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41ST IAHR WORLD CONGRESS SINGAPORE

Hosted by
Spain Water
and IWHR, China

22 – 27 JUNE 2025

INNOVATIVE WATER ENGINEERING FOR SUSTAINABLE DEVELOPMENT

ADVANCE PROGRAMME

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Organised by:

IAHR International Association for Hydro-Environment Engineering and Research
AIRH Hosted by Spain Water and IWHR, China

PUB SINGAPORE'S NATIONAL WATER AGENCY

NUS National University of Singapore

NANYANG TECHNOLOGICAL UNIVERSITY

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

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Solutions Marketplace (Exhibition) | IAHR2025 Singapore Sessions

(As of 5 March 2025)

INTERNATIONAL SCIENTIFIC COMMITTEE AND REVIEWERS

INTERNATIONAL SCIENTIFIC COMMITTEE

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- Philip Liu, National University of Singapore, Singapore
- Vladan Babovic, National University of Singapore, Singapore
- David McCarthy, Monash University
- Stefan Felder, UNSW Sydney
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- Wenxin Huai, Wuhan University
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- Qiuwen Chen, Nanjing Hydraulic Research Institute
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- 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
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- Ellis Penning, Deltares
- Bas Jonkman, TU Delft
- Asaad Shamseldin, University of Auckland
- Mark Davidson, University of Canterbury
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- Pilar García-Navarro, Universidad de Zaragoza, Q5018001G
- Francisco Martínez-Capel, Universitat Politècnica de València
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- Dubravka Pokrajac, University of Aberdeen
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- Heidi M. Nepf, Massachusetts Institute of Technology
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- 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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- Adriana Mercedes Márquez-Romance, University of Carabobo

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.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.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.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.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

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

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 of 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 Mendiondo

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 programmeme 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, ÄI 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 ‚Äì 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 interferes 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 Abderrezzak 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 Timermans

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 Co_2 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-Navigatble 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 Instrusion 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

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A.2.5 Forecasting and Warning

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A.2.6 Disaster Risk Reduction

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A Comprehensive Design Framework For Placement Of Urban Flood Prevention Measures For Critical Area
Ruixuan Wu, Reza Ahamadian and Changbo Jiang

Using Comprehensive Field Data For Validating Large-Scale Hydrodynamic Hindcasting Of An Extreme Flood Event
Pratik Chakraborty, Christophe Dessers, Pierre Archambeau, Michel Pirotton, Sébastien Erpicum and Benjamin Dewals

Estimation Of Pluvial Flooding Risk In The City Of General Rodriguez, Buenos Aires, Argentina
Sandra Liliana Sandra Flores, Eduardo Franco Salto and Federico Martín Rodríguez

Floods In Cities: New Insights For Integrating Pluvial Flooding Into Flood Risk Management Plans
Giuseppe Tito Aronica, Gianfranco Becciu, Giuseppina Brigandi, Luca Cozzolino, Giuseppe Del Giudice, Renata Della Morte, Corrado Gisonni, Francesco Napolitano, Roberta Padulano, Stefano Pagliara, Elena Ridolfi, Umberto Sanfilippo and Giada Varra

Numerical Simulations Of Partially Submerged Farm Animals Exposed To Floodwaters
Tommaso Lazzarin and Andrea Defina

Resistance Of A Gabion Against Overflow Based On A Full-Scale Experiment Of River Levee
Kengo Hori, Hiroshi Kokuryo and Yasuo Nihei

A Study On The Performance Evaluation Of Rainfall-Runoff Reduction Facilities In Urban Watersheds
Minjeong Kim and Inhwan Park

Research On The Flood Characteristics Of Three-Dimensional Bearing Bodies Based On Computational Fluid Dynamics
Cai Zhao, Liu Hong-Wei and Chu Shaozhi

Numerical Simulation Study On Seismic Isolation And Reduction Of Underground Structures
Yonglai Zheng and Haorui Chen

Study On The Effects Of Different Drainage Measures For Construction Projects Under Extreme Rainstorm And External Flood Conditions
Hongwei Liu, Shaozhi Chu, Cai Zhao and Xing Min

A Review About Flood Preparedness Of Healthcare Facilities
Yared A. Abebe, Maria Pregnolato and Bas N. Jonkman

Comparative Study Of Various Typical Hydrological Models For Flash Flood Forecasting
Kejia Wen, Chengshuai Liu and Caihong Hu

Study On The Effect And Influencing Factors Of Leaching Desalination Method
Wang Penghe and Wu Weiwei

Remote Sensing Dynamic Monitoring And Impact Assessment Of Dongdian Flood Detention Area Based On Multi-Source Satellite Imagery And Low-Altitude Manned Aerial Data
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
Ryuichi Hirakawa, Honoka Aita, Tomokazu Negishi and Yuya Hoshino

Multivariate Analysis Of Compound Flooding In Can Tho City, Vietnam
Jinghua Jiang and Qiuhua Liang

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

Long-Term And Short-Term Disposal Of Landslide Dams At Steep V-Shaped Valleys
Jingwen Wang, Lianjun Zhao, Shasha Han, Rui Wang and Guangming Tan

Experiment Study On Dike Breaching With Top Structures
Wei Huang, Yufang Ni, Wengang Duan and Duan Chen

Study On Deformation And Control Of Surrounding Rock In Inclined Coal Seam Roadways Under Seepage Effects
Tianwen Li and Yonglai Zheng

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

Development Of Evaluation Model For Driftwoods Generation In The Kawabe River Basin Due To Heavy Rain Event And Assessment Of The Effect Of The Climate Change
Shinichiro Yano, Haruka Imai, Yasuyuki Maruya and Satoshi Watanabe

Aseismic Mechanism Of Laminated Shear Energy Dissipation Structure In Hydraulic Tunnels During An Earthquake
Ningbo Li, Xuepeng Zhang, Xingda Wang and Yujing Jiang

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
Liyuan Zhang and Faxing Zhang

3D Numerical Assessment Of Water-Induced Forces On People During The Evacuation Of Flooded Stairs
Carlos Humberto Aparicio Uribe, Beniamino Russo and Jackson David Tellez Alvarez

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
Joseph Kim and Ioan Nistor

Risk Assessment Of Road Hazards Caused By Mountain Floods In The Upper And Middle Reaches Of The Yarlung Tsangpo River Under Different Return Periods
Zhang Xiaoyue, Liu Tianxue, Xue Yuan, Wang Jiamei and Fu Xudong

Evaluating The Effectiveness Of Combined Flood Control Measures In The Karube River Basin: A Focus On Paddy Field Dams And Pre-Drainage Strategies
Takuno Tomoki, Akoh Ryosuke and Maeno Shiro

Building Flood Resilience: Remote Sensing And Structural Analysis For Malawi's Informal Settlements
Luke Moss, Innocent Kafodya, Lu Zhuo and Viviana Novelli

Enhancing Flood Early Warning Dissemination And Evacuation Response Through Agent-Based Modelling
Nasrul Ghazali, Xilin Xia and Nigel Wright

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
Yuan-Jyh Lan and Pin-Yu Ji

Scale Effects In 3d Granular Slides On A Smooth Incline
Valentin Heller, Deep Roy and Sazeda Begam

Sequential Nonlinear Analysis Of Buildings Exposed To Flash Flooding And Earthquake
Delbaz Samadian, Hadi Eslamnia, Maria Pregnolato and Imrose B. Muhit

Numerical Investigation Of Wave-Current Induced Scouring Development Around A Subsea Pipeline
Runyu Xie and Pengzhi Lin

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
Timothy Oyebamiji Ogunbode, Victor O. Oyebamiji, Francis O. Aweda and Ayobami A. Oyelami

A General Inverse Method for Estimating Environmental Hydraulic Parameters: Subset Simulation Approach
Han Congji, Kawaike Kenji, Wada Keiko And Koshiba Takahiro

A New Indicator for Identification of Critical Nodes and Pipes in Water Distribution Networks Based on Minimum Pressure Approach
Daniele Puleo, Marco Sinagra, Calogero Picone and Tullio Tucciarelli

A Physically Based Approach to Streamflow Temperature Modeling: the NLOST Model
Valeria Garcia Munera, Nicolas Velasquez Giron, Witold Krajewski and Larry Weber

Aquifer Storage and Recovery in Qatar: a Study through Numerical Modeling
Ali Al-Maktoumi, Mohammed Mahdi Rajabi, Slim Zekri,Mohammad Mahdi Aghayi And Fatemeh Rezaiezadeh Roukerd

Assessing the Probability of Drought Occurrence Based an a Scenario-Neutral Approach: a Case Study of the Seomjin River Basin, South Korea
Jiyoung Kim, Kyoung Ju Lee, Hyeonseon Cho and Tae-Woong Kim

Assessment of Drinking Water Losses in the Wellington Region
Timothy Lord, Gregory De Costa and Induka Werellagama

Characterizations of Water Quality Trends using a Water Quality Index Based on Over Fifty Years of Historical Monitoring Data from the Sumida River in Tokyo
Martiwi Diah Setiawati, Pu Jian, Chethika Gunasiri Wadumestrige Dona and Kensuke Fukushi

Development of Decision-Making Support Tools (ER-DSP) for Water Distribution Between Regions in Case of Water Shortage
Darae Kim, Yonghyeon Gwon, Haewon Lee, Donggyu Hwang and Kyoungdo Lee

Drought Assessment Using the Complementary Relationship of Evapotranspiration and Remote Sensing
Jagath Kaluarachchi

Evaluating the Risk of Microplastic Contamination of Water Resources: Case of Mfoundi Subbasin-Cameroon
Shiwomeh Desmond Ndre, Sameh A. Kantoush, Tetsuya Sumi, Binh Quang Nguyen and Arrah Takem

Evaluation and Simulation of Coupling Coordination of Water Resources, Socio-Economy, and Water Ecological Composite System in a Northern City of China
Xing Chen, Qin Xu, Zihan Shen, Qicheng Zhang, Lanlan Song and Jing Cai

Evaluation of the Water Conservation Function of the Hanjiang River Basin (China) Based on the Invest Model
Yiwei Guo, Michael Nones, Wenfeng Ding, Wenshen Xu and Wentao Xu

Evolution of Sewer Planning in Singapore: from Excel to Hydraulic Modelling
Tamiarresan Ravichanthiran, Vivian Noo and Tien Ser Tan

Evolution of the Drainage Network in the Colombian Andina Region: 2. Evaluation of the Topology of the Drainage Network and its Connection with Ecohydrology
John Freddy Caro Soler

Extending Simdeum: a Novel Approach to Modelling Water Demand in Educational and Food Service Sectors
Hugo Jacque, Behzad Mozafari, Recep Dereli and SarahCotterill

Hydraulic Dynamics and Water Quality Influence of Johor Rivers in the Johor Strait: a Comprehensive Analysis
Athaya Jauhari, Md Mobassarul Hasan and Matthijs Bos

Hydrology and Soil Erosion Models for Catchment Land Resources Management
Kuppusamy Kumarasamy Pradeep, Kothandaraman Saravanan, Steven G. Sandi and Nicholas A. Milne

Impact of Cascade Reservoirs on Nutrients Transported Downstream and Regulation Method Based on Hydraulic Retention Time
Qinghui Zeng And Peng Hu

Impact of Digital Elevation Model Selection on Swat Hydrological Predictions
Prashant Prashant, Surendra Kumar Mishra and Anil Kumar Lohani

Impacts of Land Use Land Cover and Climate Change on Surface Water Balance Components of Gobele Watershed in Wabe Shebelle Basin, Ethiopia.
Iradukunda Valentine, Hailu Habtamu and Iradukunda Valentine

Increasing Pressure Between Water Supply and Power Production over Regional Water Resources in Heavy Snowfall Basin under Changing Climate
Daisuke Nohara, Yoshinobu Sato and Tetsuya Sumi

Integrating Hydrologic Insights with Environmental Flow Needs: a Spatial-Temporal Approach
Yan Zhou, Yongxin Liao, Haoyan Sun, Chong Li and Dianchang Wang

Invisible Branches and Trapped Waves: Redefining Wave Physics in Pipe Systems
Utban Ahmed, Muhammad Waqar and Mohamed S. Ghidaoui

Managed Aquifer Recharge in Mexico: Methods and Results – a State of the Art
Roxana Nicte-Ha Hughes-Lomelin, Georgina Carbajal-De La Torre, Sonia Tatiana Sanchez Quispe and Gerardo Javier Marin-Tellez

Management Modeling of a Tropical Wetland
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

Mitigation of Climate Change Adverse Impact on the Irrigated Agriculture in Central Asia
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

Performance Assessment of the HBV and SAC-SMA Rainfall-Runoff Models in a Data-Scarce Region: Case Study of the Tepalcatepec River Basin
Ulises Barajas-Madrigal, José Madrigal-Barrera and Sonia Sánchez-Quispe

Quantifying the Impacts of Human Activities and Climate Change on Water Resource Changes - a Case Study of Hubei Province
Le Xinlong, Kang Ling and Chen Hao

Research on Brackish Water Resources Allocation for Crop Irrigation Safety
Ting Wang, Yu Liu, Xinmin Xie and Wenrui Wang

Study of Water Resources Evolution Law and Management Strategy in the Source Region of the Yellow River
Lu Lu, Liang Zhao, Yiqi Yan and Zuoqiang Han

Water Resource Management for Sustainable Agriculture: a Framework to Adapt to a Changing Climate in Ghana's Tree Crop Sector
Francesco Cioffi, Xun Sun, Qin Jiang, Fabio Attorre, Fausto Manes and Maxwell Anim Gyampo

Water Transfer Efficiency Improvement in Central Route of South-to-North Water Diversion Project in Winter
Xinlei Guo, Jiajia Pan and Hui Fu

A.3.2 River Engineering and Management

A Comparison of Scour and Flow Field at Three Different Spur Dikes
Lav Kumar Gupta, Prof Ti Eldho and Lav Kumar Gupta

A Coupled Model of System Dynamics and Environmental Models for the Development Process Deduction of the Yangtze River Basin: Model Construction Method
Pei Yang and Chong Li

An Expression for Force Exerted by the Downflow on the Sediment Bed Using Lagrangian Coherent Structures
Murali Kalidindi and Rakesh Khosa

A Modified D'aubuisson Formula for Enhancing Overflow Measurement in Side-Weir Detention Basin
Seogyeong Lee, Yeonghwa Gwon, Hosoo Lee, Dongsu Kim and Young Do Kim

Balancing Adaptation and Mitigation of Vegetation Cutting in River Channels in a Class 1 Water System
Takaya Kaneko, Atsuya Ikemoto and So Kazama

Channel Migration of a Braided Reach in Response to Upstream Damming
Yifei Cheng, Junqiang Xia, Meirong Zhou and Cuixia Chen

Characteristics of Shallow Mixing Layer in an Open-Channel Confluence
S. Samuel Li

Computation of Bed Shear Stress Using Multiple Methods and Quadrant Analysis in an Asymmetric Sinuous Channel
Gurugubelli Yatirajulu, Laxman V Rathod, P V Timbadiya and Bandita Barman

Depth-Averaged Turbulence Modelling Controls on Fine Sediment Deposition in Compound Channel
David F. Vetsch, Daniel Conde and Davide Vanzo

Development of a Parameterization Tool to Create Generic Rivers for Hydraulic Simulations of Run-of-River Pumped Storage Hydropower
Kanchan Shrestha, Anders G. Andersson and J. Gunnar I. Hellström

Dynamics of Large Wood Transport near the Confluence
Yuchen Zheng, Jiawei Lin and Saiyu Yuan

Evaluation of Existing Methods to Predict Flow Resistance due to Stream Meandering
Cristopher Alexander Gamboa Monge and Ana Maria Ferreira Da Silva

Experimental Quantification of Hydrodynamic Effects on the Root Development of Plant Cutting
Yahel Eliyahu-Yakir, Anders Kaestner, Andrea Carminati, Massimiliano Schwarz, Giovanni De Cesare and Paolo Perona

Hydraulic Modeling and Sediment Transport for Flood Mitigation: Insights from Geremeas Basin (IT)
Veronica Manconi, Soroen Tjerry, Paolo Orrù, Valentino Demurtas, Giacomo Deiana, Costantino Azzena, Giovanni Luise, Luigi Mancosu and Andrea Sulis

Hydro-Morphodynamic Characteristics of a Mining Pit near a Channel Confluence
Ravi Kumar Mishra, Bandita Barman and Tinesh Pathania

Impacts of Xiangjiaba Reservoir Outflow of the Navigation Benefit of Upper Yangtze River
Shiyu Zhang, Hui Cao, Yufeng Ren, Ziqiang Zeng, Yiming Ma and Lu Wang

Meandering Development Processes of the River with Floodplain Vegetation Experimentally
Chang-Lae Jang

Modelling Flood and Large Wood: a Dynamic Duo in Motion
Wafae Ennouini, Elisabetta Persi, Diego Ravazzolo, Gabriella Petaccia, Stefano Sibilla, Borbàla Hortobàgyi and Hervé Piégay

Modelling of Phosphorus Transport in Rivers with Cascade Low-Head Movable Weirs
Yufang Ni, Wei Huang and Duan Chen

Numerical Modeling of the Vegetation Effects in Rivers
Ricardo Gutiérrez, Alejandro Mendoza, Moisés Berezowsky and Maritza Arganis

Optimizing Morphological Design for Ecological Restoration and Flood Resilience: a Case Study of the Gérine River, Switzerland
Azin Amini, Jean-Marc Ribi and Giovanni De Cesare

Research on Model Tests and Numerical Simulations of the Hydraulic Characteristics of Curved Spillways
Fei Liu, Leilei Gu and Chunjing Liu

Returning Floodplain Value: Ecological Modelling Informing Decision Making in the Victoria MDB
Andrew Little, Ben Gawne and Ross Hardie

Sand Supply to Gravel Bed and its Effect to Gravel Mobilization and Channel Evolution
Hiroshi Miwa, Takashi Wada, Yuki Kajikawa, Sota Amahata and Shuhei Kubo

Spatio-Temporal Variation of the Morphologically Active River Corridor in Long-Duration Flume Experiments
Niklas Henning, Ingo Schnauder, Stefan Haun and Silke Wieprecht

3D Numerical Modelling of Flow Overtopping Induced of Fluvial Dikes
Shiqin Zhou, Xuefang Li, Vincent Schmitz, Vasileios Kitsikoudis, Shuyue Yu, Sebastian Erpicum and Benjamin Dewals

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

Application of AI-Based Prediction Model for the Annual Floating Debris in the Reservoir
Seongwook Choi and Hyeongsik Kang

Evaluating Outflow Discharge from Flood Control Reservoirs: a Comparison of the Chicago Storm-Based Method and the Variational Approach
Dina Pirone, Luigi Cimorelli, Andrea D'aniello, Daniele Martino and Domenico Pianese

Integrated Decision Support System for Large-Scale Cascade Reservoirs Utilizing Rolling Prediction and Adaptive Optimization
Wang Peng, Huaming Yao, Zhiqiang Jiang, Hui Cao and Tao Wang

Investigation of Performance of a Patented Coanda Type Water Intake for Water Capture and Sediment Release Efficiencies
Oguz Hazar, Sercan Civelek, Cem Ali Sagir and Sebnem Elçi

Reduction of Green Algae through Dam Upstream Old Embankment and Inland Maintenance
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

Study on an Inflow Flood Identification Model of Reservoir Group
Jing Huang, Yehongping Qin, Zejun Li, Chao Tan, Jiqing Li and Ningning Li

Study on Surveying Dam Sediment Topography Using A UAV-Mounted Green Laser and on Dam Sediment Flushing Analysis
Kota Shimizu, Shun Saito and Takehiro Oki

Study on the Calculation Method of Dam Failure Probability of Cascade Reservoirs under Risk Correlation
Te Wang, Zongkun Li, Wei Ge, Jun Zhao and Liwei Han

Two-Dimensional Hydrodynamic Analysis and Field Measurements for the Assessment of Eutrophication in the Peñitas Reservoir, Mexico
Fabian Rivera-Trejo, Gaston Priego-Hernandez, Marcela Severiano-Covarrubias, Alejandro Mendoza-Resendiz and Gabriel Soto-Cortes

Water-Sediment Regulation System Coupling Cascade Reservoirs and River Reaches of the Middle and Lower Yellow River
Junqiang Xia, Xianziyi Zhang and Yifei Cheng

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
Jonah Marie Malolos, Jose Carlo Eric Santos, Aragorn Inocencio, Timothy Ferrari, Charmaine Mabulay and Carissa Marie Soria

Analysis of Pedestrians Safety in Subway Station Platform by Inundated Flow
Minjae Kim and Inhwan Park

Application of Smoothed Particle Hydrodynamics for Simulation of Rainfall Runoff in Urban Terrain
Akihiko Nakayama and Xin Yan Lye

CFD Modelling Study of Air-Water Stratified Flow in the Partially Filled Underground Gravity Main
Janek Laanearu

Cost, Time and Environmental Benefits of Channel Lining with Geocells
Wladimir Caressato Junior and Gustavo Fierro

Dynamic Energy Dissipation Characteristics of Plunging and Vortex Dropshafts in Deep Tunnel Systems
Yiran Wang and Xiaodong Yu

Dynamics of Gas Phase Hydrogen Sulfide Distribution in a Prototype Sanitary Sewer Network
Jinlong Zuo, Yu Qian and David Zhu

Effect of Speed Bumps on Hydraulics Efficiency of Grate Inlet
Jackson Tellez-Alvarez and Beniamino Russo

Experimental Investigation of Acoustic Wave Propagation in Fully Developed Turbulent Pipe Flow
Xin Meng, Yiran Cui and Mohamed Salah Ghidaoui

Experimental Investigation of Fluvial Urban Flood Flow Dynamics
R. Reshma and Soumendra Nath Kuiry

Experimental Study on Dynamic Characteristics of Entrapped Air in Urban Drainage System
Ruilin Feng, Elias Tasca, Mike Van Meerkerk, Mohsen Besharat, Ling Zhou and Helena M. Ramos

Field Investigation of the Flow Field in Box Culverts – Preparation and Challenges
Hui Ling Wong and Hubert Chanson

Hydraulic Performance and Flow Characteristics of Adjustable Tilting Weir
Jiazhen Li, Bowen Chen and Tao Wang

Improvement of Water Supply System Infrastructure in Ende: Challenges and Solutions
Yohanes Erik Kurniawan Nggae, Intan Supraba, Radianta Triatmadja and Chen-Yi Sun

Inflow and Infiltration Assessment of a Prototype Sanitary Sewer Network
Licheng Ye, Yu Qian and David Zhu

Preliminary Findings on PRV Anomalies in a Real District Metered Area
Caterina Capponi, Luciano Veritti, Lorenzo Tirello, Andrea nRubin, Sara Prapotnich, Bruno Brunone and Silvia Meniocni

Towards Efficient Building Representation in 2D-Hydrodynamic Modeling
Leon Frederik De Vos, Karan Mahajan, Daniel Caviedes-Voullième and Nils Rüther

A.3.5 Eco- and Environmental Hydraulics

Advancing Environmental Risk Mitigation: LES-Based Analysis of Dense Jet Discharges in Flowing Currents for Improved Mixing Behavior Predictions
Mostafa Taherian and Abdolmajid Mohammadian

A Hydrodynamic Analysis of a Chinese Mitten Crab Trap Using 3D Modeling
Sengdavanh Thepphachanh and Torsten Heyer

Alternative Downstream Passage Incorporating Swirling Flows
Reilly Cox, Jasmin Martino and Stefan Felder

A Method for Assessing Eutrophication Risk of Lakes Considering Joint Effects of Water Quality and Water Quantity and its Application in Caohai Lake, China
Wei Huang, Chenguang Xiang, Zhuowei Wang and Huaidong Zhou

An Experimental Study on Local Sediment Erosion and Deposition Patterns around Instream Boulders
Mohammad Rahman, Abul Baki, Haitham Ghamry and Chris Katopodis

Assessing Hydropeaking Mitigation Measures Using Casimir Model: Effects for Fish Habitat
Nusrat Jahan Bipa, Giuseppe Roberto Pisaturo, Ianina Kopecki, Matthias Schneider and Markus Noack

Assessing the Resilience of Mangrove Wetland to Climate Change Using a Modelling Approach
Eliana Jorquera, Patricia Saco, Juan Quijano Baron, Angelo Breda, Steven G. Sandi and Jose Rodriguez

Drag Coefficient And Settling Velocity For Plastic Particles: Understanding The Length Scale.
Felipe Condo-Colcha, Robert K Niven and Matthias Kramer

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Effect of the Jinsha River Hydropower Development on Coreius Guichenoti Long-Term Population Viability
Rui Han, Hongyi Yang and Li Zeng

Effects of a Collinear Current on Wave Damping by Seagrass Meadows
Davide Vettori, Giordana Francesco and Costantino Manes

Effect of Brush Block on the Movement Characteristics of Squalius Orpheus in a Pool-Weir Fish Pass: Ethohydraulic Experiments
Mehmet Salih Turker, Cumhur Ozbey, Serhat Kucukali, Ceren Şengül and Baran Yoğutçuoğlu

Effects of Penetrative Convection on the Dynamics of Gravity Currents in Lakes
Panagiotis Prinos and Vassilios Papaioannou

Ethohydraulic Experiments on Downstream Fish Migration with Oppermann Fine Screen
Cumhur Özbey, Mehmet Salih Türker, Serhat Küçükali, Ceren Şengül, Baran Yoğurtçuoğlu and Ahmet Alp

Evaluation of the Impact of Climate Change on the Performance of the Cabanillas River Hydraulic System in the Peruvian Highlands
Isidro Pilares, Wilber Laqui, Carlos Pilares and Percy Ginez

Experimental Investigation into the Settling of Single and Multiple Microplastic Particles in Quiescent Water
Camillo De Castro, Siamak Seyfi, Wim S. J. Uijttewaal and Shooka Karimpour

Experimental Study on the Spatial Traits of Sedimentation Driven by Discontinuous Nearshore Vegetation Patches
Liu Yang and Zhonghua Yang

Exploring the Effects of Different Input Parameters in Friction Vegetation Laws
Gabriele Farina, Vito Bacchi and Marco Pilotti

Fish Passage on Sloped Weirs - Assessment of a Simple Solution to Aid Multiple Species
Daniella Montali-Ashworth, Andrew Vowles and Paul Kemp

High-Resolution Numerical Modelling of Sediment Dynamics in Submerged Canopies
Shahabaddin Abbaszadeh, Julia Mullarney and Ali Shokri

Hydraulic Analysis of an Artificially Generated Guiding Stream for Improved Downstream Fish Passage at a Hydropower Dam
Anders G. Andersson, Eric Lillberg, Robin L. Andersson and J. Gunnar I. Hellström

Hydraulic Performance of a Fishway under Different Turbine Operations: a Case Study from Switzerland
Ismail Albayrak, Mohammadreza Maddahi, Maximilian Kastinger, Alfredo Scherngell, Roland Sutter and Robert M. Boes

Hydrodynamic Characteristics of Compound Channel During Flood Inundation and Recession Processes: a Combined 2D/3D Numerical Study
Jiaming Liu, Yang Xiao, Saiyu Yuan and Carlo Gualtieri

Hydrodynamic Pressure Distribution on a Rough-Bed River Using CFD and High-Resolution Topography
Tais Yamasaki, Rebecca Hodge, Richard Hardy, Robert Houseago, Joel Johnson, Rob Ferguson, Elowyn Yager, Trevor Hoey, Stephen Rice and Christopher Hackney

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
Abbasali Rahmani Khajouei, Lei Wang, Alessandro Stocchino and Huan-Feng Duan

Influence of Pumped Hydropower Storage Operations on Reservoir Ecosystems: a Numerical Study on Thermal Stratification
Melina Sattelmeier, Anders G. Andersson, J. Gunnar I. Hellström and T. Staffan Lundström

Investigation of Colliding Gravity Currents of Different Volumes
Angelos Kokkinos and Panagiotis Prinos

Investigation of Hydraulic Performance of Fish Passage in Run-Of-River Hydropower Projects in Nepal: a Case Study of the Jhimruk Hydropower Project
Dikshya Khadka, Sunit Palikhe, Umesh Singh, Pawan Kumar Bhattarai and Meg Bahadur Bishwakarma

Impact of Vortex Structures on Fish Hydrodynamics and Fluid Environment Response Analysis
Yiyun Peng, Min Chen, Ruidong An and Jia Li

Laboratory Experiments and Numerical Simulation of Ice Melting in Water Current
Chia-Ren Chu, Cheng-Han Yu and Hwa Chien

LES of High Rayleigh Natural Convection Induced by Surface Cooling
Angelos Kokkinos and Panagiotis Prinos

Lessons from the Field: Fish Can Go with the Pipe Flow
Hiruni Kammanankada, Jasmin Martino and Stefan Felder

Monitoring Plastic Using Deep Learning Model in a Controlled Laboratory Environment
Ana Todorova, Robert Niven and Matthias Kramer

Numerical Modelling for Evaluation of Entrainment Probability at a Coastal Power Plant Intake under Storm Tide
Haiwen Zhang, Li Zeng, Yijun Zhao and Xiaoli Chen

Numerical Experiments on the Effects of Coastline Alteration on Circulation Patterns in Hakata Bay
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

Revitalising Sustainable Water Practices along with Modern Technologies to Combat Water Crises: Indirect Groundwater Recharge Using Recycled Water
Kavita Verma, Manjari Manisha, Santrupt 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 Linsday 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 Yılmazkaya 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 Pheifer

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, AbdollahWenhui 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
Haresh Dash, Recep Kaan Dereli, Behzad Mozafari and Sarah Cotterill

Evaluation On The Sustainability Of The Water-Energy-Food-Ecology 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 DIGITAL TRANSFORMATION

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 Botelheiro, 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, Adnan Qamar and Noreddine Ghaffour

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 Batablinlè, 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 Ishfaque, 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
Abi N Geykli 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 Duviela 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, Mariacrocetta 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 Tandadjaja, 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 Uijttewaal, 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, Eliseo Carrizosa and Ricardo Gutierrez

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 Trasport 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 and Hojun You

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 Mohammadizadeh, 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 Oldenziel 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 Vazqez, 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 Hydromophological 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
Siyoon 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 Siyoon 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

SUB-THEME B: WATER ENGINEERING AND SOCIO-ECONOMIC CONSIDERATIONS

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 Hofland, 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, Sieglien De Roo, Peter Van Besien, Daphné Thoon, Ine Moulaert, 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

Experimental Study on Wave Deformations of an Ecological Reef-Type Submerged Breakwater on an Immobile Flatbed Under Regular Waves
Hongyi Li, Wei Xing, Cuiping Kuang, Xiaodan Mao, Jilong Chen and Liyuan Chen

Rainfall Induced Seepage and Groundwater Level Change in Sand Fill and Its Impact to Stability of Revetment =
Huawen Xiao and Yaodong Zhang

Selection of Optimal Flood Protection Standard for Singapore's Coastline
Matthijs Bos, Joost Buurman and Jaap Flikweer

Sustainable Coastal Protection Along the Coastal Stretch of Amalinagar, Tamilnadu
Sannasiraj S.A and Sneha Charles

Wave Overtopping of Rock and Stepped Coastal Revetments with Very Shallow Foreshores
"Carolina Martinez, Ana Mendonça, Rute Lemos, Conceição J.E. Fortes and Diogo Mendes

B.1.2 Flood and Droughts Management

A Conditional Probabilitic Approach To Analyze Drought Propagations in Southeast Asia
Dineshkumar Muthuvel and Xiaosheng Qin

Advanced Methodology for Intensified Flash Drought Detection and Ecosystem Impacts Across Indian River Basins
Vikas Poonia

Agricultural Drought Assessment over India using Multivariate Remote Sensing Based Integrated Index
Alka Rani, Vinay K. Sehgal and Rajkumar Dhakar

AHP-based Prioritization of Flood Risk Mitigation Measures: an application in the Veneto Region (Italy)
Tommaso Lazzarin and Chiara D'Alpaos

Analysis of Inflow and Incremental Flow Anomaly with the ENSO Index on Parana Basin
Luiz Maldonado, Marcelo Zaicovski and Jose Maria Fariña

A Quasi-Real Time Approach to Estimate Socio-Economic Impacts Of Droughts: an Application To California
Alvar Escriva-Bou

Aspects Amplified the Recent Extreme Flood Event in Dubai Moisture
Hadir Abdelmoneim, Sameh Kantoush and Vahid Nourani

Assessing Compound Flood Drivers in Peninsular India: A Bivariate Analysis of Precipitation, Runoff, and Soil
Ankita Mukherjee, Vikas Poonia and Somil Swarnkar Sobkowiak

Assessment and Mapping of Flood Susceptibility Using Geospatial Techniques and Machine Learning in the Peruvian Tropical Andes
Del Piero R. Arana-Ruedas, Edwin Pino-Vargas, Sandra del Aguila-Rios and Lía Ramos-Fernandez

Attribution Analysis of the Impact of Climate Change and Human Activities on Flood Trend in Typhoon-Affected Regions
Hong Cheng, Xingwei Chen and Bingqing Lin

Bridging Science and Practice: Quantifying the Multi-Benefits of Nature-Based Solutions for Water Resilience
Michael Pollock, Francesca Mitson, Daisy Droogmans, Alex Nicholson, Matt Ross, David Hetherington and Morten Revsbæk

Building Socio-Economic Resilience to Drought: The Role of Nature-Based Solutions in Nusa Tenggara's Agricultural Sector
Prima Nilasari, Valen Rangga Gerina, Audia Kusuma Triwardana and Rivanlee Anandar

Climate Change Assessment Using the Integrated Water Quality Index
Sangung Lee, Jaeyeon Lim, Bu Geon Jo and Young Do Kim

Combined Effects of Climate Change, Sea Level Rise, Groundwater Level Increase and Land Use Changes on Surface Runoff in Coastal Areas
Yuan-Yuan Jia, Zhi-Yong Long and Huan-Feng Duan

Decomposing the Uncertainty Cascade in Projections of Compound Hot-Dry Events
Parisa Hosseinzadehtalaei, Piet Termonia and Hossein Tabari

Detection of Flow Transition Between Lowland Watersheds During Intensive Rainfall in the Mixed Urban-Rural Environment
Tomasz Dysarz, Mariusz Sojka, Tomasz Sobkowiak and Jerzy

Development and Application of An Urban Flood Risk Index
Markus Eder, Monique Retallick, Mikayla Ward, Duncan McLuckie and Mark Babister

Drought Risk Management in Climate Change Scenarios, Through the Development of a Vulnerability Infex, Case Study: Morelia City, Michoacán Mexico
Angel Flores Ponce, Sonia Tatiana Sánchez Quispe and Liliana García Romero

Drought Vulnerability Assessment and Mapping in National Scale for Proactive Drought Response
Sinae Kim and Jinwon Park

Effect of Antecedent Soil Moisture on Flood Characteristics
Vamsi Krishna Vema, Indhu Dasari and Bharath Sagar Jajolla

Exploring the Joint Behaviour of Flood Characteristics in Semi-Arid Rivers
Achala Singh, Priyank J. Sharma and Ramesh S. V. Teegavarapu

Flood Risk Assessment of Kerala Using a Local-Inertial Model
Bhadra Devadas and Soumendra Nath Kuiry

Flood Vulnerability Analysis in East Kupand Sub-District, East Nusa Tenggara – Indonesia
Denik Sri Krisnayanti, Vredrik Bainlawuil and Ralno Robson

Frequency analysis in flood management: Confidence interval estimations based on pivotal quantities in generalized extreme value distribution
Weiqiang Zheng, Shuguang Liu, Zhengzheng Zhou and Guihui Zhong

Frequency analysis of flow discharge and water level of the Yamato River basin using global warming projections
Takumi Ito, Kohji Tanaka, Ryokei Azuma and Daiki Omori

Future Global Flood Risk by Considering the Dynamics of Hazard, Exposure and Vulnerability
Hossein Tabari

Optimization of Flood-Control Reservoirs Considering Climate Change Impact on High Water Waves
Igor Mlakar, Matjaž Knapič and Rak Gašper

Perspectives for Drought and Water Scarcity Management and Planning in the Iberian Peninsula. The Importance of Common Transboundary Indicators.
Miguel Costa and Rodrigo Maia

Peru Reconstruction Project – A National Climate Change Adaptation Programme: Leaving a Legacy"
Chris Hughes, Paul Swift and Sergio Martin

Probability of Spatio-Temporal Propagation from Meteorological to Hydrological Drought in South Korea
Ho-Jun Son, Young Man Han, Jeongwoo Han and Tae-Woong Kim

Risk of Extreme Rain in the Bandama Basin (West Africa): Contribution of Multifractal Analysis
N'Diaye Edwige Hermann Meledje, Yao Morton Kouame and Kan Klau

The Role of Groundwater in Drought Mitigation in Southern Angola
Pedro Lombe, Elsa Carvalho and Paulo Rosa-Santos

The Use of Adaptation Pathways to Develop and Implement Strategic Decisions on Integrated Flood Risk Management in Response to Climate Change
Peter von Lany and Louise Ellis

Typhoon Characteristics and Their Influence on Drought Conditions in Taiwan
Yuei-An Liou and Truong-Vinh Le

Urban Flood Simulations Accounting for Large Underground Infrastructure and Infiltration
Yangwei Zhang, Lennart Steffen, Franziska Tügel and Reinhard Hinkelmann

Using Advanced Economic Modeling to Value Tangible and Intangible Benefits of Flood & Drought Resilience
Alexandra Humphrey Cifuentes and Alexus 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

Building Climate Resilience and Ensuring Water Security in Ramanathapuram: Strategies for Sustainable Adaptation
Subha Muthu Kumar, Sanchita S and Harish G

Derivation of Depth-Duration-Frequency Curves in Sicily under Future Emission Scenarios from Hourly Climate Projections
Gaetano Buonacera, Nunziarita Palazzolo, Antonino Cancelliere and David Johnny Peres

Hydrodynamic Evaluation of Flood Control and Yamadazeki Barrage: A Two-Dimensional Model Analysis of Oblique Weir in Chikugo
Toshinori Tabata, Daisuke Hizume, Masayoshi Harada and Akinori Ozaki

Integrating impacts of climate change on aquatic environments in inter-basin water regulation: Establishing a critical threshold for best management practices
Didi Song

Numerical Modeling of Surf Zone Hydrodynamics Using Swash
Giulio Scaravaglione, Leonardo Damiani and Alessandra Saponieri

Progressive Adaptive Approach and Design Allowance in Port Works Design Manual
Dickson T S Tsui, Ivan N F Wong, Terence H F Leung, Ander K C Chow and Christopher J Wong

Robust and cost-optimal increment sizes and pathways for several archetypes of coastal protection in a Singaporean context
Maarten Schoemaker, Matthijs Bos, Michael van de Watering, Joost Buurman, Matthijs Kok and Sebastiaan N Jonkman

Stochastic Downscaling and Uncertainty Partition in Climate Projections for Singapore
Mengzhu Chen, Hongjuan Han and Simone Fatichi

Study and Characterization of C and CN for Watersheds in Cauca, Columbia: Implementation Guide Focused on Water Security
Felipe Agredo Campuzano, Dayanna Jimenez Baron and Gustavo Pisso

Temporal and spatial variation of base flow in Yiluo River Basin and its simulation under low-carbon economy scenario"
Qingfei Cheng and Rong Gan

The Australian Climate Change Calculator – Mapping the Change in Flood Risk Across the Country
Monique Retallick, Mark Babister, Behzad Jamali, Harrison Babister and Nathan Dunning

Towards Coastal Resilience in Singapore: Adaptive Planning Strategies
Naomi Clara Hanakata and Xuelu Wang

Vulnerability of Dams and Reservoirs to Climate Change in the Mediterranean Region: The Case of Almopeos Dam in Northern Greece
Anastasios Stamou, George Mitsopoulos, Athanasia Tatiana Stamou, Konstantinos Varotsos, Christos Giannakopoulos, Aristeidis Koutroulis, Georgios Tsamis and Ioanna Xanthopoulou

Weakly non-stationary return period analysis of rainfall events modelled by a Poisson Process with trends
Giulio Calvani and Paolo Perona

B.1.4 Revised Engineering Practices in Harmony with Nature

Case analysis on ecological reconstruction of typical urban lakes in the Yangtze River Basin
Ji Li, Da He, Jingwen Yu and Jun Zhang

B.1.5 Resilience Strategies for Extreme Events

Adaptive Pathways Approach in the Western Corridor Water Supply Implementation Plan
Jivir Viyakesparan

A Probabilistic Framework for Enhancing the Resilience of Water Distribution Networks using Pressure Indicators and Hydraulic Simulations
Gloria Maruchu, Rasa Remenyte-Prescott and Silvia Tolo

Assessing land use change scenarios to reduce impacts of extreme flash flooding in semiarid coastal areas of Southeast of Spain
Sandra García-Galiano

Assessing The Impact Of Flood Events On Seasonal Hypoxia Using D4pdf Database In The Ariake Sea, Japan
Lin Hao, Zhaolin Sun, Yasuyuki Maruya, Satoshi Watanabe and Shinichiro Yano

A Study on the Development of Urban Flood Resilience Index from the Perspective of Socio-Ecological Systems
Su Min Song, Dong Hyun Kim and Seung Oh Lee

Automation of Dynamic Adaptation Pathways Planning (Study Case: North Jakarta Bay)
Elyada Eben Ezer and Nibroos Muhammad Nashshoor

Comparative Analysis of Flood Risk Assessment: A Spatial vs Social Based
Annisak Laila Rakhmawati

Evaluation of Compound Extremes of Temperature and Precipitation in the State of Florida, United States
Ramesh Teegavarapu and Vilma Melendez

Extreme weather exposure assessment of climate change adaptation technologies in urban areas through bias-correction and index development
Miguel Enrico Robles, Yugyeong Oh, Marvin John Uy and Lee-Hyung Kim

Intensification of Compounds Wet-Warm and Dry-Warm Extremes in the World due to Global Warming
Haoyu Jin, Ke Zhang, Moyang Liu, Xiaohong Chen and Patrick Willems

B.1.6 Adoption of Green and Grey Water Infrastructure

A Methodology to Consider the Effect of Paddy Field Dams using Open Polygon Data Toward Basin Flood Control Management
Kenichiro Kobayashi

Muti-Optimization of Cost-Benefit of Lid and Drainage Pump Station Layout Designs
Huayue Li, Qinghua Luan, Hongfeng Wang, Pengcheng Gu and Xinyue Zhang

Multiple Benefits Evaluation of LID Practices under Climate Change"
Qian Yu, Mingyang Wang, Jing Wang and Na Li

B.1.7 Other Related Topics

Assessing the Hydrological Impacts of Future LULC and Climate Change in Tel River Basin of India
Manikanta Boddepalli, Sanat Nalini Sahoo and Jatin Anand

Cooling the Concrete Jungle: A Hybrid Statistical and Machine Learning Approach to Urban Heat Island Mitigation in Auckland CBD
Sihui Dong, Asaad Y. Shamseldin, Kirishimas Latu, Conrad Zorn and Rachel Devine

Evaluating the Performance over ML-Based of XGBoost over MLR for Heatwave Prediction
Srikanth Bhoopathi and Manali Pal

Evaluation of the Effects of Climate Change on Multipurpose Water Infrastructure, Case Study: El Tablón Dam, HN
Ariel Fanelli, Jesús Lopez Garcia and Luis Soto

Hydrological Modelling: Insights into Hydrological Signals and Contaminant Transport
Ana Corrochano-Fraile and Lindsay Beevers

Metagenomic Insights into Microbial Adaptations to Climate Warming in the Yellow River of China
Wensi Zhang, Bharat Manna and Naresh Singhal

B.2 WATER AND NATURE

B.2.1 Innovative Solutions for City in Nature with Water

A City Re-Growing with Water: The Implementation of Nature-Based Solution from Large- to Small- Scale
Yangyue Yu, Xinyu Wang and Hui Zhao

Assessing the Hydrological Performance of Green Roof Experimental Trays having Distinctive Configurations
AungNaing Soe, Asaad Y. Shamseldin, Kilisimasi Latu, Conrad Zorn, Rachel Devine, Robyn Simcock and Zoe Avery"

Evaluation to Water Shortage and Instream Flows of Shared Rivers in South Korea according to the Dam Operation in North Korea
Jae-Kyoung Lee, Jae-Hwan Shin, Young-Seok Lee and Jun-Mo Goo

Preliminary Assessment of the Suitability and Effectiveness of Nature-Based Solutions for Urban Flood Mitigation. Methodology, Tools and Application Cases
Eduardo Garcia, Beatriz Tejerina, Luis Carlos Lorenzo, Manuel Del Jesus and César Álvarez

Shaping Water Innovation Ecosystems: A Systems Framework for Governance and Aquapreneurship
Pepe Puchol-Salort, Braulio Eduardo Morera, Ana Mijic and Michael Templeton

Water-sensitive urban design - Innovative climate change adaptation with rain and grey water management in the research project Resource: Mannheim, Germany
Jochen Hack, Manuel Wesemann and Simon Gehrmann

B.2.2 Nature-based Solutions for Upstream Catchments and Small Streams

An Eco-Friendly Solution to Protect the Bank of Highly Tidal Impacted Rivers Eroded by Boat-Generated Wave: A Case Study in the Mekong Delta, Vietnam
Ngoc Pham, Hoa Pham Thi, Tho Nguyen Truong, Bay Nguyen Thi and Hoai Huynh Cong

Assessing the Benefits of Soil and Water Conservation Policies for Water Security and Carbon Sequestration: The Case of Catchments which are Strategic Sources
Nilo Nascimento, Esio Castro, Henrique Almeida, Vanessa Cançado, Vitor Queiroz and Deyvid Rosa

Assessment of Natural Flood Management Schemes: Case Study of Upper Weardale, UK
Medha, Vassilis Glenis and Claire Walsh

A Study of The Impact of Bioswale to Filter NPK Fertilizer for Algal Bloom Mitigation
Rizki Zulapriansyah, Intan Supraba and Muhammad Mufti Azis

Ature-Based Solutions for Flood and Sediment Resilience in Nordic Infrastructure: Perspectives from the EU Nature-Demo Project
Slaven Conevski, Ellen Heffer Flaata, Lukas Frank Seifert, Bente Jessen Graae and Inge Hoff

Evaluating the Effectiveness of Nature-Based Solutions for Small Stream Restoration
Shifteh Mobini, Amir Rezvani, Elisie Kåresdotter and Zahra Kalantari

Evaluation of Nature-Based Flood Mitigation Measures in Alluvial Fan Floodplain
Kazuaki Ohtsuki, Kota Tomaru, Sakiko Yaegashi, Takashi Nakamura, Kazuki Karasawa, Tawa Kota and Rei Itsukushima

Evaluation of Nature-Based Solutions in Hydrological Modelling: A Case Study in the Hindu Kush Himalayas
Hélène Boisgontier, Laurène Bouaziz, Peter Nelemans, Joost Buitink, Mark Hegnauer, Michael O'Hanrahan and Ron Passchier

Integrated Assessment of Green Infrastructure in Achieving Multiple Riparian Management Goals in the Era of Climate Crisis
Yoonji Kim, Cheolho Woo, Jang Yujin and Seongwoo Jeon

Integrating Subgrid Sampling with Nature-based solutions (NbS) Interventions for Enhanced Flood Risk Reduction in the Riseley Brook Catchment
Amrie Singh, Harry Mansfield, Maria Pregnolato and Nigel Wright

Monitoring Perspectives of Natural Flood Management in UK Catchments
Guglielmo Sonnino Sorisio, Daniel Jones, Tsz Fung, Jed Ramsay, Mike Adams and Catherine A.M.E. Wilson

Operation of Pilot-Scale Floating Wetland in the Treatment of Micro-Polluted River Water
Rui Wang, Yaoping Chen, Zhaojing Li and Jiahao Zhou

Validating Risk-Based Mowing Strategies for Aquatic Vegetation Management in Regulated Lowland Streams
Ellis Penning, Koen Berends, John Lenssen, Rosanne Reitsema and Jonas Schoelynck

Wake Characteristics In a Staggered Boulder Array
Yannick Marschall, George Constantinescu, Robert M. Boes and David F. Vetsch

B.2.3 Nature-based Solutions for Large Rivers

Construction of River Barriers in the Jinsha River Basin: Evaluating Development Benefits and Threats to River Connectivity
Lei Huang, Jianming Zhang and Yurong Wang

Design Principles and Multifunctionality of Flood Resilient Landscapes
Borjana Bogatinoska, Jord Warmink, Suzanne Hulscher, Negar Moghtaderi and Annemargreet de Leeuw

Effectiveness of Natured Base River-Bank Protection in Reducing Erosion Rates and Sediment Supply in a Great Barrier Reef Catchment, Australia
Misko Ivezich, James Teague and Ian Rutherfurd

Mainstreaming and Upscaling Nature Based Solutions in Northwest Europe: Experiences from Small and Large Scale Pilots
Ralph Schielen, Geert van der Meulen and Stanford Wilson

Nature Based Solutions in Danube4All – Restoration of the Danube River Basin Waters for Ecosystem and People from Mountains to Coast
Helmut Habersack, Lisa Waldenberger, Abdul Waheed, Marlene Haimann, Ellis Penning and Martin Pusch

Technology and Innovation for Enabling Pre-Feasibility Assessments in Watershed Investment Programs using Waterproof
Carlos Rogeliz, Jonathan Nogales and Pilar Galindo

The Spatiotemporal Distribution Characteristics of Biological bait Sources in Riparian Zones and the quantity estimation Transported into Rivers
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.
Gustavo A. Delgado F., Oscar Paz Paiz and Vesile Vesile

Enhancing Mangrove Restoration Through the Socio-Economic Cost-Benefit Approach
Ella Louange, Abel Knipping, Erika Ng Shi-En and and Jaïr Smits

Evolution of the Yangtze River Estuary of China and the Feedback of Tidal Strength under Twenty-Year Scale Strong Human Activities
Jianhua Tang and Xuejun Xu

Experimental investigation on shoreline evolution driven by oyster reefs
Rafael O. Tinoco, Salman Alkhidhr, Kamil Czaplinski and William Nardin

Informing Adaptive Development in Sensitive Coastal Habitats Using Environmental Data and Hydrodynamic Modelling
Thue Geil, David Mcgrath and Kasper Kaergaard

Integrated Approach for Coral Reef Conservation and Rehabilitation in the Philippines
Hiroyuki Takasuna, Katsunori Yamaki, Takashi Nakamura, Wilfredo L. Campos, Yasmin Primavera Tirol, Gilson Andre Narciso, Ayin Tamondong, Yuta A. Takagi, Kristian R. Monay, Raphael De la Rosa, Renmil Lambid, Lucas Felix, Ryan Morales Basina, Jean Rose Maquirang, Beverly Tudence Jaspe, Nobuyuki Nakatomi, Masahiro Tanaka and Kazuo Nadaoka

Investigation of Wave Attenuation Over Mangroves in Singapore
Emily Thong, Yue Jia, Farzin Samsami, Zhi Yung Tay, Jiarui Gary Lei, Ignacio Barranco, Kian Yew Lim and Harrif Santo

Local Stakeholder Engagement in Sustainable Management of Marine Habitats using Satellite Technology – An Example from Malaysia
Silvia Huber, Lisbeth Tangaa Nielsen, Malinda Auluck, Muhammad Adzmin Bin Abdul Fatta, Lin Ji Liaw, Mikkel Bojesen and Lars Boye Hansen

Marsh-fronted seawall for coastal protection: Influence of plant species, seasonality, and sea-level rise on wave dissipation and benefit-cost ratio.
Ernie I. H. Lee and Heidi Nepf

Nature Inclusive Coastal, Ports and Offshore Infrastructures
Jorge Gutiérrez, Fernando Colom and Phil Leblanc

Numerical Modelling Approaches for Assessing Wave Attenuation by Seagrass Meadows and Oyster Reefs: A Systematic Literature Review
Hani Ghasemi, Ali Dastgheib, John O'Sullivan and Md Salauddin

Prediction of Wave Reflection and Attenuation by Artificial Shell Reefs
Elisa Yokemura, Eduardo Puhl and Cláudio Tureck

Strengthening Mangrove Restoration: Portable Breakwater Solutions for Enhancing Sapling Survival and Root Stability
Sindhu Sreeranga and Jiarui Lei

The Evolution of Hydrodynamic Intensities and Sediment Erosion Along Submerged Aquatic Vegetation
Xinya Liang, Yunsong Wang and Jiarui Lei

The Influence of Shoot Distribution on Wave Attenuation and Local Hydrodynamics of Seagrass Meadows
Xihang Xu, Jennifer Keenahan and Md Salauddin

Three Years of Artificial Dune Evolution at Pilot Sites in Belgium: Monitoring, Modelling and Future Prospects
Pieter Rauwoens, Jennifer Derijckere, Jadon Beerlandt, Jianghua Guo, Glenn Strypsteen, Zeger Sierens, Dries Bonte, Sam Provoost, Toon Verwaest, Steven Muylaert and Peter Van Besien

Wave Attenuation by Submerged Vegetation under Orthogonal Wave-Current Conditions
Zichen Xu and Jiarui Lei

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
Francesca Padoan, Giulio Calvani, Giovanni De Cesare and Paolo Perona

Analysis of the Nitrogen Removal Driving Forces in Horizontal Subsurface Flow Constructed Wetlands
Junheng Pan, Baoshan Shi, Xiangju Cheng and Dantong Zhu

Comparing Water Quality Evaluations from a Fuzzy Model and a Multi-Parameter Model
Rosalva Mendoza Ramírez, Rodolfo Silva Casarín, Karina Suárez Alcántara, Aníbal Sol Benítez, Ramon Domínguez Mora and Eliseo Carrizosa Elizondo

Impact of Hydropower Development on Zooplankton Diversity and Community Assembly in the Lower Jinsha River
Xinyi Zhou, Xiongdong Zhou, Jiahao Zhang, Chubin Weng and Mengzhen Xu

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. Brávo-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

Accessing 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 Diaz 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.2.7 Other Related Topics

Development Of Floating Treatment Wetland For Purifying The Water In Coal Mining Subsidence Area
Jie Gao, Yaoping Chen and Lina Zhang

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
Wenjing Lu, Feng Shi and Yijun Guo

B.3.2 Hydro-Environment Development and Cooperation

Overview of Management Systems in International Water-Related Organisations
Yijun Guo, Wenjing Lu and Shi Feng

The application of Serious Games across geographic scales and river basin planning phases: Experiences from Brazil and Colombia
Claudia Coleoni, Camilo Gonzalez and Cristo Perez

UNESCO Water Science – 50th Anniversary of the Interngovernmental Hydrological Programme IHP and 60 Years of Water Science at UNESCO
Helmut Habersack, Anil Mishra, Elfithri Rahmah and Abou Amani

B.3.3 Hydro-Environment Education

Demonstration Center for Urban Water Cycle at a University Building Scale
Andrej Vidmar, Tomo Cerovšek and Matjaž Mikoš

Innovative Teaching Techniques for Hydro-Environmental Engineering
Kambiz Teimour Najad and Amin Mohebbi Tafreshi

Spatio-temporal prediction of water production in basins without records
Adriana Márquez-Romance, Mairim Márquez-Romance, Bettys Farias-De Márquez, Edilberto Guevara-Pérez, Sergio Pérez-Pacheco and Eduardo Buroz-Castilllo

The Current State and Development Exploration of Water Science Popularization Education in China
Wenjing Lu, Yijun Guo and Shi Feng

B.3.4 Coastal Resilience and its Definitions

Case Study of Breakwater Response Analysis in the Superposition of Earthquake and Tsunami
Masayuki Takamoto and Nozomu Yoneyama

B.3.5 Social Hydrology and Citizen Science

Is there a need for Model-Based Water Research to Involve Stakeholders: An Insight on Sociohydrology Practices in the Philippines?
Jastine Mae Galang, Leunell Chris Buela and Seth Nathaniel Linga

Sharing Traditional Water Management Techniques to Deliver SDGS and Tackle the Global Water Crisis
David Hetherington, Minni Jain, Louise Bingham and Candelaria Lucero

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SUB-THEME A: WATER ENGINEERING AND TECHNOLOGICAL INNOVATIONS

A.1 CLIMATE CHANGE MITIGATION

A.1.2 Incorporation of Water-related Renewable Energies

Gharats (Watermills): Sustainable Energy Sources of Himalayas
Kritika Sharma, Vinay Sharma and Navneet Arora

Transboundary Cooperation in Infrastructure Operation Generates Economic and Environmental Co-Benefits in The Lancang-Mekong River Basin
Feng Zhou

A.1.3 Energy Efficiencies to be gained from Water Uses

Energy Self-Sufficient Carbon-Neutral Framework for Wastewater Resource Recovery Facilities in Ireland
Usman Safder, Sarah Cotterill and Recep Kaan Dereli

A.1.6 Other Related Topics

Flooding in Morelia City: Analysis of Extreme Precipitation Events and Their Relationship with The Enso Phenomenon
Luis David Navarro, Liliana García Romero, Sonia Tatiana Sánchez Quispe and Maria Lourdes González ArquerosGaudry

Hydrological Monitoring for Sustainable Development
Adam Hobson and Alex Hing

Impact of Projected Climate Change on Flood Characteristics in the Biebrza Basin (Poland)
Dorota Miroslaw-Swiatek, Paweł Marcinkowski, Mikołaj Piniewski and Mateusz Grygoruk

Improving Climate Resilience in At-Risk Communities in Kenya Via Adaptive Governance and Sustainable Environmental Approaches
Ndirangu Ngunjiri

The Water Contribution of The Glacier and The Dynamics of Glaciological-Hydrological Processes in The Basin Yanamarey - Peru
Arnaldo Tacsi Palacios, Jesús Abel Mejía Marcacuzco and María Cárdenas Gaudry

Water Quality Change Characteristics of Dongping Lake and its Response to Climate Change
Ming Hang Shi, Ming Cong Lv, Zhong Mei Wang, Wen Jiao Zhang and Xing Zhao

A.2 IMPROVING RESILIENCE AGAINST WATER HAZARDS AND NATURAL DISASTERS

A.2.1 Coastal Processes and Hazards

A Systematic Review of Methods for Shoreline Change Analysis: Strengths, Limitations, and Applications
Samya Lamhadri and Mohammed Karim Benhachmi

Extreme Storm Surge and Wave Modelling and its Application to Coastal Engineering Designs
Chun Hin Adrian Lai, Jie Hu, Kuifeng Zhao and Yaodong Zhang

Innovative Flood Risk Management Solutions: The Floodblock System by Dryup Swiss Technology
Mohamed Outiskt, Ramos João Pinto Francisco and Aboumaria Khadija

Modeling Hydrodynamic and Wave Impacts of the Largest Proposed Manila Bay Reclamation Project using Delft3D FLOW-WAVE Coupled Modules
Marvi Leu Dalogdog, Dominic Bautista and Justin Joseph Valdez

Study on the Typhoon-Induced Storm Surges and Waves for The Coast Of Hong Kong
Guannan Wang, Zhuowei Zhou, Xin Xu, Wenbo Gao and Quanke Su

A.2.2 Hydraulic Structures and Processes

2-D Physical Hydraulic Model Testing of a Reef Breakwater- A Case Study in Maldives
Sanjeewa Wickramaratne, Sujeewan Gajasinghe and Sarada Gunasekara

A Scoping Study of Pier Scour Under Pressure and Overtopping Flow
Jin A Jegal and Seung Ho Hong

A Structural Reliability Method for Mitre Gates of Ship Lock Based on Improved JC Method
Liaojun Zhang and Shifeng Zhang

Comparison of Dam Breach Parameters Using Different Empirical Models
Ankit Jain, Kartikeya Mishra, H.L. Tiwari and M.K. Choudhary

Derisking a Spillway Rating Curve when Overtopping of a Walkway is Expected
Chris Frias and Kinda Chakas

Design of Aqueducts from the Perspective of Resilience, United Nations' Sustainable Development Goals, and Climate Change
René Autrique

Erosion and Flood Control in The Municipalities of Apartadó and Carepa in Colombia for The Protection of Riverside Communities
Adrian Muñoz, Lilian Posada and Daniel Upegui

Experimental Study of Local Scour Downstream of a Stilling Basin
Anika Govil, Nishank Agrawal, Ellora Padhi and Gopal Das Singhal

Flip Bucket Performance at Three Times the Design Discharge, including Pressure Measurements and Comparison to Design Guidance
Mike Phillips, Brian Crookston, Julie Allen and Yajayra Diaz

Flow Through Porous Weir
Ali Shariq and Mohammad Saud Afzal

Form and Friction Drag Coefficients of Fine Screens: Streamlined and Rectangular Bar Profiles
Cumhur Özbey and Serhat Küçükali

Hydraulic Engineering for Fish Self-Liberation in Reservoirs
Emerson Parra

Hydrodynamic Analysis of Submerged Vanes in Curved Fixed-Bottom Channels by Three-Dimensional Numerical Modeling
Ricardo Sebastián Sandoval Garzón, Karen Jasmin Soto Morales, Cristina Alexandra Torres Jacobowitz and Jorge Augusto Toapaxi Alvarez

Impacts of Slope on Hydraulic Performance of Stepped Chutes: A Case Study - Whittier Narrows Dam
Yajayra Diaz, Micheal Phillips, Ethan Thompson and Christopher Thornton

Labyrinth Weirs: From Past to Future
Lisa Lüddecke and Mario Oertel

Large Eddy Simulation of Evolution of Flow Field and Force Fluctuation of Half-Cone Woody
Wenjun Zhang

Measurement of Velocity Fluctuations at The Base in Unsteady Flow
Şevket Çokgör, Torkan Hassani and Mona Masoudnia

Metaheuristic Optimization of Open Channels Using the Water Cycle Algorithm
Cesar A. Lifonzo Salcedo and Yeny L. De La Cruz Arango

Optimization of Hydraulic Design of Intake Structure Under DTSS Phase 2 Contract T-08
Anil Kumar, Ling Chye Wong, Toshio Araki, Taichi Shibano and Benjamin Koh

Parameter Estimation and Identifiability of Oxygen Transfer in Self-Aerated Flows
Ashwini Tiwari, C.S.P. Ojha and K.S. Hari Prasad

Pressure Fluctuations over the Spillway Bottom Under Unsteady Flow
Torkan Hassani and Şevket Çokgör

Research on Horizontal Bearing Characteristics of Suction Pile Dam
Xing Zhao, Zhongmei Wang, Wenjiao Zhang, Mingcong Lv and Caiping Wu

River Protection Projects Using Geocells
Gustavo Fierro

Scale Effects of Self-Aeration Development in High-Speed Flows
Wangru Wei and Jun Deng

Structure Optimization of Urban Emergency Flood-Control Barriers
Jinchao Xu, Xiaodong Wang, Min Liu, Sadashiv Chaturvedi and Jun Zhao

Study on the Turbulence Characteristics of Water Flow in the Branching Area of Open Channels
Yan-Fang Zhao, Yu Han and Runzhi Hu

Sustainable Deep Wells for Schools and Communities: Harnessing Technology & Eco-Friendly Innovative Engineering Solutions to Enhance Water Security and SDGs In Cameroon
Francis Njuakom

TOMAAPP, A New Software for Hydraulic Design of Conventional Intakes
Johan Alejandro Villanueva Anlas, Miguel Angel Astorayme and Ronald Gutierrez

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

A Study on the Determination of Flood Control Volume for Deep Storm Water Tunnel Design
Taekmun Jeong, Soodeok Hwang, Dongyeop Lee, Jongpyo Park and Yeoeun Lee

Adapting to Hydrological Change: Blue-Green Infrastructure and Technological Innovations for Resilient Island Nations
Pedro Santa

Flow Analysis of Tangential Inlets in Underground Stormwater Drainage Tunnel under Varying Flow Rates
Kyu-hyun Park, Dong Sop Rhee and Seongwook Choi

Role of Nature-Based Solutions in Mitigating Urban Flooding: A Case Study of Driminagh Neighbourhood in Dublin, Ireland
Salman Khan, Mehdi Gholamnia, Fiachra O'Loughlin and Payam Sajadi

The Effect of Green Roofs on The Pressurisation of Stormwater Drainage Networks
Dat Vu, Gregory De Costa and Induka Werellagama

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

3D Rans-Vof Simulation of Breaching Process of Granular Dams
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

A Mapping Tool for Spatial Distribution of Suspended Sediment Concentration using Sontek Down-Looking ADCP Snr Data
Boseong Jeong, Dongsu Kim, Suin Choi and Youngdo Kim

An Investigation of Scour Formation and Turbulence Statistics Due to The Swirling of Fluid Flow in A River
Haradhan Maity

Analysis and Extension of Streamflow and Sediment Load in the Jialing River Basin
Jiao Zhang, Penghao Wang, Zhanbin Li, Wen Wang and Peng Li

Computation of Sediment Transport Pattern Along The South East Coast of Tamil Nadu, India
Suresh Pallavur Krishnamurthy, Sundaravadivelu Renganathan, Prasad Chintaluri Venkata Chintaluri Venkata, Sakthival Sundaravadivelu and Dhanasekhar Kollu

Effect Of Sediment Mobility On Scour Around Brige Piers
Kattia Rubi Arnez Ferrel, Daisuke Harada and Shinji Egashira

Flume Experiment on Morphological Phenomena on Incising Riverbeds
Roman Dunst, Mario Klösch, Thomas Gold, Arline Khünl-Brady, Rolf Rindler and Helmut Habersack

Hydraulic Erosion Mechanisms and Predictive Modeling in Embankment Dams
Gensheng Zhao

Impact Assessment of Landslide Dams on Flood Inundation: A Case Study on The Okoy River
Richmond Dave Camingawan, Anne Jeanette De La Rosa, Elaine Marie Pena and Roy Anthony Luna

Numerical Study on Clear Water Scour Around Complex Pier with Different Pier Cap Shape in Single Phase Medium
Amit Sinha

Qualitative And Quantitative Comparison of Quasi-Equilibrium Bed Features In T-Shaped, Lab-Scale Confluences
Saeed Hashemikia, Alemu Tezera Dessie, Greet Deruyter and Tom De Mulder

Recreational-Grade Sonar: Data Collection and Management for Reconstructing The Bathymetry Of Large Rivers
Xin Yi Chong, Matteo Redana, Estrella Carrero-Carralero and Chris Gibbins

Seasonal And Long-Term Dynamics of Suspended Sediment Transport in Bozçay Creek, Türkiye
Veysel S. Yavuz

Simulation of Soil Erosion due to Heavy Precipitation Using a Two-Dimensional Hydrodynamic Numerical Model
Rebecca Hinsberger and Alpaslan Yörük

Spatial Riverbed Elevation Variation and Reasonable Cross-Sectional Intervals in Bathymetric Measurements in The Vietnamese Mekong Delta
Doan Van Binh, Luc Anh Tuan, Sameh A. Kantoush, Binh Quang Nguyen, Menna Farag Ahmed and Tetsuya Sumi

Three-Dimensional Numerical Analysis of Local Scour Around a Cylinder in A Wave-Current Coexisting Field Using Nonequilibrium Bedload Transport Model
Yuki Kajikawa, Miina Honda, Shinya Magome, Chisato Hara, Masahide Takeda and Masamitsu Kuroiwa

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

Deep Learning Models for River Flow Prediction: A Comparative Study of Transformer Architectures
Zhuo Yang, Xiaoyu Ye and Dong Wang

Flood Early Warning System for The City of Morelia, Mexico
Israel García-Ledesma, Jesús Pardo-Loaiza, Sonia Tatiana Sánchez-Quispe, Constantino Domínguez Sánchez and Giovanni Carlo Flores Fernández

Flood Frequency Assessment of The Himalayan Mountainous Beas River: A Case Study, Using Various Probability Distribution Functions
Shakeel Rather, Mahesh Patel and Kanish Kapoor

Improving Flood Early Warning System Forecasts using Uncertainty
Jeannette Zambrano and Juan Jose Gomez

Investigation into Groundwater Level Prediction Utilized Spatial-Temporal Graph Convolutional Networks
Zhenyue Han, Fawen Li and Yong Zhao

Machine Learning-Based 2D and 3D Abrasion Mapping: Evaluating The Influence of Successive Flood Events in Sediment Bypass Tunnels
Ahmed Emara, Sameh Kantoush, Mohamed Saber, Tetsuya Sumi and Emad Mabrouk

Meteorological Drought Prediction Using Advanced Spatio-Temporal Downscaling Of Glosea6 Climate Forecast Data
Jeongwoo Lee, Minwoo Park, Gihyun Park and Hyun-Han Kwon

Monthly Rainfall Prediction Model Based on CONVLSTM2D
Jiayan Xu, Shuguang Liu, Zhengzheng Zhou and Guihui Zhong

Now Cashting Data Development for Flood Early Warning System at Upper Ciliwung Watershed
Evi Anggraheni, Muhammad Rizal and Muhammad Adek Rizaldi

Numerical Modeling of Salinity Distribution in Tidal Rivers: Integrating Improved 2D Grid Method, Flow Resistance Method, and Dispersion Terms
Wang Zhi and Li Manjie
Study on Hydraulic Calculation Theory of Ice Jam Thickness in The Middle Route of South-To-North Water Diversion Project
Yinqin Tang, Tong Wang, Jingwei Feng, Jun Wang and Jueyi Sui

Urban Flood Susceptibility Study: An AHP-Based Geospatial Multi-Criteria Evaluation in Kigali City, with a Focus on the Mpazi Catchment
Iraguha Pierre Damien and Hirwa Tresor

A.2.6 Disaster Risk Reduction

A Coupled Numerical Model for Simulating the Interaction of Irregular Waves with Flexible Aquatic Vegetation
Huiran Liu and Pengzhi Lin

Assessing the Role of Human Activities on Drought Risk in Northwestern Rajasthan
Saran Aadhar and Piyush Sengar

Comparative Analysis of Empirical Storm Surge and Tsunami Structural Vulnerability Curves of Non-Engineered Low-Rise Masonry Buildings in Philippines and Indonesia
Maria Erica Gomez, Liezl Raissa Tan, Imee Bren Villalba and Justin Joseph Valdez

Computational Modeling and Analysis of Debris Flow in Mountainous Regions
Arjun D C and Bandita Barman

Determination of Drought Vulnerability in the Angulo River Basin
Carolina Rocha Delgado, José Jaime Madrigal Barrera and Sonia Tatiana Sánchez Quispe

Flood Risk Adaption Measures Comparative Approaches at The Mono River Basin and Oueme River Basin in Benin Republic
Julien Adounkpe, Yvonne Walz, Sally Janzen, Adrian Almoradie and Mariele Evers

Flood Risk Assessment for Transportation Networks to Enhance Resilience and Emergency Preparedness
Natasha Petruccelli, Alessio Domeneghetti, Caterina Malandri, Maria Nadia Postorino, Luca Mantecchini and Armando Brath

Flood Risk Investigation with Application of Low Impact Development Facilities in Urban Areas using Storm Water Management Model
Dogyu Lee and Inhwan Park

Geospatial Modelling - The Nexus for Climate Induced Hazard Assessment and Informed Decision Making for Disaster Risk Reduction
Dawie Jansen van Vuuren, Kayla Theron, Jayati Shukla and Jie Hu

Impact of Main River Water Level on Sediment and Flooding in Tributary Areas
Norio Harada, Ichiro Kimura and Yoshifumi Satofuka

Implementation of Pervious Pavement to Reduce Surface Run-Off for a Highly Populated, Urbanized Area
Kutay Yılmaz and Yunus Oruç

Inversion Method for Working Behavior of Prestressed Anchor Cables in Dam Foundation Driven by Structural Health Monitoring Data
Hanyi Niu and Bo Chen

Sizing Hydraulic Structures for Flooding under Climate Change Driven Sea Level Rise
Kutay Yılmaz and Yunus Oruç

Study on Machine Learning Method Based on Vector Direction of Flood Process for Flood Forecasting
Tianning Xie, Chengshuai Liu and Caihong Hu

The Impact of Tributary Debris Flow on the Sediment Transport of Main River
Weipeng Hou, Chendi Zhang, Guo-An Yu and Peng Cui

Spatiotemporal Variations Of Flood Wave Propagation Characteristics And Coincidence Risk In The Middle And Lower Reaches Of The Yangtze River Based On A Large-Scale Hydrological- Hydrodynamic Coupling Model
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 Redial 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
Yumin Kang, Siyoon Kwon, Suhan Nam and Youngdo Kim

Analysis of Loss Rainfall Data in Medan, North Sumatra, Indonesia
Indri Triawati, Haishen Lu and Atif Muhammad Ali

Analysis of Surface Water Resources for the Management of the Water Resources of the City of Morelia, Michoacán
Karla Liliana Lopez-Huitron, Liliana Garcia-Romero and Tatiana Sanchez-Quispe

Application Of ANFIS in the Design of WQI for Groundwater System: A Case Study for Chikkaballapur District, Karnataka
Sriram Mustapure, Ravi Kumar H, Shivanna S and Pavan Kumar Kummamuru

Assessment and Localization of the DPSIR Approach in Water Resources of Arid and Semi-Arid Regions
Zahra Mardani, Mohammad Hossein Golmohammadi and Kumars Ebrahimi

Assessing Future Water Supply Reliability of the Soyanggang Dam under Climate Change using Advanced Hydrological and Bias Correction Techniques
Dongmin Lee, Hyunsoo Kim, Minseong Kim and Hyun-Han Kwon

Assessing the Impact of Basin Morphology on Water Quality through Principal Component Analysis
Manish Pandey, Shravankumar S M and Umamahesh N V

Bioengineering and Hydropedological Techniques for Draining Shallow Water Table in Urban Areas
Shahad Al-Yaqoubi, Ali Al-Maktoumi, Anvar Kacimov, Osman Abdalla and Said Al-Ismaily

Brantas Harmony, a Comprehensive Plan for Integrated Water Quality Management in the Brantas River Basin
Astria Nugrahany

Critical Analysis of the Coca Codo Sinclair Hydroelectric Plant and its Myths
Paulina Lima and Samir Salcedo

Development of an Integrated Water Resources Management tool for Sustainable Water Management
Rupam Gaur, Binit Kumar and R.C. Vaishya

Evolution of the Drainage Network in the Colombian Andina Region: 1. Quantitative Analysis and Relationship of Spatial Scales of the Drainage Network
John Freddy Caro Soler

History and Status of Sixty-Year-Old Pozhikara Tide Control Barrier to Check Salt Water into Parvoor Coastal Freshwater Lake
Sreevalsa Kolathayar, Amala Krishnan Us and Sitharam Tg

Hydrometric Stations in Mountain Rivers
Cristian Vega Pedrozo, Roberto Omar del Castillo, Néstor Horacio Buscemi, Juan Jimenez and Facundo Lopez

Importance of Irrigation Management in Integrated River Basin Management and Sustainable Development
Cengiz Koç

Incorporating Urban Greenery /Detention Ponds in Urban Flooding Management in the Mamahuma Basin, Ghana Kwaku Amaning Adjei (PI) [Professor, Civil Engineering Department, KNUST Ghana]; Richard Kofi Amekor (Co-Investigator) [PhD Student, KNUST], Ghana
Richard Kofi Amekor

Lake Water Level Evolution and its Response to Climate Change in Semi-Arid Region
Bojun Liu, Linqi You and Yawei Zhao

Management of Water Resources in Manik Ganga Basin with Community Involvement
Ruwan Liyanage

Modelling of Water Consumption in China and Analysis of Influencing Factors from 2000 to 2022
Tianqing Zhao and Wen Wang

Morphologie Du Fond Et Caracterisation Des Parametres Physico-Chimiques Des Eaux De La Lagune De Songon-Agban Zone Ouest Du Pont De Jacqueville (Côte D'ivoire)
Alain Privat Dr Togba, Yao Alexis Dr N'Guessan and Trazié Jean-Gael Dr Irie Bi

Optimal Selection of Regional Climate Models for Climate Change Scenarios Using Extreme Climate Indices Analysis
Kangmin Lee, Seogyun Lee, Yunsung Kim and Hyun-Han Kwon

Performance Analysis on Permeable Pavement with Activated Carbon through Verifying Pollutant Removal Efficiency and Permeability
Taeyang Kim, Jaemoon Kim and Soonchul Kwon

Quantification of Impact of Lulc Change on Water Balance Components in Wainganga Catchment, India
Banwari Lal Meena, P.V Timbadiya, P.L Patel and Prabhat Chandra
Research on Multi-Objective Optimization Scheduling of Cascaded Hydropower Stations Considering Source-Grid Coordination
Shen Qin and Wenjun Yu

Runoff and Sediment Fluxes Change in Tuotuo River
Yinjun Zhou, Yujiao Liu, Xuhai Yang, Junxiao Ma and Zhixinghua Hu

Sustainable Deep Wells for Schools and Communities: Harnessing Technology & Eco-Friendly Innovative Engineering Solutions to Enhance Water Security and SDGs in Cameroon
Francis Njuakom

Sustainable Water Management Based on Innovative Synergic Approach, New Technology and Collective Intelligence: Insights from Morocco
Lhoussaine Bouchaou, Mohammed Hssaisoune, Salah Er-Raki, Yassine Ait Brahim, Youssef Brouziyne, Salwa Belaqziz, Abdelghani Chehbouni and Mohammed Elhafyani

Three-Water Integration and Co-Governance Strategy for Enhancing Agricultural Water Use Efficiency and Mitigating Non-Point Source Pollution
Peifang Wang, Bin Hu, Lei Rao, Dingxin Li and Qiang Li

Water Resources Management in Mediterranean Region: Towards a New Paradigm Driven by Societal and Climate Changes
Maria Francesca Bruno, Matteo Gianluca Molfetta, Luigi Pratola and Umberto Fratino

Water Demand Scenarios in Jeolla Province, Korea Considering Social, Economic, and Environmental Factors
Seo-Young Kang, Jiyoung Kim, Min Ji Kim and Tae-Woong Kim

A.3.2 River Engineering and Management

A Modified D'aubuisson Formula for Enhancing Overflow Measurement in Side-Weir Detention Basin
Seogyeong Lee, Yeonghwa Gwon, Hosoo Lee, Dongsu Kim and Young Do Kim

A Study on River Management Methods Based on Changes of Variation of River-Bed and Succession of Riparian Vegetation in Korean Rivers
Samhee Lee, Inrock Lee, Jung Won Lee and Won Jeong

Assessing Success in Freshwater Ecosystem Restoration across Europe: Challenges and Insights
Lisa Waldenberger and Helmut Habersack

Assessment of Levee Vulnerability Based on Erosion Analysis for a River in South Korea
Seongwook Choi and Du-Han Lee

Characteristics of Sediment Transport in Han-Gang River, Korea
Doeon Kim, Changseong Kim and Sung-Uk Choi

Characterizing Submerged Meandering Flow Pattern in Paldang Lake Considering Flow Conditions
Yongmuk Kang, Dongsu Kim, Suin Choi And Youngdo Kim

Effect of Levees in Flood and Sediment Transference to Floodplains during Floods, Numerical Analysis
Alejandro Mendoza, Eliseo Carrizosa and Maricela Arroyo

Enhancing Water Level Prediction Accuracy in 2D Hydraulic Models: Adapting Low-Resolution Meshes for Real-World Applications
Parisa Khorsandi Kuhanestani, Anouk Bomers, Martijn Booij and Suzanne Hulscher

Estimating Rainfall-Runoff Amounts based on Cluster Analysis of Spatiotemporal Rainfall Distributions using Long-Term Ensemble Climate Projection Data
Hideyuki Yamaji and Tetsuya Takeshita

Evaluating the Impact of Vegetation Distribution on Diversion Flow using 3D Flood Flow Simulations
Yutaro Hashimoto, Keisuke Yoshida and Md. Touhidul Islam

Field Survey Upstream of Fixed Weirs for Identifying Cross-Sectional River Environments
Jina Beom, Yonguk Ryu, Woojin Lee, Jaewoon Jung, Hongkoo Yeo and Joongu Kang

Flow and Sediment Transport Properties in a Meandering River Reach by Large Eddy Simulation and ADCP Survey
Huan Tao Goh, Akihiko Nakayama, Zafarullah Nizamani and Atsuhiro Yorozuya

Mean Flow and Turbulent Structures in River Plumes with Neutral or Negative Buoyancy
H. Shi, M. E. Negretti, J. Chauchat, K. Blanckaert, U. Lemmin and D. A. Barry

Mixing Behaviour and Flow Characteristics at a River Confluence with Temperature Differences: An Analysis Using Field Measurement Data
Suin Choi, Dongsu Kim, Youngdo Kim and Siwan Ryu

Research and Practice on the Health Assessment System of Lake Ecosystem Based on Natural Social Comprehensive Indicators
Juanjuan Fangjuanjuan, Dong Wang and Geng Qu

Research on Construction of High-Precision Simulation Model of Urban Water System
Feng Wenwen and Chao Wang

Research Status of River Model: A review
Zhixinghua Hu, Wenqi Li, Yinjun Zhou, Zhijing Li, Xiaoxue Wang, Yihui Xiao and Junxiao Ma

Skewing and Flattening Tendencies of Two Pristine Meandering Rivers in the Upper Yellow River
Yunshuo Cheng and Zhiwei Li

Statistical Analysis on the Differences in Turbulence Properties of Submerged Rigid Vegetated Flow Along the Open Channel
Yue Jun Chen, Lian Jun Zhao and Yao Wang

Status and Issues Related to the Implementation of Integrated River Basin Management in Malaysia
Chow Hock Lim and Fang Yenn Teo

Turbulent Flow Structure in Compound Channels: Comparing the Morphological Effects of Two Emergent Flexible Floodplain Vegetation Types
Laxman Rathod, Gurugubelli Yatirajulu, P V Timbadiya and Bandita Barman

Velocity and Discharge Distribution of an Open-Channel River Partially Covered with Mixed Vegetation of Various Heights
Xiaonan Tang, Zixin Yang and Qinzheng Teng

Verification of Check Dams for Torrent Control with the Austrian Standards and Causes of Collapse: Case Studies in The Alps
Davide Cammarata, Mesfin Zenebe Gezahegn, Johannes Hübl, Georg Nagl and Roberto Ranzi

Two-Dimensional Numerical Simulations for Bed Morphology under the Constraint of Fixed Channel Widths
Hyeok Cheol Shin, Yong-Jun Kwon, Hyung Suk Kim, Moonhyung Park and Yonguk Ryu

A.3.3 Reservoirs Management

Considering the Optimal Operation of Cascade Hydropower Station under Diversion Conditions
Gao Maolin, Chao Wang and Feng Wenwen

Evaluation of Empirical Models for the Prediction of Wind Generated Wave Parameters in a Fetch Limited Reservoir: Case Study of a Hydropower Reservoir in Norway
Sanat Kumar Karmacharya and Fjola Gudrun Sigtryggsdottir

Is Dissolved Organic Matter (DOM) Independently Stratified in Thermally Stratified Water Bodies?
Suiliang Huang, Mengjiao Wei and Waseem Akram

Optimal Dredging Management at Selorejo Reservoir
Mohamad Nur Alief and Fahmi Hidayat

Optimisation of Water Release from Multi-Purpose Reservoir
Vishnu Prasad and Sambhu Ratan Awasthi

Refined Elastic Modulus Inversion for Gravity Dams: Addressing Foundation Deformation with Multipoint Displacement Data
Baosong Xu

Research Progress on Ecological Operation Concept and Model of River Reservoir (Group)
Bojun Liu, Linqi You and Kefei Li

Revised Capacity Assessment of Reservoir using Satellite Images
Kartikeya Mishra, Hl Tiwari and Ankit Jain

Sediment Deposition and Control Strategies in the Upper Yangtze River's Cascade Reservoirs: Insights from Four Large Reservoirs in the Lower Jinsha River
Xuhai Yang, Lingling Zhu, Zhijing Li, Zhongwu Jin, Yisen Wang and Qi Chen

Technical Considerations for Coastal Reservoirs at Godavari Outlet to Ensure Water Security in Andhra Pradesh and Telangana
Sreevalsa Kolathayar, Narayanee V, Praharsha Bs, Subba Rao R and Sitharam Tg

A.3.4 Urban Hydraulics

A Comprehensive Framework Model for the Trend, Period and Evaluation of the Precipitation Enhancement Effect: TPEM
Yunqiu Jiang, Caihong Hu and Chengshuai Liu

Assessment of Water Supply Systems: A Case Study of the Cointzio-Vista Bella Conduction System
Daniel Adrian Martinez Ayala, Aldo Alberto Rangel Torres and Julio Cesar Orantes Avalos

Development of Two-Phase Flow Analysis Model for Analysis of Rainwater Storage and Drainage Tunnel
Dong Hwi Kim, Eun Taek Shin, Sung Won Park and Chang Geun Song

Evaluation of Drainage Characteristics in Urban Drainage System using Physical and Numerical Model
Seongil Yeom, Sungwon Park and Jeongmin Lee

Evaluation of Urban Drainage System and Estimate the Flood Inundation and Risk Map using PCSWMM in Kampung Alor Dili Timor Leste
Placido Varela Mau and Koji Asai

Flood Simulation using HECRAS 2D and 1D Models, Reciprocal Benefits and Outcomes
Elena Carcano

Numerical Simulations of Floods in a Densely Urbanized Region: The Dakar Case Study (Senegal)
Florian Cordier, Mohammed Assaba, Mountaga Lam and Olivier Delestre

Quantitative Urban Flood Risk Assessment of Banjiha (Semi-Basement) Dwellings using Hec-Ras and Hec-Lifesim
Kim Kang Been, Lee Jeong Hu, Eum Tae Soo and Song Chang Geun

Simulation of Hydraulic Transients in a Reservoir-Pipe-Valve System Utilizing MOC And CSPM
Iago Silva, Alexandre Soares and Joel Vasco

Vulnerability of Urban Water Distribution Network Users to Long-Term Droughts
Gabriele Freni, Stefania Piazza and Mariacrocetta Sambito

Water and Sewage Utilities Approach to Water Hammer: An Evaluation of the Swedish State of Knowledge
Kristofer Kiste

A.3.5 Eco- and Environmental Hydraulics

Can Unmanned Aerial Vehicle (UAV) be Applied in the Process of Transporting Fish at High Dam Fish Passage Facilities?
Guangning Li, Shuangke Sun, Kai Shi, Haitao Liu and Tiegang Zheng

Determining the Suitable Ecological Water Level of a Large Deep Lake Considering the Vertical Distribution of Fish Habitat
Yuan Si, Xiaobo Liu, Fei Dong, Bing Ma and Xin Deng

Drag in Vegetation Canopy: Considering Sheltering and Blockage Effects
Ping Wang and Yuyan Liu

Enhancing Fish Migration at Diversion Power Plants: Investigating Behavioural Barriers and Hydraulic Dynamics
Elena-Maria Kloprie, Serhat Küçükali, Inga Kleinewietfeld and Cumhur Ozbey

Experimental Study of Continuous Release of Microplastics in Water

Xuyang Qiao, Shangtuo Qian, Hui Xu and David Z Zhu

Hydraulic Modelling of Substrate Stability to Support Restoration Locations of Spawning Habitats in Regulated Rivers
Frida M. Niemi, Anders G. Andersson and J. Gunnar I. Hellström

Hydrological Factors Affecting the Dongting Lake-resident Fish's Spawning Habitat Suitability
Yuhong Zeng and Yunge Li

Investigation of Water Level Dynamics and Sulfate Concentration in a Tidal Paddy Field System: Implication for Acidity Sources
Siti Rizkyna Noorsaly, Yuichiro Mishima, Maya Amalia Achyadi and Takenori Hino

Monitoring of Bio-Geomorphological Change Related with Short-Term Hydrological Variation in Am Actice Sandy River
Chanjoo Lee, Hun Choi and Donggu Kim

Numerical Simulation of Desalination Jet in Shallow Ambient
Danial Goodarzi and Abdolmajid Mohammadian

Response of Hydrodynamics and Water-Quality Conditions to Water Diversion Project in a Shallow Lake
Yilin Deng, Saiyu Yuan and Hongwu Tang

The Response Mechanism of Microplastic Transport Process to Hydrodynamics
Yulin Hu and Saiyu Yuan

Theoretical Foundations on Surface Detachment of Floating Plastics
Matthias Kramer

Transport Processes of Dissolved and Particulate Nitrogen and Phosphorus over Urban Road Surface During Rainfall Runoff
Chi Zhang, Yang Xiao, Taotao Zhang and Bin Luan

A.3.6 Water Reclamation and Reuse

Activated Carbon Produced from Biomass for Removal of Iron and Copper Ions from Water
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 Krzisnik 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 Blagojević, Marko Hočevar, 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 Fifield 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
Sinjae 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 Highly Purified 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, Siyooun 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

Solomon Dabillah and Carl Fali Do

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

Applications Of Drought Indicators For Analysis Of Water Resources Scarcity In The Warta Catchment In Poland
Joanna Wicher-Dysarz, Tomasz Dysarz, Mariusz Sojka, Joanna Jaskuła and Zbigniew W. Kundzewicz

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 than15 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:

IAHR AIRH International Association for Hydro-Environment Engineering and Research
Hosted by Spain Water and IWHR, China

PUB SINGAPORE'S NATIONAL WATER AGENCY

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