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41ST IAHR WORLD CONGRESS SINGAPORE



22 – 27 JUNE 2025

INNOVATIVE WATER ENGINEERING
FOR SUSTAINABLE DEVELOPMENT

ADVANCE PROGRAMME

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IAHR World
Congress >>



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MESSAGE FROM THE PRESIDENT OF IAHR



**Prof. Philippe
Gourbesville**

President
International Association for
Hydro-environment Engineering and
Research (IAHR)

I am pleased to invite you to the 41st International Association for Hydro-Environment Engineering and Research (IAHR) World Congress in Singapore (IAHR2025 Singapore), taking place from 22 to 27 June 2025 at the Singapore EXPO. The biennial IAHR World Congress returns to Asia for the first time since 2017 with the theme “Innovative Water Engineering for Sustainable Development”. Hosted by PUB, Singapore’s National Water Agency, IAHR2025 Singapore aims to promote interdisciplinary dialogue among water actors and share innovative solutions to address the major water challenges faced at the world scale. Within the context of accelerating actions for the water sector, more than 140 technical sessions featuring close to 800 oral presentations and over 300 posters will be presented at this year’s Congress on the latest innovative concepts, technologies, best practices and case studies on key challenges facing the water industry, including climate change mitigation, improving resilience against water hazards and natural disasters, water engineering for energy transition and food security, nature based solutions as well as digital transformation. These technical sessions will be augmented by more than 34 special sessions, 5 workshops and 4 masterclasses.

IAHR2025 Singapore will be unique for several reasons. Co-located with the Singapore International Water Week Spotlight 2025, IAHR2025 Singapore delegates can look forward to participating in high-level panels and sessions with more than 300 leaders from governments, cities, utilities, and industries. In particular, I am delighted that senior officials from more than 40 cities are expected to attend SIWW Spotlight 2025 and IAHR2025 Singapore. The presence of these leaders will no doubt enrich the discussions with members of IAHR. Also, for the first time, the IAHR World Congress will feature a full-scale exhibition. With a total gross area of close to 2,000sqm, more than 66 international exhibitors will be showcasing their solutions, products and services to delegates and trade visitors.

I wish to express my appreciation to the local National Organising Committee and the International Scientific Committee for their hard work and dedication.

I look forward to meeting all of you in Singapore in June at IAHR2025!

MESSAGE FROM THE CHAIR OF THE INTERNATIONAL SCIENTIFIC COMMITTEE



Prof. Adrian Law
Executive Director
Coastal Protection and
Flood Resilience Institute (CFI)
Singapore

On behalf of the International Scientific Committee, I am delighted to invite you to come to the 41st IAHR World Congress which shall take place from 22 to 27 June 2025 in the vibrant city of Singapore. This year's Congress is centred around the theme of "Innovative Water Engineering for Sustainable Development". The theme underscores our commitment to derive innovative approaches in engineering and research, to address the complex challenges of an evolving hydro-environment due to climate change in a sustainable manner, ensuring the long-term well-being of both the community and society.

We are thrilled by the impressive array of high-quality abstracts across all Congress themes and topics, proactive organisation of numerous Special Sessions by members on significant and timely topics, as well as global participation of delegates from both developed and developing countries. Participants can look forward to a carefully curated technical programme, designed to inspire knowledge exchange and foster conversation and collaboration among global experts.

We invite you to join us in Singapore for an extraordinary Congress, full of exciting ideas, valuable insights, and engaging dialogue!!!

PROGRAMME AT A GLANCE

	AM			PM		EVENING	
22 June (Sun)	Workshops / Masterclasses						
	Technical Visits						
23 June (Mon)		Opening	Keynotes	Technical & Special Sessions	Technical & Special Sessions	Welcome Reception	
		Solutions Marketplace @ SIWW Spotlight 2025 & IAHR2025					
24 June (Tue)		High Level Panel 1	High Level Panel 2	Technical & Special Sessions	Technical & Special Sessions	Young Professionals Network Night	
		Solutions Marketplace @ SIWW Spotlight 2025 & IAHR2025					
25 June (Wed)		High Level Panel 3 / Technical & Special Sessions	High Level Panel 4 / Technical & Special Sessions	Technical & Special Sessions	Technical & Special Sessions		
		Solutions Marketplace @ SIWW Spotlight 2025 & IAHR2025					
				John F. Kennedy Student Paper Competition			
26 June (Thu)		Technical & Special Sessions	Technical & Special Sessions	Technical & Special Sessions	Technical & Special Sessions	General Members Assembly	Awards & Congress Dinner
		Solutions Marketplace @ SIWW Spotlight 2025 & IAHR2025					
27 June (Fri)		Technical Sessions	Technical Sessions	Closing Ceremony	Technical Visit		

Solutions Marketplace (Exhibition)

IAHR2025 Singapore Sessions

(As of 5 March 2025)

INTERNATIONAL SCIENTIFIC COMMITTEE AND REVIEWERS

INTERNATIONAL SCIENTIFIC COMMITTEE

- | | |
|---|--|
| <ul style="list-style-type: none"> • Adrian Law, National University of Singapore/Nanyang Technological University, Singapore (Co-Chair) • Hazel Khoo, PUB, Singapore • Philip Liu, National University of Singapore, Singapore • Vladan Babovic, National University of Singapore, Singapore • David McCarthy, Monash University • Stefan Felder, UNSW Sydney • Lloyd Chua, Deakin University • Sandra Soares-Frazao, Universite Catholique de Louvain • Tobias Bleninger, Federal University of Paraná • Majid Mohammadian, University of Ottawa • Bryan W. Karney, University of Toronto • Christos Katopodis, Katopodis Ecohydraulics Ltd • Gregory Lawrence, University of British Columbia • David Zhu, Ningbo University / University of Alberta • Zhiguo He, Zhejiang University • Pengzhi Lin, Sichuan University • Dongdong Shao, Beijing Normal University • Wenxin Huai, Wuhan University • Yangwen Jia, China Institute of Water Resources and Hydropower Research (IWHR) • Jianyun Zhang, Nanjing Hydraulic Research Institute • Qiuwen Chen, Nanjing Hydraulic Research Institute • Shijian Fu, Chongqing Normal University • Yujun Yi, Beijing Normal University • Qihua Liang, Zhengzhou University • Nian Sheng Cheng, Zhejiang University • Haifeng Jia, Tsinghua University • Fang He, Zhejiang University • Zhengzhi Deng, Zhejiang University • Jochen Aberle, Leichtweiß-Institute for Hydraulic Engineering and Water Resources • Silke Wieprecht, University of Stuttgart • Ting Fong May Chui, The University of Hong Kong • Mohamed S. Ghidaoui, The Hong Kong University of Science and Technology • Huan-Feng Duan, The Hong Kong Polytechnic University • K Murali, Indian Institute of Technology Madras • Subhasish Dey, Indian Institute of Technology Jodhpur • Manasa Behera, Indian Institute of Technology Bombay • Sannasi Sannasiraj, Indian Institute of Technology Madras • Corrado Gisonni, Università della Campania 'Luigi Vanvitelli' • Claudia Adduce, Roma Tre University • Silvia Meniconi, University of Perugia • Claudio Comoglio, Politecnico di Torino • Hitoshi Tanaka, Tohoku University | <ul style="list-style-type: none"> • Norio Tanaka, Saitama University • Sung-Uk Choi, Yonsei University • Jin-Hwan Hwang, Seoul National University • Eun-Sung Chung, Seoul National University of Science and Technology • Tae-Woong Kim, Hanyang University • Joseph Hun-Wei Lee, Macau University of Science and Technology • Chun Kiat Chang, River Engineering and Urban Drainage Research Centre (REDAC), Universiti Sains Malaysia • Gerald Augusto Corzo, IHE Delft Institute for Water Education • Ellis Penning, Deltares • Bas Jonkman, TU Delft • Asaad Shamseldin, University of Auckland • Mark Davidson, University of Canterbury • José Maria Santos, University of Lisbon • Pilar García-Navarro, Universidad de Zaragoza, Q5018001G • Francisco Martínez-Capel, Universitat Politècnica de València • Anton J. Schleiss, Ecole Polytechnique Fédérale de Lausanne (EPFL) • Volker Weitbrecht, ETH Zürich • Christina Tsai, National Taiwan University • Howard Hao-Che Ho, National Taiwan University • Chia-Ren Chu, National Central University • Dong-Jiing Doong, National Cheng Kung University • Shih-Chun Hsiao, National Cheng Kung University • Kim Irvine, Thammasat University • Roger Falconer, Cardiff University • Thorsten Stoesser, University College London • Vladimir Nikora, University of Aberdeen • Dubravka Pokrajac, University of Aberdeen • Jaan Pu, University of Bradford • Fabian Bombardelli, University of California, Davis • Harindra Joseph Fernando, University of Notre Dame • Gary Parker, University of Illinois Urbana-Champaign • Heidi M. Nepf, Massachusetts Institute of Technology • George Constantinescu, IIHR - Hydroscience & Engineering, The University of Iowa • Panayiotis (Panos) Diplas, Lehigh University • Gregory Pasternack, University of California, Davis • Oliver Fringer, Stanford University • Zhenhua Huang, University of Hawai'i at Mānoa • Robert Ettema, Colorado State University • Thi Thanh Nga Pham, Vietnam Institute of Meteorology, Hydrology, and Climate Change (IMHEN) |
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REVIEWERS

- | | |
|---|--|
| <ul style="list-style-type: none"> • Benjamin Dewals, University of Liege • Pieter Rauwoens, KU Leuven • Eduardo Yassuda, Tetra Tech South America • Carlos Galvao, Federal University of Campina Grande • Van-Thanh-Van Nguyen, McGill University • Sylvie Spraakman, City of Vancouver • Ahmad Shakibaeinia, Polytechnique Montréal • Shooka Karimpour, York University • Ioan Nistor, University of Ottawa • Hossein Bonakdari, University of Ottawa • José Adriasola-Velasco, Bechtel • Lu Wang, Sichuan University • Qian Yu, China Institute of Water Resources and Hydropower Research • Gensheng Zhao, Nanjing Hydraulic Research Institute • Dawei Guan, Hohai University • Juan Pablo Rodríguez Sánchez, Universidad de los Andes • Gordon Gilja, University of Zagreb • Pavel Rudolf, Brno University of Technology • Jeffrey A. Tuhtan, Tallinn University of Technology • Florian Cordier, EDF R&D LNHE • Kamal El Kadi Abderrezzak, EDF R&D LNHE • Damien Violeau, EDF R&D LNHE • Jerome Le Coz, National Research Institute for Agriculture, Food and Environment (INRAE) • Katinka Koll, Technical University of Braunschweig • Ali Pourzangbar, Karlsruhe Institute of Technology • Andreas Kron, Karlsruhe Institute of Technology • Mario Franca, Karlsruhe Institute of Technology • Stefan Haun, University of Stuttgart • Eva Fenrich, SystainAbility • Manousos Valyrakis, Aristotle University Of Thessaloniki • Muhammad Waqar, The Hong Kong University of Science and Technology • Moez Louati, The Hong Kong University of Science and Technology • Nicola Paccanelli, Ove Arup • Ravindra Vitthal Kale, National Institute of Hydrology Roorkee • Zulfeqar Ahmad, IIT Roorkee • Andrea Sulis, University of Sassari • Caterina Capponi, University of Perugia • Bruno Brunone, University of Perugia • Gabriele Freni, Kore University of Enna • Orazio Giustolisi, Polytechnic University of Bari • Michele Mossa, Polytechnic University of Bari • Cristiana Di Cristo, University of Naples Federico II • Nadia Penna, Università della Calabria | <ul style="list-style-type: none"> • Gioele Ruffini, Sapienza University of Rome • Angelo Leopardi, University of Cassino and Southern Lazio • Alessio Radice, Politecnico di Milano • Kenichiro Kobayashi, Saitama University • Satoru Oishi, Kobe University • Daisuke Nohara, Kajima Technical Research Institute • Dalila Loudyi, Hassan II University of Casablanca • Yorick Broekema, Deltares • David Ferras, IHE Delft • Arthur Mynett, IHE Delft and Delft University of Technology • Franz Tscheikner-Gratl, Norwegian University of Science and Technology • Tomasz Dysarz, Poznan University of Life Sciences • Joanna Wicher-Dysarz, Poznan University of Life Sciences • Michael Nones, Institute of Geophysics, Polish Academy of Sciences • Tiago Ferradosa, University of Porto • F. Carvalho Rita, University of Coimbra • Anton Bergant, Litostroj Power • John Okedi, University of Cape Town • José M. Carrillo, Universidad Politécnica de Cartagena • P. Amparo López-Jiménez, Universitat Politècnica de València • Modesto Pérez-Sánchez, Universitat Politècnica de València • Natalia Garcia Estevez, ACCIONA Ingenieria • Ismail Albayrak, ETH Zurich • Schalko Isabella, Swiss Federal Research Institute WSL • Zhihua Xie, Cardiff University • Iacopo Carnacina, Liverpool John Moores University • Daniel Valero, Imperial College London • Valentin Heller, University of Nottingham • Reza Ahmadian, Cardiff University • Jennifer G Duan, University of Arizona • Marian Muste, University of Iowa • Ibrahim Demir, University of Iowa • Constantinescu George, University of Iowa • Ramesh Teegavarapu, Florida Atlantic University • Binbin Wang, University of Missouri • Yifan Zheng, Bechtel Corporation • David Wegner, Woolpert Engineering • Xiaofeng Liu, Pennsylvania State University • Arturo Leon, Florida International University • Ana Margarida Bento, University of Porto • Daniela Molinari, DICA – Politecnico di Milano • Adriana Mercedes Márquez-Romance, University of Carabobo |
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MAIN THEME, SUB-THEMES AND TOPICS

MAIN THEME

INNOVATIVE WATER ENGINEERING FOR SUSTAINABLE DEVELOPMENT

The 41st IAHR World Congress 2025 in Singapore (IAHR2025 Singapore) is a landmark event that centers around the pivotal theme of innovative water engineering for sustainable development. The global gathering will address the multifaceted challenges posed by the dynamic intersection of water resources management, climate change adaptation, and the intricate interplay between water, energy, food security, and nature. It shall provide a platform for experts, researchers, and practitioners from around the world to converge and share cutting-edge insights, groundbreaking research, and new solutions in the field of water engineering to meet these challenges.

As nations grapple with the effects of climate change, the Congress will delve into innovative water engineering that adapts to the evolving challenges posed by a changing hydro-environment. Another focal point of the Congress will be the exploration of innovative concepts that alleviate the increasing pressure on the water-energy-food nexus and acknowledge the intrinsic linkages between these vital resources. Understanding and optimizing this nexus is crucial for fostering sustainable development, and the Congress shall promote the global exchange and collaboration for integrated approaches that maximise these interconnected resources.

Finally, a key objective of the 41st IAHR World Congress 2025 in Singapore is to address the United Nations Sustainable Development Goals (SDGs) related to water resources. These goals encompass a spectrum of global targets to tackle issues ranging from water scarcity and quality to sanitation and ecosystem preservation. By placing a spotlight on innovative water engineering, the Congress aims to contribute to the advancement of these SDGs in both rural and urban environments, towards a resilient society for the well-being of current and future generations.

SUB-THEME A

WATER ENGINEERING AND TECHNOLOGICAL INNOVATIONS

A.1 Climate Change Mitigation

- A.1.1 Water Footprint Reduction
- A.1.2 Incorporation of Water-related Renewable Energies
- A.1.3 Energy Efficiencies to be Gained from Water Uses
- A.1.4 Carbon Sequestration and Storage in Aquatic Environments
- A.1.5 Reduction of Greenhouse Gas Emissions from Water Systems
- A.1.6 Other Related Topics

A.3 Water Engineering and Society

- A.3.1 Water Resources Management
- A.3.2 River Engineering and Management
- A.3.3 Reservoirs Management
- A.3.4 Urban Hydraulics
- A.3.5 Eco- and Environmental Hydraulics
- A.3.6 Water Reclamation and Reuse
- A.3.7 Seawater Desalination
- A.3.8 Cross-boundary Water Transfer
- A.3.9 Alternative Water Resources
- A.3.10 Multi-objective Optimisation
- A.3.11 Other Related Topics

A.2 Improving Resilience against Water Hazards and Natural Disasters

- A.2.1 Coastal Processes and Hazards
- A.2.2 Hydraulic Structures and Processes
- A.2.3 Enhancements in Urban Drainage Systems
- A.2.4 Sediment Transport and Bathymetrical Changes Assessment
- A.2.5 Forecasting and Warning
- A.2.6 Disaster Risk Reduction
- A.2.7 Other Related Topics

A.4 Water Engineering for Energy Transition and Food Security

- A.4.1 Reservoir Renewable Energy Systems (Hydropower, Floating Solar, etc)
- A.4.2 Marine Renewable Energy Systems (Wave Power, Tidal Power, Hybrid Solutions, etc)
- A.4.3 Offshore Renewable Energy Systems (Offshore Wind Power, Oceanic Current Power, etc)
- A.4.4 Water-Energy-Food Nexus
- A.4.5 Water Management for Urban Agriculture
- A.4.6 Water for Hydrogen Production
- A.4.7 Blue Economy
- A.4.8 Other Related Topics

A.5 Digital Transformation

- A.5.1 Artificial Intelligence (AI) Tools for Analysis and Decision Support under Certainties
- A.5.2 Computational Methods for Climate and Meteorology
- A.5.3 Computational Methods for Hydraulic and Water Quality Modelling
- A.5.4 Computational Methods for Coastal Processes (Waves, Currents, etc)
- A.5.5 Data-Driven Methods and Machine Learning Techniques
- A.5.6 Hydroinformatics and Big Data Analytics
- A.5.7 Other Related Topics

A.6 Experimental and Field Methods

- A.6.1 Advanced Experimental Techniques
- A.6.2 Hydrological Measurements (Flow, Groundwater, Precipitation, etc)
- A.6.3 Water Quality Sampling and Analysis
- A.6.4 Aquatic Ecology and Biological Surveys
- A.6.5 Environmental Management and Monitoring
- A.6.6 Remote Sensing – Satellite
- A.6.7 Remote Sensing – Others (Unmanned Aerial Vehicles (UAV), Radar, etc)
- A.6.8 GIS Applications
- A.6.9 Data Uncertainty Analysis and Assessment
- A.6.10 Other Related Topics

SUB-THEME B

WATER ENGINEERING AND SOCIO-ECONOMIC CONSIDERATIONS

B.1 Climate Change Adaptation

- B.1.1 Coastal Protection and Management
- B.1.2 Flood and Droughts Management
- B.1.3 Improvement in Design Guidance under Climate Change
- B.1.4 Revised Engineering Practices in Harmony with Nature
- B.1.5 Resilience Strategies for Extreme Events
- B.1.6 Adoption of Green and Grey Water Infrastructure
- B.1.7 Other Related Topics

B.3 Hydro-Environment Engineering Culture

- B.3.1 Hydro-Environment History and Heritage
- B.3.2 Hydro-Environment Development and Cooperation
- B.3.3 Hydro-Environment Education
- B.3.4 Coastal Resilience and its Definitions
- B.3.5 Social Hydrology and Citizen Science
- B.3.6 Other Related Topics

B.2 Water and Nature

- B.2.1 Innovative Solutions for City in Nature with Water
- B.2.2 Nature-based Solutions for Upstream Catchments and Small Streams
- B.2.3 Nature-based Solutions for Large Rivers
- B.2.4 Nature-based Solutions for Coastal and Estuarine Waters
- B.2.5 Biodiversity in Aquatic Environments
- B.2.6 Ecosystem Services
- B.2.7 Other Related Topics

WORKSHOPS AND MASTERCLASSES

22 June 2025 (Sunday)

AM		PM	
WORKSHOP 1: ADVANCEMENTS IN AIR-WATER FLOWS IN OUTLET STRUCTURES OF RESERVOIR DAMS			
WORKSHOP 2: BLUEMATH: AN OPEN-SOURCE, PYTHON FRAMEWORK WITH INTERACTIVE NOTEBOOKS FOR STATISTICAL ANALYSIS AND SIMULATION OF COASTAL CLIMATE HAZARDS IN A CHANGING CLIMATE			
WORKSHOP 3: MACHINE LEARNING APPROACHES FOR HYDROLOGIC MODELLING AND DATA QUALITY ASSESSMENT			
WORKSHOP 4: ADVANCES IN EXPERIMENTAL AND NUMERICAL MODELLING OF EMBANKMENT DAM AND FLUVIAL DIKE BREACHING			
WORKSHOP 5: INTEGRATING MULTIPHYSICS SIMULATION FOR ADVANCED WATER ENGINEERING SOLUTIONS			
MASTERCLASS A: NATURE-BASED SOLUTIONS FOR FLOODING AND WATER MANAGEMENT RESILIENCE IN A CHANGING CLIMATE			
MASTERCLASS B: STATIONARITY ASSESSMENT OF HYDROCLIMATIC EXTREMES: METHODS AND APPLICATIONS	MASTERCLASS C: ENVIRONMENTAL DATA MANAGEMENT AND DECISION SUPPORT FOR FLOOD MONITORING AND DISASTER RESILIENCE	MASTERCLASS D: ADVANCED APPROACHES IN THE PHYSICAL MODELLING OF HYDRAULIC STRUCTURES	

LISTING OF WORKSHOPS

WORKSHOP 1: ADVANCEMENTS IN AIR-WATER FLOWS IN OUTLET STRUCTURES OF RESERVOIR DAMS

22 June 2025 (Sunday) | 9:45am – 4:45pm

Convenors: Simone Pagliara, Matthias Bürgler, David F. Vetsch, Robert M. Boes

Fee: S\$100

**Includes 2 x coffee / tea breaks.*

Synopsis

Reservoir dams are vital hydraulic infrastructure, playing a key role in water resources management for irrigation and drinking water supply, hydroelectric generation, and flood mitigation, among others. The outlet structures of reservoir dams including low- and mid-level outlets and spillways are unique in terms of scale and dissipated power outputs. The operational safety of these structures critically depends on accurate predictions of high-velocity air-water flows, as inadequate design can lead to catastrophic consequences. Furthermore, with the aging of existing infrastructure and the necessity to adapt to evolving hydrological conditions driven by climate change, many dams will require significant refurbishment and upgrades in the near future. This highlights the strong need for robust design guidelines for high-velocity air-water flows in outlet structures of reservoir dams.

This workshop aims to convey the most recent scientific findings relevant for the safe design of air-water flows in outlet structures of reservoir dam, targeting both the research community and practitioners.

WORKSHOP 2: BLUEMATH: AN OPEN-SOURCE, PYTHON FRAMEWORK WITH INTERACTIVE NOTEBOOKS FOR STATISTICAL ANALYSIS AND SIMULATION OF COASTAL CLIMATE HAZARDS IN A CHANGING CLIMATE

22 June 2025 (Sunday) | 9:30am – 5:30pm

Convenor: Fernando Mendez

Fee: S\$155

**Includes 2 x coffee / tea breaks. Minimum 5 participants required for workshop to start.*

Synopsis

In the face of increasing global challenges such as coastal hazards and climate change, the use of robust statistical and numerical analysis tools is essential. Tools that facilitate the analysis of multivariate met-oceanic climatic drivers (e.g., waves, storm surges, tropical and extratropical tropical cyclones) acting at multiple spatial and temporal scales are key for predicting flooding events, producing risk assessments or planning for adaptation measures. The development of applications for analysing coastal hazards in a changing climate demand not only accessibility to such tools but also the flexibility to combine them seamlessly to generate valuable insights and solutions. Within this context, BlueMath-Hub emerges as a collaborative platform of many research groups and universities around the world working together to democratise the access to advanced models and services, empowering both researchers and non-specialists to generate customised, complex solutions.

To the best of our knowledge, it is the first tool developed for this purpose. BlueMath promotes collaboration and innovation among scientists while enabling a more resilient future through easily accessible, customizable, and scalable solutions.

WORKSHOP 3: MACHINE LEARNING APPROACHES FOR HYDROLOGIC MODELLING AND DATA QUALITY ASSESSMENT

22 June 2025 (Sunday) | 9:30am – 5:30pm

Convenor: Ramesh S. V. Teegavarapu

Fee: S\$125

**Includes 2 x coffee / tea breaks.*

Synopsis

This workshop aims to introduce the concepts of Machine Learning (ML) approaches for hydrologic modelling and data quality assessment and improvement. The workshop will focus on the fundamentals of ML techniques for hydrologic forecasting, data quality improvement, and approaches supporting water resources management.

The participants are expected to learn more about the ML tools and explore their functioning. In addition, they would be introduced to generic techniques for model calibration, validation, predictor selection, and model evaluation. At the end of the workshop, the participants are expected to acquire sufficient knowledge to appreciate the different ML techniques and be able to select the best techniques to solve real-world hydrologic problems.

WORKSHOP 4: ADVANCES IN EXPERIMENTAL AND NUMERICAL MODELLING OF EMBANKMENT DAM AND FLUVIAL DIKE BREACHING

22 June 2025 (Sunday) | 9:30am – 5:30pm

Convenors: *Sílvia Amaral and Matthew Halso*

Fee: S\$100

**Includes 2 x coffee / tea breaks. Minimum 10 participants required for workshop to start.*

Synopsis

This workshop focuses on ongoing research efforts related to the failure of earth dams and fluvial dikes. It will explore state-of-the-art experimental techniques and advanced numerical modelling approaches aimed at addressing the complex behaviour of these structures under diverse conditions. Participants will gain exclusive insights into the groundbreaking developments in both fundamental understanding (i.e., phenomenology and underlying processes) and practical applications (i.e., engineering solutions). The event will showcase how theoretical knowledge translates into real-world engineering practices, offering a comprehensive view of both basic science and applied research in the field.

Participants will engage in hands-on sessions, round-table discussions, and live presentations that highlight the synergy between the experimental and numerical modelling. This workshop will provide the knowledge and tools to tackle the challenges of dam and dike safety in an evolving landscape for academics, industrial professionals or policymakers, being an invaluable opportunity to network, share knowledge, and collaborate on future innovations in the safety and resilience of hydraulic structures of this kind.

WORKSHOP 5: INTEGRATING MULTIPHYSICS SIMULATION FOR ADVANCED WATER ENGINEERING SOLUTIONS

22 June 2025 (Sunday) | 9:30am – 5:30pm

Convenor: *Yao Xin*

Fee: S\$300

**Includes 2 x coffee / tea breaks. Minimum 10 participants required for workshop to start.*

Synopsis

Multiphysics simulation plays a pivotal role in modern water engineering, enabling the modelling of complex interactions between physical phenomena such as fluid flow, heat transfer, solid mechanics, and chemical reactions. This integrated approach leads to more accurate predictions, optimised designs, and innovative solutions for real-world challenges. In this hands-on workshop, participants will explore the capabilities of COMSOL Multiphysics® for simulating and optimising water engineering applications. Step-by-step tutorials and case studies will guide attendees through modelling multiphysics phenomena.

LISTING OF MASTERCLASSES

MASTERCLASS A: NATURE-BASED SOLUTIONS FOR FLOODING AND WATER MANAGEMENT RESILIENCE IN A CHANGING CLIMATE

22 June 2025 (Sunday) | 9:30am – 5:30pm

Convenors: Ellis Penning, Catherine Wilson

Fee: S\$100

**Includes 2 x coffee / tea breaks.*

Synopsis

The masterclass will begin with an introductory lecture which covers the concept of Nature-based Solutions (NbS) and generic aspects of NbS design and siting. This will be followed by two sessions, a morning and an afternoon session, where group-based discussions with two instructors and a selected group of students discuss their PhD proposals or their on-going research project. The morning session will focus on process-based research to characterise and quantify hydraulic and hydrological processes in a field and laboratory setting. The afternoon session will focus on quantifying NbS from a modelling perspective, considering aspects such as input data requirements, and spatial and temporal resolution for capturing different scale processes using either a hydrodynamic, hydrological and/or a computational fluid dynamics (CFD) code. Each participant will have approximately 45 minutes to discuss their work in detail. Participants will be asked to submit/give a ten-minute presentation to the group at the beginning of their time slot.

MASTERCLASS B: STATIONARITY ASSESSMENT OF HYDROCLIMATIC EXTREMES: METHODS AND APPLICATIONS

22 June 2025 (Sunday) | 9:30am – 11:00am

Convenors: Priyank J. Sharma, Ramesh S. V. Teegavarapu, Achala Singh

Fee: S\$50

**Excludes coffee / tea breaks.*

Synopsis

Long-term hydroclimatic series are evaluated in research studies focused on climate change and variability assessments. In general, hydrologic design relies on the assumption of stationarity of hydroclimatic extremes and its assessment becomes an essential initial task. Stationarity, in the context of design floods, may imply their time invariance and the constant probability of failure of a given water resource structure for its entire design life. However, the assumption of stationarity may lead to over- or under design, in cases where the time series is indeed non-stationary. Stationarity, a cornerstone in hydraulic design, is now under scrutiny due to anthropogenic activities and climate change. Non-stationarity is also attributed to several factors such as human interventions (e.g., land use and cover alterations, reservoir regulations), occurrences of sporadic natural hazards (e.g., forest fires, volcanic eruptions, earthquakes), the low frequency components of oceanic-atmospheric phenomena (e.g., Pacific Decadal Oscillation, Atlantic Multidecadal Oscillation, and El Nino-Southern Oscillation), and global warming.

MASTERCLASS C: ENVIRONMENTAL DATA MANAGEMENT AND DECISION SUPPORT FOR FLOOD MONITORING AND DISASTER RESILIENCE

22 June 2025 (Sunday) | 11:30am – 1:00pm

Convenor: Nicole Nally

Fee: S\$50

**Excludes coffee / tea breaks and lunch.*

Synopsis

Aquarius uses best in class environmental data management software to enable collection, curation, and transformation of environmental data into actionable data. With numerous deployments in high-risk areas around the world, the Aquatic Informatics team and the Aquarius platform bring a wealth of experience in deploying global system for risk monitoring and management.

This masterclass will focus on data acquisition, data curation and transformation to data dashboard that provide actionable data to frontline risk management for key stakeholders. The Aquatic Informatics team will provide examples from actual deployments around the world.

MASTERCLASS D: ADVANCED APPROACHES IN THE PHYSICAL MODELLING OF HYDRAULIC STRUCTURES

22 June 2025 (Sunday) | 2:00pm – 3:30pm

Convenor: *Muhammed Hashid*

Fee: S\$50

**Excludes coffee / tea breaks. Minimum 35 participants required for masterclass to start.*

Synopsis

The proposed masterclass will be focusing on the recent advancements in the physical modelling of hydraulic structures with elaborated discussions based on the research and case studies conducted in the hydraulics laboratory of IIT Roorkee, India. The physical modelling history of IIT Roorkee dates back to 1857, when the institute was established with the construction of the Upper Ganga Canal. The hydraulics laboratory then evolved in unique ways to the current advancements with modern instrumentation in the last 175 years which handles a discharge of more than 2.5m³/s. The masterclass will be highly insightful for the participants, as it will motivate young researchers towards experimental hydraulics.

Advancements in hydraulics are essential in the current and future worlds, as we are facing severe environmental and climatic changes across the globe, which calls for more interventions from hydraulic engineers. The masterclass includes a discussion on modelling aspects of the dynamic behaviour of structures in flow and waves, hydrodynamic studies based on advanced imaging techniques, fluvial hydraulic modelling, and advancements in scaling issues for various hydraulic structures. The session will help to improve the understanding of the relevance of planning and designing of hydraulic and hydrologic structures.

KEYNOTES AND SPEAKERS

To be announced shortly.

HIGH-LEVEL PANELS

To be announced shortly.

SPECIAL SESSIONS

Session 1: 5TH GLOBAL WATER SECURITY SEMINAR: WATER AND BIODIVERSITY

Convenor: Chang Yuan

Organised by Ministry of Water Resources of China and World Water Council

The Global Water Security Seminar is a yearly flagship event jointly hosted by the Ministry of Water Resources of China and the World Water Council, focusing on different topics for each of its edition with a common objective of promoting global water security. Building on the success of its four previous editions, the 5th Global Water Security Seminar: Conserving Biodiversity—Fishpass Cases Around the World will see high level officials and international experts on fishpass construction, management and optimization, biodiversity etc., sharing latest policy progress and best practices, with the aim of maintaining and restoring biodiversity as a key for promoting global water security.

Session 2: ADAPTIVE MANAGEMENT OF RIPARIAN VEGETATION IN THE ERA OF CLIMATE CHANGE

Convenors: Takashi Asaeda, Rohan Benjankar and Dongdong Shao

Riparian areas in many parts of the world have been encroached with grasses, shrubs and trees, a.k.a. "from white to green river.". This phenomenon prevails in regulated rivers due to changes in flow regime, as well as in unregulated rivers due to temperature and precipitation changes. This causes various socio-environmental issues, including 1) habitat change, 2) flood risk increase, and 3) landscape change, etc. Adaptive management strategies may be feasible to mitigate the negative effects of this regime shift while optimizing the positive effects. This special session will present and discuss research and practices relevant to solving this prominent issue facing the Ecohydraulics community.

Session 3: ADVANCED MEASURING TECHNIQUES FOR OCEAN WAVES AND CURRENTS

Convenor: Prof. Dong-Jiing Doong

This special session is essential for sharing the latest developments in monitoring and analysing wave and current dynamics. Accurate measurement techniques are crucial for understanding coastal processes, ocean circulation, and environmental changes, which directly impact marine engineering, climate research, and coastal management. This session aims to bring together experts, researchers, and practitioners to discuss innovative tools, methodologies, and technologies that enhance the precision and efficiency of wave and current measurements. By facilitating knowledge exchange, the session seeks to advance the field and foster collaborations that address current challenges in marine and coastal environments.

Session 4: ADVANCED TECHNOLOGIES APPLIED FOR FLASH FLOOD DEFENCE AND MANAGEMENT

Convenors: Qiang Ma, Dedi Liu and Philippe Gourbesville

Over recent years, the occurrence of extreme rainfall shows a significant increasing trend in the world, especially in the mountainous area that often causes serious flash flood disasters. In order to address new challenges and to explore operational technologies and approaches of flash flood defence and prevention, this session will mainly focus on advanced hydro informatics solutions of flash flood prevention from strategies and methods to tools and applications.

Session 5: ADVANCES ON THE STUDY OF VEGETATION IN A VARIETY OF SETTINGS

Convenors: Florian Cordier, Heidi Nepf, Damien Violeau, Vladimir Nikora and Kamal El Kadi Abderrezzak

In the last decades, vegetation in fluvial and coastal areas has been a focus in environmental management for both its negative and positive impacts. Therefore, understanding and modelling the physical processes associated with macrophytes placed in a flow is becoming increasingly important in the engineering community. This special session will share the latest advances on the study of vegetation in the context of hydraulic science and engineering, aiming to facilitate the dissemination of the latest discoveries. A specific time slot will be dedicated at the end of the session to meet the speakers, which offers an exceptional opportunity for - especially early career - scientists to share with presenters and enlarge their network.

Session 6: CONCEPT OF ADAPTATION – COASTAL MEASURE AND CLIMATE CHANGE

Convenor: Yang Zi Qian

This session is centred on the concept of adaptation. As we plan our coastal protection strategies and waterfront infrastructure, climate change is bringing numerous challenges, uncertainties, and even opportunities. We must ask ourselves what role should adaptation play in these changing circumstances? For centuries, our focus was on expanding, sometimes at the expense of nature. We are now realizing that our growth and development must work in harmony with nature. As a result, our solutions are increasingly nature-oriented, nature-based, or at least hybrid approaches that incorporate natural elements.

The purpose of this session is to bring together experts and professionals to explore what it means to be adaptive in the context of our coastal environments. We will discuss best practices, lessons learned, and the challenges we face. Finally, we will consider what our future coastlines should look like to remain adaptive in the face of ongoing (climate) change.

Session 7: CURRENT RESEARCH IN COASTAL PROTECTION AND FLOOD RESILIENCE CONDUCTED IN CFI SINGAPORE

Convenors: Koh Chan Ghee, Raymond Ong, Qian Xudong and Adrian Law

The Coastal Protection and Flood Resilience Institute (CFI) Singapore, hosted by the National University of Singapore, collaborates with Nanyang Technological University, Singapore University of Technology and Design, Singapore Institute of Technology, and A*STAR. CFI focuses on two horizontal and two vertical research areas. The horizontal areas include coastal science to understand climate change impacts and digitalization to enhance coastal predictions. The vertical areas focus on adaptive, multifunctional engineering solutions for Singapore's coasts, and nature-based solutions with guidelines for implementation. These CFI sessions will showcase ongoing research from CFI's experts, addressing coastal protection and flood resilience.

Session 8: DAM SAFETY: ADDRESSING MODERN CHALLENGES AND FUTURE RISK

Convenors: Ashutosh Sharma and Eduardo Mario Mendiando

With the growing challenges posed by climate change, ageing dam infrastructure, and increasing societal reliance on dams, ensuring their safety is of paramount importance. This session aims to bring together global experts, policymakers, and practitioners to discuss cutting-edge research, innovative safety practices, and lessons learned from diverse experiences. Key focus areas will include risk assessment, structural and operational safety, emergency preparedness, and the integration of digital technologies for monitoring and maintenance. By fostering interdisciplinary collaboration, the session seeks to address critical challenges and pave the way for sustainable and resilient water resource management globally.

Session 9: DEBRIS AND DRIFTWOOD ACCUMULATION AT HYDRAULIC STRUCTURES

Convenors: Davide Wüthrich, Isabella Schalko, Sébastien Erpicum and Elena-Maria Klopries

Recent floods have highlighted the impact of driftwood and debris accumulation at hydraulic structures like bridges and culverts, which reduce waterway capacity, cause upstream flooding, and exacerbate flood damage. This special session aims to bring together researchers from around the world who are studying the accumulation of driftwood and large floating debris. It will provide a platform for sharing knowledge, discussing ongoing research, and exploring potential solutions that could lead to optimized and more effective flood resilience and debris management strategies.

Session 10: EARTH OBSERVATION TO MONITOR LAND AND WATER ECOSYSTEMS

Convenors: Michael Nones and Melissa Latella

Earth Observation (EO) provides massive amounts of data about land and water surfaces, leading to a paradigm shift in observing and measuring ecosystem dynamics across multiple spatiotemporal scales. This special session will focus on recent advances in EO for the monitoring of land and water ecosystems, offering a short overview of the state-of-the-art, addressing current challenges, and discussing future developments. We invite abstracts that deal with this topic from different perspectives, including but not limited to: EO integration with in-situ measurements, generation of new monitoring service, use of new sensors, knowledge disclosed by EO-based monitoring, use of EO data for numerical modelling, and impacts on policy and management.

Session 11: EDUCATION AND PROFESSIONAL DEVELOPMENT: THE NEEDS OF WATER PROFESSIONALS IN A CHANGING ENVIRONMENT AND SOCIETY

Convenors: Ioana Popescu, Reinhard Hinkelmann, Philippe Gourbesville

We are proposing an IAHR conference session exploring the landscape of professional education in water engineering. Within this session comprehensive presentations will showcase how academic institutions aim to enhance the skills and knowledge necessary for addressing contemporary challenges in the water sector. Shaping the future of water professionals through innovative educational programmes and research opportunities. The speakers of this session will present different educational programmes, as well as ways to get a water programme recognised/labelled by IAHR. A series of 4-6 programmes will be presented followed by a 20–30-minute discussion with presenters.

Session 12: EMERGING ISSUES FOR WATER MANAGEMENT IN REMOTE REGIONS WITH INTERPLAY OF CLIMATE CHANGE SOCIAL, ECONOMIC, AND ENVIRONMENTAL FACTORS

Convenors: Satoru Oishi, Ramesh S. V. Teegavarapu, Elpida Kolokytha, Carlos de Oliveira Galvão

This session invites contributions summarizing and discussing water management problems and experiences in remote regions focusing on climate change and variability combined with social, economic, and environmental issues. Remote regions refer to those that are economically distressed, underdeveloped, and lack the infrastructure to handle problems related to evolving climate and other regional stresses. Climate change impacts in many of these regions make it critical to address the issue of water and natural resource management. The planned session is expected to attract studies from different regions of the world addressing the described core issues.

Session 13: ENHANCING WATER AND SOCIAL RESILIENCE IN URBAN AREAS: A CALL FOR CITY WATER LEADERS

Convenor: Elpida Kolokytha

Co-organised with IAHR, UNESCO IHP, CRSRI, AUTH UNESCO cat.II CIMWRM.

The event aims to enhance our understanding of integrating diverse climate adaptation and mitigation measures into urban resilience strategies. By adopting a "learning cities approach," participants will share exemplary practices, learn from global cities, and develop innovative solutions collaboratively. Discussions will focus on engineering, policy, and community-based approaches to improve water and social resilience in urban areas. Key topics include increasing water availability, strengthening drought resistance, promoting flood protection, reducing water pollution, and safeguarding aquatic ecosystems. A critical challenges posed by climate change in urban settings. Helping cities to better ensure a resilient and sustainable future.

Session 14: ENVIRONMENTAL RESTORATION AND PROTECTION IN SEAS AND COASTS: RECENT CASES FROM SPAIN

Convenor: José Francisco Sánchez González

The need to protect marine and coastal areas has intensified due to climate change and unsustainable human practices. This special session will show recent coastal restoration and protection initiatives led by the Spanish Ministry for Ecological Transition and Demographic Challenge. These projects aim to enhance water quality, increase coastal resilience and protect biodiversity. Topics will include relevant examples the main beach/wetlands restoration projects, some of the most recent strategies for coastal protection in two Mediterranean regions of Spain, and a description of a set of measures developed to strengthen the governance of the seas included in the Spanish Marine Spatial Plans.

Session 15: FLOOD ADAPTATION AND RESILIENCE

Convenors: Reza Ahmadian, Vasilis Bellos and Pierfranco Costabile

Flooding affects more people globally than any other natural hazard. It is known that humans cannot stop flooding everywhere, particularly as the severity and frequency of floods have significantly increased recently. Therefore, in addition to aiming to reduce the occurrence of floods, it is important to enhance adaptation and resilience to more severe flooding. This Session will focus on research and engineering solutions related to increased flood risk adaptation and improved resilience, including—but not limited to—enhanced understanding of the impacts of flooding, such as the effects on humans and vehicles, flood evacuation planning, resilient solutions like sponge cities and blue-green infrastructure, and resilient infrastructure.

Session 16: FLOOD HAZARD PROJECTIONS AND ADAPTATION STRATEGIES IN LOW LYING COASTAL AREAS

Convenors: Andrea Sulis and Ioan Nistor

The question of how to adapt low lying coastal areas to flood hazard of the future is of great concern. It is not only for scientists and engineers, but also for policy makers and risk practitioners. The proponents of this special session invite theoretical, methodological, and empirical studies to better understand future flood hazard in coastal areas and potential adaptation strategies. Multidisciplinary approaches across spatial and temporal scales are encouraged, especially in relation to definition of the best practices providing a critical analysis and identifying the challenges in their adoption and recommendations for their upscaling.

Session 17: GUIDELINES FOR ADAPTATION TO CLIMATE CHANGE IN WATER ENGINEERING

Convenor: Roberto Ranzi

This session invites experts who contributed to the IAHR Monograph on water engineering design guidance in a changing climate prepared by the Technical Committee on Climate Change Adaptation. It aims at providing a guidance to professionals, researchers and policy makers for assessing observed and projected impact of climate variability and change on the hydro-systems and to adapt the practice of engineering design of hydraulic infrastructures and water resources management to such changes.

Session 18: IMPACT OF CLIMATIC EXTREMES ON RIVER SYSTEMS

Convenors: Senlin Zhu and Yuankun Wang

Rivers are valuable resources to our planet. However, they are vulnerable to interferences induced by natural and anthropogenic activities. Given the anticipated rise in extreme climatic events, it becomes imperative to accurately quantify their impacts on rivers, and novel methods by coupling multiple sources of data and modeling techniques are especially needed, which can provide reference for decision-makers about the sustainable management of rivers.

Session 19: INAUGURAL COASTAL PROTECTION ASEAN SYMPOSIUM

Convenor: Singapore Water Association (SWA) Coastal Protection Chapter

Session 20: INNOVATIVE APPROACHES TO URBAN RESILIENCE: ADDRESSING FLOOD RISKS AND CLIMATE ADAPTATION

Convenors: Ana Margarida Bento, Gensheng Zhao and Miguel Costa

This session highlights innovative strategies that link flood risk management, climate adaptation and urban resilience. It focuses on integrating digital twin systems with advanced tools such as remote sensing, satellite imagery, drones and machine learning for accurate flood mapping and early warning. We seek contributions that focus on multidisciplinary approaches, including 1D, 2D, and 3D modelling, computational fluid dynamics (CFD), LiDAR, GIS, and IoT sensor networks. Submitted works should offer practical solutions for addressing the challenges of rising sea levels, extreme rainfall, and climate change impacts to improve urban water management. Join us in promoting sustainable, resilient strategies for managing future urban flooding.

Session 21: INNOVATIVE WATER ENGINEERING FOR SUSTAINABLE DEVELOPMENT IN LATIN AMERICA

Convenor: Luiz H. Maldonado

The session is being held jointly by the Latin American Division of Hydraulics of IAHR, the Brazilian Water Resources Association (ABRHidro), and Itaipu Binacional

The objective of the session is to provide an environment for sharing studies conducted in the Latin American region on the sub-themes of "Water Engineering and Technological Innovations". The session will be an excellent opportunity for the Latin American scientific community to join the IAHR World Event to discuss the future of water resources, hydraulics and the long-term sustainability of the region. We invite the Hydraulics and Water Resources Associations of Latin America to participate. Representatives from the IAHR Latin American Division will be present at the session and will select the best papers for publication in the Ribagua journal.

Session 22: INTEGRATED FLOOD RISK MANAGEMENT (IFRM): FROM SCIENCE TO PRACTICE

Convenors: Daniela Molinari and Stefan Haun

Integrated Flood Risk Management (IFRM) promotes flood resilience and sustainable development, by solutions that address multiple spatial and temporal scales, integrate environmental considerations, and combine structural and non-structural measures. While widely recognized in literature and policy, its practical implementation especially in developing countries—remains limited. Bridging the gap between theory and practice demands interdisciplinary collaboration to design effective, scalable solutions. Building on discussion from the 2023 IAHR Congress in Vienna, this session seeks to enhance collaboration among researchers, practitioners, and managers. It encourages sharing best practices and lessons learned from IFRM applications worldwide. Contributions are welcome on modelling approaches, technological innovations, methodologies, policy frameworks, and multidisciplinary strategies that advance IFRM implementation and resilience-building efforts.

Session 23: INTERNATIONAL SYMPOSIUM ON COASTAL RESOURCES AND ENVIRONMENT (CORE2025)

Jointly organised by Hohai University (China), University of Auckland (New Zealand), Beijing Normal University (China), National University of Singapore (Singapore) and Southern Marine Science and Engineering Guangdong Laboratory (China).

The International Symposium on COastal Resources and Environment (CORE) is a platform for researchers to exchange ideas, make new connections, cultivate young researchers and hence advance this field of research. Six sessions are planned: (1) estuarine hydrodynamics and sediment dynamics, (2) biophysical interactions and biomorphodynamics, (3) blue carbon in tidally dominated environments, (4) estuarine systems as buffers against climate change, (5) sustainability of human-sea coupled coastal wetland systems, and (6) technological advances and nature-based solutions.

Session 24: NATURE-BASED SOLUTIONS CONNECTING SCIENCE AND PRACTISE WORKSHOP

Convenors: Ellis Penning, Catherine Wilson, Gary Lei

This special session is a workshop where we connect science and practise to discuss how to make a Nature based Solution scheme successful. The workshop will focus on behind-the-scenes aspects of NbS schemes and include aspects of financing, governance, internal processes as well as the stages that led to the co-design of the scheme and draw from real NbS schemes examples such as Bishan Ang Mo Kio Park (Singapore), Severn Valley and/or Project Groundwater (UK) schemes. This workshop will involve audience participation; we will discuss the importance of stakeholder involvement, stages leading to implementation, what type of efforts are needed to really make it happen and what kind of practical lessons learnt can be shared.

Session 25: NATURE-BASED SOLUTIONS FOR WATER SECURITY: RECENT PROGRESS IN MONITORING, EVALUATION, AND REPORTING

Convenor: Perrine Hamel

Nature-based solutions – actions to protect, restore, or manage natural ecosystems to address societal challenges – have great potential to enhance water security worldwide. Since nature-based solutions are embedded in complex social, technological, and ecological contexts, their implementation often challenges conventional approaches to monitoring, evaluation, and reporting (MER) of watershed management. To address these complexities, this session explores recent advances in MER practices by highlighting innovative methods and indicators tailored to diverse environmental, cultural contexts. By recognizing the plurality of worldviews and success metrics—spanning ecological, social, and economic dimensions—this session promotes a holistic approach to understanding and managing nature-based solutions for water security.

Session 26: NEW HYDROINFORMATICS STRATEGY AND APPLICATION OF CATCHMENT DIGITAL TWIN

Convenors: Qiang Ma, Xiaoxiang Zhang and Philippe Gourbesville

With the development of hydro informatics technology, the new challenges and opportunities in the field of catchment digital twin has been widely discussed in many water societies and committees. Comparing with the classical approaches applied in watershed management, the add values of new strategies, methods and tools such as the AI and machine learning approaches applied for forecasting and early warning, the integrated distributed hydro-simulations applied for virtually representing the hydro-elements in the catchment, and the high performance computation technology applied for supporting the real-time decision-making process, will be all deeply discussed in this session.

Session 27: OUTFALL SYSTEMS AND EFFLUENT DISCHARGES

Convenor: Majid Mohammadian

This special session focuses on the topic of wastewater outfall systems including discharges of domestic, industrial or desalination waste streams to inland and coastal receiving waterways. The planning, design and siting of outfalls is a complex task that relies on many disciplines including oceanography, civil and environmental engineering, marine biology, construction, economics, public relations and social and cultural matters. The primary purpose of the special session is to bring together a broad range of these disciplines and to provide a forum for presentations and discussion relating to recent research and real-life case studies.

Session 28: RIVER ETHICS AND WATER ENGINEERING

Convenors: Philippe Gourbesville and Xin He

Globally, rivers are in critical danger, which urgently calls for new solutions. At the 2023 UN Water Conference, an initiative was proposed to construct River Ethics. Additionally, the 10th World Water Forum saw the release a report titled River Ethics and China's Practices, which was subsequently made available in multiple languages at the 3rd Asia International Water Week. A book on River Ethics is underway, addressing the ethical dilemmas humanity faces in river protection and advancing the ontological concept of harmony between humans and nature. This special session will discuss the theories and practices of River Ethics, particularly the integration of River Ethics into real-world engineering and management.

Session 29: SAFETY ASSESSMENT FOR INSTREAM INSTALLATIONS USING MULTI-SENSOR-BASED REMOTE TECHNOLOGY

Convenors: Sung-Uk Choi and Chang Geun Song

This special session will cover research contents on 'Safety assessment technology for instream installations based on integrated measurement technology'. The detailed research technologies are (1) river crossing water resources facility measurement technology using remote sensing techniques, (2) river crossing water resources facility damage detection technology based on measurement data, (3) river crossing water resources facility integrated monitoring platform technology, and (4) river crossing water resources facility safety assessment technology, which is represented by four strategies: Measurement, Analysis, Visualization, and Evaluation.

Session 30: SEDIMENT MANAGEMENT FOR RESERVOIR SUSTAINABILITY

Convenors: Kamal El Kadi Abderrezak and Eddy Langendoen

Sedimentation, leading to the loss of the storage capacity of dam reservoirs, is a growing problem worldwide, further exacerbated by climate and land use changes. This special session aims at sharing knowledge and tools for applying effective strategies to counter sedimentation. We solicit papers presenting 1) methods and technologies for predicting and tracking reservoir sedimentation; 2) multidisciplinary studies, including both successful and ineffective experiences in field deployment of management strategies; and 3) guidelines on how to design and select technically and economically the best management solutions.

Session 31: SOCIO-ECONOMIC CHALLENGES IN ASIA: FUTURE ROLES OF URBAN WATER NETWORK MODELLING AND OPTIMIZATION

Convenors: Donghwi Jung and Alvin Chew

This special session aims to facilitate knowledge exchange and best practices on emerging challenges of urban water management, with a particular focus on Asian countries. The session will highlight their cutting-edge insights and innovative techniques designed to efficiently and effectively address water-related issues in urban areas.

Session 32: SURROGATE TECHNIQUES FOR MONITORING SEDIMENT TRANSPORT IN FLUVIAL AND TRANSITIONAL SYSTEMS

Convenors: Slaven Conevski and Massimo Guerrero

The proposed session aims to present and discuss the most recent results and experiences achieved by advanced surrogate techniques, such as optical, acoustic and imaging methods. This Special Session invites contributions that address advanced and novel aspects of measuring sediment transport in rivers and transitional areas using surrogate techniques (e.g., acoustic, optical, imaging, remote sensing). Contributions may cover a variety of topics ranging from field and laboratory studies towards the understanding of fundamental processes, the validation of surrogate methods and the assessment of novel devices, methodology and data analysis performance.

Session 33: TRANSPORT DYNAMICS OF PLASTIC POLLUTION IN AQUATIC ENVIRONMENTS

Convenors: Matthias Kramer and James Lofty

Plastic pollution is now found in most environmental compartments, and an increasing number of studies highlights the impacts of plastics at different levels, urging for interdisciplinary efforts. To date, limited knowledge is available on the transport mechanisms of plastics in water bodies, and more research is required to tackle the plastic problem in an efficient manner. We welcome contributions on the dynamics, transport, and fate of plastics in aquatic environments, ranging from urban networks to freshwater systems and marine settings. Most welcome are physical/experimental and numerical modelling studies on the transport dynamics of plastics, with a focus on methods and techniques.

Session 34: TRENDS AND VARIATIONS IN HYDROCLIMATIC VARIABLES: LINKS TO CLIMATE VARIABILITY AND CHANGE

Convenors: Priyank J. Sharma, Ramesh S. V. Teegavarapu and Achala Singh

This session focuses on the application of statistical techniques for objectively assessing trends in hydroclimatic variables at different temporal and spatial scales to assess any discernible links to climate variability and change. This session aims to explore the applicability of emerging techniques and approaches for detecting stationarity in hydroclimatic time series. Research studies unraveling the effects of climate variability on hydroclimatic conditions at local and global scales will be appreciated. Further, research studies assessing the co-evolution of hydroclimatic variables under the influence of climate variability and change will also be welcomed.

Session 35: UNITING FOR WATER: GLOBAL COLLABORATION TO TACKLE WATER CHALLENGES

Convenor: Intan Supraba

The invited speakers in this session will address the unresolved water issues faced by various countries, influenced by economic, technical, and socio-political factors. These issues include water supply systems, barrier lake hazards, water pollution, contaminants, and flooding in the context of climate change. One proposed solution is the implementation of Nature-Based Solutions. We invite academics, industry professionals, and government officials to attend and engage in discussions with the speakers. By the end of the session, our goal is to promote international collaboration in tackling these challenges.

Session 36: WATER SYSTEM OPERATION AND DIGITAL TWIN

Convenors: Xiaohui Lei, Chao Wang, Siyu Cai

The water system covers the whole water cycle in both nature and human settlements. Specifically, it is referred to as basins and trans-basin water systems. For all the water system operations, what we do is to provide an optimal management of water resources. Therefore, how to rely on the accurate operation of water projects and adopt new technologies and integrated modeling platforms to build a complex water resource scheduling technology aiming at five major water security issues in water systems, such as flood control, water supply, water ecology, water environment and water project safety, is the core technical problem of current water system operations. We welcome presentations on digital twin development of different complexities and maturity levels for diverse water systems (river, basin, urban, water diversion project). Moreover, we welcome presentations on applications that integrate hydrological processes in natural and human settlements for improved integrated water management using digital solutions.

ORAL AND POSTER PRESENTATIONS

LISTING OF ORAL PRESENTATIONS

SUB-THEME A: WATER ENGINEERING AND TECHNOLOGICAL INNOVATIONS

A.1 CLIMATE CHANGE MITIGATION

A.1.1 Water Footprint Reduction

[Harnessing Advanced Technologies To Optimize Industrial Water Footprint Reduction](#)

Jimmy Yu and Wenny Noha

A.1.2 Incorporation of Water-related Renewable Energies

[An Archimedes Screw Based Barrier Modification System: Synergistic Approach To Nature Restoration And Renewable Energy Generation](#)

Kristina Petra Zubovic, Calvin Stephen, Patrick Morrissey, John Byrne, Mary Kelly-Quinn and Aonghus McNabola

A.1.3 Energy Efficiencies to be gained from Water Uses

[Factors Determining The Efficiency Of Drinking Water Production Locations In The Netherlands](#)

Mattheus de Koning, Mario E. Castro-Gama and Koen Hogeboom

[Test Bench For The Validation Of Technical Solutions For Energy Flexibility In Water Supply Networks](#)

François Nuc, Pierre Archambeau, Patrick Hendrick and Sébastien Erpicum

A.1.4 Carbon Sequestration and Storage in Aquatic Environments

[Similarity Solutions For Axisymmetric Gravity-Driven Forchheimer Flow In Porous Media](#)

Alessandro Lenci, Luca Chiapponi, Vittorio Di Federico and Sandro Longo

[The Influence Of Stratified Shear Instabilities On Particle Sedimentation With Application To Marine Carbon Dioxide Removal](#)

Adam Jiankang Yang and Mary-Louise Timmermans

[Adapting A Numerical Mangrove Growth Model For Assessing Australian Coastal Wetlands](#)

Steven G. Sandi, Masaya Yoshikai, Siegmund Nuyts, Wendy Timms, Peter Macreadie and Stacey Travathan-Tackett

A.1.5 Reduction of Greenhouse Gas Emissions from Water Systems

[Lifecycle Assessment As Applied To Full-Scale Wastewater Treatment Infrastructure](#)

Sailaja Poudel, Peter Leonard, Sean Mulligan and Eoghan Clifford

[Carbon Emission Reduction From Integration Of Existing Hydropower And Proposed Floating Solar Photovoltaic At Sutami Dam Indonesia](#)

Didik Ardianto, Abdul Razaq and Fahmi Hidayat

[CO₂ And CH₄ Emissions Of The Upper Yellow River On The Tibetan Plateau: Freeze–Thaw Seasonal Variations And Environmental Controls](#)

Chen Li, Wei Wu, Hang Chen, Lei Ren and Xiao Kang

[Assessing The Impact Of Cascade Dam Operation On Atmospheric CO₂ Concentration Using Satellite Remote Sensing](#)

Yuanyuan Wang, Yurong Wang and Jianmin Zhang

A.1.6 Other Related Topics

[Analysis Of The Spatial And Temporal Dynamics Of Exceptional Precipitation In Portugal: An Innovative Approach](#)

Luis Angel Espinosa and Maria Manuela Portela

[Impacts Of Climate Change On Natural Runoff In The Yellow River Basin Of China During 1961–2020](#)

Yiqi Yan and Zuoqiang Han

[Potential Reduction Of Non-Navigatable Ice-Blocked Season In The Great Lakes Due To Climate Warming](#)

Haoran Shi, R. Iestyn Woolway and Pengfei Xue

[Evaluating The Impact Of El Niño And Climate Change On Water Surface Availability Using Soil Moisture Accounting](#)

Kristopher Lloyd Furio, Samuel Francisco Tiongson, Anne Jeannette De La Rosa, Roy Anthony Luna and Richmark Macuha

[Decarbonisation Technologies for Biogas CCUS](#)

Wei Hao Loh, Jia Wang, Azhar Ismail, Hwee Sin, Yan Gu and Gurdev Singh

[Case Study Of Sustainable Downstream Storage For Coastal Area Water Supply](#)

Usman Khalil, Mariam Sajid and Shuqing Yang

A.2 IMPROVING RESILIENCE AGAINST WATER HAZARDS AND NATURAL DISASTERS

A.2.1 Coastal Processes and Hazards

[Analysis Of Shoreline Change Patterns In Pocket Beach: Study Case In Cemagi Beach, Bali, Indonesia](#)

Silmi Fatharani Rahmah, Firlana Hanifah, Luthfiyyah Dzakiyyah Wopa and Anthony Harlly Sasono Putro

[Assessment of Pedestrian Risk Form Coastal Wave Overtopping: A Hybrid Quantitative Methodology](#)

Jong-Yoon Mun, Wan-Hee Cho and Khawar Rehman

[A Study On Prediction Of Saltwater Intrusion In Costal Aquifer Using LSTM Technique](#)

Woochang Jeong

[A Semi-Automatic Compound Flood Modelling Chain-A Case Study In New Zealand During Ex-Tropical Cyclone Gabrielle](#)

Zhonghou Xu, Emily Lane and Alice Harang

[Consideration Of Tidal Constituents For Sea Level Anomalies In Singapore Waters](#)

Farzin Samsami, Zhi Yung Tay, Peng Shu Ng, Zhi Jing Feng, Elisa Y.M. Ang and Peng Cheng Wang

[Contrasting Physical And CFD Simulations In Estuarine Natural Cavities](#)

Adhemar Romero and Rita F. Carvalho

[Characterizing Compound Flood Risk From River Discharge, Precipitation, And Storm Surge In The Chao Phraya River Delta](#)

Wei Jian, Diah Valentina Lestari and Edmond Yat-Man Lo

[Development Of Multipurpose Harbour In Weligama Bay, Sri Lanka](#)

D.P.C. Laknath, H.D.D. Madhuka, T.U.S. Manamperi and I.L. Abeygoonasekara

[Efficiency of Pile Breakwaters in Experimental Model Tests](#)

Mario Oertel, Hanna Brandt and Yola Patzwahl

[Effect Of Seabed Slope On The Transport Of Non-Buoyant Plastic Particles Under Wave Action: An Experimental Study](#)

Giovanni Passalacqua, Giulia Bonanno, Claudio Iuppa and Carla Faraci

[Experimental Observations Of The Incipient Motion Of Negatively Buoyant Debris During Dam-Break Waves](#)

Davide Wüthrich and Ioan Nistor

[Far-Field Simulation Of A Landslide Generated Tsunami In Lake Iseo](#)

Riccardo Bonomelli, Gabriele Farina and Marco Pilotti

[Fine Characterization Of Wind Drag Force In Shallow Lakes Based On The Wind-Wave-Flow Mutual Feedback Model](#)

Ang Gao, Shiqiang Wu, Xiufeng Wu and Jiangyu Dai

[GPU-Enhanced Land-Sea Integration Model For Inundation During Storm Surge With LTS-Based Shallow Water Model](#)

He Ma

[Hydraulic Performances Of Vertical Caissons With Retreated Crown Wall](#)

Matteo Centorami, Alessandro Romano, Claudia Cecioni and Giorgio Bellotti

Historical And Future Climate Typhoon And Storm Surge Trends In The Philippines: Case Study Of San Pedro Bay, Leyte
Justin Joseph Valdez

Investigations Into Characteristics And Forecasting Of Submesoscale Eddies In The Northern South China Sea
Lei Ren, Yaqi Wang, Jun Wei and Michael Hartnett

Intensified Wind And Discharge Impact Of River Plume Spreading On Berau Continental Shelf
Andi Egon, Faruq Khadami, Iwan Pramesti Anwar, Karina Aprilia Sujatmiko, Farrah Hanifah and Bayu Purnama

Multi-Timescale Sediment Transport In The Mud Belt Of The Zhejiang Coast
Dongfeng Xie and Yuhan Yan

Numerical Wave Simulation Based On Two-Phase Lattice Boltzmann Method
Jiahe Zhou, Qinghe Zhang, Guangwei Liu and Jinfeng Zhang

Numerical Investigation of Tsunami Force Reduction In Micro-Roughness Elements With Varying Blockage Effect
Nandhini Duraimurugan, Harish Selvam, Holger Schuettrumpf, Sriram Venkatachalam and Sundar Vallam

Numerical Assessment Of Wave Interaction With Curved Front Face Pile-Supported Breakwater
Shaik Firoj and Mohammad Saud Afzal

Numerical and Experimental Study Of Wave Dynamics Around Detached Breakwaters
Shu Kai Ng, Yuma Ishiduka, Tatsuhiko Uchida, Yuki Kajikawa and Masamitsu Kuroiwa

Shoreline Prediction Along The Northern Chennai Coast Of India
Dhananjayan M and Sannasiraj Sa

Tsunami-Like Flow Interaction with the Vertical Seawall Under Overtopping Conditions Using Openfoam
Harish Selvam and Holger Schuettrumpf
The Effects Of The Structural Complexity On The Flow Field Around Menger-Type Cubic Artificial Reefs
Jialin Zhao, Bruce Melville and Colin Whittaker

The Role Of Shoreline Geometry And Tidal Forcing On Ebb Tidal Jet Formations: An Idealized Model Approach
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Hongjie Liu, Wenlong Song, Yizhu Lu, Juan Lv, Rongjie Gui, Long Chen, Yingwei Sun Sun, Jianwei Ma Ma and Yayong Sun Sun

Flood Risk Evolution In The Yangtze River Delta: The Perspective Of River Network Structure And Connectivity

Peng Wang, Shanheng Huang, Yueyang Dong, Zulin Hua, Gang Chen, Tianshu Zhang and Jingyi Shi

Proposal For The Evacuation Difficulty Map During Inundation

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Runoff Forecasting Based On Rainfall Distribution Information And The Relation Between Forecast Accuracy And Watershed Characteristics

Go Ohno, Takahiro Sayama and Yukinobu Oda

Assessing The Risk Of Sequential Dam Breaks: A Case Study Of Tuirial Dam

Dhyan Singh Arya, Shivendra Jaiswal, Ranendra Sarma and Debajit Das

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Jingwen Wang, Lianjun Zhao, Shasha Han, Rui Wang and Guangming Tan

Experiment Study On Dike Breaching With Top Structures

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Development Of Building Fragility Curves For Flooding In The July 2020 Kuma River Flood, Japan

Riku Kubota, Jin Kashiwada, Yoshiaki Hisada, Ayaka Katano, Mamoru Tanaka and Nihei Yasuo

People-Oriented Assessment Framework Of Compound Urban Flooding Risks In The Context Of Climate Change: A Case Study Of Hong Kong

Zhi-Yong Long, Yuan-Yuan Jia and Huan-Feng Duan

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Aseismic Mechanism Of Laminated Shear Energy Dissipation Structure In Hydraulic Tunnels During An Earthquake

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Risk Assessment Of Flash Flood Disasters Using A Coupled Random Forest-Feature Selection Algorithm

Xiaolei Zhang, Ruihua Qin, Ronghua Liu and Rong Zhou

Experimental Study On Hydraulic Characteristics Of Dam-Break Floods Encountering Earthquake-Damaged Arch Dam

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Integration Of Stability Functions Into Transport Flood Risk Modelling Framework

Lea Dasallas, Barry Evans, Dion Todd, Hamish Kampman, Markus Pahlow and Thomas Cochrane

Recorded Tsunami Evacuation Behaviour In Zushi City, Japan

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Evaluating The Effectiveness Of Combined Flood Control Measures In The Karube River Basin: A Focus On Paddy Field Dams And Pre-Drainage Strategies

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Enhancing Flood Early Warning Dissemination And Evacuation Response Through Agent-Based Modelling

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Modeling Of Urban Flooding Using Satellite And Ground-Based Data: A Case Study Of Kathmandu Valley

Ramesh Kumar Maskey, Udhyan Shah, Arya Dhakal, Santosh Chaudhary, Alison Shilpakar, Sujan Tyata, Kushal Kc and Abash Maskey

A.2.7 Other Related Topics

GIS Based Tsunami Vulnerability Assessment For The Western Mediterranean Part Of Türkiye

Cüneyt Yavuz, Kutay Yılmaz and Yunus Oruç

Research And Application Of Three-Dimensional Flood Indicator System Of Urban Underground Space

Peng Liu, Yan Wang and Hongwei Liu

An Empirical Study On Wave Attenuation By A Wet Type Of Vegetated Floating Island

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Valentin Heller, Deep Roy and Sazeda Begam

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Delbaz Samadian, Hadi Eslamnia, Maria Pregnolato and Imrose B. Muhit

Numerical Investigation Of Wave-Current Induced Scouring Development Around A Subsea Pipeline

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Turbulent Dam-Break Wave With High Volume Of Release

Andrea Del Gaudio, Francesco De Paola and George Constantinescu

Study On The Aeration Characteristics Of Jet In The Air And Downstream Region

Haozhou Zhang, Chang Xie and Ruidi Bai

A.3 WATER ENGINEERING AND SOCIETY

A.3.1 Water Resources Management

[A Data-Driven Robust Optimization Approach to Risk-Based Water Allocation in Severe Water Scarcity Conditions under Uncertainty](#)

Yuhong Shuai

[Addressing Hydrologic Water Supply Fluctuations and Its Impact on Achieving SDG 6 Targets in Tropical Environment](#)

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Shiwomeh Desmond Ndre, Sameh A. Kantoush, Tetsuya Sumi, Binh Quang Nguyen and Arrah Takem

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Xing Chen, Qin Xu, Zihan Shen, Qicheng Zhang, Lanlan Song and Jing Cai

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Daisuke Nohara, Yoshinobu Sato and Tetsuya Sumi

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Managed Aquifer Recharge in Mexico: Methods and Results – a State of the Art

Roxana Nichte-Hughes-Lomelin, Georgina Carbajal-De La Torre, Sonia Tatiana Sanchez Quispe and Gerardo Javier Marin-Tellez

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Adriana Márquez-Romance, Nereida López-Calatayud, Edilberto Guevara-Pérez, Sergio Pérez-Pacheco And Eduardo Buroz-Castillo

Meeting Water Demand for Supplemental Irrigation in Poland through Small Water Retention and Tile Drainage System Management

Tomasz Okruszko, Mikołaj Piniewski and Paweł Marcinkowski

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Kawa Baha, Tigran Kalantaryan and James Prothero

Peak Flow Attenuation and Open Water Regulation Effects along the Lower Peace River, Canada

Faizal Yusuf And Graham Lang

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A.3.2 River Engineering and Management

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Lav Kumar Gupta, Prof Ti Eldho and Lav Kumar Gupta

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[Hydraulic Modeling and Sediment Transport for Flood Mitigation: Insights from Geremeas Basin \(IT\)](#)

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[Modelling of Phosphorus Transport in Rivers with Cascade Low-Head Movable Weirs](#)

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Ricardo Gutiérrez, Alejandro Mendoza, Moisés Berezowsky and Maritza Arganis

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Andrew Little, Ben Gawne and Ross Hardie

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Hiroshi Miwa, Takashi Wada, Yuki Kajikawa, Sota Amahata and Shuhei Kubo

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A.3.3 Reservoirs Management

A New Optimization Model of Reservoir Operation Considering Ensemble Streamflow Forecast Uncertainty: Integration of Robust Optimization Concept and Karhunen-Loeve Expansion Method

Duan Chen and Xinlong Deng

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Dina Pirone, Luigi Cimorelli, Andrea D'aniello, Daniele Martino and Domenico Pianese

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Investigation of Performance of a Patented Coanda Type Water Intake for Water Capture and Sediment Release Efficiencies

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Minjae Jung, Joobum Park and Suneung Kim

Research on Hydraulic Characteristics of Transition Structure from Pressurized to Non- Pressurized Spillway Tunnel with High Speed

Yi Diao and Zhong Tian

Reservoir Sedimentation Challenges and Issues with Case Study

HI Tiwari

And Kartikeya Mishra

Sediment Venting through Power Waterways: a Field Monitoring Concept

Carolin Friz, Frederic M Evers, David Felix and Robert M Boes

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Two-Dimensional Hydrodynamic Analysis and Field Measurements for the Assessment of Eutrophication in the Peñitas Reservoir, Mexico

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A.3.4 Urban Hydraulics

[A Case Study on Integrating and Repurposing an Existing Public Irrigation Channel into a Water Feature in a Private Residential Development](#)

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Importance of Pool Area and Frequency for Aquatic Habitat in Streams

Rohan Benjankar and Daniele Tonina

Influence of Bragg Resonance on Wave Reflection in Artificial Oyster Reefs

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Investigation of Hydraulic Performance of Fish Passage in Run-Of-River Hydropower Projects in Nepal: a Case Study of the Jhimruk Hydropower Project

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Angelos Kokkinos and Panagiotis Prinos

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Hiruni Kammanankada, Jasmin Martino and Stefan Felder

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Ana Todorova, Robert Niven and Matthias Kramer

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Akihiro Hashimoto

Open-Channel Confluence as an Oblique, Curved, Confined Jet in a Crossflow

Yunqiang Zhu, Saiyu Yuan, Hongwu Tang, Alexander Sukhodolov and Vladimir Nikora

Prediction of Climate Change Impact on River Temperature in the First Class Rivers of Chugoku Region Using Deep Learning

Daichi Fukumaru and Yoshihisa Akamatsu

Relationship Between the Form of Channelized Streams and Community Dynamics of Fish and Benthic Invertebrates due to Flood Disturbance

Koji Hijikata, Morihiro Harada and Kohei Uemura

Response Patterns of Hyporheic Exchange Flux and Extent of a River to Tidal Action and Seasonal Change of Hydrological Conditions

Jingwen Xing, Yi Cai and Nianqing Zhou

River Architecture Shapes Fish Migration Paths through their Multiscale Perception and Memory of Recent Past Hydrodynamic Experiences

R. Andrew Goodwin

Sediment Transport in Vegetated Channel

Jennifer Duan and Khalid Al

Simulation of Supersaturated Total Dissolved Gas Transport in Compound Vegetated Channel

Youquan Yuan, Jingjie Feng, Ran Li and Chonglin Wang

Study on the Impact of Entrainment Effects at River Intakes on Early Fish Resources

Zhonghang Wu, Ran Li, Jingjie Feng, Xiaolong Cheng and Kefeng Li

The Blocking Effect of Parallel Fringing Vegetation Arrays on Flow Structure Dynamics

Yuan-Heng Zhang and Huan-Feng Duan

The Effects of Vegetation Height and Density on Flow and Turbulence within and behind a Patch of Vegetation

Masaya Yoshikai, Julia Mullarney, Vinay Nelli, Rémi Chassagne, William Nardin and Rafael Tinoco

The Impact of River Sand Mining on Mixing Layers in a Squeezed Mangrove Forest in the Mekong Delta, a Schematized Model Approach

S.H Truong, L.K Phan and Marcel Stive

The Influence of Patchy Vegetation on Tidal Flows: Field Dye Measurements of Intra- and Inter-Patch Processes

Julia Mullarney, Vinay Nelli, Remi Chassagne and Masaya Yoshikai

[The Hydraulics, Hydrodynamic Instability and Mixing of Two-Layer Flows](#)

Gregory Lawrence

[The Physical Environment and the Behavior of Crustacean Larval under Flood Condition in the Kitagawa River Estuary, Japan](#)

Akira Tai, Hiroki Iyooka and Tomonori Saita

[Three-Dimensional Hydrodynamic Simulations Indicate Instantaneous Pathways for Fish Passage](#)

Federica Scolari, Sebastian Schwindt, Stefan Haun and Silke Wieprecht

[Time-Varying Effects of Water Diversion from River to Lake on Lacustrine Phytoplankton Communities](#)

Jiangyu Dai

[Total Phosphorus Dynamics in a Large Intermittent River System in Brazil](#)

Iran Eduardo Lima Neto

[Transverse Ribs and Gigantic Rocks Distribution in Alluvial Fan Rivers and Influence of Geological and Anthropogenic Impacts](#)

Kazuki Karasawa, Kazuaki Ohtsuki, Rei Itsukushima and Tatsuro Sato

[Turbulence Characteristics in Low Velocity Zones for Upstream Fish Passage – Comparison between Physical Modelling and CFD Modelling](#)

Hui Ling Wong and Hubert Chanson

[Vertical Profiles of Velocity and Turbulent Kinetic Energy at Vertical Slot Fish Pass](#)

Nika Jahangiri, Cumhur Ozbey and Serhat Kucukali

[Water Availability in the Huancané River Basin, under Climatic Influence, with the Application of the Soil & Water Assessment Tool Model](#)

Joaquin Vincent Calderon, Isidro A. Pilares-Hualpa, Carlos Pilares, Percy A. Ginez-Choque, Roberto Alfaro-Alejo and Wilber Laqui

[Water Temperature and Dissolved Oxygen Vertical Profiles and Seasonal Variations in a Mountain Stream Pool: a Field Study](#)

Serhat Kucukali

[Wind-Powered Aeration System for Effective Cyanobacteria Control in Reservoirs](#)

Sebnem Elçi, Oguz Hazar and Inci Tuney Kizilkaya

A.3.6 Water Reclamation and Reuse

[Advancing Membrane Technologies for Sustainable Agriculture: a Hybrid Electrodialysis-Forward Osmosis Approach for Nutrient and Water Recovery](#)

Xue Jin and Quang Tran

[Analysis of the Prospect of Wastewater Recycling and Utilization in China's Highway Service Areas](#)

Ge Cao, Dong Ni and Shegang Shao

[Application of Solar-Powered Electrochemical Advanced Oxidation Process for Textile Wastewater Treatment](#)

Yemane G. Asfaha, Feleke Zewge, Teketel Yohannes and Shimelis Kebede

[Renewable Energy Approach for Wastewater Reuse in Horizontal Flow Constructed Wetlands and Solar Powered Drip Irrigation Systems in the Caribbean: a Case Study in the Caroni River Basin, Trinidad and Tobago, West Indies](#)

Michelle Shah and Kiran Tota-Maharaj

[Reverse Osmosis Versus Nanofiltration for the Removal of Organic Contaminants in Water Reuse Application](#)

Mohammed Alhussaini and Andrea Achilli

[Revitalizing Sustainable Water Practices along with Modern Technologies to Combat Water Crises: Indirect Groundwater Recharge Using Recycled Water](#)

Kavita Verma, Manjari Manisha, Sanrupt Rm, Chanakya Hn and Ln Rao

[Understanding Urban Stormwater Toxicity on Microalgae: Implications for Reuse Safety](#)

An Liu

A.3.7 Seawater Desalination

Brackish Waters Discharged by Desalination Plants: Impact on Coastal Flow

Francesca De Serio, Diana De Padova, Mouldi Ben Meftah, Ginacarlo Chiaia and Michele Mossa

Environmental Impact and Mitigation Strategies for Marine Brine Discharges from Seawater Desalination Processes

Jose Francisco Sanchez Gonzalez, Manuel Antequera Ramos and Jose Maria Grassa Garrido

Sustainable Water Purification through Upcycled Porous Carbon Electrodes in Flow-Through Capacitive Deionization Systems

Jyotiraman De, Sumit Saxena and Shobha Shukla

A.3.8 Cross-boundary Water Transfer

Computational Fluid Dynamics (CFD) Analysis on the Migration Characteristics of Air Pockets in Long-Distance Pressurized Water Pipelines

Xiangpeng Mu, Zihou Niu, Wenxue Chen, Wei Cui and Zheqi Zhang

Hydrodynamic and Water Quality Simulation of the Nansi Lake Basin Based on T-UWMM

Lingjiang Lu, Yongcan Chen and Zhaowei Liu

Prediction of Water Level Rise Upstream of Gate Closures in Large Open Channels

Wei Cui, Zhinan Ding, Xiangpeng Mu, Yuling Lei, Hui Liu and Wenxue Chen

Study on Water Drainage Processes in an Extra-Long Pressurized Water Delivery Tunnel

Chenxi Ouyang, Zhigao Zhao, Chengpeng Liu, Xiuxing Yin and Jiandong Yang

A.3.9 Alternative Water Resources

Treated Wastewater as Alternative Water, Energy and Nutrient Source Made Possible with Anaerobic Process in High Rate Bioreactors

Maria Concetta Tomei, Valentina Stazi, Marco Manetti and Domenica Mosca Angelucci

A.3.10 Multi-objective Optimisation

Comparing Optimization Methodologies for Calibration of 2D/3D Hydrodynamic Models

Clemens Cremer, Jesper Sandvig Mariegaard, Henrik Andersson, Jannik Elsässer and Faro Schäfer

Integration of a Genetic Algorithm with CFD Simulation to Reduce the Maximum Local Scour Depth on Piers with Simplified Artificial Roughness

Angelica Lizbeth Alvarez Mejía, Humberto Salinas Tapia, Carlos Diaz Delgado, Juan Manuel Becerril Lara, Juan Antonio Garcia Aragon and Jesus Ramiro Felix Felix

A.3.11 Other Related Topics

A Momentum Approach for the Teaching of Linear Wave Theory

Gerald Muller

Conservation and Erosion Degradation in High Andean Ecosystems: Headwaters of the Lurin Basin -Peru

Samanta Onocuica Quiroz, Samuel Pizarro Carcausto, José Luis Huanuqueño Murillo, Edwin Pino Vargas and Lia Ramos Fernandez

Exploration of Performance-Based Payment Methods for the Integrated Systems of Sewerage Pipeline Networks and Wastewater Treatment Plants

Yifan Ding and Wei Li

Gumbel Distribution Function Parameters Estimation Using Gravitational Search

José Luis Herrera Alanís, Maritza Arganis, Margarita Preciado and Ramon Dominguez Mora

Synergistic Removal of Perfluorooctanoic Acid and Nitrogen in an Anammox Biofilter: Performance and Interaction

Xiaojing Zhang

The Impact of Water Engineering on the Evolution of Human-Water Relationship: a Case Study of Dongting Lake

Xingya Xu

A.4 WATER ENGINEERING FOR ENERGY TRANSITION AND FOOD SECURITY

A.4.1 Reservoir Renewable Energy Systems (Hydropower, Floating Solar, etc)

[A Generational Opportunity: Fishsafe Turbines for Sustainable Hydropower](#) Abe Schneider and Sterling Watson
Abe Schneider and Sterling Watson

[A New Profile for the Nozzle of Cross-Flow Turbines in Real Operating Conditions](#)
Calogero Picone, Marco Sinagra, Mabrouk Mosbahi and Tullio Tucciarelli

[Comparative Analysis of the Short-Term Scheduling Performance of Conventional Hydropower and Pumped Storage in Horizon of Renewable Energy Integration](#)
Jia Wei, Weijia Yang, Ran Wang, Jingjing Liu and Xudong Li

[Condition Monitoring of Hydraulic Turbines for Damage Evolution Assessment](#)
Bhaskar Paudel, Calvin Stephen and Aonghus McNabola

[Coupling Mechanical and Electric Rotors in Small Cross-Flow Type Turbines](#)
Giuseppe Lo Cicero, Calogero Picone, Marco Sinagra and Tullio Tucciarelli

[Ecological Effects of Innovative and Conventional Hydropower Plants – Results from 10 Years of Research](#)
Juergen Geist, Josef Knott and Joachim Pander

[Experimental Analysis of a New Regulation System for Cross-Flow Type Turbines in Mini-Hydropower Plants](#)
Calogero Picone, Marco Sinagra and Tullio Tucciarelli

[Experimental Study on Hydraulic Characteristics and Stability of a Novel Shaft Coaxial Surge Chamber in Pumped Storage Hydropower Station](#)
Wenlong Zhao, Jian Zhang, Yi Liu and Lin Shi

[Managing Total Dissolved Gas Supersaturation in Norwegian Hydropower Systems](#)
Wolf Ludwig Kuhn, Bjørn Winther Solemslie, Ulrich Pulg and Ole Gunnar Dahlhaug

[Physics-Informed Neural Network for Stability Analysis of Hydropower Generating Systems](#)
Weichao Ma, Wei Zeng, Xu Lai and Jiandong Yang

[Study on the Water Temperature Distribution Characteristics of a Mixed Pumped Storage Power Station Reservoir: a Case Study of Jinshuitan Reservoir](#)
Shiwei Yang and Ruifeng Liang

[Typhoon-Induced Wave Analysis and Structural Performance Evaluation of Floating Photovoltaic Systems in Hong Kong - a Case Study](#)
Sai Shing Chim, Selina Wai Man Fong, Chak Nang Wong, Kwok Wing Chow, Justin Searle, Sylvia Chan, Clement Man Hon Leung, Chi Chung So, Ralph Lau and Hoi Chun Lam

[Variable Speed Pump Storage with Robust AC Excitation Converter for Doubly Fed Induction Machine](#)
Martin Geske, Piotr Sadowski, Joaquin Moelck, Kai Rothenhagen, Aurélie Bocquel, Randitya Dewa and Michael Bayer

A.4.2 Marine Renewable Energy Systems (Wave Power, Tidal Power, Hybrid Solutions, etc)

[A Dual-Functional Slotted Breakwater Integrated with an Oscillating Water Column with a Linear Turbine: Preliminary Analytical Results](#)
Clint Reyes, Patrick Cross and Zhenhua Huang

[A Dynamical Programming Algorithm for Optimal Control of Tidal Range Schemes](#)
Yuxuan Liu, Man-Yue Lam and Reza Ahmadian

[A Reflection on Tidal Range Energy Design Evaluation](#)
Athanasios Angeloudis, Konstantinos Pappas, Nguyen Quang Chien, Ilias Zilakos and Lindsay Beevers

[Flow Structures and Morphology Interaction around a Monopile-Supported Tidal Stream Turbine Using the Actuator Line – Sediment Transport Coupling Simulation](#)
Haifei Sun, Xiangfeng Lin and Xu Deng

[How Do the Hydrokinetic Turbines Perform under Different Grate Protections?](#)
Derya Karakaya, Galiphan Yilmazkaya and Şebnem Elçi

Impact of a Rotating Turbine Rotor on Seabed Scour around a Mono-Pile: Numerical Modeling Based on Actuator Line and Immersed Boundary Methods

Xu Deng, Xiangfeng Lin, Jisheng Zhang and Zihan Ding

Impact of Unidirectional Flow on Seabed Scour Patterns around Vertical-Axis Tidal Turbines

Hao Chen, Jisheng Zhang, Yakun Guo and Dawei Guan

Irregular Wave Overtopping on a 2D Fixed Overtopping Wave Energy Converter

Deping Cao, Hanqi Zeng and Hao Chen

On the Robust Quantification of Hydrodynamic Impacts of Tidal Stream Turbine Arrays

Nguyen Chien, Connor Jordan, Emils Brazovskis and Athanasios Angeloudis

Performance Of Different Ramp Configurations Characterizing an Overtopping Wave Energy Converter Using Joint Probability Density Functions: Preliminary Numerical Results

Saeed Osouli, Matteo Postacchini, Ivan Sabbioni and Maurizio Brocchini

Sensitivity Analysis of Tidal Stream Resource Using Multi-Scale Channel Network Models

Emils Brazovskis, Athanasios Angeloudis and Lindsay Beevers

The Vortex Energy Drive: a Novel Technology in Harnessing Hydro-Kinetic Energy

Hao Chen, Omkar Venkata Yalla, Mohammed Sunny, R. Ghoshal, A. Bhattacharyya, Swapnadip Chowdhury, Zaibin Lin and Cheng Siong Chin

Urans CFD Simulation Sensitivity to Velocity Shear and Turbulence Inlet Conditions when Modelling a Tidal Stream Turbine

Bryn Townley, Qing Xiao, Athanasios Angeloudis, Ian Ashton and George Dadd

Wave Energy on the North American Great Lakes: Nearshore Resource Assessments to Inform Innovative Solutions for Global Technology Development

Gracie Bahr, Craig Hill and Chase Pfeifer

A.4.3 Offshore Renewable Energy Systems (Offshore Wind Power, Oceanic Current Power, etc

Dynamic Response Analysis of an Innovative Scour Protection System: Small-Size Artificial Reefs Combined with Umbrella Structures

Wenhui Wei, Abdollah Wenhui Wei, Abdollah Malekjafarian, Yorick Broekema and Md Salauddin

Emulating Meteorological and Oceanic Parameters in the Design of Offshore Wind Platforms in a Changing Climate with Bluemath-Hub Framework

Valvanuz Fernandez Quiruelas, Fernando Mendez Incera, Laura Cagigal Gil, Paula Camus Braña, Javier Tausia Hoyal and Antonio Cofiño Gonzalez

Experimental Study on Stability Analysis of Submarine Cable under Concrete Interlocking Block Protection

Chengyu Liu, Ke Chen, Huakun Wang and Dawei Guan

Experimental Study on the Mechanical Properties and Scour Resistance of Solidified Marine Dredged Clay

Hao Meng, Dawei Guan and Haifei Sun

Frequency-Domain and Mesh-Independent Dynamic Response Analysis for Wave Spectral Fatigue Assessment of Offshore Structures

Yu Tan, Yang Dai and Jiesheng Min

Hydrodynamic Impact of Offshore Wind Farms in New York and New Jersey Area

Basel Amr and Ruo-Qian Wang

Influence of Vibration on Equilibrium Scour Depth around Monopile Foundations under Combined Current Wave Conditions

Zishun Yao, Bruce Melville, Asaad Shamseldin and Dawei Guan

Research on the Local Hydrodynamic Effects of Artificial Reefs on Monopile Foundations for Offshore Wind Power

Hui Li, Xu Qiu, Xin Liu, Wenguan Ma and Hao Zhao

Time Evolution Models for Scour Burial of Isolated Objects on a Granular Seabed

Tommaso Attili, Richard J. S. Whitehouse, Nick Tavouktsoglou and Jingjing Yan

A.4.4 Water-Energy-Food Nexus

[A Water-Energy-Food Nexus Model for South Korea to Identify the Vulnerability of Water, Energy, and Food to Climate Change](#)
Minji Kim, Ji Eun Kim and Tae-woong Kim

[Adaptive Water Management under Coal-Fired Power Phase-Out: New Equilibrium and Multiple Benefits](#)
Haixing Gou, Chao Ma, Weiwen Liu, Ximeng Xu, Ruixin Zhang and Weiren Huang

[Characterization of an Innovative Off-Grid Hydraulic Device for Irrigation Sustainability](#)
Giacomo Ferrarese, Davide Troiani, Stefano Benzi, Ignasius Axel Hutomo and Stefano Malavasi

[Development of Analytic Network Framework for Techno-Economic Analysis of Urine Treatment Technologies](#)
Hareesh Dash, Recep Kaan Dereli, Behzad Mozafari and Sarah Cotterill

[Evaluation On The Sustainability Of The Water-Energy-Food-Energy Nexus Based On A Comprehensive Indicator System](#)
Zixi Liu, Lian Tang and Weijiang Zhang

[Resilience of Irrigated Agroecosystems: a Nexus Approach Using Multidimensional Indicators and Smart Water Technologies](#)
Virginia Rosa Coletta, Umberto Fratino, Nicola Lamaddalena, Alessandro Pagano, Ivan Portoghese, Stefano Malavasi, Giacomo Ferrarese, Stefano Mambretti, Gustavo Marini, Nicola Fontana and Davide Troiani

[Wastewater Heat Recovery, a Low-Cost Solution to Water-Energy Efficiency Problems in Zambia](#)
Eleanor Mancusi-Ungaro, Madhu Krishna Murali, Paul Coughlan, Derrick Bwalya Tembo and Aonghus McNabola

A.4.5 Water Management for Urban Agriculture

[Data-Driven Prediction of Canopy Temperature Using Artificial Neural Networks](#)
Likith Muni Narakala, Manoj Yadav, Ghanshyam Giri, Hitesh Upreti and Gopal Das Singhal

[Integrated Planning of Water Resources and Management for the Emirate of Abu Dhabi](#)
Paul Leruth, Amir Hedjripour, Mike Healey, Edda Kalbus and Amir Rashidi

[Seeking Effect of Global Warming on Wheat Crop Indicated by Neural Network Aided Crop Water Stress Index](#)
Palash Dandotia and K S Hariprasad

A.4.6 Water for Hydrogen Production

[How Can Water Authorities Influence the Hydrogen Economy – Lessons from Australia](#)
Alexandra Humphrey Cifuentes and Celeste Morgan

[Hydrogen-Assisted Biogas Upgrading: a Pathway to Renewable Energy Optimisation and Climate Mitigation](#)
Saba Aghdam Tabar, Usman Safder, Recep Kaan Dereli, Sarah Cotterill and Eoin Casey

A.4.8 Other Related Topics

[Tidal Hydrodynamic Modelling of Sunda Shelf Seas](#)
Amyrhul Abu Bakar

A.5.1 Artificial Intelligence (AI) Tools for Analysis and Decision Support under Certainties

A Water Reuse Plan Using Earth-Observation And AI-Based Technologies

Naga Manohar Velpuri, Javier-Mateo Sagasta, Mariangel Garcia, Karthikeyan Matheswaran, Mansoor Leh, Joao Diogo Botelho, Akhila Premaratne and Youssef Brouziyne

Analysis Of The Relationship Between Meteorological Fields And Linear Rainfall Bands In The Western Chugoku Region Of Japan Using Self-Organizing Map

Yuma Hironaka, Koji Asai and Koji Nishiyama

Cross-Plane Prediction Via Convolutional Neural Network (CNN) Model For Early Biofouling Detection In SWRO Desalination Plant

Henry J. Tanudjaja, Najat A. Amin and Adnan Qamar

Damage Condition Assessment Of Tooth-Shape Spur Dikes In The Tidal Reach Using Extreme Learning Machine Models

Ming Huang, Jing Liu and Xianglong Wei

Machine Learning-Driven Forecasting Of Rainfall And Temperature In Togo (West Africa): A Study Using LSTM Networks

Lamboni Batablinè, Lawin Agnidé and Kolani Lankondjoa

Optimization Of MLSS Concentration In Biological Reactors Of Wastewater Treatment Plants Utilizing An LSTM Model

Song-Eun Lee, Min-Hyeok Lee, Gi-Hong Lee and Yong-Gyun Park

Sensei Software Package For Smart Management Of Water Networks

Carlos Peñas and Roberto Mínguez

Studying The Causality Of The Key Variables Influencing The Fecal Indicator Organisms

Hossein Amini, Man Yue Lam and Reza Ahmadian

Tidal Phase-Based Characterization Of Water Quality In Coastal Areas Using Deep Learning Algorithms And Hydrodynamics Modeling, Case Study: Swansea Bay, United Kingdom

Hossein Amini, Man Yue Lam and Reza Ahmadian

Urban Floodborne Objects Identification Using Computer Vision

Umair Iqbal, Tim Davies, Muhammad Zain Bin Riaz and Ryan Bourke

Water Inflow Prediction In Tarbela Dam Using Explainable Artificial Intelligence

Muhammad Imran, Danrong Zhang, Muhammad Ishfaq, Muhammad Zaman, Shazia Parveen and Nur E Jannat Mishu

A.5.2 Computational Methods for Climate and Meteorology

Automated Rainfall Data Generator For Continuous Modelling Of Stormwater Pollutants And Runoff

Mircea Stancu and Gregory Chian

Discrete Wavelet Transform Approach To Identify Influential Time Scales In Temperature Trends Over The Cauvery River Basin, India

Malluraj C. Hitni and Ganesh D. Kale

Evaluating The Effects Of Wastewater Management Strategies On Soil And Water Resources In Rural Terre Haute, Indiana, USA

Abolfazl Nazari Giglou and Somayeh Naderi

Identifying Groundwater Recharge Zones In Birbhum District, West Bengal Using Machine Learning Techniques

Sayan Haldar and Suresh A. Kartha

Ranking Of CMIP6-GCM For The Precipitation Variable Across The Brahmaputra Basin Of India

Abdul Rahman and Sreeja Pekkat

Weather Research Forecast Modelling And Pseudo-Global Warming Technique For Projection Of Tropical Cyclones In South China Sea Impacting Hong Kong

Francis Tam, Ander K C Chow, Christopher J Wong, Terence H F Leung, Dickson T S Tsui and Ivan N F Wong

A.5.3 Computational Methods for Hydraulic and Water Quality Modelling

[A Deep-Learning Decision System For Localizing Water Leakage Using Pressure Logger Data](#)

Mohammadali Geranmehr, Richard Collins and Joby Boxall

[A Flexible Subgrid Method For Fast Flood Simulations Using Shallow Water Equations With Enhanced Bathymetry Resolution](#)

Max Bitsch, Jesper Grooss and Allan Engsig-Karup

[A New Methodology For Explaining Nonlinear Tidal Processes: Case Study Of The Delaware Estuary](#)

Haoyan Dong, Henk Schuttelaars and Tom De Mulder

[Air Entrainment In Hydraulic Jumps With A Novel Theoretical/Numerical Model](#)

Leiza D'Angelo, Germán Spadari, Paula Consoli Lizzi, Federico Zabaleta and Fabián Bombardelli

[An Enhanced Algorithm for Underwater Blast Bubble Simulation](#)

Xingrui Tao, Mingtao Jiang, Wei Chen and Zili Dai

[Applicability And Limitations Of 3D Numerical Models In Predicting The Morphological Changes At Open Channel Junction](#)

Abhishek K. Pandey and Pranab K. Mohapatra

[Applications Of Direct Discontinuous Galerkin Method For Shallow Water Equations](#)

Haegyun Lee and Namjoo Lee

[Calibration Of A Hybrid Transient-Machine Learning Model For Anomaly Detection In Water Transmission Mains Using A Physical Testbed](#)

Daniele Dalla Torre, Maurizio Tavelli, Caterina Capponi, Silvia Meniconi, Maurizio Righetti, Michele Larcher, Bruno Brunone and Andrea Menapace

[Coastal Water Quality Modelling And Microbial Contaminant Transport Under Wave Action – A Systematic Literature Review](#)

Rajendran Ravindar, John O'Sullivan, Md. Salauddin, Deepak Kumar Prasad and Wim Meijer

[Comparative Analysis Of CFD-DEM Coupling Methods For Modeling Debris Transport](#)

Abolghasem Pilechi, Shahrzad Hamidialaa, Mitchel Provan, Paul Knox and Danial Goodarzi

[Comparison Of Flow Pattern Around Straight And T-Head Spur Dikes](#)

Tapas Pradhan, Sabal Bista, Vesselina Roussinova and Ram Balachandar

[Construction And Validation Of A Fully Integrated Unsaturated-Saturated Solute Transport Model](#)

Zhibo Zhang and Zhi Li

[Dam-Break Wave Propagation: Benchmark Study For High-Performance Computing](#)

Mario Oertel

[Development Of A Comprehensive Framework To Compute System Head Curves For Pump Selection In Open And Closed Water Distribution Systems](#)

Diego Paez

[Development Of A Lagrangian Plastic Transport Model For Application In Fluvial Systems](#)

Charuni Wickramarachchige, Matthias Kramer and Robert Niven

[Development Of Integrated Analysis For Runoff, River Flow And Flooding Flow \(Rri-Rf2d Model\)](#)

Nozomu Mitsui, Jin Kashiwada, Riku Kubota, Yutaro Omi, Takehiko Ito, Mamoru Tanaka and Yasuo Nihei

[Discontinuous Galerkin Turbulence Simulator For Shallow Vortical Flow With Mixed Eddy Structures](#)

Xitong Sun and Georges Kesserwani

[Dynamic Water Quality Modeling Based On Cellular Automata: Real Application To Heron Lake](#)

Umar Alfa, Laurent Lefevre, Eric Duviola and Auwal Shehu Tijjani

[Dynamics Of Microplastics In The Largest Freshwater Lake Of China](#)

Wang Hua

[Enhancements Of A Two-Dimensional Shallow Water MPS Method To Model Non-Newtonian Flash Floods](#)

Herman Siaben Musumari and Ahmad Shakibaeinia

[Experimental And Numerical Study Of Free Surface Elevations And Surface Velocities In A T-Shaped, Lab-Scale Confluence Flow](#)

Alemu Tezera Dessie, Saeed Hashemikia, Pedro Ramos, Greet Deruyter and Tom De Mulder

[Exploring The Sensitivity Of Microplastic Accumulation Zones In Rivers Using Cloud-Based Particle Transport Modelling](#)

Katelyn Kirby, Mohammad Ghazizadeh, Abolghasem Pilechi and Julien Cousineau

Fast 1D Flood Simulation Parametrised By 2D Hydraulic Models

Behzad Jamali, Reinier Koster, Monique Retallick and Mark Babister

Improving Sedimentation Efficiency In Accelerator Decanters: A Case Study Using CFD

Celia Ortega Flores, Antonio Lastra de la Rubia, Jaime Botello Herranz, Mónica Ortega Cano, Emilio Arenas, Carlos Tomé and Juan Jesús Alonso

Improving Water Quality Model Performance With Autocalibration: Assessing Impact Of Hydrological Variability

Tianyu Fu and Chen Zhang

Improving Water Quality Modelling In Water Distribution Network: A New Indicator For Accurate 1D-2D Model Integration

Stefania Piazza, Mariacroce Sambito, Gabriele Freni and Orazio Giustolisi

Integrated Air And Water Phase Modelling Of Hydrogen Sulphide Transport In Sewer Systems

Line Karin Mortensen, Gediminas Kirsanskas, Anne Katrine V. Falk, Jesper Grooss and Lars Yde

Modelling The Spatiotemporal Transport And Fate Of Microplastics In Tropical Coastal Waters

Felix Gaffu Tandadaja, Xuneng Tong and Karina Yew-Hoong Gin

Non-Velocity-Based Technique For Discharge And Roughness Estimation In Steady Flow

Behnam Balouchi, Mohammad Javad Abedini and Ayda Mirzaahmadi

Numerical Analysis Of Air Entrainment Of A Plunging Jet Flow Under Different Viscosity Levels Of Fluid

Dasun Lahiru Muthumala Jayasooriya, Maggie Bingo, Eoghan Clifford, Stefan Felder, Matthias Kramer and Sean Mulligan

Numerical Modeling Of Sediment Transport And Flow Dynamics In Bioswales For Enhanced Stormwater Management

Habib Ahmari and Saman Baharvand

Numerical Simulation Of Stream Power Bedrock Erosion Rate Formula In A Mixed Alluvial And Bedrock River

Chung-Ta Liao, Kuo-Wei Li and Kuo-Wei Wu

Predicting Water Temperature In Southeast Asian Reservoirs And Their Downstream Rivers

Matteo Redana, Xin Yi Chong, Tomas Maul, Karen Lee and Chris Gibbins

Real-Time Water Consumption Model Using Google Popular Times: A Cost-Effective Alternative To Smart Water Metering

Milad Rajaei, Usman Safder, Sarah Cotterill and Recep Kaan Dereli

Reproducing Suspended Sediment Transport In Half-Channel Vegetated Flow Using 2D Horizontal Eddy Viscosity Models

Jiaqi Liu, Francesco Bregoli, Wim Uijttewaalt, Alessandra Crosato and Giulio Calvani

SERGHEI-SWMM: An Efficient High-Performance 1D-2D Bidirectional Hydrodynamic Model

Na Zheng, Zhi Li and Junbo Wang

Simulation Of Flow And Fish Behavior Including Check Dams (Groundsills) And Fishways In The Toyohira River Using Iric-Gelato

Michihiro Hamaki, Kazuya Sakamoto, Taishi Morita, Yoshihumi Konno and Yasuyuki Shimizu

Spatial And Temporal Variations In Water Quality Of A Cold-Region River In 2000–2021

Ge Yang, Yuntong She and Wenming Zhang

Towards Integration Of Fish Growth Models In Aquaculture Pond Tanks With Rigorous CFD Based Predictions Of Water Aeration

João Marques, Rita Carvalho and Fernando Bernardo

A.5.4 Computational Methods for Coastal Processes (Waves, Currents, etc.)

A CFD-FEM-IBM Scheme For Simulating The Strong Coupling Between The Fluid And The Deformable Structure

Jia Mao and Lanhao Zhao

Adjoint Data Assimilation For Tidal Stream Energy Modelling Optimisation

Connor Jordan and Athanasios Angeloudis

Analysis Of Three-Dimensional Dynamics In The St. Lawrence Fluvial Estuary

Maëlys Le Mouel, Abdelkader Hammouti and Damien Pham Van Bang

Fluid-Structure Interactions Based On A Large Eddy Simulations Numerical Wave Tank

Aristos Christou and Zhihua Xie

Investigating Wave Propagation Over An Offshore Breakwater: Experimental Results And Numerical Approach With Shallow Water Modeling

Bobby Minola Ginting, Shu Kai Ng and Tatsuhiko Uchida

Modelling Of Sediment Clump In Open Water Sediment Disposal

Jenn Wei Er and Adrian Wing Keung Law

Monte Carlo Simulation For Projection Of Extreme Wind Speed Increase Due To Climate Change

Neptune Yu, Ander K C Chow, Terence H F Leung, Christopher J Wong, Dickson T S Tsui and Ivan N F Wong

Numerical Investigation Of Regular Wave Interaction With Cylinder Array

Ashutosh Priyadarsan and Mohammad Saud Afzal

Numerical Study Of Wave Attenuation Across Different Vertical Vegetation Zones

Julio Ramirez, Mitchel Jara and Luis Moya

Numerical Study On The Effect Of Baffle Quantity On Sloshing Reduction In A Rectangular Tank

Tianze Lu and Deping Cao

Tsunami Urban Run-Up Modelling With A HPC Distributed-Heterogeneous Shallow Water Solver

Rui M L Ferreira, Daniel Conde and Ana M Ricardo

Vortex Scouring Process Around A Vertical Pile Varying Shapes And Flow Regimes

Abdelkader Hammouti, Mario Hurtado-Herrera, Miguel Uh Zapata, Wei Zhang, Kim Dan Nguyen and Damien Pham Van Bang

Wave-Induced Seabed Liquefaction: Numerical Simulation And Analysis

Yonglai Zheng, Zhengxie Zhang, Xubing Xu, Guangjue Huang and Xin Lan

A.5.5 Data-Driven Methods and Machine Learning Techniques

A Gray-Box Modeling Approach For Predicting Groundwater Levels And Analyzing Hydro-Geological Processes In The Central Taiwan

Abdoul Rachid Ouedraogo and Shaohua Hsu

A Random Forest-Based Traceability Method For Drifting Corpse Drop Sites

Yu-Zhao Xie, Xiang-Ju Cheng and Ze-Hai Chen

Adaptive Machine Learning Based PID Gain-Scheduling Control For Francis Turbines

Zhun Yin, Hong Wang and Zhongping Jiang

Advancing Hydrological Modeling In Complex Terrain With Satellite Data And Integrated Hydrological-Soft Computing Approaches

Muhammad Adnan Khan and Jürgen Stamm

Analysis Of Rainfall Monitoring Network By Evolutionary Polynomial Regression

Daniela Malcangio, Tiziana Bisantino and Daniele Biagio Laucelli

Application Of Feed Forward Neural Networks In Predicting Scour Depth Around Bridge Piers

Farooque Rahman and Rutuja Chavan

Automatic Quality Control Of Rain Gauges Using Machine Learning And Generalization To A Catchment

Karen Schulz and Andre Niemann

Building Trust In Machine Learning Based Quality Control Through Model Evaluation Having No Reference Data: A Case Study On Water Level Measurements

Karen Schulz, Andre Niemann and Thorsten Mietzel

Comparison Of Performance Between Single And Global Machine Learning Models For Reservoir Storage Prediction

Rishma Chengot, Helen Baron and Nathan Rickards

Data Completion For River Cross Section Morphology Under The Water Based On Deep Learning Models

Haoran Li, Chenxi Ma, Zecong Tang, Boyuan An, Chao Qin, Yuan Xue, Ziyi Wang, Yicheng Ma and Xudong Fu

Data-Driven Leak Detection In Real Water Distribution Networks With Multiple Excitation

Mostafa Rahmanshahi, Huan Feng Duan, Alireza Keramat and Vincent Tjuatja

Enhanced Prediction Of Groundwater Quality Index Using Machine Learning Algorithms

Tahmida Naher Chowdhury, Rajat Nag, Md Arman Habib and Md Salauddin

Estimating Dam Seepage Rate Using Machine Learning Techniques For Dam Diagnosis

Hokuto Okabe, Mariko Suzuki and Kazuya Inoue

Evaluation Of Physics-Informed Neural Network (PINN) Performance For Modelling Water Hammer

Vincent Tjuatja, Alireza Keramat, Mostafa Rahmanshahi and Huan-Feng Duan

Flow Routing In Rivers With Neural Networks

Bryant Sandoval, Alejandro Mendoza and Eliseo Carrizosa

Integration Of High-Resolution Physical Flood Simulations With Machine Learning For Urban Flood Prediction

Ryosuke Akoh, Muhammad Adnan Khan and Jürgen Stamm

Laboratory Channel Widening Simulation And Prediction Considering Soil Type, Upslope Inflow And Slope Gradient

Ziyi Wang, Chao Qin, Haifei Liu and Robert Wells

Leak Detection Of Water Distribution Pipelines Based On WT-MFCC And Multiple Neural Network Models

Kaiyi Tan and Yiyi Ma

Modeling And Predicting Lake Hydrodynamics Under Sparse Data Conditions Using CONVLSTM-PINN

Zhengbang Zhou, Saiyu Yuan and Hongwu Tang

Performance Evaluation Of Kolmogorov-Arnold Networks In Runoff Prediction

Xiaoyu Ye, Dong Wang, Chenlu Yu, Zhuo Yang and Along Zhang

Physics-Informed Neural Networks With Automated Parameter Scaling For Simulation Of Water Pollution

Chongren Meng, Zewei Sun, Qingzhi Hou and Xuliang Yang

Predict Suspended Sediment Concentration In An Alpine Stream Using Data-Driven Modelling

Giulia Stradiotti, Daniele Dalla Torre, Giuseppe Roberto Pisaturo, Michele Larcher, Maurizio Righetti and Andrea Menapace

Prediction Of Sediment Transport By Applying Machine Learning Techniques

Ishraga Osman and Mohammed Seaid

Prediction Of Water Level And Quality Changes In The Yeongsan River, Korea Using An Lstm-Based Deep Learning Model

Go Eun Jang, Hye Ji Han, Ji Won Seo and Yong Gyun Park

Real-Time Predictions Of Suspended Sediment Concentration Using Machine Learning

Mohamed Saber, Ryoya Furuie, Ahmed Emara, Sameh Kantoush, Tetsuya Sumi and Emad Mabrouk

Robust Sensor Data Validation With Deep Learning: Performance Analysis With Synthetic Anomalies

Rocco Palmitessa, Erling Amundsen and Jesper Mariegaard

Selection Of Machine Learning Algorithms For Reservoir Inflow Forecast: A Case Study Of The Da River Basin

Nguyen Duc Hanh, Le Huu Minh Quan, Nguyen Thi Phuong Anh, Nguyen Tien Giang, Dao Ba Huy and Nguyen Que Chi

Sensor Placement Optimization And Anomaly Detection In Water Distribution Networks Using Artificial Intelligence

Furqan Rustom, Usman Saeed, Anca Delia Jurcut, Gabriele Freni, Mariacrocetta Sambito and Md Salauddin

Spatial Structure Analysis For Downscaling Oceanic Information

Xiaoyu Liu and Xuan Wang

Study On How Shapes And Distributions Of Synthetic Rainfall As Training Data Affect The Accuracy Of Random Forest Model Augmented With Hydrodynamic Model

Kexin Liu, Ryosuke Akoh and Shiro Maeno

The Application Of Artificial Intelligence Models In Flood Dynamics Simulation

Song-Yue Yang, Y. S. Gan, Kuo-Wei Wu and Tsung-Tang Tsai

Transforming Residential Water End Use Analysis: Unleashing The Potential Of Low-Resolution Smart Metering

Khoi Anh Nguyen, Rodney Anthony Stewart and Hong Zhang

Using Machine Learning To Discriminate Different Types Of Particle Jumps In DNS Of Sediment Transport

Ricardo Rebel, Christian Golla, Ramandeep Jain and Jochen Fröhlich

A.5.6 Hydroinformatics and Big Data Analytics

[Analytical Four-Dimensional Ensemble Variational Data Assimilation For Parameter Optimization](#)

Yicong Tong, Xuan Wang and Lige Cao

[Characterization Of Acoustic Signals Collected From A Smart Water Network For Leak Detection](#)

Wei Zeng, Martin Lambert, Mark Stephens, Xiang Wang, Ruilin Liu and Chengcheng Yin

[How Well Do The Gridded Rainfall Datasets Reproduce The Indian Summer Monsoon Rainfall Events? A Country Wide And Regional Suitability Assessment](#)

Sandipan Paul, Priyank J. Sharma and Ramesh S.V. Teegavarapu

[Hydroinformatics Technologies For Supporting Urban Drainage Planning, Maintenance, Flood Response And Reservoir Operations In Singapore](#)

Wing Ken Yau and Tien Ser Tan

[Leveraging Urban Digital Twins For Enhanced Flood Risk Management And Decision-Making In Smart Cities](#)

Lars Backhaus and Jürgen Stamm

[Study Of The Classification Potential Of Inflows In Water Distribution Networks Within The Visibility Domain](#)

Antonietta Simone, Simone Ripani, Luigi Berardi, Daniele Biagio Laucelli and Orazio Giustolisi

[Transient Wave-Based Data Assimilation For Leak Localization In Single Water Pipes](#)

Chen Qiu-Ru, Zhang Jiangjiang, Duan Huan-Feng and Che Tong-Chuan

[YR-WIC: A Water-Intelligence-Computing Driven Approach For Sustainable Development Of The Yellow River](#)

Yan Tang, Changgao Cheng and Deshan Tang

A.5.7 Other Related Topics

[Development Of An Operational 2d Flow Model Of The Rhine For An Assistance System For Inland Navigation](#)

Eduard Schäfer

[Development Of Digital Testbeds To Support The Policy Of River Basin Disaster Resilience And Sustainability By All](#)

Tetsuya Takeshita, Yoshimasa Morooka, Hideyuki Yamaji, Hisashi Kuronuma, Kanako Ozawa and Yuki Hamada

[Development Of Low-Cost Control Software For Hydrometric Data Transmission In Surface Flows Using Long-Range Radio Frequency](#)

Oscar Antonio Cedeño Acosta, Joel Hernandez Bedolla and Constantino Dominguez Sanchez

[Digital Hydraulic Jump At Froude Number 6 Properties Along The Hydraulic Jump Length](#)

Rita Carvalho

[DIWATT: An Open-Source Digital Twin Framework For Demand Response In Water Resource Recovery Facilities](#)

Behzad Mozafari, Recep Kaan Dereli, Usman Safder and Sarah Cotterill

[Effect Of Wastewater Treatment Biological Reactor Geometry On Required Mixing Intensity](#)

Ketan Madane, Peter Leonard and Sean Mulligan

[Improving Auditing And Verification Processes For Continuous Simulation Modelling Of Stormwater Quality And Runoff](#)

Mircea Stancu and Gregory Chian

[Interference Noise Cancellation For Leak Detection In Water Distribution System](#)

Chengcheng Yin, Wei Zeng, Benjamin Cazzolato and Martin Lambert

[Quantum Simulation & Optimization Of Water Distribution Networks](#)

Carlos Romero Rocha, Nicolas Renaud, Koen Leijnse, Samuel van Beek and Mario Castro-Gama

[Stochastic Simulation Of Daily Precipitation And Temperature Based On A Multisite Multivariate Weather Generator](#)

Xin Li and Yibin Zhou

A.6 EXPERIMENTAL AND FIELD METHODS

A.6.1 Advanced Experimental Techniques

[A New Perspective On Carbon Sequestration And Resource Cycle In Watershed: Biomass Carbon Derived From Biomass Waste As An High Performance Battery Anode](#)

Zheren Tang, Haoyan Sun, Yi Lv and Wei Yin

[A Soil Erosion Testing Device For Measuring Critical Shear Stress And Erosion Rate](#)

Hongning Lu

[An Approach For Water Quality Restoration In Tropical Rivers](#)

Adriana Márquez-Romance, Julio Maldonado-Maldonado, Estefania Freytez Boggio, Samuel Cárdenas Izaguirre, Manuel Pérez Rodríguez, Oswaldo Luque Mirabal, Edilberto Guevara-Pérez, Sergio Pérez-Pacheco and Eduardo Buroz-Castillo

[Analytical Considerations About Scale Effects Applied To Landslide-Tsunamis](#)

Valentin Heller

[Density Currents Interacting With An Array Of In-Line And Emergent Cylinders](#)

Ana M Ricardo, Moisés Brito, Giovanni Di Lollo and Rui M.L.Ferreira

[Development Of Hybrid And Coupled Models For The Design Of Upflow Anaerobic Filters Through Multiple Separate Stages In The Removal Of Organic Matter From Sanitary Landfill Leachates](#)

Adriana Márquez-Romance, Julio Maldonado-Maldonado, Edilberto Guevara-Pérez and Sergio Pérez-Pacheco

[Evaluating Breakwater Damage Progression: Experimental And Theoretical Insights](#)

Ana Mendonça, Rute Lemos, Conceição Juana Fortes, Ana Oliveira, Jorge Costa and Hélder Girão

[Experimental Investigation Of Wind-Driven Subsurface Turbulence](#)

Kohei Kusaba, Xianting Zhao, Yuji Sugihara, Michio Sanjou, Kazumasa Matsumoto and Shun Kaneko

[Flow-Induced Steady Deformations Of Hyperelastic Geomembranes](#)

Samuel Luke Vorlet and Giovanni De Cesare

[Highly-Resolved Particle Tracking Velocimetry: The Undular Jump Case](#)

Daniel B. Bung and Renato Steinke Jr.

[Hunter Rouse's View Of The Hydraulic Jump?](#)

Jiayue Hu, Hubert Chanson and Matthew Mason

[Hydraulic Model Test On The Criteria For Channel Divergence In Multiple Bars Regime](#)

Haruki Watabe, Hiroshi Kisa, Kenji Hashimoto, Takahiro Itoh and Yasuharu Watanabe

[In Situ And Ex Situ Bioremediation Proposal For Tropical Aquifer Contaminated With Hydrocarbons](#)

Adriana Márquez-Romance, Julio Maldonado-Maldonado, Estefania Freytez-Boggio, Samuel Cárdenas Izaguirre, Manuel Pérez Rodríguez, Oswaldo Luque Mirabal, Edilberto Guevara-Pérez, Sergio Pérez-Pacheco and Eduardo Buroz-Castillo

[Influence Of Piano Key Weir Orientation On Sidewall Standing Waves And Downstream Air-Entrainment](#)

Biruk Belay and Mario Oertel

[Influence Of Secondary Currents On Large-Scale Motions In Annular Flume](#)

Ning Liu and Maoxing Wei

[Ingesting Acoustic Doppler Current Profilers \(ADCP\) Data Into Acoustic Mapping Velocimetry \(AMV\)](#)

Gábor Fleit, Marian Muste, Dongsu Kim, Sándor Baranya, Hojun You and Amanda Whaling

[Interaction Of Density-Driven Currents With A Bottom Roughness](#)

Maria Rita Maggi, Giovanni Di Lollo and Claudia Adduce

[New Approach To Determine The Influence Of Geocells In Drainage Structures Filled With Concrete Materials: Submerged Abrasion Test](#)

Wladimir Caressato Junior, Tiago Zenker Gireli and Gustavo Fierro

[On The Use Of Substitute Sediments To Study Entrainment And Retention In Wakes](#)

Ingo Schnauder, Tina Nan Aien and Silke Wieprecht

[Performance Evaluation Of Pressure Sensors Under Two-Phase High-Speed Flows In A Low-Level Outlet](#)

Janine Vögele, Robert M. Boes and Ismail Albayrak

[Performance Of A Cavitation Jet Apparatus: Sensitivity Analysis With Aluminum And Erosion Testing On Concrete](#)
Seyedmehdi Mohammadzadeh, Jose Gilberto Dalfre Filho, Edevar Luvizotto Junior, Andre Luis Sotero Salustiano Martim, Andre Luiz Bortolacci Geyer and Thomaz Eduardo Teixeira Buttignol

[PIV Measurements Of Mild Water Hammer In A Straight Smooth Pipe](#)
Gosse Oldenzien and Francois Clemens-Meyer

[Residual Energy Of Hydraulic Jumps: Characterization Using Image Velocimetry](#)
Robert Ljubičić, Budo Zindović, Filip Djordjević, Radomir Kapor and Ljubodrag Savić

[Scour Monitoring Around Piers To Recognize Critical Conditions For Existing Bridges](#)
Pietro Giaretta and Paolo Salandin

[Simultaneous Flow Rate And Roughness Measurements In Hydraulic Turbines Using A Reformulation Of The Pressure-Time Method](#)
Michel J. Cervantes, Georgiana Dunca and Berhanu Mulu

[The Experimental Study Of The Velocity Distributions Around The Air-Water Interface With Respect To Wave Breaking In Coastal Region](#)
Ruey Syan Shih, Der Chang Lo and Chi-Yu Li

[Turbulence Induced Free-Surface Fluctuations In Open-Channel Flow](#)
Stuart Cameron, Kirill Horoshenkov, Miriam Castagna and Vladimir Nikora

[Unraveling The Role Of Pocket Geometry In The Initiation Of Large Sediment Particles: Insights From Imu-Based Analysis](#)
Xin Lu, Bruce Melville, Asaad Shamseldin and Lu Wang

[Urban Flood Pilot Experimental Facility For The Development Of An Urban Flood Infrastructure Monitoring System And Evaluation Method](#)
Sanghwa Jung and Jongmin Kim

[Velocity Structure Measurement For Water Flow With Air Bubbles In A Horizontal Pipe](#)
Chaebin Song, Joo Suk Ko, Su Hyeok Choi and Siwan Lyu

[Viscosity Effects On Aeration Efficiency In Plunging Jets](#)
Maggie Ntombifuthi Bingo, Muthumala Jayasooriya Dasun Lahiru, Sean Mulligan, Stefan Felder, Matthias Kramer and Eoghan Clifford

[Wind-Wave-Dependent Properties Of Aerodynamic Roughness Length In A Large-Scale Wind-Wave Tank](#)
Wenyi Li, Yuji Sugihara and Michio Sanjou

A.6.2 Hydrological Measurements (Flow, Groundwater, Precipitation, etc.)

[A Novel 5G-Based Sensor For High-Resolution Urban Precipitation Monitoring](#)
David Bazzett, Hariharan Venkat, Prasanthi Maddala, Ivan Seskar, Narayan Mandayam, Michael Wu and Ruo-Qian Wang

[Application Of A Simple Geometric Correction Method For River-Discharge Measurement With Image Analysis](#)
Kosuke Kawagishi, Jin Kashiwada, Ryutaro Otsuka, Mamoru Tanaka and Yasuo Nihei

[Application Of Integral Length Scale And Convolutional Neural Networks In Hydrological Measurement](#)
Yen Cheng Lin, Takahiro Koshiba, Kenji Kawaike and Hao Che Ho

[Areal Reduction Factor From The Gauging Network Of The Mexico Valley Basin](#)
Andres Olaf Santana Soto, Ramon Dominguez, Maritza Arganis, Roberto Vazquez, Eliseo Carrizosa and Silvia Gonzalez

[Drifting Properties Of Float In Wind-Induced Open-Channel Flow](#)
Shun Kaneko, Michio Sanjou and Takaaki Okamoto

[Dynamic Adjustment Of The Influence Parameter For IDW Spatial Interpolation: An Algorithm Applied To The Valley Of Mexico Basin](#)
Roberto Abraham Vázquez Martínez, Ramón Domínguez Mora, Maritza Liliana Arganis Juárez, Andrés Olaf Santana Soto and Eliseo Carrizosa Elizondo

[Erosivity Factor For Rill Erosion With Herbaceous Cover On Disturbed Steep Slopes](#)
Seung Sook Shin, Seok Jae Yoon, Min Seo Kim, Jong Il Chio, Boram Hong and Sang Deog Park

[Estimation Of Flow Discharge Of Large-Sized Rivers In Flood Time Using A Drone Video](#)
Kwonkyu Yu, Kang Min Koo, Junhyeong Lee and Byungman Yoon

Estimation Of Groundwater Recharge In The Yucatan Peninsula, From Satellite Products And Global Data Sources
Ana Claudia Siles Zarate

Estimation Of River Cross-Sectional Profile During Flood Condition Based On River-Water-Surface Flow
Hieto Yoshimura, Ryota Tsubaki, Yoshiro Omori and Ichiro Fujita

Examining The Ability Of Underwater Acoustic Tomography To Measure Streamflow Within Highly Sediment Concentrations
Mohamad Basel Alsawaf, Yashuharu Watanabe, Akiyoshi Sasaki, Kazuya Inoue and Satoshi Kusano

H-ADCP Measurements In The Port Of Hamburg - A Contribution To The Understanding Of Hydromorphological Processes In A Tidal Inland Port
Suleman Shaikh, Thomas Strotmann, Nino Ohle and Bodo Heyenga

Image Processing Technique Of Velocity For Videos With Shaking, Panning, Tilting And Rotation Taken During Flooding
Jin Kashiwada, Kosuke Kawagishi, Riku Kubota and Yasuo Nihei

Improving Radar-Derived Precipitation Forecasts Using Ground-Based Station Data And Machine Learning
Payam Heidarian, Matteo Benetti, Marco Pilotti, Marco Gabella and Esmail Ghaemi

Innovative Camera-Based Measurement Of Discharge, Rainfall And Turbidity In Open Channels And Rivers
Issa Hansen, Tobias Kern, Salvador Peña-Haro and Beat Lüthi

Online H-ADCP Discharge Monitoring And Flow Derivation Method Under Complex Flow Conditions
Moyang Liu, Yingchun Huang, Haoyu Jin and Binxing Tong

Performance Evaluation Of Continuous Suspended Sediment Discharge Monitoring Using Acoustic Backscatter And Stage Integration In Lowland Areas
Dongsu Kim, Geunsoo Son, Yougsin Roh, Suin Choi and Boseong Jeong

Rainfall Intensity Measurement By Using Deep Learning With Optical And Acoustic Sensors
Cheng Wei Wu, Hao Che Ho and Po Cheng Chien

Research On Index Velocity Method Using Surface Velocity Profiles Measured By Multi-Line Non-Contact Velocimetry
Youngsin Roh and Yeongseon Yun

Uncovering The Drivers Of Streamflow Hysteresis: A Momentum-Based Approach For Enhanced Flow Insights
Emma House, Ehab Meselhe, Marian Muste and Ibrahim Demir

Unsteady Features Of Bedload And Near-Bed Turbulence Measured In A Braided Gravel Bed River
Ryota Tsubaki, Karimullah Sefat, Jeffrey Tuhtan, Satomi Kawamura and Hideto Yoshimura

A.6.3 Water Quality Sampling and Analysis

Advancing In-Situ Real-Time Water Quality Monitoring And Sampling Using Autonomous Uncrewed Vehicles (AUV) In A Changing Climate
Jae Ryu

Bioremediation Of Emerging Contaminants Using Algal Bacterial Consortium
Ubhat Ali and Pratik Kumar

Effects Of Ice Breakup On Water Quality In The North Saskatchewan River, Canada
Xiaoyu Zhang, Yuntong She, Yang Liu and Wenming Zhang

Empirical Comparison Of Water Column Plastic Sampling Methods
Stephanie Oswald, Ad M. J. Ragas, Margriet M. Schoor and Frank P. L. Collas

Exploration Of The Dissolved Inorganic Carbon Dynamics In Deep And Large Reservoirs With Different Regulation Types
Dan Zhang, Jingjie Feng, Yufei Bao, Yuchun Wang and Ran Li

Interactions Between Sodium Polyacrylate And Suspended Sediments In A River Reach
Mohamed Bey Zekkoub, Pablo Tassi and Norinda Chhim

Modeling Transport And Transformation Of Organochlorine Pesticides In Tropical Rivers
Adriana Márquez-Romance, Samuel Cárdenas-Izaguirre, Edilberto Guevara-Pérez and Sergio Pérez-Pacheco

Seasonal Variations Of Micro- And Meso-Plastic Concentrations In Rivers Under Normal Conditions
Yugo Kobayashi, Mamoru Tanaka, Jin Kashiwada and Yasuo Nihei

Yearly Plastic Flux In Cross-Border Regions In The Netherlands
Stephanie Oswald, Esmee Oldenhof, Ad Ragas, Margriet Schoor and Frank Collas

A.6.4 Aquatic Ecology and Biological Surveys

[Evaluating Ecosystem Health Of Small Watersheds In The Han River Based On The Integrated Ecosystem Health Index](#)
Chengrong Peng, Yong Gao, Sheng Liu, Yi Lv and Haoyan Sun

[Habitat Change Analysis Of Fish Community To Building Block Methodology Mimicking Natural Flow Regime Patterns In Nakdong River In South Korea](#)

Soohong Kim, Hyeongsik Kang and Seol Jeon

[MUSSEL-ID: An Efficient Deep Learning Model For Target Detection Of Golden Mussel Larvae In Water Diversion Project](#)
Xing Xuanwei, Xue Yuan, Zhang Yongxian and Xu Mengzhen

[Nitrogen Cycling And Microbial Dynamics In Singapore's Coastal Waters](#)

Shuowang Lin, Carl Angelo Dulatre Medriano and Karina Yew-Hoong Gin

[PFAS Shapes The Diversity Of Bacterioplankton In A Typical Freshwater Of Subtropical Monsoon Ecosystem](#)

Muhammad Ibrahim and Yiping Li

[The Morphological Characteristics Of The Fish Habitats Distributed At The Tongde Basin In Upper Yellow River](#)

Chubin Weng, Mengzhen Xu and Yongxian Zhang

A.6.5 Environmental Management and Monitoring

[Examination Of Sandbar Excavation In The Tidal River Sections For Expansion Of Ayu Spawning Bed Area](#)

Keisuke Yoshida, Hiroshi Yajima, Yasushi Yamashita, Md. Touhidul Islam and Yutaro Hashimoto

[Innovative Sediment Transport Monitoring, What Influence Do Protective Structures Have On The Sediment Balance](#)

Rolf Rindler, Sabrina Schwarz, Lukas Unger, Matthias Schitter, Dorian Shire-Peterlechner, Andrea Lammer, Lisa Puschmann and Markus Moser

[Interaction Between Microbial Functionality And Nutrients Across Agricultural And Urban Landscapes Within A Lake Erie Watershed](#)

Yu-Ting Chen, Thomas Reid and Christopher Weisener

[Model-Based Assessment Of The Cost-Effectiveness Of Mitigation Strategies Against Wastewater-Sourced Pharmaceuticals Towards Riverine Health Enhancement](#)

Teran Velasquez Geovanni

[Multimodal Ai For River Health Assessment: A Proof Of Concept With Chatgpt-4 And Riparian Quality Index Photo Analysis](#)

Enya Roseli Enriquez Brambila, Gerlad Corzo, Michael McClain and Dimitri Solomatine

[Recent Developments In Real-Time Control And Monitoring Of Stormwater Along Italian Highways](#)

Stefano Biondi, Francesca Sambo, Marco Eulogi, Alessandro Rossi and Clara Zaninotto

[Spectral Data-Based Technique For Flow Measurement In Sewer Pipes](#)

Hosoo Lee, Gwangmin Ok, Yeonghwa Gwon, Dongsu Kim and Young Do Kim

[The River Health Assessment By Using The Hierarchical Indicators Based On The Ecosystems Structures And Social Services](#)

Xiaodong Qu, Min Zhang, Haiping Zhang, Wei Huang and Xiaobo Liu

A.6.6 Remote Sensing – Satellite

[A High-Resolution National Database Of River Widths From Remote Sensing And Cloud-Based Image Processing](#)

Katelyn Kirby, Colin Rennie, Sean Ferguson, Julien Cousineau and Ioan Nistor

[A River Discharge Remote Sensing Estimation Method For No Data Regions](#)

Shanlong Lu, Yuan Guo and Junling Zhang

[CNN-LIGHTGBM Hybrid Model For Downscaling Satellite Precipitation In The Upper Yellow River Basin, China](#)

Yajian Liu, Jiaojiao Ma, Kangbo Xuan, Jie Li and Xudong Chen

[Evaluation Of Satellite Imagery-Based High-Resolution DTMs For Flood Analysis In Steep-Slope Regions](#)

Maulana Ibrahim Rau, Natsu Miura, Daisuke Nohara, Atriyon Julzarika, Tsuyoshi Yamaguchi, Yoriyuki Yamada and Natsuki Yoshikawa

Monitoring Saltwater Intrusion In Tra Vinh Province Using Multi-Resolution Remote Sensing And Regression Analysis

Minh Ngoc Trinh and Hong Hanh Nguyen

Multisource Satellite Data Integration For Effective Water Temperature Monitoring

Matteo Redana, Yiming Lin, Xin Yi Chong, Tomas Maul, Karen Lee and Chris Gibbins

Remote Sensing For The Study Of Climate Change And Intensive Agriculture And Its Effects On An Overexploited Fossil Aquifer System, Arid Region, Atacama Desert

Edwin Pino-Vargas, Estanislao Maquera-Callo, Gloria Choque-Machaca, German Huayna, Carolina Cruz Rodriguez, Eduardo Chávarri-Velarde, Bertha Vera-Barrios, Lía Ramos-Fernández and Eusebio Ingol-Blanco

Responses To Climate Change In The Complexity And Instability Of Braided Rivers In Central Asia

Yucong He and Zhiwei Li

Spatial And Temporal Analysis Of Chlorophyll-A Using Sentinel-2 Data At Sutami Reservoir, Indonesia

Firman Sarifudin Efendi, Runi Asmaranto, Muhammad Anzhari Syahmi, Ganindra Adi Cahyono, Didik Ardianto and Fahmi Hidayat

A.6.7 Remote Sensing – Others (Unmanned Aerial Vehicles (UAV), Radar, etc)

Day-And-Night Continuous Sediment Monitoring In Rivers Using A CCTV-Type Hyperspectral Camera

Siyeon Kwon, Hyoseob Noh, Il Won Seo, Yun Ho Lee and Byungman Yoon

Demonstration Of Drone-Based Monitoring Of Floating Macro-Plastic Transport In Fluvial Systems

Manousos Valyrakis, Da Liu, Xi Yu, Antonija Harasti and Gordon Gilja

Estimating Water Stress In Avocado Trees Using Drone-Based Thermal Imagery And Micro-Sprinkler Irrigation In Peru

José Toledo Choquehuanca, José Luis Huanuqueño Murillo, David Quispe Tito, Malú Galindo Sanchez, Edwin Pino Vargas and Lia Ramos Fernandez

Estimation Of Dispersion Coefficients In Ungaged River Channel Using UAV-Based Spatio-Temporal Hyperspectral Image

Yeonghwa Gwon, Dongsu Kim and Siyeon Kwon

Hyperspectral Analysis And Theoretical Modeling Of Surface Water Color For Suspended Sediment Characterization

David Bazzett, Xi Wang and Ruo-Qian Wang

Monitoring Water Stress In Rice Using Thermal Imagery: A Case Study In Lambayeque, Peru

Lia Ramos Fernandez, David Quispe Tito, José Luis Huanuqueño Murillo, Camila Leandra Cruz Grimaldo and Luis Ángel Ruiz Fernández

Quantifying Bedload Transport Variability Using Acoustic Monitoring Systems In Flume Experiments

Zheng Chen, Dieter Rickenmann and Alexandre Badoux

Remote Sensing Advancement In Monitoring Harmful Algal Blooms In African Great Lakes

Rodgers Makwinja, Christopher Curtis and Solomon Tesfamichael

Soil Moisture Estimation At Vineyards Using UAV Multispectral Imagery And Machine Learning

Takuya Matsumoto, Yusuke Hiraga and Shunsuke Aita

A.6.8 GIS Applications

Assessment Of Groundwater Mapping Using Remote Sensing And GIS Based Multi Criteria Decision Making (MCDM) Approach

Souvick Kumar Shaw and Anurag Sharma

Integrating HEC-HMS And Q-GIS For The Application Of The S.C.S-CN Method Using Semidistributed GIS Hydrological Models For River Basin Management

Valerio Prosseda

A.6.9 Data Uncertainty Analysis and Assessment

[Evaluating Measurement Uncertainty In ADCP Discharge Using The Gum Method](#)

Kim Jongmin, Dongsu Kim and Marian Muste

[Impact Of Update Frequency And Observation Network Density On The Performance Of Hydrological Data Assimilation](#)

Kumudu Madhawa Kurugama, So Kazama and Yusuke Hiraga

[Investigation Of Uncertainty Analysis In Simulating Storm Surge And Wave Height Using ADCIRC And SWAN Coupled Model](#)

Huang Wei-Che and Wen-Cheng Liu

[Meta-Analysis Of Bedload Transport Measurements](#)

Sebastian Schwindt, Marwan A. Hassan, Niklas Henning and Teresa Schnellbach

[On The Normality And Controls Of Dissolved Oxygen In Riverbeds: Insights From Field Measurements](#)

Beatriz Negreiros, Silke Wieprecht and Sebastian Schwindt

[The Hunt For Uncertainties In Assumptions Within Irrigation Models](#)

Seth Nathaniel Linga

A.6.10 Other Related Topics

[Development Of Fluid Force Measurement Equipment For Hydraulic Experiments](#)

Haruki Matsui, Kenji Kawaike and Takahiro Koshiba

[Effect Of Contraction Length On Hydrodynamics And Scour Characteristics For Pressure Flow Under A Bridge Deck](#)

T I Eldho and Gaurav Misuriya

[Effects Of Various Boundary Conditions On Hydraulic Bore Running Up An Open Channel](#)

Takayuki Tanaka, Kanta Sugiura and Shiho Inagaki

[Numerical Modeling Of Aggregating Nanoparticle Transport In Porous Media](#)

Constantinos Chrysikopoulos and Vasileios Katzourakis

B.1 CLIMATE CHANGE ADAPTATION

B.1.1 Coastal Protection and Management

[A Hybrid Structure to Reduce Wave Overtopping in Urban Coast of Jakarta](#)

Octareza Siahaan and Hiroshi Takagi

[Avoiding Investment Regret: Incorporating Real Options Economics for Adaptive Coastal Protection Decisions](#)

Alexus Van der Weyden and Liyana Fad'L

[Coastal Floodplains are Highly Vulnerable to a Rising Low Tide – The Drainage Window Conundrum](#)

Kate Waddington and William Glamore

[Coastal Flood Risk to European Transport Infrastructure Under Different Global Warming Levels](#)

Khin Nawarat and Johan Reyns

[Coastal-Inland Flood Model for Singapore: From a Coastal Protection Agency's Perspective](#)

Poh Hoon Ang and Chai Teck Ho

[Dunefront Project: Demonstration of Dune-Dike Hybrid Nature-Based Solutions](#)

Zeger Sierens, Pieter Rauwoens, Dries Bonte, Peter Troch, Maxime Dahirel, Kim Van Tittelboom, Nele De Belie, Bas Hoffland, Ad Reniers, Marion Tissier, Sierd de Vries, Vicky Stratigaki, Jan Fordeyn, Marc Huygens, Tomas Sterckx, Bruno Castelle, Richard Michalet, Bas Huisman, Valerie Reijers, Oliver Lojek, Boris Schröder, Nils Goseberg, Toon Verwaest, Vincent Gruwez, Sieglie De Roo, Peter Van Besien, Daphné Thoon, Ine Moulart, Marie-Hélène Ruz, Luciana Das Neves, Paolo Rosa Santos, Nicolas Robin, Caroline Hallin, Helena Hanson and Johanna Alkan Olsson

[Ecological restoration planning of coastal zone in the Yangtze River Delta region under changing climate](#)

Yangyue Yu, Hui Zhao and Xinyu Wang

[Empirical Equilibrium Beach Profile Formula for Typical Beach with Two Sandbars](#)

Wei Xing, Hongyi Li, Xuejian Han, Cuiping Kuang, Lixin Gong and Jiabo Zhang

[Experimental Investigation of Wave Overtopping on Hard and Nature-Based Coastal Structures](#)

Rabbani Raemee, Farzin Samsami, Elisa Y.M. Ang, Peng Shu Ng and Peng Cheng Wang

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B.1.2 Flood and Droughts Management

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Using Advanced Economic Modeling to Value Tangible and Intangible Benefits of Flood & Drought Resilience
Alexandra Humphrey Cifuentes and Alexis Van der Weyden

B.1.3 Improvement in Design Guidance under Climate Change

A Scale-Invariance Approach to Modeling of Extreme Rainfall Processes for Urban Infrastructure Design in the Climate Change Context
Van Thanh Van Nguyen

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B.1.5 Resilience Strategies for Extreme Events

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B.2 WATER AND NATURE

B.2.1 Innovative Solutions for City in Nature with Water

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Yoonji Kim, Cheolho Woo, Jang Yujin and Seongwoo Jeon

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Operation of Pilot-Scale Floating Wetland in the Treatment of Micro-Polluted River Water

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Construction of River Barriers in the Jinsha River Basin: Evaluating Development Benefits and Threats to River Connectivity

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Borjana Bogatinoska, Jord Warmink, Suzanne Hulscher, Negar Moghtaderi and Annemargreet de Leeuw

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Mainstreaming and Upscaling Nature Based Solutions in Northwest Europe: Experiences from Small and Large Scale Pilots

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Xiangdong Pan, Ran Li, Jingjie Feng, Xiaolong Cheng and Kefeng Li

B.2.4 Nature-based Solutions for Coastal and Estuarine Waters

Conceptual Framework for Mangrove-Based Eco-engineering Solutions

Danica Tothova, William Glamore, Andrew Dansie, Laura Montano Luna and Bradley Henderson

Discharge Coefficients Spillways Labyrinth According Transitional Hydrodynamic Upstream Walls Forms At The Approach Canal.

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Wave Attenuation by Submerged Vegetation under Orthogonal Wave-Current Conditions

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Wave Attenuation in Laboratory Vegetated Flume with Different Vegetation Layouts

Yufei Wang and Jiarui Lei

Wave transformation and wave-induced current across reef-type breakwater groups with varying spacing

Yuhua Zheng, Xiaoyan Li, Hongwei Zhang, Jiafa Shen and Chuanguo Cheng

B.2.5 Biodiversity in Aquatic Environments

Assessing the impacts of river restoration measures for a target species: first steps towards new-generation metapopulation models

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Analysis of the Nitrogen Removal Driving Forces in Horizontal Subsurface Flow Constructed Wetlands

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Impact of Hydropower Development on Zooplankton Diversity and Community Assembly in the Lower Jinsha River

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Hydrodynamic disturbance and nutrient accumulation co-shape the depth-dependent prokaryotic community assembly in intertidal sediments of a mountainous river estuary

Longfei Wang, Yi Li, Jiaying Chen and Lihua Niu

Keeping Out Invaders: Design and Assessment of a Selective Vertical Slot Fishway to Inhibit the Passage of the Common Carp (*Cyprinus Carpio*), a Non-Native Invasive Cyprinid

Filipe Romão, Ana L. Quaresma, Francisco J. Bravo-Córdoba, Amaral Susana, Francisco J. Sanz-Ronda, José M. Santos and António N. Pinheiro

Rebuilding Fish Connectivity in River-Lake Systems: Hydrological Rhythm-Based Ecological Management

Jiajian Qiu, Saiyu Yuan and Hongwu Tang

Study on Spatial Heterogeneity Evolution of Oyster Reef in Dashentang, Tianjin

Fengze Zhao, Dekui Yuan, Xiaofu Xu and Yuanyi Li

B.2.6 Ecosystem Services

Assessing flood resilience through ecosystem services supply demand framework

Soe Soe Tun and Hao-Che Ho

Evolution and driving factors of water conservation in grassland ecosystem under the background of land use competition

Jing Jin, Zilong Liao, Tiejun Liu, Zihe Wang, Xinjian Zhang and Yining Fan

Fluvial dynamics, sediment transport and climatic variability in the middle Magdalena river valley

Juan Ochoa, Wilson Díaz Urueña and Lilian Posada García

Mangrove Ecosystem Services in Fiji: Bridging Knowledge Gaps in Ecosystem Services Valuation

Laura Montano, Jasma Devi, Brad Henderson, Dana Tothova, Andrew Dansie and William Glamore

Probabilistic method to assess the flood probability of a tidal culvert, ensuring a safe nature and intertidal area inland of the primary water defense

Maarten Schoemaker, Wilfred de Kam, Constantijn Steenbergen, Richard Bloekpoel and Matthijs Kok

B.3 HYDRO-ENVIRONMENT ENGINEERING CULTURE

B.3.1 Hydro-Environment History and Heritage

Applicability of 2D Hydraulic Model for Small-Scale Urban Flood Scenarios in Heritage Sites: A Case Study of Katsura Imperial Villa, Japan

Xi Chen, Kenji Kawaike, Takahiro Koshiba and Keiko Wada

Mike Abbott and the Philosophical Foundations of Hydroinformatics: An Exploration of His Legacy and Vision

Marianna Dodou and George Balafoutas

The Socioeconomic Value of Huizhou Weir in China

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LISTING OF POSTER PRESENTATIONS

SUB-THEME A: WATER ENGINEERING AND TECHNOLOGICAL INNOVATIONS

A.1 CLIMATE CHANGE MITIGATION

A.1.2 Incorporation of Water-related Renewable Energies

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Feng Zhou

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A.2 IMPROVING RESILIENCE AGAINST WATER HAZARDS AND NATURAL DISASTERS

A.2.1 Coastal Processes and Hazards

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Mohamed Outiskt, Ramos João Pinto Francisco and Aboumaria Khadija

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Turbulence Behaviour of Porous Weir Under Through Flow Condition
Mohammad Saud Afzal and Ali Shariq

A.2.3 Enhancements in Urban Drainage Systems

A Flood Assessment Using Dual Drainage Modelling for A Commercial Development in New Zealand
Dat Vu, Gregory De Costa and Induka Werellagama

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Flow Analysis of Tangential Inlets in Underground Stormwater Drainage Tunnel under Varying Flow Rates
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Variations in Precipitation Patterns: An Analysis of 17 Years of Hourly Rainfall Data for Recently Drought Areas
Elena Carcano

A.2.4 Sediment Transport and Bathymetrical Changes Assessment

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Tirtha Roy-Biswas

Alpine Reservoir Sedimentation: Challenges In Modelling Rapidly Varying Flow Conditions at Inflow Section
Sudesh Dahal, Frederic Martin Evers, Robert Michael Boes and David Florian Vetsch

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A.2.5 Forecasting and Warning

A Study on Asset Management Techniques Through Evaluating the Deterioration and Residual Lifespan of Sewer Pipes

Jihoon Choi, Inhee Yeo, Jun Lee and Sujin Moon

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Jeannette Zambrano and Juan Jose Gomez

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A.2.6 Disaster Risk Reduction

A Coupled Numerical Model for Simulating the Interaction of Irregular Waves with Flexible Aquatic Vegetation

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Dawie Jansen van Vuuren, Kayla Theron, Jayati Shukla and Jie Hu

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Guolin Zhao

A.2.7 Other Related Topics

How Can We Aid in Planning Improvements for Catchment Characteristics? Hydrological Modeling Versus Catchment Enhancement

Tomasz Okruszko and Ignacy Kardel

Structural Issues and Challenges of Modern and Ageing Radial Dam Gates

Vijaylaxmi Sidar

A.3 WATER ENGINEERING AND SOCIETY

A.3.1 Water Resources Management

A Fuzzy Behavioural Model of Multi-Participant Decision Processes in Water Management

Cybelle Braga, Carlos Galvão and Márcia Ribeiro

A Study on the Prediction of Total Phosphorus (T-P) and Total Nitrogen (T-N) Concentrations in Rivers Using Software Sensors

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Rupam Gaur, Binit Kumar and R.C. Vaishya

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Cengiz Koç

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Richard Kofi Amekor

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Bojun Liu, Linqi You and Yawei Zhao

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Baosong Xu

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Rashad Al-Gaashani

[Assessing the Impact of Indirect Groundwater Recharge through Recycled Water on Public and Animal Health in Semi-Arid Regions](#)

Manjari Manisha, Kavita Verma, Ramesh N, Chanakya H N, Lakshminarayana Rao and Santrupt Rm

[Cold Plasma: a Promising Technology for Bacterial Inactivation in Water](#)

José Gonçalves, Tom Koritnik, Davor Krzishnik and Jure Zigon

A.3.7 Seawater Desalination

[AI-Driven Framework for Predictive and Efficient Reverse Osmosis Desalination](#)

Najat A.Amin, Adnan Qamar and Henry Tanudjaja

[Challenges in Locating and Designing of Seawater Intake Arrangements in Open Seas and Creeks: Insights from the Indian Context](#)

Guruprasath J, Bragath R C and Chandramohan P

[Design and Development of Pure Water Production System from Seawater Through Forward Osmosis - Pervaporation Combined Membrane](#)

Gregorius Rionugroho Harvianto, Seon Jun Lee, So Yeon Joo, Beom Su Kim and Ki Joon Kang

A.3.9 Alternative Water Resources

[Artificial Springs as an Unconventional Water Source and an Alternative for Reclamation of Mining Environments](#)

Rizaldi Maadji, Amirudin Tamoreka and Andi Nur Syamsy Amir

A.3.11 Other Related Topics

[Early Exploration of Low-Carbon Methods in Urban Water Conservancy Architectural Design](#)

Xiaojing Hu, Feng Ouyang and Lingyun Zuo

[Industrial Wastewater Treatment, Case Study: Clean Industry Initiative – Wastewater Treatment Container \(WWTC\) Pilot in Brantas River Basin](#)

Astria Nugrahany

[Insights from a Comprehensive Geodatabase on Central Asia's Hydropower Plants: Historical Development, Current Status, Future Prospects](#)

Jan De Keyser, Patrica Osuna Fuentes, Daniel Hayes and Helmut Habersack

[On-Site Treatment and Reuse of Wastewater from Textile Industry: A Two-Stage Polymer Extraction and Biological Regeneration Process](#)

Domenica Mosca Angelucci and Maria Concetta Tomei

[Parameterless Best-Worst Random Algorithm for the Optimal Design of Water Distribution Networks](#)

Nikita Palod and Rajesh Gupta

A.4.1 Reservoir Renewable Energy Systems (Hydropower, Floating Solar, etc)

[The Floating Solar Potential of the Akosombo Reservoir for Achieving the Net Zero Agenda in Ghana](#)

Philip Tetteh Padi

A.4.3 Offshore Renewable Energy Systems (Offshore Wind Power, Oceanic Current Power, etc)

[Concept of Barge Platform with Air Cushion for Offshore Wind Turbine](#)

Vasanthakumar S, Narendran K and Sannasiraj Sannasi Annamalaisamy

A.4.4 Water-Energy-Food Nexus

[An Integrated Approach to Aquaponics for Urban and Suburban Agriculture](#)

Eva Fenrich

[Effect of Different Nitrogen Treatments on Chlorophyll Content and Yield of Wheat Crop](#)

Apoorva Yadav, Ghanshyam Giri, Hitesh Upreti and Gopal Das Singhal

A.4.5 Water Management for Urban Agriculture

[Estimating Future Irrigation Water Demand in the Poyang Lake Basin using a Crop-Specific Dynamic Irrigation Scheme](#)

Qianya Yang, Jianhui Wei, Chuanguo Yang and Zhongbo Yu

A.4.8 Other Related Topics

[Quantifying Deposited Sedimentation During Flooding in Semi-Dyke Protected Area – Case Study in the Plain of Reed, Mekong Delta Vietnam](#)

Thi Hoa Pham, Ngoc Pham and Quoc Tinh Pham

[Optimization Of Zuppinger-Waterwheels in An Ecological-Economic Context](#)

Julius Maier and Prof. Dr. Nicole Saenger

A.5.1 Artificial Intelligence (AI) Tools for Analysis and Decision Support under Certainties

[AI-Driven Identification of Cyanobacteria for Enhance Water Quality Monitoring and Management](#)

Quynh-Nga Trinh

[Coupling the Internet Of Things \(IoT\) and Machine Learning, A Step Towards On-Time Decision Making in Groundwater Management](#)

Tsholofelo Mmankwane Tladi, Banjo Ayoade Aderemi, Julius Musyoka Ndambuki, Thomas Otieno Olwal and Sophia Sudi Rwanga

[GPT-based AI Assistant for Flooding Information Communication and Decision-Making Support](#)

Rafaela Martelo, Kimia Ahmadiyehyazdi and Ruo-Qian Wang

[Next-Generation Sewer Inspection: Synergistic Approach to Urban Water System Management by Autonomous Drones and AI](#)

Antonio Lastra de la Rubia, Celia Ortega Flores, Alejandro Pinilla Riveiro, Mónica Ortega Castro and Jaime Botello Herranz

A.5.2 Computational Methods for Climate and Meteorology

[Simulation of Urban Floods using Coupled 1D-2D Hydrodynamic Modelling for Urban Watershed](#)

M Gopal Naik and K Sravani

A.5.3 Computational Methods for Hydraulic and Water Quality Modelling

[An SPH Model of Moving Porous Media with Infiltration](#)

Coline De Sousa, Guillaume Oger, Julien Michel, David Le Touzé and Damien Violeau

[Calibration and Validation of Models for the Water Yield of a Confined Aquifer in a Tropical Region](#)

Adriana Márquez-Romance, Gerardo Huguet-Sierra, Edilberto Guevara-Pérez, Sergio Pérez-Pacheco and Eduardo Buroz-Castillo

[CFD Analysis of Tranquilizing Racks in Desanding Facilities](#)

Pasha Piroozmand, Dany Suter and Davood Farshi

[CFD Simulations of the Supercritical Free-Water-Surface Confluence Flow](#)

Marko Blagojevič, Marko Hočevár, Benjamin Bizjan, Primož Drešar, Žan Pleterski, Sabina Kolbl Repinc, Blaž Stres and Gašper Rak

[Construction and Application of a Vertical Two-Dimensional Water Temperature Model of Reservoir Based on Machine Learning Algorithms](#)

Tao Xu, Zhic Liu, Peng Li, Yuf Ren, Hai Cao and Junq Lin

[Identification of Manning's Roughness Coefficient for Two-dimensional \(2D\) Overland Surfaces using an Optimization Technique-based Numerical Methodology](#)

Saumava Dey, Aditya Narayan and Richa Dubey

Investigation of the Flow Structures at a Deformed Bed Channel Junction: A 3D Numerical Study

Puja Kumari and Abhishek Pandey

Kinetic Modelling of Organic Mass and Nitrogen Removal by Granular and Suspended Biomass in a Sequencing Batch Reactor Treating Tannery Wastewater

Adriana Márquez-Romance, Estefania Freytez-Boggio, Maria Pire-Sierra, Edilberto Guevara-Pérez and Sergio Pérez-Pacheco

Optimum Design of Protection Devices for Transient State in Water Pumping Systems

Laura Santana and Alexandre Soares

Software to Streamline Modelling & Reporting for Continuous Simulation Modelling of Stormwater Pollutants and Runoff

Mircea Stancu and Gregory Chian

Three-Dimensional Numerical Modelling of Shape Optimisation of Irrigation Settling Basin for Sediment Settling and Faster Washout

Riza Siregar

3D Numerical Simulations Of Overtopping Flow Dynamics Using Density Function

Yong-Jun Kwon, Hyeok Cheol Shin, Ichiro Kimura, Shinichiro Onda, Donghwan Jang and Hyung Suk Kim

A.5.5 Data-Driven Methods and Machine Learning Techniques

An Approach to Method for Water Yield Spatio-Temporal Prediction in Basins Without Records

Adriana Márquez-Romance, Edilberto Guevara-Pérez, Sergio Pérez-Pacheco and Eduardo Buroz-Castillo

Applications of Agent Based Modelling for Tsunami Resilience: A Systematic Literature Review

Vensel Margraff, Tumanako Fa'Aui and Kilisimasi Latu

Data-Driven Prediction of Sewer Flow Variability in Ningbo City with High-Resolution Machine Learning Models

Sadashiv Chaturvedi, Liu Min and Jinchao Xu

Development of Intelligent (AI) Sewer Pipe Condition Assessment System Module for Smart Sewerage Asset Management

Inhee Yeo, Jun Lee, Jihoon Choi and Soojin Moon

Enhancing Inflow Prediction for Dams using Differentiable Process-Based Modelling: A Case Study of the Rengali Dam, India

Ashutosh Sharma, Nikunj Mangukiya and Sweta Dash

Machine Learning Model of the Tokyo Metropolitan Area Outer Underground Discharge Channel

Florence Mainguenaud

Multi-Model Deep Learning Ensemble For Flood Event And Probability Prediction

Sseguya Fred and Kyung-Soo Jun

Quantifying the Impact of the Inducing Factors of Flash Flood across the Hengduan Mountains Region, China

Yifan Li, Chendi Zhang and Marwan A. Hassan

Research on Data Mining-Based Precision Flood Control Scheduling Strategy for Reservoirs

Ningning Li, Chao Tan, Bikui Zhao, Jing Huang and Yehongping Qin

Uncertainty Quantification of Multi-Input Fluvial Floods Using GPR- and PCE-Based Surrogates

Adil Siripatana, Amy L. Wilson and Lindsay Beevers

Weyonje Mobile Application: Providing Pit-Emptying Services through GIS-Enabled Mobile Application.

Marunga Moureen and Nakigudde Sharon

A.5.6 Hydroinformatics and Big Data Analytics

4K-Camera-Derived Large Multimodal Model-Based Person-Related Utilisation Analysis of Riverine Environment

Shijun Pan, Keisuke Yoshida, Takashi Kojima and Yutaro Hashimoto

Digital Futures in Hydrology: Conversational AI, Digital Twins, and Metaverse Potential

Ibrahim Demir

FAMS Intelligence for Water-Climate-Agriculture-Energy Security: A Decision-Making Geospatial AI Platform

Viraj Loliyana and Shreyas Nambiar

A.5.7 Other Related Topics

[Improving Auditing and Verification Processes for Continuous Simulation Modelling of Stormwater Quality and Runoff](#)
Mircea Stancu and Gregory Chian

[On-Site Detention Sizing and Reporting for Stormwater Quantity Management](#)
Mircea Stancu and Gregory Chian

[Rainwater Harvesting and Reuse Estimation using Continuous Modelling of Stormwater Runoff and Pollutants](#)
Mircea Stancu and Gregory Chian

[Simplified Tool for Continuous Simulation Modelling of Stormwater Quality and Runoff](#)
Mircea Stancu and Gregory Chian

[The Journey from Non-Linear to Linear Mapping to Visualize the Anisotropic Turbulence](#)
Rupam Sahu and Mohammad Saud Afzal

[Transfer Learning for Leak Detection in High-Rise Building Water System](#)
Shu Cheng, Oussama Choura, Camelia Chen and Moez Louati

A.6 EXPERIMENTAL AND FIELD METHODS

A.6.1 Advanced Experimental Techniques

[Debris flow monitoring for continuous detection with an LVP and mass movements after small landslide in Sakura-Jima Island - Case study: Events on 19th August 2021](#)
Takahiro Itoh, Satoshi Tagata and Takahisa Mizuyama

[Exploring 3D Reconstruction Techniques for Non-Intrusive Measurements in Coastal Engineering Experiments](#)
Chi-Yu Li and Ruey-Syan Shih

[Investigation of Fifiold Propose Alternative Approach to Effective Sediment Basin Design with Application of Stokes' Law](#)
Chun Kiat Chang, Kwok Wing Leong and How Tion Puay

[Kinetic Modelling of Performance of Upflow Anaerobic Filters in Multiple Separated Stages Treating Sanitary Landfill Leachates](#)
Adriana Márquez-Romance, Julio Maldonado-Maldonado, Edilberto Guevara-Pérez and Sergio Pérez-Pacheco

[Temporal Development Of The Flow Field Over The Bridge Pier Scour Hole](#)
Gordon Gilja, Antonija Harasti, Josip Vuco, Jelena Boban and Manousos Valyrakis

A.6.2 Hydrological Measurements (Flow, Groundwater, Precipitation, etc)

[Analysis of Surface Velocity to Depth-Averaged Velocity in Various Rivers Scales in the Korea](#)
Sinjaee Lee, Kisung Lee, Youngryong Ryu and Jihea Lee

[Comparative Evaluation of Potential Evapotranspiration Estimation Methods East of The Lesser Lake Titicaca](#)
Leonardo Rospigliosi, Diego Mendoza and Justo Laura

[Discharge Coefficients from Hydraulic Experiments for Operation of Auxiliar and Ogee Spillways](#)
Seung Sook Shin, Jaebin Seonwoo, Yukyeong Lee and Joongcheol Paik

[Estimating of Irrigation Return Flow Through Discharge Monitoring Testbed in Korean Paddy Fields](#)
Moonhyung Park and Seong-Sim Yoon

[Estimation of Velocity Index in Natural River Flows](#)
Tae Hee Lee, Seung Ho Park, Chan Woong Jung and Dong Ho Hyun

[Groundwater Flow Simulation using a Mesh-Free Radial Basis Function Collocation Method](#)
Geraldin Edino Belalahy and Gurhan Gurarslan

[Gully Erosion Assessment by an Empirical Methodology in Andean Mountains](#)
Clifton Paucar, Miluska Rosas and Ada Arancibia

[Hydraulic Characterization of Sedimentary Aquifer Systems with Data Scarcity: A Case Study of the Middle Magdalena Valley, Colombia](#)
Boris Lora-Ariza and Leonardo David Donado

Improving Suspended Sediment Concentration Estimation Using Multiple Regression Models with H-ADCP Backscatter Data
Geunsoo Son and Youngsin Roh

Low-Cost Water Level Sensors for Streamflow Simulation in Andean Basins
Nicolas Castro, Pedro Rau and Waldo Lavado

Optimizing Flow Measurement for Low Discharge Rates: Calibration of Triangular V-Notch Weir
Thiago Osawa, Brenda Leite and Jose Rodolfo Martins

Sensitivity Analysis of The Lisst-Abs Calibration Parameter for Suspended Sediment Measurement in Sand-Bed Rivers
Antonija Harasti, Gordon Gilja, Dražen Brleković and Igor Tadić

Water Level Sensing in Storm Water Channels for Real-Time Flow Estimation: A Case Study of Kolkata, India
Dhrubajyoti Sen and Bibhas Ch. Barman

Test Of Flow Straightener Using Multiple Parallel Tubes In Open Channel Flume
Jaebin Seonwoo, Hyungju Noh, Joongcheol Paik and Hongjoon Shin

A Method To Estimate Cross-Sectional Averaged Bedload Flux From A View Point Of Measurement Data
Yusuke Yamazaki, Akira Matsuoka, Tsuyoshi Ikeshima and Takahiro Itoh

A.6.3 Water Quality Sampling and Analysis

A Study on Microplastic Distribution in Ashtamudi Estuary during Pre-Monsoon Period
Harikrishna S, Nija Thomas, Sreeparvathy S S, Vysakh M, Priya K L and Gubash Azhikodan

Comparison of Pollution Risk Assessment Methods for Rivers: A Case Study of the Talar River, Iran
Mansoureh Heidari, Kumars Ebrahimi, Fatemeh Razi Astaraei and Mobina Hadinejad

Distribution Patterns and Source Analysis of Nitrogen in Middle and Lower Reaches of the Puyang River
Yimin Zhang

Effect of Particulate Matter on Dew Water Quality
Suresh Pandian Elumalai, Shweta Singh and Sasmita Chand

Evaluating the Applicability of LISST-200X-Derived Turbidity-SS Relationships using a Recirculating Water Flume
Jongmin Kim, Gwangsoo Kim and Young Do Kim

Evaluation of Groundwater Quality for Drinking and Irrigation Purposes in a Semi-Arid Watershed of Southern India
Killivalavan Jothiramalingam, Masilamani Palanisamy, Thanuja Krishnan Ramadeviamma and Thilagaraj Periasamy

Groundwater Quality and Associated Human Health Risk in Lower Ponnaiyar River Basin, Tamil Nadu, India
Masilamani Palanisamy, Thanuja Krishnan R, Killivalavan Jothiramalingam, Abdul Rahaman S and Kumaraswamy K

Optimization of Solid Phase Extraction Protocol for Effect-Based Monitoring in Recycled Water
Zuhairah Hanafi, Caiping Feng, Wan Shoo Cheong and Ivy Lam

Urban Stormwater and Soil Quality Assessment: Heavy Metal Concentrations in a Catchment in Teluk Intan, Perak, Malaysia
Xin Yan Lye and Akihiko Nakayama

A.6.4 Aquatic Ecology and Biological Surveys

How Do Aquatic Vegetation Impact Aquatic Environments under Varying Hydraulic Conditions? identifying Ecological Indicators for Best Management Practices in Large-Scale Reservoir Forebays
Didi Song and Chen Zhang

Modelling the Impacts of Climate Change on Aquatic Ecosystem Health: A Predictive Analysis of the Benthic Macroinvertebrate Index (BMI) in South Korea
Juhee Kim, Subin Jeong, Yeonji Suh, Kyung-Lak Lee and Hyun-Han Kwon

Unravelling Fish Diversity and Assembly Patterns by Edna Metabarcoding in the Yangtze River Upstream Nature Reserve of Rare and Endemic Fishes
Li Wang, Jin Yang and Ruqinag Zhang

A.6.5 Environmental Management and Monitoring

A Study on the Application of Virtual Sensors for Water Level-Discharge Estimation

Yejin Lee, Su Han Nam and Young Do Kim

[A Water Quality-Quantity Monitoring System to Assess the Impact of Anthropogenic Activities on Urban Rivers](#)

Giulia Mazzarotto and Paolo Salandin

[Analysis of Flow Characteristics within Lake Paldang Based on Hydraulic Structure Operations](#)

Chang Hyun Lee, Soo Bin Yoon, Dong Su Kim and Young Do Kim

[Analysis of High-Frequency Stratification in Paldang Reservoir Caused by Hydraulic Structures](#)

Soo Bin Yoon, Chang Hyun Lee, Dong Su Kim, Yong Sik Song and Young Do Kim

[Analysis of Spectral Data Variability due to Light Source and Luminance for Depth Monitoring](#)

Gwangmin Ok, Hosoo Lee, Yeonghwa Gwon, Dongsu Kim and Young Do Kim

[Development of Advanced Techniques for 3D River Analysis using Sensors](#)

Gwangsoo Kim, Chang Hyun Lee, Soobin Yoon, Yejin Lee and Young Do Kim

[Fabrication of Metal-Biochar via Co-Pyrolysis and its Application into the Removal of Potentially Harmful Elements from Aqueous Solution](#)

Dong-Wan Cho and Jeong-Yun Jang

[Plasma Treatment of Agricultural Wastewater, Growth Media & Production of PAW \(Plasma-activated water\).](#)

Muhammed Hossain and Kiran Tota-Maharaj

[Study on Total Nitrogen Prediction Based on Various River Characteristics](#)

Su Han Nam, Siyoooun Kwon and Young Do Kim

[The Effect Of Sediment Reduction Into Wetland By Channel Re-Meandering Work On Kushiro Wetland Restoration Project](#)

Taro Yamamoto, Norio Ishida, Daigo Inagaki and Kiyotaka Sagai

[The Use of a Bespoke Monitoring Strategy to Understand the Source of Pollution and Water Quality Change: The Example of the Upstream Thinking Project \(UK\)](#)

Emilie Grand-Clement, Jaeyoung Lee, Yu-Ting Chen, Josie Ashe, Daniella Montali-Ashworth, Erica Boston, Cameron Clark and Richard E. Brazier

A.6.6 Remote Sensing – Satellite

[Integrating SAR-Based Flood Mapping and Hydraulic Modelling for Flood Risk Assessment in the Gumara Watershed, Upper Blue Nile Basin, Ethiopia](#)

Haile Belay Desta, Assefa Melesse and Getachew Tegegne

A.6.7 Remote Sensing – Others (Unmanned Aerial Vehicles (UAV), Radar, etc)

[Monitoring of Wheat Crop and its Phenology Pattern using UAV Multispectral Data](#)

Adwait Adwait, Ghanshyam Giri, Hitesh Upreti and Gopal Das Singhal

A.6.8 GIS Applications

[Geo-Morphometric Study of Mahanadi Basin Using Remote Sensing \(RS\) and Principal Component Analysis \(PCA\) Technique](#)

Mohit Kumar, Ashish and Indra Kumar

[Geospatial Solutions for Enhanced Groundwater Security: Advancing Managed Aquifer Recharge in a Changing Environment and Society](#)

Akanksha Soni, Balaji Narasimhan and Venkatraman Srinivasan

[GIS-Aided Evaluations of Land-Use Change and CO₂ Emission in Fukuoka, Japan](#)

Jindi Guo and Yuji Sugihara

[Linking Hydrogeological Attributes of Springsheds and Groundwater Aquifers using AHP and Fuzzy Logic Approaches](#)

Prikash Meetei Ningombam, Romeji Ngangbam, Angrungkham Keishang, Rajeshree Khumanthem, Nishi Devi Laimayum and Sunita Devi Rajkumari

[Shoreline Change in Eastern Obolo LGA, Akwa Ibom State, Nigeria, between 1986 and 2017 using Geographic Information System \(GIS\)](#)

Bassey Antai and Ntukidem Blessing

[Spatial Analysis and Water Quality Monitoring for Enhanced Water Quality Management in Ho, Volta Region, Using GIS](#)

A.6.10 Other Related Topics

Geophysical Investigation Applied to Prospecting of Groundwater in Crystalline Rocks: Elvira Granite, Amazon Forest Region, Aripuanã, Mato Grosso State, Brazil

Cristiane Dias de Novaes, Daniel de Araújo Machado, Rejane Suellen da Silva Duarte and Sergio Junior da Silva Fachin

Time-Resolved Velocity Measurements of a Plunging Jet in a Stilling Basin

Rui Aleixo, Jarosław Biegowski, Massimo Guerrero and Margaret Chen

SUB-THEME B: WATER ENGINEERING AND SOCIO-ECONOMIC CONSIDERATIONS

B.1 CLIMATE CHANGE ADAPTATION

B.1.1 Coastal Protection and Management

Numerical Analysis of Sea Level Rise Effect on the Wave Runup Height of Typhoon 1977 Kim for the Camarines Sur Seawall

Vince Rainer Abrigonda, Eric Cruz and Elias Garcia

B.1.2 Flood and Droughts Management

Effects of Bed Erodibility on Non-Cohesive Fluvial Dike Breaching Induced by Flow Overtopping

Zied Amama, Kamal El Kadi Abdererzzak and Lydia Kheloui

Impacts of Precipitation and Potential Evapotranspiration on Future Runoff Under Climate Change Scenarios: A Case Study of The Han River Basin, South Korea

Da Hee Hong, Kyung Jin Lim, Jeongwoo Han and Tae-Woong Kim

B.1.3 Improvement in Design Guidance under Climate Change

Comparing Different Adaptions on Vertical Slot Passes to Enhance Resilience to Anthropogenic Climate Change

Philipp Werner and Nicole Saenger

B.1.5 Resilience Strategies for Extreme Events

Considering Climate Change Projections in the Assessment of Hydrodynamic Loads and Scour Risks on Bridge Piers – A Pilot Case and Results of the EU Project Riskadapt

Gašper Rak and Mateja Škerjanec

B.2 WATER AND NATURE

B.2.1 Innovative Solutions for City in Nature with Water

Hybrid CDS Technology With AI and Green Infrastructure for Sustainable Urban Stormwater Management

Yah Loo Wong and Fang Yenn Teo

B.2.3 Nature-based Solutions for Large Rivers

A Study on the Hydraulic Stability of Deteriorated Levee Repair and Reinforcement Method using a Castor Oil-Based Biopolymer

Hong-Kyu Ahn, Joon-Gu Kang and Dong-Jin Lee

B.2.5 Biodiversity in Aquatic Environments

A Study on the Investigation of River Crossing Structures and the Evaluation of Aquatic Ecosystem Continuity at the Basin Level

Dong-Jin Lee and Hong-Kyu Ahn

PROGRAMME OF ACTIVITIES FOR YOUNG PROFESSIONALS

CAREER TALKS

24 June 2025 (Tuesday) and 25 June 2025 (Wednesday)

Career talks provide a valuable opportunity for young professionals to explore various career paths within the sector. Two career talk sessions will be held each day during lunch time. Senior leaders from utilities, engineering consultancy, start-ups, and research sectors will share their expertise and work experience during each session.

YOUNG WATER PROFESSIONALS (YWP) SYMPOSIUM

24 June 2025 (Tuesday)

Participants will take part in a fireside chat with senior leaders in the field, fostering open discussion and knowledge sharing. The symposium will conclude with the Singapore Water Association (SWA) YWP Mentorship Graduation Ceremony, which honours the accomplishments of participants in the mentorship program, celebrating their hard work and dedication.

YOUNG PROFESSIONALS NETWORK ASSEMBLY

24 June 2025 (Tuesday)

Join and meet the worldwide community of IAHR young professionals and IAHR leaders at their biennial assembly!

YOUNG PROFESSIONALS NETWORK NIGHT

24 June 2025 (Tuesday)

IAHR Young Professionals and SWA Young Water Professionals are invited to the Young Professionals Network Night, an opportunity to connect, exchange ideas, and build professional relationships with fellow young professionals and emerging leaders, over light bites and drinks.

The Young Professionals Network Night will be hosted at an external venue.

JOHN F. KENNEDY STUDENT PAPER COMPETITION

25 June 2025 (Wednesday) | 2:00pm – 5:30pm

The John F. Kennedy Student Paper Competition recognises conference papers from undergraduate and postgraduate students on the basis of written and oral presentations at the IAHR World Congress.

IAHR MENTORING PROGRAMME

Young professionals and new IAHR members can benefit from mentoring to get to know IAHR and its members, be introduced into the IAHR Technical Committees and Working Groups, and to find easier access to this international network of scientists and experts.

More info will be published soon.

CALL FOR RAPPORTEURS

IAHR is looking for rapporteurs (between the ages of 18 to 35) who will be tasked with providing summary reports on the following 41st IAHR World Congress High Level Panels.

Rapporteurs will be the decisive instrumental part of the reporting and conclusions process.

More info will be published soon.

HOW TO WRITE A GOOD PAPER FOR THE JOURNAL OF HYDRAULIC RESEARCH BY PROF PANAYOTIS DIPLAS, LEHIGH UNIVERSITY, UNITED STATES AND JHR EDITOR

26 June 2025 (Thursday)

This session will explore key aspects of the writing process, focusing on the purpose of academic writing and essential elements of excellence. Topics include effective preparation, structuring content, the critical role of revision, and best practices before submission. We'll also discuss how to respond to reviews, the importance of serving as a reviewer, and common pitfalls to avoid.

Additionally, insights into the Journal of Hydraulic Research, its editorial standards, and its role in advancing the field of hydraulics will provide a comprehensive guide to academic publishing in this leading journal. JHR is the flagship of the [IAHR Journals](#).

REGISTRATION AND ENQUIRY

Registration details, including pass types, registration phases and categories, can be found on the [official Congress website](#) before registration.

The 41st IAHR World Congress 2025 in Singapore offers various fee structure, including IAHR member and non-IAHR member registration fees, lower registration fees for delegates from low-income countries (based on the World Bank Classification) and students.

Entitlements of a IAHR2025 Singapore Delegate Pass

- Access to IAHR2025 Singapore programmes, including opening, keynotes, technical & special sessions and high-level panels
- Access to solutions marketplace, welcome reception, coffee / tea breaks and lunches

The delegate pass excludes workshops, masterclasses, technical visits and awards & congress dinner which are ticketed separately.

Student discount is applicable to students currently studying in an Institute of Higher Learning. Students are required to email the organiser at registration@iahr2025-singapore.com.sg with a copy of an official supportive letter from the institution, signed by the head of the department, to receive a student promo code.

All registration rates are in Singapore dollars (SGD).

CONTACT INFORMATION

For any enquiries, please contact the Congress Secretariat at: info@iahr2025-singapore.com.sg

Detailed information of the 41st IAHR World Congress is also available here at: <https://2025.iahr.org/>

[Co-Located Event] Singapore International Water Week (SIWW) Spotlight 2025

Themed “*Flood Resilient Cities: Adapting to Climate Change*”, SIWW Spotlight 2025 to be held from 23-25 June at the Singapore EXPO, will focus on how cities can adapt to climate change and build greater resilience to floods and extreme weather events. This three-day high-level summit will bring together over 300 leaders from cities, utilities, regulators and industry, including 40 cities, to exchange experiences, share case studies and facilitate peer-to-peer learning in tackling such climate challenges.

Delegate registration opens on 3 March 2025. Visit www.siww.com.sg/spotlight-2025 for more information.

ABOUT THE CO-ORGANISERS



PUB is a statutory board under the Ministry of Sustainability and the Environment (MSE). It is the national water agency, which manages Singapore's water supply, water catchment, and used water in an integrated way. From April 2020, PUB also took on the responsibility of protecting Singapore's coastline from sea-level rise as the national coastal protection agency.

PUB has ensured a diversified and sustainable supply of water for Singapore with the Four National Taps (local catchment water, imported water, NEWater, desalinated water). PUB leads and coordinates whole-of-government efforts to protect Singapore from the threat of rising seas and the holistic management of inland and coastal flood risks.

PUB calls on everyone to play a part in conserving water, in keeping our waterways clean, and in caring for Singapore's precious water resources. If we all do our little bit, there will be enough water for all our needs – for commerce and industry, for living, for life.

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A research-intensive public university, Nanyang Technological University, Singapore (NTU Singapore) has 33,000 undergraduate and postgraduate students in the Engineering, Business, Science, Medicine, Humanities, Arts, & Social Sciences, and Graduate colleges.

NTU is also home to world-renowned autonomous institutes – the National Institute of Education, S Rajaratnam School of International Studies, Earth Observatory of Singapore, and Singapore Centre for Environmental Life Sciences Engineering – and various leading research centres such as the Nanyang Environment & Water Research Institute (NEWRI) and Energy Research Institute @ NTU (ERI@N).

Under the NTU Smart Campus vision, the University harnesses the power of digital technology and tech-enabled solutions to support better learning and living experiences, the discovery of new knowledge, and the sustainability of resources.

Ranked amongst the world's top universities, the University's main campus is also frequently listed among the world's most beautiful. Known for its sustainability, over 95% of its building projects are certified Green Mark Platinum. Apart from its main campus, NTU also has a medical campus in Novena, Singapore's healthcare district.

For more information, visit www.ntu.edu.sg.



The National University of Singapore (NUS) is Singapore's flagship university, which offers a global approach to education, research and entrepreneurship, with a focus on Asian perspectives and expertise. We have 17 faculties across three campuses in Singapore, with more than 40,000 students from 100 countries enriching our vibrant and diverse campus community. We have also established our NUS Overseas Colleges programme in more than 15 cities around the world.

Our multidisciplinary and real-world approach to education, research and entrepreneurship enables us to work closely with industry, governments and academia to address crucial and complex issues relevant to Asia and the world. Researchers in our faculties, 30 university-level research institutes, research centres of excellence and corporate labs focus on themes that include energy; environmental and urban sustainability; treatment and prevention of diseases; active ageing; advanced materials; risk management and resilience of financial systems; Asian studies; and Smart Nation capabilities such as artificial intelligence, data science, operations research and cybersecurity.

For more information on NUS, please visit www.nus.edu.sg.

International Association for Hydro-Environment Engineering and Research

The International Association for Hydro-Environment Engineering and Research (IAHR), founded in 1935, is a worldwide independent organisation of engineers and water specialists working in fields related to the hydro-environmental sciences and their practical application. Activities range from river and maritime hydraulics to water resources development and eco-hydraulics, through to ice engineering, hydro-informatics and continuing education and training. IAHR stimulates and promotes both research and its application and by doing so it strives to contribute to sustainable development, the optimisation of world water resources management and industrial flow processes.

IAHR accomplishes its goals through a wide variety of member activities including working groups, a robust research agenda, congresses, specialty conferences, workshops and short courses; journals, monographs and proceedings; by involvement in international programs such as UNESCO, WMO, IDNDR, GWP, ICSU and by co-operation with other water-related international organizations.

For more information on IAHR, please visit www.iahr.org

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For enquiries on the 41st IAHR World Congress, please contact:

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Organisers:

