrated and Intelligent Management of Estuaries and Coastal Zones
7. Morphological Evolutions of Estuaries, Coasts and Deltas
8. History, Culture, Socioeconomics and Policy on Estuaries and Coasts
9. Impacts of Watershed Developments on Estuaries and Coastal Zones

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

11th International Symposium on Environmental Hydraulics (ISEH 2027) (USA, June 1-4, 2027)

Date: June 1-4, 2027

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

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

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

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

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

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

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

Contact

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unesco

Intergovernmental
Hydrological Programme



International Sediment Initiative



unesco

International Research
and Training Center on
Erosion and Sedimentation

INTERNATIONAL SEDIMENT INITIATIVE (ISI)

Intergovernmental Hydrological Programme (IHP)

UNESCO

UNESCO IHP SECRETARIAT

Abou Amani (to be confirmed)	UNESCO, Paris
Koen Verbist	UNESCO, Beijing
Siying Tan	UNESCO, Paris

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

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