



International Association
for Hydro-Environment
Engineering and Research
Hosted by
Tsinghua University and NHRI, China



NHRI
Since 1935
南京水利科学研究院



The 2022 International Symposium on Ecohydraulics

October 10-14, 2022 | Nanjing, China



Program Book



Contents

| | |
|--|----|
| Welcome Message | 3 |
| Conference Information | 4 |
| Local Organizing Committee | 4 |
| International Scientific Committee | 4 |
| Guideline for Participants | 6 |
| Online Participants | 6 |
| Offline Participants | 6 |
| Accommodation | 7 |
| Transportation | 8 |
| Program at a Glance | 12 |
| Pre-conference Workshop | 14 |
| Opening Ceremony | 15 |
| Keynote Speeches | 16 |
| Closing Ceremony | 21 |
| Session List | 22 |
| Oral Presentation – Oct 11 th | 28 |
| Oral Presentation – Oct 12 th | 34 |
| Oral Presentation – Oct 13 th | 44 |

Welcome Message

On behalf of the International Association for Hydro-Environment Engineering and Research and the local organizing committee, we cordially invite you to the 14th International Symposium on Ecohydraulics that will be held from October 10th to 14th 2022 in Nanjing, China, an ancient capital of ten dynasties in Chinese history, boasting numerous historic sites, splendid cultural heritages, beautiful cityscape and sceneries.



Ecohydraulics is a rapidly developing inter-discipline of ecology and hydraulics brought about by the ever-growing concern of aquatic and riparian ecology. Since its first edition in 1994, the International Symposia on Ecohydraulics (ISE) have provided platforms for scientists and engineers worldwide to discuss cutting-edge scientific progress, compare and evaluate state-of-the-art technical methods, and recommend them to the end-users.

ISE 2022 covers a wide spectrum of topics related to ecohydraulics in theory and in practice, including the hydrological, hydraulic, morphodynamic, structural, ecological, biological, and technical aspects of the discipline. Five high-profile keynote speeches will be presented. We are expecting you to present at the symposium and share the latest advancement of your research with the international scientific community. Special issues on Journal of Ecohydraulics, International Journal of Sediment Research, Ecohydrology, and Environmental Science & Ecotechnology focusing on this conference will be published. Traditionally, ISE features an ECoENet pre-conference workshop which helps early career researchers working in ecohydraulics find opportunities and overcome challenges. Starting from the current edition, ISE plans to provide an interactive lecture for a helpful technical tool applied in one of these three topics: (1) fieldwork, (2) lab experiments, and (3) numerical simulations, and rotate among them in the future.

Jianyun Zhang
Yangtze Institute for Conservation & Development, China
Nanjing Hydraulic Research Institute, China

Local Organizing Committee

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Hongwei Fang (Tsinghua University, China)

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Liuming Hu (Nanjing Hydraulic Research Institute, China)

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Zi Wu (Tsinghua University, China)

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Peter Goodwin (University of Maryland, USA)

Roger Falconer (Cardiff University, UK)

Vladimir Nikora (University of Aberdeen, UK)

Gregory Pasternack (University of California at Davis, USA)

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Angus Webb (University of Melbourne, Australia)

Conference Information

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Bettina Bockelmann-Evans (Cardiff University, UK)
Byungwoong Choi (Yonsei University, South Korea)
Hervé Capra (IRSTEA Lyon, France)
Chris Katopodis (Katopodis Ecohydraulics Ltd, Canada)
Claudio Meier (University of Memphis, USA)
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Jing Peng (China Institute of Water Resources and Hydropower Research, China)
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Marie-Pierre Gosselin (Norwegian Institute for Nature Research, Norway)
Markus Noack (University of Stuttgart, Germany)
Martin Wilkes (Coventry University, UK)
Mengzhen Xu (Tsinghua University, China)
Michael Stewardson (University of Melbourne, Australia)
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Nicolas Lamouroux (IRSTEA Lyon, France)
Natasa Smolar-Zvanut (Institute for Water of the Republic of Slovenia, Republic of Slovenia)
Paul Kemp (University of Southampton, UK)
Piotr Parasiewicz (S. Sakowicz Inland Fisheries Institute, Poland)
Rafael Tinoco (University of Illinois at Urbana-Champaign, USA)
Rohan Benjankar (Southern Illinois University Edwardsville, USA)
Robert T. Milhous (Midcontinent Ecological Science Center, Biological Resources Division, US Geological Survey, USA)
Roser Casas-Mulet (Water Research Institute, Cardiff University, UK)
Samhee Lee (Korea Institute of Construction Technology, Korea)
Shinji Fukuda (Tokyo University of Agriculture and Technology, Japan)
Sung-Uk Choi (Yonsei University, South Korea)
Tetsuro Tsujimoto (Department of Geo-Environmental Engineering, Nagoya University, Japan)
Thomas B. Hardy (Texas State University, USA)

Conference Information

Valerie Ouellet (University of Birmingham, UK)

Wengen Liao (General Institute of Water Resources and Hydropower Planning and Design,
Ministry of Water Resources, Beijing, China)

Xiaodong Qu (China Institute of Water Resources and Hydropower Research, China)

Yann Le Coarer (INRAE, UR RECOVER, France)

Guideline for participants

Online participants

Session chairs and presenters

Zoom meeting linkage will be sent via email!

Other Participants



[Click here](#) or scan code to enter the conference rooms. There are 7 conference rooms. The pre-conference workshop ECoENet is in **ECoENet**. The opening ceremony, closing ceremony, and the keynote speeches are in **Main track**. Presentations are categorized in **5 groups**: **S1**: Hydrologic aspect of ecohydraulics; **S2**: Hydraulic aspect of ecohydraulics; **S3**: Ecohydraulics on micro-scale, **S4**: Ecohydraulics on macro-scale, **S5**: Applied Technology in Ecohydraulics. Each group includes 8-10 sessions. Each sessions includes 3-5 presentations. Please locate your presentation in the session lists.

Due to the current pandemics in China, the symposium will be held online. This makes poster presentation impractical. All participants are requested to make an oral presentation. An oral presentation is composed of 12 min presentation +3 min Q&A. Speakers should use English for the presentations.

Offline participants:

If you want to attend the symposium onsite, please contact Prof. Lu Chunhui, Hohai University (clu@hhu.edu.cn) for information of lodging and epidemics-related issues.

Conference Venue: Hohai University, 1 Xikang Road, Nanjing, China

Opening ceremony: Meeting Room 108 at the Wen Tian Guan, Hohai University

Link to the map of the venue: <https://s.yicode.org.cn/4xwlua>

Conference Information



Wen Tian Guan (闻天馆) in Hohai University

Closing ceremony: Meeting Room 202 at the Yangtze Institute for Conservation & Development (Xin Xi Guan), 1 Xikang Road

Link to the map of the venue: <https://s.yicode.org.cn/ysdiiv>

Technical Session Group S1: Meeting Room 107 at the Yangtze Institute for Conservation & Development (Xin Xi Guan), 1 Xikang Road

Technical Session Group S2: Meeting Room 202 at the Yangtze Institute for Conservation & Development (Xin Xi Guan), 1 Xikang Road

Technical Session Group S3: Meeting Room 212 at the Yangtze Institute for Conservation & Development (Xin Xi Guan), 1 Xikang Road

Technical Session Group S4: Meeting Room 310 at the Yangtze Institute for Conservation & Development (Xin Xi Guan), 1 Xikang Road

Technical Session Group S5: Meeting Room 406 at the Yangtze Institute for Conservation & Development (Xin Xi Guan), 1 Xikang Road

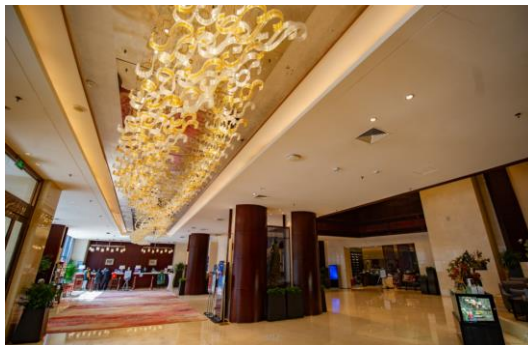
Accommodation:

Hohai International Conference Center & Hotel (Nanjing Juanheng Hotel) is located at 1 Xikang Road, Gulou District, Nanjing, next to Hohai University. It is located in the downtown of Nanjing. It takes just a 10 minutes' drive to Xinjiekou Business Center, 20 minutes to Nanjing Railway Station and Nanjing South Railway Station, and 50 minutes to Nanjing Lukou International Airport. The excellent position makes it an ideal lodging place for business, academic, and

Conference Information

sightseeing travelers.

The total area of the hotel is about 35,000 m². The hotel has 340 guest rooms of all types, including suite, deluxe room, superior room, standard room, etc. It features various types of conference rooms, full-time cafeteria, restaurants, banquet hall, and complete entertainment facilities. It is a multi-function hotel providing catering, accommodation, conference, tourism reception, education and training, international exchange services and other services.

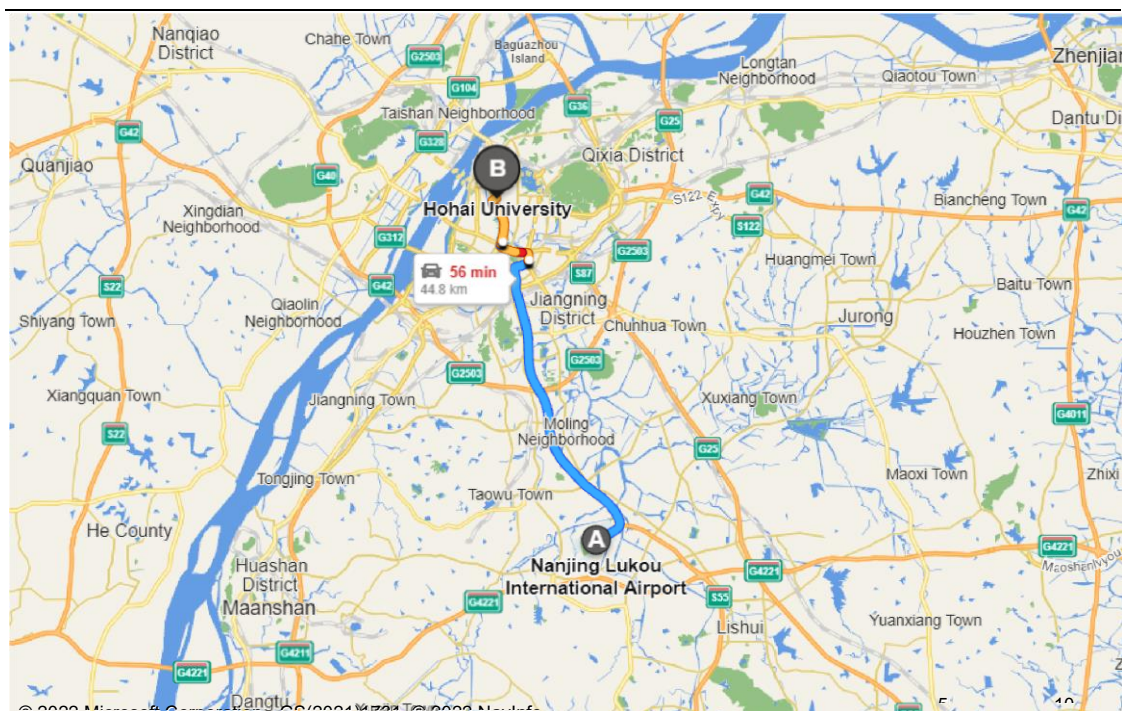


Transportation to the Venue & Hotel

1. From Nanjing Lukou International Airport

The venue is 45km from Nanjing Lukou International Airport. It costs about ¥ 100 by taxi to go to the venue from the airport. To reach the venue by public transportation, take Metro Line S1 from the airport to Nanjing South Railway Station (南京南站), change to Metro Line 1 to Gulou Station (鼓楼站), and change to Metro Line 4 to Caochangmen Station (南艺·二师·草场门站). Then take a 13min walk and get to Gate 2 of Hohai University.

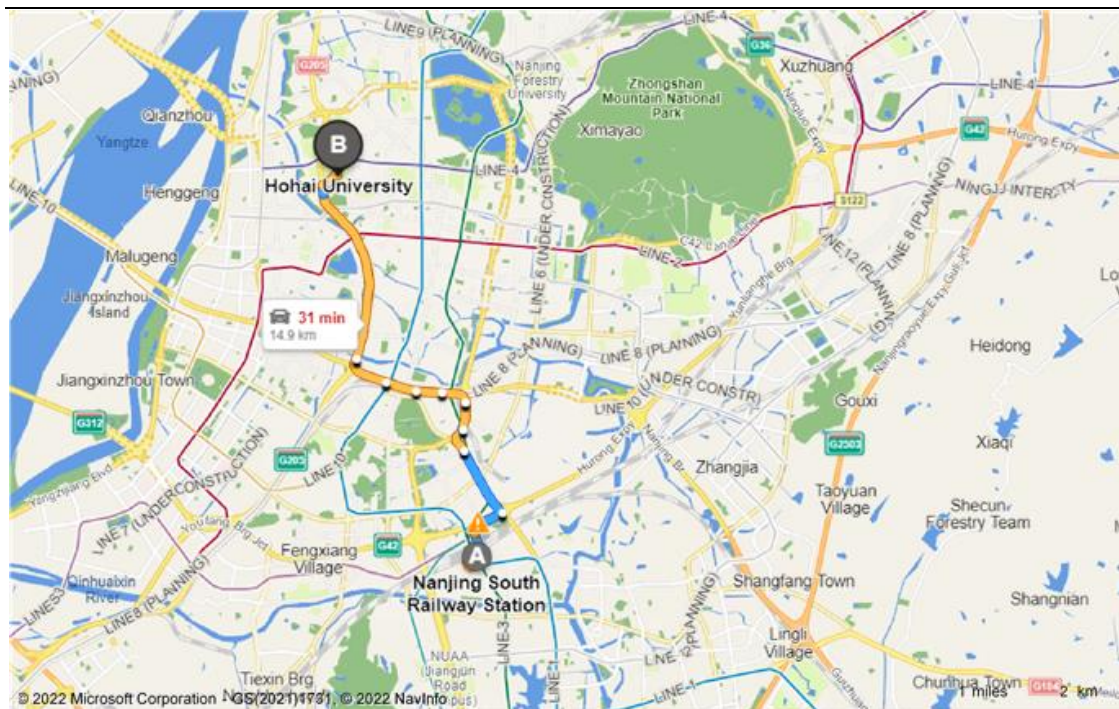
Conference Information



2. From Nanjing South Railway Station

The venue is 14km from Nanjing South Railway Station (南京南站). It costs about ¥40 to go to the venue by taxi from Nanjing South Railway Station. To reach the venue by public transportation, take Metro Line 1 from Nanjing South Railway Station (南京南站) to Gulou Station (鼓楼站), then change to Metro Line 4 to Caochangmen Station (南艺·二师·草场门站). Then take a 13min walk and get to Gate 2 of Hohai University.

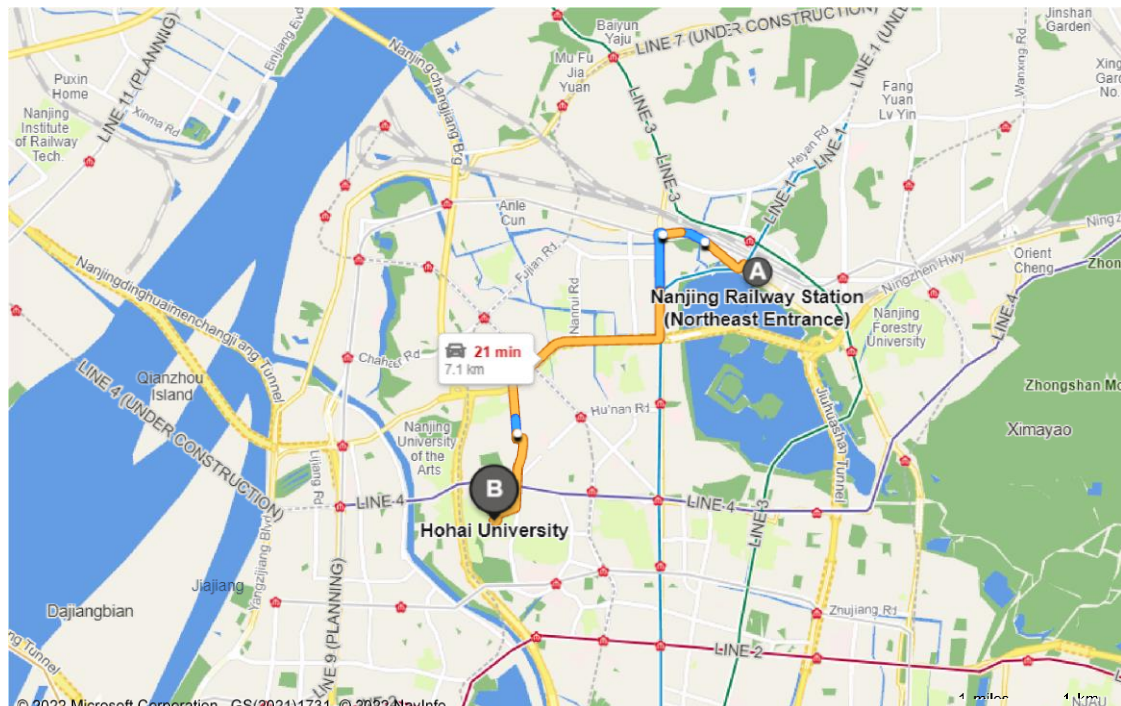
Conference Information



3. From Nanjing Railway Station

The venue is 10km from Nanjing Railway Station (南京站). It costs about ¥26 to go to the venue by taxi from Nanjing Railway Station. To reach the venue by public transportation, take Metro Line 1 from Nanjing Railway Station (南京站) to Gulou Station (鼓楼站), change to Metro Line 4 to Caochangmen Station (南艺·二师·草场门站). Then take a 13min walk and get to Gate 2 of Hohai University.

Conference Information



Program at a Glance

Note: This is an overview of the programs. The exact time of each session may be slightly earlier or later than shown in the table. Please refer to the List of Oral Presentations for the exact time of your presentation. All times here are **Beijing Time (+8)**. Please convert it to the time zone of your place.

| Time | Oct. 10th | Oct. 11th | Oct. 12th | Oct. 13th |
|-------------|---|------------------------------------|-------------------------------|------------------------------------|
| 09:00-10:00 | Onsite Registration & CNC-IAHS Ecohydrology Annual Symposium | Opening | | |
| 10:00-11:00 | | Keynote 1 | S1-4, S2-3, S3-3, S4-3, S5-3 | S2-7, S3-6, S4-7 |
| 11:00-12:00 | | Keynote 2 | S2-4, S3-4, S4-4, | S3-7, S4-8 |
| 12:00-14:00 | Lunch | | | |
| 14:00-15:00 | Registration | Keynote 3 | Keynote 4 | Keynote 5 |
| 15:00-16:00 | 14:30-18:00 Training Course (ECoENet) | S1-1, S2-1, S3-1, S4-1, S5-1 | S1-5, S2-5, S4-5, S5-4 | S1-8, S2-8, S3-8, S4-9, S5-7 |
| 16:00-17:00 | | S2-2, S5-2 | S1-6, S2-6, S3-5, S4-6, S5-5, | S2-9, S3-9, S4-10, S5-8 |
| 17:00-18:00 | | S1-2, S3-2, S4-2 | S5-6 | Closing |
| 18:00-22:00 | Dinner | | | |
| 22:00-23:00 | | S1-3 | S1-7 | |

Presentations are categorized in **5 groups**: **S1**: Hydrologic aspect of ecohydraulics; **S2**: Hydraulic aspect of ecohydraulics; **S3**: Ecohydraulics on micro-scale, **S4**: Ecohydraulics on macro-scale, **S5**: Applied Technology in Ecohydraulics. Each group includes 8-10 sessions. Each sessions includes 3-5 presentations. Please locate your presentation in the session lists.

Program at a Glance

| Oct 11 th | | | | | |
|----------------------|---------------------------|------------|-------------|-------------|------------|
| Theme | Hydrology | Hydraulics | Micro-scale | Macro-scale | Technology |
| 9:00-10:00 | Opening Ceremony | | | | |
| 10:00-11:00 | Keynote 1, Evelyn Habit | | | | |
| 11:00-12:00 | Keynote 2, Jinren Ni | | | | |
| Lunch | | | | | |
| 14:00-15:00 | Keynote 3, Thibault Datry | | | | |
| 15:00-16:00 | S1-1 | S2-1 | S3-1 | S4-1 | S5-1 |
| 16:00-17:00 | | S2-2 | | | S5-2 |
| 17:00-18:00 | S1-2 | | S3-2 | S4-2 | |
| Dinner | | | | | |
| 22:00-23:15 | S1-3 | | | | |

| Oct 12 th | | | | | |
|----------------------|--------------------------|------------|-------------|-------------|------------|
| Theme | Hydrology | Hydraulics | Micro-scale | Macro-scale | Technology |
| 9:00-10:00 | | | | | |
| 10:00-11:00 | S1-4 | S2-3 | S3-3 | S4-3 | S5-3 |
| 11:00-12:00 | | S2-4 | S3-4 | S4-4 | |
| Lunch | | | | | |
| 14:00-15:00 | Keynote 4, Brian D. Fath | | | | |
| 15:00-16:00 | S1-5 | S2-5 | | S4-5 | S5-4 |
| 16:00-17:00 | S1-6 | S2-6 | S3-5 | S4-6 | S5-5 |
| 17:00-18:00 | | | | | S5-6 |
| Dinner | | | | | |
| 22:00-23:00 | S1-7 | | | | |

| Oct 13 th | | | | | |
|----------------------|---------------------------|------------|-------------|-------------|------------|
| Theme | Hydrology | Hydraulics | Micro-scale | Macro-scale | Technology |
| 9:00-10:00 | | | | | |
| 10:00-11:00 | | S2-7 | S3-6 | S4-7 | |
| 11:00-12:00 | | | S3-7 | S4-8 | |
| Lunch | | | | | |
| 14:00-15:00 | Keynote 5, Taylor Maavara | | | | |
| 15:00-16:00 | S1-8 | S2-8 | S3-8 | S4-9 | S5-7 |
| 16:00-17:00 | | S2-9 | S3-9 | S4-10 | S5-8 |
| 17:00-18:00 | Closing Ceremony | | | | |

ECoENet workshop supported by YICODE and ECoENet

YICODE will support a one-day workshop for ECoENet oriented to Yangtze ecohydraulic research activities and relevant subjects. ECoENet is an international research consisting of research students and early career researchers (ECRs) working within Ecohydraulics and the wider river sciences. ECoENet aims to help ECRs find opportunities and overcome challenges as they begin their careers. We have placed emphasis on holding workshops where we involve ECRs in brainstorming sessions focused on identifying opportunities and challenges, either from their individual experiences or following ideas provoked by keynotes from established researchers. ECoENet aims to develop platform to help ECRs find opportunities and overcome challenges they identified by providing tools and resources. Through our close association with the ecohydraulics and wider river science communities, our members can have a real impact on the future direction of river science for the benefit of academic knowledge and environmental management outcomes. The findings of our first workshop at the International Symposium on Ecohydraulics (ISE 2016) identified that ECRs need to develop their careers on an international scale in a way that crosses traditional disciplinary boundaries.

Opening Ceremony

Opening Ceremony Speech

Oct 11th 9:00-9:15



Prof. Gregory Pasternack

University of California at Davis

Title of Speech:

Ecohydraulics Community: Past and Future

Personal Profile:

Gregory Pasternack is a professor of hydrology at University of California at Davis. He received M.S. in Environmental Water Resource Engineering at University of California, Berkeley, and Ph.D. in Geography and Environmental Engineering at Johns Hopkins University. His research interests include geomorphic and hydrologic characterization of the impacts of historic and modern human activities on watershed and estuarine processes, river restoration, watershed-estuarine interactions on multiple time scales, and wetland restoration. His career goal is to help society manage and restore hydrogeomorphic processes in support of enhanced ecosystem functioning. To reach this goal, his team adopts a combination of measures including (i) basic physical and ecological science to understand how the naturally complex landscape works, (ii) development of methods and software for designing more natural, functional environments, and (iii) technology transfer to get concepts, methods, and results into the hands of practitioners, regulators, and stakeholders. He is the current president of the Committee on Ecohydraulics of IAHR. The orientation of the committee consists in close collaborations with other international associations working in the field of aquatic ecosystems, in setting up speciality working groups on specific themes, and in working on state-of-the-art papers, monographs, guidelines for “end users”. The general aims are to bring specialists together in order to discuss, compare and evaluate methods in these fields, and to propose with recommendations for the end-users.

Plenary talk 1

Oct. 11th 10:00-11:00



Prof. Evelyn Habit

Universidad de Concepción, Chile

Title of the Speech:

Past, present and future connectivity of Chilean Andean Rivers: implications for fish conservation

Abstract:

Connectivity plays a crucial role in maintaining the structural and functional attributes of river networks and their biota. A proper understanding of the drivers affecting river connectivity, and thus, fish dynamics, requires consideration of both historical and contemporary processes. This information in turn provides evidence of how fish are likely to respond to future landscape changes. Results of researches using a multitemporal approach to examine the consequences of riverine connectivity alteration will be shown. In the past, events like the rise of the southern Andes and the Quaternary glacial cycles shaped riverine landscapes, influencing river connectivity, and affecting the phylogeographic and biogeographic patterns of its fish fauna. More recently, the global hydropower boom is acting as one of the main drivers of changes in connectivity (fragmentation), with significant effects on the diversity of riverine biota. Several examples of native Chilean species and how past and present river connectivity changes have affected their genetic composition, population and metapopulation structure, assemblage composition and beta diversity will be shown. Finally, implications for conserving a valuable endemic set of species for the expected loss of connectivity will be discussed.

Personal Profile:

Evelyn Habit is a fish biologist. She is a full professor at the Faculty of Environmental Science of Universidad de Concepción in Chile. Chile is a long, narrow country stretching over 6000 km on the western edge of South America between Andes the Pacific. It is on an active continental margin, featured by a young mountain belt, a magmatic belt, large areas of glaciers, and very active earthquakes and volcano eruptions. Evelyn Habit's research focuses on the roles of volcano eruption, glacier activity, and orogeny on fish ecosystem. She addresses questions related to human activities as drivers of the status of freshwater fish populations and communities, emphasizing the conservation of Chilean native species. She is interested in unravelling the effects of multiple stressors on riverine watersheds studying responses at different ecological levels and spatial and temporal scales. She is particularly interested in understanding the impacts of invasive species, flow regime alterations, physical connectivity changes and climate change in Andean and Patagonian river watersheds.

Keynote Speeches

Plenary talk 2

Oct. 11th 11:00-12:00



Prof. Jinren Ni

Peking University, China

Title of the Speech:

Research of river sustainability using all material flux indices in river ecosystems

Personal Profile:

Jinren Ni is a river scientist at Department of Environmental Engineering of Peking University. His research interests include river sustainability, water treatment, and sediment transport. He has published more than 200 peer-reviewed papers and has been awarded more than 50 patents. He serves on editorial boards of seven international journals. He has been one of the founding directors of Institute of Environmental Engineering, Department of Environmental Engineering, Key Laboratory of Water and Sediment Sciences (Ministry of Education), National Metrology Certification Laboratory of Environmental Engineering at Peking University, and Beijing Engineering Technology Research Center for Advanced Wastewater Treatment. He put forward the idea of all material fluxes in river ecosystems, which provides insights into the interaction among various biotic and abiotic materials (e.g. water, sediment, natural organic matter, pollutants) transported by rivers. He led a team to survey and monitor all material fluxes in the Yellow River, the Yangtze River, the Lancang River (Mekong River), and the Nu River (Salween River) to quantify the effects of human activities such as irrigation, dam building, and pollution on river ecosystems. In the spatial direction, hydraulic and ecological processes in the hyporheic zone have been paid attention to; in the temporal direction, changes in river patterns and transformation of river functions have been taken notice of.

Plenary talk 3

Oct. 11th 14:00-15:00



Prof. Thibault Datry

French National Research Institute for Agriculture, Food and the Environment, Lyon, France

Title of the Speech:

Intermittent rivers and ephemeral streams: a challenge for freshwater science

Abstract:

For several centuries, freshwater research has focused on perennial rivers and streams which flow all year round. However, those which don't, because they cease to flow or dry up completely at some stage in space and time, (hereafter intermittent rivers and ephemeral streams, IRES), are a very recent addition to the field, although they comprise more than half of the global river network and dominate in many areas, including Mediterranean regions. Concepts that have guided studies of biological communities and biogeochemical fluxes, and material exchange between rivers and the atmosphere, land, ocean and groundwater presume perennial flow and continuous hydrological connectivity. In IRES, the loss of hydrological continuity affects virtually all ecological processes, including the evolution, dispersal and habitat selection of aquatic and terrestrial species. In this keynote, I will discuss the challenges that IRES pose to river sciences and present why advancing IRES research is needed for improving the management of river networks in the Anthropocene era.

Personal Profile:

Thibault Datry is a freshwater scientist at INRAE (French National Research Institute for Agriculture, Food and the Environment) leading the EcoFlowS lab in Lyon, France. His research focuses on the ecology of rivers and hyporheic zones, with particular emphasis on intermittent rivers and ephemeral streams. He has passion for understanding the effects of natural and anthropogenic changes on community and ecosystem processes at multiple scales and translating it into tools and guidelines for water managers. He is developing international research programs at the global scale, while his primary study area primarily includes lotic and lentic ecosystems in France, New Zealand and Bolivia, where he has active collaborations and frequent visits. In the past 15 years, he has published over 100 peer-reviewed papers related to stream and groundwater ecology and edited with two colleagues (and friends) the first book on the science and management of intermittent rivers and ephemeral streams. He serves on editorial boards of four international journals, organized two Special Issues and more than twenty Special Sessions on intermittent river ecology management at international conferences.

Plenary talk 4

Oct. 12th 14:00-15:00



Prof. Brian D. Fath

Towson University, Maryland, USA

Title of the Speech:

Conbiotic gradient formation in soils and drainage basins: evidence of win-win ecological interactions

Abstract:

The earth is a living planet and life processes influence all aspects of it. In this presentation, we introduce the concept of conbiota (with life) to replace the antiquated and reductionistic term abiota (without life). These conbiotic interactions often result in synergistic outcomes that improve both the life and environment relations. Soil formation is one of the best examples, through ecological succession, of improving conditions that further life processes. We question how humans can learn from nature to design and develop, evolve and inform, more synergistic and sustainable socio-ecological relations.

Personal Profile:

Brian D. Fath is a Professor in the Department of Biological Sciences at Towson University (Maryland, USA). He has published over 180 research papers, reports, and book chapters on environmental systems modeling. His research focuses on sustainability science, which is a critically important area that encompasses a broad range of research interests including ecosystem services, biodiversity, natural resources, human cultures, and specific environments. He uses network analysis to investigate thermodynamic sustainability indicators. These indicators are often referred to as ecological goal functions, which are used to describe the direction of development that ecosystem properties such as energy or exergy flow, biomass production, or respiration undergo during succession. These metrics help understand the overall behavior and health of that system and its response due to perturbations. A main advantage of using network analysis is the ability to view the ecosystem as a connected web of interactions. He prefers to regard it as a more holistic approach because it considers the behavior of individual compartments as embedded in a larger network of interactions. He is also interested in how ecosystems interact with human systems and vice versa. Integrated environmental assessment is an interdisciplinary and social process linking knowledge and action in public policy aimed at identifying and analyzing interactions of natural and human processes which determine both the current and future states of environmental quality.

Plenary talk 5

Oct. 13th 14:00-15:00



Prof. Taylor Maavara

University of Leeds, UK

Title of the Speech:

Carbon cycling in inland waters

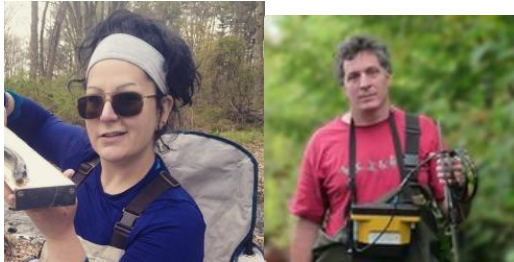
Personal Profile:

Taylor Maavara is a research scientist in the School of Geography at the University of Leeds. She is an aquatic biogeochemist, studying a range of perturbations to nutrient and carbon cycles in inland and near-coastal waters, including river damming and climate change. She received her PhD in 2017 from the University of Waterloo in Canada, where she studied the impacts of river damming on global biogeochemical cycles in rivers, reservoirs and coastal zones, including nitrogen, phosphorus, carbon and silicon. She completed her postdoctoral fellowships at Lawrence Berkeley National Laboratory in California, studying the impacts of climate change on high altitude river network nitrogen cycling, and at Yale University in Connecticut studying carbon cycling and greenhouse gas emissions in large river networks. She is both a field researcher and modeler, with a particular expertise on developing novel scaling techniques to quantify watershed- to global-scale anthropogenic impacts and feedbacks. Lately, she is interested in quantifying the mechanisms driving greenhouse gas emissions from inland waters by building high spatiotemporal resolution models of entire river networks. At Leeds, she is also working to understand whether dam management can be used advantageously to mitigate changes to river nutrient cycles and greenhouse gas emissions.

Closing Ceremony

Closing Ceremony Speech

Oct 13th 17:00-17:15



Prof. Valérie Ouellet

Prof. André St-Hilaire

Title of Speech:

ISE2024: Quebec City, Canada eagerly awaits your arrival!

The next edition of International Symposium on Ecohydraulics will be held in 2024 in Quebec City, Canada. Prof. Valérie Ouellet and Prof. André St-Hilaire are invited to give a talk about ISE 2024.

Abstract:

ISE2024 will be held in Québec City, Canada. Québec City was founded in 1608, and is a UNESCO Heritage Site. Our city is known for its historic charm and unique architecture, with over 400 years of French history and culture. The downtown core is unique, with a blend of French and British architectures, scenic viewpoints and breathtaking views of the famous and majestic St. Lawrence River. It is thus an ideal site to host our conference. In addition to the usual research themes that are part of every ISE conference (e.g., hydraulic modelling, fish passage, morphodynamics, habitat modelling, etc.) sessions related to the use of citizen science and traditional knowledge, remote sensing, fish habitat and hydropower will be held. Please join us in 2024!

Personal Profiles:

Valérie Ouellet is a Diadromous Species Scientist working in NOAA Fisheries. She works on understanding how different environmental variables, such as water temperature and flow, affect the habitat and physiology of key fish species. She aims to understand how aquatic ecosystems are changing to inform on restoration strategies and aquatic resources management, especially in the context of human-impacted systems and climate change. She is now focussing on diadromous fish, their interactions, and how the changes in marine and freshwater ecosystems affect their productivity.

Dr. André St-Hilaire is a professor in Hydrology at INRS, Université du Québec in Québec City. He is a member of the Hydroclimatic Statistics Research Group at that same university. He holds a BSc in Physics and Oceanography from Royal Roads Military College (BC), a Masters of Applied Sciences in estuarine hydrodynamics from Université de Moncton and a PhD in Water Science from INRS. His current research focuses on environmental hydrology, with an emphasis on hydrological extremes as well as hydrological, habitat and water quality modelling with recent developments in water temperature and river sediment.

Session List

| Session ID | Contents |
|------------------|---|
| Keynote 1 | Title: Past, present and future connectivity of Chilean Andean Rivers: implications for fish conservation Speaker: Evelyn Habit |
| Keynote 2 | Title: Research of river sustainability using all material flux indices in river ecosystems Speaker: Jinren Ni |
| Keynote 3 | Title: Intermittent rivers and ephemeral streams: a challenge for freshwater science Speaker: Thibault Datry |
| Keynote 4 | Title: Conbiotic gradient formation in soils and drainage basins: evidence of win-win ecological interactions Speaker: Brian D. Fath |
| Keynote 5 | Title: Carbon cycling in inland waters Speaker: Taylor Maavara |

Session List

| Session ID | Contents |
|-------------------------------|--|
| Session 1-1 (S1-1) | <p>Title: Special Session: Integrating Ecohydraulics and Ecohydrology in Environmental Flow Assessment and implementation (1)</p> <p>Conveners: Francisco Martinez-Capel, Universitat Politècnica de València, Spain; Shinji Fukuda, Tokyo University of Agriculture and Technology, Japan; Michael McClain, IHE Delft Institute for Water Education, the Netherlands; Daniele Tonina, University of Idaho, USA</p> |
| Session 1-2 (S1-2) | <p>Title: Environmental Flow (1)</p> <p>Chair: Silvia Quadroni, University of Insubria, Italy</p> |
| Session 1-3 (S1-3) | <p>Title: Special Session: Integrating Ecohydraulics and Ecohydrology in Environmental Flow Assessment and Implementation (2)</p> <p>Conveners: Francisco Martinez-Capel, Universitat Politècnica de València, Spain; Shinji Fukuda, Tokyo University of Agriculture and Technology, Japan; Michael McClain, IHE Delft Institute for Water Education, the Netherlands; Daniele Tonina, University of Idaho, USA</p> |
| Session 1-4 (S1-4) | <p>Title: Special Session: Sustainability of Ecology and Hydrology of Floodplain Lake Systems of the Large River Basins under Rapidly Changing Climatic and Social Dimensions</p> <p>Conveners: Giri R Kattel, Nanjing University of Information Science and Technology, Nanjing, China; University of Melbourne, Melbourne, Australia; Zhiguo Yu, Nanjing University of Information Science and Technology, Nanjing, China; Hong Yang, University of Reading, Reading, United Kingdom</p> |
| Session 1-5 (S1-5) | <p>Title: Environmental Flow (2)</p> <p>Chair: Lotta Blaskovicova, Slovak Hydrometeorological Institute, Slovakia</p> |
| Session 1-6 (S1-6) | <p>Title: Hydropeaking</p> <p>Chair: Daniel Hayes, University of Natural Resources and Life Sciences, Austria</p> |
| Session 1-7 (S1-7) | <p>Title: Special Session: Hydrological Connectivity of River Ecosystems</p> <p>Conveners: Shanghong Zhang, North China Electric Power University, Beijing, China; Silke Wieprecht, University of Stuttgart, Stuttgart, Germany; Yujun Yi, Beijing Normal University, Beijing, China; Sebastian Schwindt, University of Stuttgart, Stuttgart, Germany; Jin Zhang, Yantai University, Yantai, China</p> |
| Session 1-8 (S1-8) | <p>Title: Effect of Climate Change on Ecology</p> <p>Chair: Francisco Martinez Capel, Universitat Politècnica de València, Spain</p> |

Session List

| Session ID | Contents |
|-------------------------------|--|
| Session 2-1 (S2-1) | Title: Sediment-Ecology Interaction Chair: Xiongdong Zhou, Tsinghua University, China |
| Session 2-2 (S2-2) | Title: Land Surface Process and Environmental Changes (1) Chair: Ruiyu Wang, Tsinghua University, China |
| Session 2-3 (S2-3) | Title: Land Surface Process and Environmental Changes (2) Chair: Qing Feng, Yellow River Institute of Hydraulic Research, China |
| Session 2-4 (S2-4) | Title: Special Session: Ecohydraulics of Hyporheic Zone in River, Estuarine and Coastal Sediments (1) Conveners: Alessandra Marzadri, University of Trento, Italy; James Stegen, Pacific Northwest National Laboratory, USA; Xiaobing Chen, Hohai University, China; Daniele Tonina, University of Idaho, USA |
| Session 2-5 (S2-5) | Title: Special Session: Ecohydraulics of Hyporheic Zone in River, Estuarine and Coastal Sediments (2) Conveners: Alessandra Marzadri, University of Trento, Italy; James Stegen, Pacific Northwest National Laboratory, USA; Xiaobing Chen, Hohai University, China; Daniele Tonina, University of Idaho, USA |
| Session 2-6 (S2-6) | Title: Effect of Organism on Flow (1) Chair: Yi Rong, The Hong Kong Polytechnic University, China |
| Session 2-7 (S2-7) | Title: Effect of Organism on Flow (2) Chair: Zhan Hu, Sun Yat-Sen University, China |
| Session 2-8 (S2-8) | Title: Special Session: Ecohydraulics of Hyporheic Zone in River, Estuarine and Coastal Sediments (3) Conveners: Alessandra Marzadri, University of Trento, Italy; James Stegen, Pacific Northwest National Laboratory, USA; Xiaobing Chen, Hohai University, China; Daniele Tonina, University of Idaho, USA |
| Session 2-9 (S2-9) | Title: Plastic Particles Chair: Xinjie Wang, Beijing Normal University, China |

Session List

| Session ID | Contents |
|-------------------------------|---|
| Session 3-1 (S3-1) | Title: Effect of Flow Condition on Organism Chair: Yujun Yi, Beijing Normal University, China |
| Session 3-2 (S3-2) | Title: Fish Passage (1) Chair: Jeffrey Tuhtan, Tallinn University of Technology, Estland |
| Session 3-3 (S3-3) | Title: Turbulence-Organism Interaction Chair: Rafael Tinoco, University of Illinois At Urbana Champaign, USA |
| Session 3-4 (S3-4) | Title: Fish Passage (2) Chair: Paul Franklin, National Institute of Water and Atmospheric Research, New Zealand |
| Session 3-5 (S3-5) | Title: Fish Passage (3) Chair: Helmut Mader, University of Natural Resources and Life Sciences, Austria |
| Session 3-6 (S3-6) | Title: Special Session: Physical, Chemical, and Biological Aspects of Transport Processes in Aquatic Ecosystems (1) Conveners: Zi Wu, Tsinghua University, Beijing, China; Marwan Hassan, The University of British Columbia, Vancouver, Canada; Li Zeng, China Institute of Water Resources and Hydropower Research, Beijing, China; Ping Wang, Beijing Forestry University, Beijing, China |
| Session 3-7 (S3-7) | Title: Special Session: Physical, Chemical, and Biological Aspects of Transport Processes in Aquatic Ecosystems (2) Conveners: Zi Wu, Tsinghua University, Beijing, China; Marwan Hassan, The University of British Columbia, Vancouver, Canada; Li Zeng, China Institute of Water Resources and Hydropower Research, Beijing, China; Ping Wang, Beijing Forestry University, Beijing, China |
| Session 3-8 (S3-8) | Title: Special Session: Physical, Chemical, and Biological Aspects of Transport Processes in Aquatic Ecosystems (3) Conveners: Zi Wu, Tsinghua University, Beijing, China; Marwan Hassan, The University of British Columbia, Vancouver, Canada; Li Zeng, China Institute of Water Resources and Hydropower Research, Beijing, China; Ping Wang, Beijing Forestry University, Beijing, China |
| Session 3-9 (S3-9) | Title: Fish Passage (4) Chair: Marie Pierre Gosselin, Norwegian Institute for Nature Research, Norway |

Session List

| Session ID | Contents |
|---------------------------------|--|
| Session 4-1 (S4-1) | Title: Management and Restoration of River Channel and Riparian Zone (1) Chair: Giuseppe Francesco Cesare Lama, University of Napoli Federico II, Italy |
| Session 4-2 (S4-2) | Title: Management and Restoration of River Channel and Riparian Zone (2) Chair: Paolo Vezza, Politecnico di Torino, Italy |
| Session 4-3 (S4-3) | Title: Wetland Management and Restoration Chair: Shan He, Changjiang River Scientific Research Institute, China |
| Session 4-4 (S4-4) | Title: Sustainable Design in Ecohydraulics Chair: Gregory Pasternack, University of California, U.S.A. |
| Session 4-5 (S4-5) | Title: Aquatic Ecology and Water Health (1) Chair: Jiahao Zhang, Tsinghua University, China |
| Session 4-6 (S4-6) | Title: Coastal and Estuarine Ecohydraulics Chair: Yue Zhu, University of Nottingham Ningbo, China |
| Session 4-7 (S4-7) | Title: Aquatic Ecology and Water Health (2) Chair: Hamed Khorasani, University of Buffalo, U.S.A. |
| Session 4-8 (S4-8) | Title: Eco-Environmental Impact of High Dam and Large Reservoir Chair: Martin Hunt, Manitoba Hydro-Electric Board, Canada |
| Session 4-9 (S4-9) | Title: Risk Reduction in Ecosystem Chair: Kazuaki Ohtsuki, University of Yamanashi, Japan |
| Session 4-10 (S4-10) | Title: Eco-Environmental Impact of Human Activities Chair: Na Zhao, Henan University of Science and Technology, China |

Session List

| Session ID | Contents |
|-------------------------------|--|
| Session 5-1 (S5-1) | Title: Remote Sensing Chair: Frederic de Schaetzen, ETH Zürich, Switzerland |
| Session 5-2 (S5-2) | Title: Ecohydraulics Modelling on Various Scales Chair: Matthias Schneider, SJE Ecohydraulic Engineering GmbH, Germany |
| Session 5-3 (S5-3) | Title: Genomics and Bioinformatics Chair: Sakiko Yaegashi, University of Yamanashi, Japan |
| Session 5-4 (S5-4) | Title: Experimental Ecohydraulics (1) Chair: Ingo Schnauder, Technische Universität Wien, Austria |
| Session 5-5 (S5-5) | Title: Experimental Ecohydraulics (2) Chair: Katharina Bensing, Technical University of Darmstadt, Germany |
| Session 5-6 (S5-6) | Title: Habitat Modelling of Concerned Species Chair: Hannah Schwedhelm, Technical University Munich, Germany |
| Session 5-7 (S5-7) | Title: Novel Software Applied in Ecohydraulics Chair: Araceli Martín Candilejo, Polytechnical University of Madrid, Spain |
| Session 5-8 (S5-8) | Title: Data-driven and Knowledge Based Modelling Chair: Richard Hedger, Norwegian Institute for Nature Research, Norway |

| Session Name | | S1-1: Special Session: Integrating Ecohydraulics and Ecohydrology in Environmental Flow Assessment and implementation (1) | |
|---------------------|-----------|---|-------------------|
| Conveners | | Francisco Martinez-Capel, Shinji Fukuda, Michael McClain, Daniele Tonina | |
| Time | ID | Title | Presenter |
| 15:00 | S1-1-1 | Habitat suitability-based effective number as a tool for assessing fish species diversity | Akihiro Tanaka |
| 15:15 | S1-1-2 | 2D hydrodynamic modeling for fish habitat assessment of two competing freshwater fish in the Yagawa River | Takahiko Kawasaki |
| 15:30 | S1-1-3 | Development of a population dynamics model for dark chub (<i>candidia temminckii</i>) in a small spring-fed river using habitat suitability | Taichi Jibiki |
| 15:45 | S1-1-4 | Defining environmental flows for India using the habitat simulation model, MesoHABSIM | Piotr Parasiewicz |

| Session Name | | S1-2: Environmental Flow (1) | |
|---------------------|-----------|--|---------------------|
| Chair | | Silvia Quadroni | |
| Time | ID | Title | Presenter |
| 17:00 | S1-2-1 | Evaluation of future climate and potential impact on streamflow in the upper Oti River Basin of northern Togo | Batablinè Lamboni |
| 17:15 | S1-2-2 | Development of scientific approaches for environment flows assessment in Ukraine | Viacheslav Manukalo |
| 17:30 | S1-2-3 | Towards an upgrading of minimum flows: the ecological effects of summer low flows in a regulated lowland river | Silvia Quadroni |
| 17:45 | S1-2-4 | Hydrodynamic preferences of Chinese sturgeon in the spawning sites of Yangtze River: effects of in-stream hydraulic structures | Xuan Ban |

Oral Presentation –Oct. 11th

| Session Name | S1-3: Special Session: Integrating Ecohydraulics and Ecohydrology in Environmental Flow Assessment and implementation (2) | | |
|---------------------|--|---|---|
| Conveners | Francisco Martinez-Capel, Shinji Fukuda, Michael McClain, Daniele Tonina | | |
| Time | ID | Title | Presenter |
| 22:00 | S1-3-1 | Integrated modelling and monitoring of e-flows regulation in a Swiss Alpine river | Caponi Francesco |
| 22:15 | S1-3-2 | Flood events as restoration tools | Jhoselyn Milagros Aramburu Pauca |
| 22:30 | S1-3-3 | IHA analyzes and environmental flow in the upper Paraná fluvial macrosystem (PR-MS-Brazil) | Jose Antonio Arenas Ibarra |
| 22:45 | S1-3-4 | Environmental flow regime prescription transfer along a river basin | Rui Rivaes |
| | | | |
| Session Name | S2-1: Sediment-ecology Interaction | | |
| Chair | Xiongdong Zhou | | |
| Time | ID | Title | Presenter |
| 15:00 | S2-1-1 | The impact of land reclamation on ecosystem under a highly energetic coastal circulation with massive macro-vortices | Chang He |
| 15:15 | S2-1-2 | Impact of hydropowering on spawning substrate of fish | Ishwar Joshi |
| 15:30 | S2-1-3 | Impacts of environmental factors on dynamics of particulate organic carbon adsorption on sediments | Yuyang Wu |
| 15:45 | S2-1-4 | Effects of bottom shear stress on sediment resuspension and concomitant diffusion of nitrogen and phosphorus: a case study of Chaohu Lake | Lei Wu |

Oral Presentation –Oct. 11th

| | | | | |
|--------------|--------|--|-------------------|--|
| Session Name | | S2-2: Land Surface Process and Environmental Changes (1) | | |
| Chair | | Ruiyu Wang | | |
| Time | ID | Title | Presenter | |
| 16:00 | S2-2-1 | Preliminary theoretical analysis of morphologic features of alpine glaciers and ice caps | Ruiyu Wang | |
| 16:15 | S2-2-2 | Recurrence of flood and sediment yield of historical heavy rain on underlying surface in different periods | Wenxing Lv | |
| 16:30 | S2-2-3 | Carbon export from permafrost catchments of the Qinghai-Tibet Plateau | Chunlin Song | |
| 16:45 | S2-2-4 | Effects of hydrological processes on surface and subsurface nitrogen losses from purple soil slopes | Meixiang Xie | |
| Session Name | | S3-1: Effect of Flow Condition on Organism | | |
| Chair | | Yujun Yi | | |
| Time | ID | Title | Presenter | |
| 15:00 | S3-1-1 | Benchmarking 3D CFD for studies on turbulent flow around fish shaped bodies | Ali Hassan Khan | |
| 15:15 | S3-1-2 | Negative effects of parasite exposure and variable thermal stress on brown trout (<i>Salmo trutta</i>) under future climatic and hydropower production scenarios | Roser Casas-Mulet | |
| 15:30 | S3-1-3 | Movement behavior during simulated hydropeaking - an imaging-based tracking approach | Robert Naudascher | |
| 15:45 | S3-1-4 | Development of PIV-based techniques for measurements of instantaneous drag and fish-flow energy exchanges | Miriam Castagna | |
| 16:00 | S3-1-5 | Investigation on the impact of underwater noise from ships in the upper Yangtze River | Hongbo Du | |

Session Name **S3-2: Fish Passage (1)**

Chair **Jeffrey Tuhtan**

| Time | ID | Title | Presenter |
|-------------|-----------|---|-----------------------|
| 17:00 | S3-2-1 | Smart fish counter for monitoring species, size, migration behaviour and environmental conditions | Jeffrey Tuhtan |
| 17:15 | S3-2-2 | Fish swimming performance: effect of flume length and different fatigue definitions | Muhammad Usama Ashraf |
| 17:30 | S3-2-3 | The RETERO project: 3R motivated risk assessment methods for downstream fish passage through hydraulic structures | Stefan Hoerner |
| 17:45 | S3-2-4 | Experimental study of turbulent flow in a vertical double slot fishway: influence of flow discharge and slope | Anne Fleur Lejeune |

Session Name **S4-1: Management and Restoration of River Channel and Riparian Zone (1)**

Chair **Giuseppe Francesco Cesare Lama**

| Time | ID | Title | Presenter |
|-------------|-----------|---|--------------------------------|
| 15:00 | S4-1-1 | Restoration of channel meandering using current deflectors | Yuan Pi |
| 15:15 | S4-1-2 | Research on natural fish habitat restoration techniques in pool-riffles | Huan Lin |
| 15:30 | S4-1-3 | Evaluating the effects of heat transfer in riparian vegetation canopy on vegetated flows' hydrodynamic | Giuseppe Francesco Cesare Lama |
| 15:45 | S4-1-4 | Optimal regulation of river ecology based on coupling simulation of water quantity and water quality | Wenqi Wang |
| 16:00 | S4-1-5 | Integration of environmental fluvial assessment with flooding analysis for restoration of urban rivers' systems | José-Luis Molina |

Oral Presentation –Oct. 11th

| Session Name | | S4-2: Management and Restoration of River Channel and Riparian Zone (2) | |
|---------------------|-----------|--|------------------|
| Chair | | Paolo Vezza | |
| Time | ID | Title | Presenter |
| 17:00 | S4-2-1 | Extending meso-scale habitat models to temporary rivers: possible approaches and software applications | Paolo Vezza |
| 17:15 | S4-2-2 | Morphological quality and macroinvertebrate diversity of the gravel-bed Shiting River Sichuan after the 2008 Wenchuan Earthquake | Songyi Li |
| 17:30 | S4-2-3 | Quantity analysis the channel habitat quality using an ecohydraulic model | Yike Li |
| 17:45 | S4-2-4 | What drives the plant distribution in the riparian zone of the Three Gorges Reservoir, China | Shanze Li |

| Session Name | | S5-1: Remote Sensing | |
|---------------------|-----------|--|-----------------------|
| Chair | | Frederic de Schaetzen | |
| Time | ID | Title | Presenter |
| 15:00 | S5-1-1 | Using Airborne LiDAR Bathymetry-aided transfer learning method in riverine land cover classification | Shijun Pan |
| 15:15 | S5-1-2 | Using cameras to study drift patterns – RODI: Riverine Organism Drift Imager | Frederic de Schaetzen |
| 15:30 | S5-1-3 | Preliminary application of instance segmentation for monitoring diurnal activity of freshwater fish | Wataru Ishikawa |
| 15:45 | S5-1-4 | Testing of UAV surveys for the mapping and monitoring of freshwater pearl mussel populations in Norway | Marie Gosselin |

Session Name **S5-2: Ecohydraulics Modelling on Various Scales**

Chair **Matthias Schneider**

| Time | ID | Title | Presenter |
|-------------|-----------|---|----------------------------|
| 16:00 | S5-2-1 | Utilization of computational intelligence approaches to estimate the flow coefficient of labyrinth weir | Faris Belaabed |
| 16:15 | S5-2-2 | Investigation of canoeing impact on fish by use of habitat modeling | Matthias Schneider |
| 16:30 | S5-2-3 | Simulation of flow around collocated bridge piers with pile cap | Mohammad Tavakol Sadrabadi |
| 16:45 | S5-2-4 | Study on water environment simulation and prediction in Sanhekou Reservoir area | Naihao Tan |
| 17:00 | S5-2-5 | Hydraulic impact on fish migration in Sariakandhi Fish Pass of Bangladesh | Bijoy Kumar Ghosh |

Oral Presentation –Oct. 12th

Session Name **S1-4: Special Session: Sustainability of Ecology and Hydrology of Floodplain Lake Systems of the Large River Basins under Rapidly Changing Climatic and Social Dimensions**

Conveners **Giri R Kattel, Zhiguo Yu, Hong Yang**

| Time | ID | Title | Presenter |
|-------|--------|--|---------------|
| 10:00 | S1-4-1 | Responses of microbial communities to varying terminal electron acceptors in peatlands and the production of CH ₄ and CO ₂ | Sadaf Shabbir |
| 10:15 | S1-4-2 | How resilient are waterways of Asian Himalayas? finding adaptive measures for future sustainability | Giri Kattel |
| 10:30 | S1-4-3 | Resilience of lacustrine phytoplankton community to the short-term river-to-lake water diversion | Jiangyu Dai |
| 10:45 | S1-4-4 | Floodplain reconnection for salmonid habitat restoration in California, USA | Mark Tompkins |

Session Name **S1-5: Environmental Flow (2)**

Chair **Lotta Blaskovicova**

| Time | ID | Title | Presenter |
|-------|--------|--|---------------------|
| 15:00 | S1-5-1 | Environmental flow assessment for a green small hydropower plant using hydraulic-habitat modelling with a focus on the benthic macroinvertebrate community | Shuyi Hu |
| 15:15 | S1-5-2 | How seasonal variation of streamflow affects aquatic macroinvertebrate communities | Wei Liu |
| 15:30 | S1-5-3 | Low-flow data analysis as an input for e-flow limits selection in Slovakia | Lotta Blaskovicova |
| 15:45 | S1-5-4 | Assessing environmental flow in a river basin of eastern India | Smaranika Mahapatra |

Oral Presentation –Oct. 12th

| Session Name | | S1-6: Hydropeaking | |
|---------------------|-----------|---|------------------|
| Chair | | Daniel Hayes | |
| Time | ID | Title | Presenter |
| 16:00 | S1-6-1 | Fish Escaping Routes – FiER: Modelling escaping routes for fish larvae under rapid flow changes during hydropeaking | Luiz G M Silva |
| 16:15 | S1-6-2 | Effects of artificial flow reduction on stranding of larval nase (<i>Chondrostoma nasus</i> L.) under experimental conditions | Simon Fuehrer |
| 16:30 | S1-6-3 | Application of the Building Block Approach to generating a natural flow regime in a regulated river | Sung-Uk Choi |
| 16:45 | S1-6-4 | Hydropeaking in Himalayan Rivers associated effect on aquatic life, flood management and sediment transport | Siba Sen |
| 17:00 | S1-6-5 | Ecohydraulic experiments with cyprinid larvae in a nature-like outdoor facility – first insights from hydropeaking trials to quantify fish stranding at different gravel bar setups | Daniel Hayes |

| Session Name | | S1-7: Special Session: Hydrological Connectivity of River Ecosystems | |
|---------------------|-----------|---|----------------------------|
| Conveners: | | Shanghong Zhang, Silke Wieprecht, Yujun Yi, Sebastian Schwindt, Jin Zhang | |
| Time | ID | Title | Presenter |
| 22:00 | S1-7-1 | New methods for connectivity assessments of river ecosystems | Sebastian Schwindt |
| 22:15 | S1-7-2 | How meander cutoff reshapes the trophic characteristics of macroinvertebrates in the upper Yellow River Basin | Xiongdong Zhou |
| 22:30 | S1-7-3 | How a barrage and spur dikes affect <i>megaloforma terminalis</i> spawning sites at the Beijiag River (China) | Xiyan Yang |
| 22:45 | S1-7-4 | Hydrological connectivity promotes coalescence of bacterial communities in a floodplain | Baozhu Pan |
| 23:00 | S1-7-5 | Hydrological connectivity in the upper Parana fluvial macrosystem: Influence of upstream dams (1964-2019) | Jose Antonio Arenas Ibarra |

Oral Presentation –Oct. 12th

| Session Name | | S2-3: Land Surface Process and Environmental Changes (2) | |
|---------------------|-----------|---|------------------|
| Chair | | Qing Feng | |
| Time | ID | Title | Presenter |
| 10:00 | S2-3-1 | Modeling the influence of sea level rise on the turbidity maximum of the Qiantang Estuary | Dongfeng Xie |
| 10:15 | S2-3-2 | A review of sediment reduction benefits of soil and water conservation measures in China | Jingjing Xu |
| 10:30 | S2-3-3 | Experimental study on the maximum possible scouring depth in Baotou reach of the Yellow River | Qing Feng |

| Session Name | | S2-4: Special Session: Ecohydraulics of Hyporheic Zone in River, Estuarine and Coastal Sediments (1) | |
|---------------------|-----------|---|------------------|
| Conveners | | Alessandra Marzadri, James Stegen, Xiaobing Chen, Daniele Tonina | |
| Time | ID | Title | Presenter |
| 11:00 | S2-4-1 | Characteristic of groundwater-surface water interaction and function degradation of hyporheic zone in karst springs | Fang Guo |
| 11:15 | S2-4-2 | Nitrous oxide emissions under low flow conditions in streams | Daniele Tonina |
| 11:30 | S2-4-3 | Determination of the streambed hydraulic conductivity across an entire stream network | Jie Yin |
| 11:45 | S2-4-4 | Impacts of drying on hyporheic zone biogeochemistry | James Stegen |

| Session Name | | S2-5: Special Session: Ecohydraulics of Hyporheic Zone in River, Estuarine and Coastal Sediments (2) | |
|---------------------|-----------|--|---------------------|
| Conveners | | Alessandra Marzadri, James Stegen, Xiaobing Chen, Daniele Tonina | |
| Time | ID | Title | Presenter |
| 15:00 | S2-5-1 | Effect of vegetation cover on hyporheic velocity and phosphorus removal in a pool-riffle sequence | Fazele Kabiri |
| 15:15 | S2-5-2 | Effect of bank slope and ambient groundwater discharge on hyporheic transport and biogeochemical reactions in a compound channel | Jiaming Liu |
| 15:30 | S2-5-3 | Numerical modeling of hyporheic exchange induced by submerged rigid vegetation | Xiaobing Chen |
| 15:45 | S2-5-4 | The role of hyporheic processes on climate change | Alessandra Marzadri |

| Session Name | | S2-6: Effect of Organism on Flow (1) | |
|---------------------|-----------|--|------------------|
| Chair | | Yi Rong | |
| Time | ID | Title | Presenter |
| 16:00 | S2-6-1 | On the initiation and evolution of von Karman vortex behind rectangular vegetation canopies with different aspect ratios and densities | Yuanheng Zhang |
| 16:15 | S2-6-2 | Effects of riparian plant roots on bank erosion process of Tarim River based on BSTEM model | Ruize Tang |
| 16:30 | S2-6-3 | Effect of vegetation on mass transport in compound channels | Yi Rong |
| 16:45 | S2-6-4 | Diffusion characteristic of floating particles in vegetated open channel flow | Xiaoguang Liu |

Oral Presentation –Oct. 12th

Session Name **S3-3: Turbulence-Organism Interaction**

Chair **Rafael Tinoco**

| Time | ID | Title | Presenter |
|-------|--------|--|---------------|
| 10:00 | S3-3-1 | Variations in turbulence integral scales around instream boulders and implications for fish habitat | Amir Golpira |
| 10:15 | S3-3-2 | Experimental investigation of turbulent characteristics in hydraulic jump with vegetated bottom | Rongfu Ning |
| 10:30 | S3-3-3 | Characterizing surface gas transfer driven by turbulence from submerged vegetation-wave interactions | Rafael Tinoco |
| 10:45 | S3-3-4 | Effects of flow turbulence and nitrogen nutrients on the growth of <i>scenedesmu quadricanda</i> | Yafei Cui |

Session Name **S3-4: Fish Passage (2)**

Chair **Paul Franklin**

| Time | ID | Title | Presenter |
|-------|--------|--|---------------------|
| 11:00 | S3-4-1 | Monitoring of fish passage built in the Rivers of Nepal: A case study of Andhi Khola Project | Kamal Prasad Pandey |
| 11:15 | S3-4-2 | Actions to restore fish passage in New Zealand: From science to policy and back again | Paul Franklin |
| 11:30 | S3-4-3 | Optimising spoiler baffle arrangement for promoting small-bodied fish passage through culverts | Dipendra Magaju |
| 11:45 | S3-4-4 | YOLOv5 analysis for juvenile Ayu detection in underwater images of fishway | Shijun Pan |

Oral Presentation –Oct. 12th

Session Name S3-5: Fish Passage (3)

Chair Helmut Mader

| Time | ID | Title | Presenter |
|-------|--------|---|------------------------------|
| 16:00 | S3-5-1 | Smart Fishways: sensorization of fishways for autonomous assessment and management of their performance | Juan Francisco Fuentes-Perez |
| 16:15 | S3-5-2 | Schooling behaviour of <i>telestes muticellus</i> under different flow velocities | Gloria Mozzi |
| 16:30 | S3-5-3 | Turbulent eddies as potential migration obstacles in fishway constructions | Marcio Roth |
| 16:45 | S3-5-4 | Evaluation of key stimuli, in particular light, acoustics and temperature, influencing fish migration into fishpasses | Helmut Mader |

Session Name S4-3: Wetland Management and Restoration

Chair Shan He

| Time | ID | Title | Presenter |
|-------|--------|---|-------------------|
| 10:00 | S4-3-1 | Post-processing of reservoir releases to support real-time reservoir operation and its effects on downstream hydrological alterations | Shan He |
| 10:15 | S4-3-2 | Application for technology of ecological interception pre-reservoir in the confluence of river and lake | Yimin Zhang |
| 10:30 | S4-3-3 | Characterization of the hydrogeological behavior of high andean peatlands – three case studies in the Bolivian Altiplano | Hugo Soliz Flores |
| 10:45 | S4-3-4 | The effects of anthropogenic structures on the ecohydraulic characteristics for <i>mortonagrion hirosei</i> habitating in estuarine wetland | Gwown Hwang |

Session Name S4-4: Sustainable Design in Ecohydraulics

Chair Gregory Pasternack

| Time | ID | Title | Presenter |
|-------|--------|---|--------------------|
| 11:00 | S4-4-1 | Assessment of sustainable design of Shafique Haor and Sonamoral Haor wetlands FCD/FCDI project against flash flood in greater Sylhet area | Rifat Jahan |
| 11:15 | S4-4-2 | From reservoir greenhouse gas emissions to hydropower carbon footprint: methodology, and advances | Zhe Li |
| 11:30 | S4-4-3 | River Architect: baseline-condition and alternative-design assessment software to promote sustainability of eco-physical river systems | Gregory Pasternack |
| 11:45 | S4-4-4 | Green infrastructures performance evaluation towards management of water quality: a case study | Qian Yu |

Session Name S4-5: Aquatic Ecology and Water Health (1)

Chair Jiahao Zhang

| Time | ID | Title | Presenter |
|-------|--------|--|--------------|
| 15:00 | S4-5-1 | Seasonal pattern of zooplankton communities and the effect of hydraulic regulation on zooplankton biomass in the regulating lake of the South-to-North Water Diversion Project | Ruolan Yu |
| 15:15 | S4-5-2 | Water diversion not to blame for phosphorus enrichment in Taihu Lake | Zhiyuan Wang |
| 15:30 | S4-5-3 | Characterization and sources apportionment of overflow pollution in urban separate stormwater systems inappropriately connected with sewage | Yuxuan Zhou |
| 15:45 | S4-5-4 | Study on the density, hydrostatic settling velocity and locomotion of <i>biomphalaria straminea</i> | Fengyang Min |

Oral Presentation –Oct. 12th

Session Name S4-6: Coastal and Estuarine Ecohydraulics

Chair Yue Zhu

| Time | ID | Title | Presenter |
|-------|--------|---|---------------|
| 16:00 | S4-6-1 | Hydrodynamic and water quality modeling of coastal water based on Delft3D model | Yue Zhu |
| 16:15 | S4-6-2 | Impact of seasonality runoff variations on tidal current limit in the lower Yangtze River | Qiancheng Xie |
| 16:30 | S4-6-3 | Velocity profile formula based on wave-induced multi-source oscillatory energy propagation mode | Qianlu Xiao |
| 16:45 | S4-6-4 | The role of wave-induced drift in seed dispersal | Junqing Ren |

Session Name S5-3: Genomics and Bioinformatics

Chair Sakiko Yaegashi

| Time | ID | Title | Presenter |
|-------|--------|---|-----------------|
| 10:00 | S5-3-1 | Challenges of monitoring invasive mussels with environmental DNA | Yao Yang |
| 10:15 | S5-3-2 | Investigating the fish diversity in the upper reaches of Yangtze River based by environment DNA metabarcoding | Li Wang |
| 10:30 | S5-3-3 | Investigation of a method for surveying aquatic insects using DNA barcoding of environmental DNA | Sakiko Yaegashi |
| 10:45 | S5-3-4 | A proposal for a method for evaluating the ecological benefits of green infrastructure as Eco-DRR using environmental DNA | Noriko Uchida |

Oral Presentation –Oct. 12th

Session Name **S5-4: Experimental Ecohydraulics (1)**

Chair **Ingo Schnauder**

| Time | ID | Title | Presenter |
|-------------|-----------|---|------------------|
| 15:00 | S5-4-1 | Flow and morphology around trees installed in rivers: do we need a stem attached? | Ingo Schnauder |
| 15:15 | S5-4-2 | Apply novel optical and acoustic instruments for long-term and high-frequency morphodynamics observation on a mangrove tidal flat | Tianping Xu |
| 15:30 | S5-4-3 | Impact of Shishamo spawning sites in Azuma river, Hokkaido under the various flow and high concentration silt conditions | Tomoko Kyuka |
| 15:45 | S5-4-4 | Study on flow sensors arrangement optimization based on the mobile flow measuring devices | Yi Zhou |

Session Name **S5-5: Experimental Ecohydraulics (2)**

Chair **Katharina Bensing**

| Time | ID | Title | Presenter |
|-------------|-----------|--|-------------------|
| 16:00 | S5-5-1 | Experimental study on turbulent characteristics of flow around a t-shaped spur dike in bend | Liyuan Zhang |
| 16:15 | S5-5-2 | Experimental study on flow characteristics in a bend with multistage spur dike | Haonan Zhang |
| 16:30 | S5-5-3 | Application of a fish-shaped probe at an angled rack: introducing the fish sensory sonde (FSS) | Katharina Bensing |
| 16:45 | S5-5-4 | Shallow flow field induced by large horizontal coherent structures in squeeze ecological systems | S.H Truong |

Oral Presentation –Oct. 12th

Session Name **S5-6: Habitat Modelling of Concerned Species**

Chair **Hannah Schwedhelm**

| Time | ID | Title | Presenter |
|-------------|-----------|---|-------------------|
| 17:00 | S5-6-1 | Resources management strategy of <i>gymnocypris przewalskii</i> (naked carp) in Qinghai Lake based on matrix population model | Chubin Weng |
| 17:15 | S5-6-2 | Spatial and temporal change in the epilithic community in the Shiting River in Sichuan Province, China | Min Liu |
| 17:30 | S5-6-3 | Meso or Micro : A comparative analysis of two habitat modelling approaches | Hannah Schwedhelm |
| 17:45 | S5-6-4 | Using soil hydraulic properties for an efficient starch potato irrigation management | Jan Lukas Wenzel |

Oral Presentation –Oct. 13th

Session Name S1-8: Effect of Climate Change on Ecology

Chair Francisco Martinez Capel

| Time | ID | Title | Presenter |
|-------|--------|---|--------------------------|
| 15:00 | S1-8-1 | Climate change adaptation in a Mediterranean river basin based on eco-engineering decision scaling | Francisco Martinez Capel |
| 15:15 | S1-8-2 | The hydraulic habitat suitability of the Ganga River dolphin under anthropogenic influence | Gaurav Sonkar |
| 15:30 | S1-8-3 | Modeling the climate change effects on habitat availability in Alpine watercourses | Erica Vassoney |
| 15:45 | S1-8-4 | Drought impacts on water use and quality: a challenge for potable and irrigation water in the summer of 2022 | Elena Carcano |
| 16:00 | S1-8-5 | Conserving stream fishes with changing climate: assessing river hydrology and habitat suitability in Lancang River, China | Qianqian Wang |

Session Name S2-7: Effect of Organism on Flow (2)

Chair Zhan Hu

| Time | ID | Title | Presenter |
|-------|--------|--|----------------|
| 10:00 | S2-7-1 | Flow resistance caused by golden mussel (<i>limnoperna fortunei</i>) biofouling in East River Water Source Project | Jiahao Zhang |
| 10:15 | S2-7-2 | Indirect wave dissipation mechanism in submerged vegetation canopies with accompanying currents | Zhan Hu |
| 10:30 | S2-7-3 | Vegetation deformation under the action of open channel flow | Jiangyu Wang |
| 10:45 | S2-7-4 | Influence of riparian emergent rigid vegetation on hydrodynamic characteristics of compound channel | Youzhi Hao |
| 11:00 | S2-7-5 | Application of foliar hydrogen peroxide concentration as an environmental stress indicator to evaluate the plant species distribution in the riparian zone | Takashi Asaeda |

Oral Presentation –Oct. 13th

| Session Name | | S2-8: Special session: Ecohydraulics of Hyporheic Zone in River, Estuarine and Coastal Sediments (3) | |
|---------------------|-----------|---|---------------------|
| Conveners: | | Alessandra Marzadri, James Stegen, Xiaobing Chen, Daniele Tonina | |
| Time | ID | Title | Presenter |
| 15:00 | S2-8-1 | Lateral carbon transport during surface water-groundwater interaction at an onshore aquacultural farm | Xuan Yu |
| 15:15 | S2-8-2 | Riverine groundwater discharge estimation in a dynamic river corridor using ²²² Rn | Fu Liao |
| 15:30 | S2-8-3 | Solute transport in the hyporheic zone | Ekkehard Holzbecher |
| Session Name | | S2-9: Plastic Particles | |
| Chair | | Xinjie Wang | |
| Time | ID | Title | Presenter |
| 16:00 | S2-9-1 | Effect mechanism of suspended sediment on the settling of plastic particles in natural waters | Xinjie Wang |
| 16:15 | S2-9-2 | Laboratory analysis of plastic particle transport in vegetated patches | Daniele Martuscelli |
| 16:30 | S2-9-3 | Macroplastics mobility into hyporheic zone: preliminary laboratory experiments | Mirco Mancini |

Oral Presentation –Oct. 13th

| Session Name | | S3-6: Special Session: Physical, Chemical, and Biological Aspects of Transport Processes in Aquatic Ecosystems (1) | |
|---------------------|-----------|--|------------------|
| Conveners | | Zi Wu, Marwan Hassan, Li Zeng, Ping Wang | |
| Time | ID | Title | Presenter |
| 10:00 | S3-6-1 | Bio-mineral flocculation of fine-grained cohesive sediments and microalgae in estuaries | Xiaoteng Shen |
| 10:15 | S3-6-2 | Land-to-Ocean flux of water, sediment and nutrients in the Changjiang River continuum | Leicheng Guo |
| 10:30 | S3-6-3 | Environmental transport of gyrotactic microorganisms in an open-channel flow | Guangmiao Li |
| 10:45 | S3-6-4 | Biofilms as the "ecosystem engineers": the microbiological mediation of intertidal sediment behavior | Xindi Chen |
| Session Name | | S3-7: Special Session: Physical, Chemical, and Biological Aspects of Transport Processes in Aquatic Ecosystems (2) | |
| Conveners | | Zi Wu, Marwan Hassan, Li Zeng, Ping Wang | |
| Time | ID | Title | Presenter |
| 11:00 | S3-7-1 | Simulating the fate of faecal bacteria in estuarine and coastal waters based on a fractionated sediment transport model | Chen Yang |
| 11:15 | S3-7-2 | Optical and molecular signatures of sedimentary organic matter in the Three Gorges Reservoir: Spatial dynamics and carbon cycling implications | Kai Wang |
| 11:30 | S3-7-3 | Modeling velocity and shear stress profiles for the ecological channel with floating vegetation | Jiao Zhang |

Oral Presentation –Oct. 13th

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|---------------------|-----------|---|---------------------|
| Session Name | | S3-8: Special Session: Physical, Chemical, and Biological Aspects of Transport Processes in Aquatic Ecosystems (3) | |
| Conveners | | Zi Wu; Marwan Hassan; Li Zeng; Ping Wang | |
| Time | ID | Title | Presenter |
| 15:00 | S3-8-1 | Gyrotactic trapping of micro-swimmers in simple shear flows: a study directly from the fundamental Smoluchowski equation | Bohan Wang |
| 15:15 | S3-8-2 | Laboratory experiments on rheological effects of exopolymers on particle sinking in seawater | Magdalena Mrokowska |
| 15:30 | S3-8-3 | Comparison of absorption capacity through open channels with different irreversible-boundary types | Huilin Wang |
| 15:45 | S3-8-4 | Vegetation-driven drag variation and sediment transport in shallow nonuniform flow | Yonggang Zhang |
| Session Name | | S3-9: Fish Passage (4) | |
| Chair | | Marie Pierre Gosselin | |
| Time | ID | Title | Presenter |
| 16:00 | S3-9-1 | An experimental study of the behavioral response of fish to flow changes in a near-natural environment | Han Liu |
| 16:15 | S3-9-2 | Numerical simulation of a slanted fishway with protruding boulders | Dian Luo |
| 16:30 | S3-9-3 | A novel approach to mitigate fish downstream migration at hydropower plants | Franz Geiger |
| 16:45 | S3-9-4 | Upstream fish passage solutions: is the answer one-size-fit-all or made-to-measure? | John Nestler |

Oral Presentation –Oct. 13th

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|--------------|--------|--|-----------------|
| Session Name | | S4-7: Aquatic Ecology and Water Health(2) | |
| Chair | | Hamed Khorasani | |
| Time | ID | Title | Presenter |
| 10:00 | S4-7-1 | Combination of logistic and modified monod functions to study <i>microcystis aeruginosa</i> growth stimulated by fish feed | Suiliang Huang |
| 10:15 | S4-7-2 | Modeling harmful algal blooms in Lake Ontario by inclusion of algal ecology and nutrient dynamics | Hamed Khorasani |
| 10:30 | S4-7-3 | Study on meticulous management targets for water health of typical mountainous river basin based on classification of water bodies | Xiaogang Tian |
| 10:45 | S4-7-4 | Zooplankton module indicates top-down effects on eutrophication: Implications for lake restoration by biomanipulation | Yuhong Zhou |
| | | | |
| Session Name | | S4-8: Eco-Environmental Impact of High Dam and Large Reservoir | |
| Chair | | Martin Hunt | |
| Time | ID | Title | Presenter |
| 11:00 | S4-8-1 | Impact of hydropower development on fish habitat in the lower Yalutsangpo River | Yaqi Luo |
| 11:15 | S4-8-2 | River water temperature forecasting using a deep learning method | Yuankun Wang |
| 11:30 | S4-8-3 | Keeyask generation project aquatic mitigation and offsetting - planning to construction | Martin Hunt |
| 11:45 | S4-8-4 | How cascade reservoirs impact on spawning activity of four major Chinese carps in the upper Yangtze River? | Keyuan Wang |

Oral Presentation –Oct. 13th

Session Name S4-9: Risk Reduction in Ecosystem

Chair **Kazuaki Ohtsuki**

| Time | ID | Title | Presenter |
|-------|--------|--|---------------------------|
| 15:00 | S4-9-1 | Occurrence, distribution and ecological risk of antibiotics in wastewater treatment plants around Luoma Lake, China | Yuanyuan Liu |
| 15:15 | S4-9-2 | Experimental study on transportation and accumulation of driftwoods during a large flood | Shingo Otake |
| 15:30 | S4-9-3 | Evaluation of the impact of drainage channel improvement associated with agricultural land development on flood flow in the small valley wetland (Yatsu) landscape | Kazuaki Ohtsuki |
| 15:45 | S4-9-4 | Ecological risk assessment of toxic metals in water of Perai river, Malaysia | Muhammad Fitri Mohd Akhir |

Session Name S4-10: Eco-Environmental Impact of Human Activities

Chair **Na Zhao**

| Time | ID | Title | Presenter |
|-------|---------|--|--------------|
| 16:00 | S4-10-1 | Current situation and Countermeasures of water ecological environment protection in Sichuan Province | Sulan Zhang |
| 16:15 | S4-10-2 | Perfluoroalkyl acids (PFAAs) in the tailwater of the waste water treatment plants (WWTPs) around a shallow lake: distribution, removal, and fluxes | Ying Lu |
| 16:30 | S4-10-3 | Variation of phosphorus inflow to the Three Gorges Reservoir: Impact of human activities | Shiyao Zhang |
| 16:45 | S4-10-4 | Effects of land use on benthic invertebrate communities in the Yiluo River Basin | Na Zhao |

Session Name S5-7: Novel Software Applied in Ecohydraulics**Chair Araceli Martín Candilejo**

| Time | ID | Title | Presenter |
|-------------|-----------|--|--------------------------|
| 15:00 | S5-7-1 | Application of the Convex Hyperbola Charts to minimise the energy consumption of a pumping station in a real case in Spain | Araceli Martín Candilejo |
| 15:15 | S5-7-3 | Concurring indications of HSI and HMID for assessing the success of river restoration actions | Maximilian Kunz |
| 15:30 | S5-7-4 | Towards understanding fish behavior near an angled rack: an approach for fish tracing using open-source software | Ianina Kopecki |

Session Name S5-8: Data-driven and knowledge based modelling**Chair Richard Hedger**

| Time | ID | Title | Presenter |
|-------------|-----------|---|-------------------------|
| 16:00 | S5-8-1 | An improved deep learning model for suspended sediment forecast | Shicheng Li |
| 16:15 | S5-8-2 | Development of transient habitat modelling for macrozoobenthos in restored stream | Sengdavanh Thepphachanh |
| 16:30 | S5-8-3 | Development of a real-time bird species identification algorithm using deep learning | Takuma Nishimura |
| 16:45 | S5-8-4 | Forecast of chlorophyll-a concentration based on time series decomposition and deep learning over eutrophic lakes | Cheng Chen |
| 17:00 | S5-8-5 | River mesohabitat classification from aerial photographs using deep learning | Richard Hedger |
