



1ST INTERNATIONAL WORKSHOP (ONLINE)

AI-HYDRO FUTURES

Cross-disciplinary Research Network on
Artificial Intelligence (AI) in Hydrology and Climate Resilience

23 MARCH, 2026

12:30–18:00 JST | 03:30–09:00 GMT

Registration:



bit.ly/ai-hydrofutures

Host

Disaster Prevention Research Institute (DPRI), Kyoto
University

Key Objectives

- Advancing the applications of AI and Digital Twin technology in hydrology and climate resilience.
- Bridging cutting-edge research for early warning, infrastructure management, adaptive water governance.
- Strengthening international collaboration, capacity building, and long-term networking across regions.

Sessions

- Climate Intelligence and Forecasting
- AI Methods for Water Systems and Hydrology
- Flood and Multi-Hazard Spatial Intelligence

Project (PI) and chairman:

Prof. Mohamed Saber

Funding Project:

FY2025 Cross-sectoral Research Platform
Development Program, Kyoto University

Organizers:

1. Prof. Sameh Ahmed Kantoush
2. Prof. Mohamed Saber
3. Prof. Sohei Kobayashi
4. Thando Sithole
5. Amirreza Tabataba Vakili



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12:30–18:00 JST

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Program

12:30-13:10 JST Opening, Strategic Vision & Introductory Lecture



Prof. Tetsuya Sumi

*Kyoto University
Japan*

Welcome message: "Advancing Disaster Prevention through AI and Water Science"



Prof. Sameh Kantoush

*Kyoto University
Japan*

"AI-Hydro Futures: Vision, Challenges, and Global Collaboration"



Prof. Mohamed Saber

*Kyoto University
Japan*

"From Data to Decisions: Machine Learning in Water-Related Applications"

13:20-14:40 JST Session 1: Climate Intelligence and Forecasting



Prof. Sunmin Kim; *Kyoto University*

"Reinforcement Learning of Flood Control for Dam Reservoir Operation without Any Forecasting Information"



Eng. Hadir Abdelmoneim; *Kyoto University*

"Uncovering Hydro-hazard Risks in MENA Region: Linking Climate Change and Teleconnections with Machine Learning"



Eng. Amirreza T. Vakili; *Kyoto University*

"Z-Number approach for addressing the uncertainty in monthly extreme precipitation prediction"



Eng. Sinh Nguyen Phuoc; *Kyoto University*

"Safety of Cascading Dam Systems under Future Extreme Events: A Deep Learning-Based Assessment of Climate Change-Driven Flood and Sedimentation Dynamics"

14:55-16:15 JST Session 2: AI Methods for Water Systems & Hydrology



Prof. Vahid Nourani; *University of Tabriz, Iran*

"Emotional AI, a method to catch the peaks of hydroclimatic processes"



Prof. Rami Al-Haji; *AUM, Kuwait*

Topological Data Analysis of time series data for machine learning models using Persistent Homology



Prof. Hussam Elzain;

Sultan Qaboos University, Oman

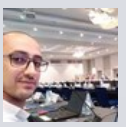
"Advancing the Future Toward Digital Water: AI Application on Groundwater Hydrology"



Prof. Emad Mabrouk; *AUM, Kuwait*

"Memetic programming Algorithms for Multi-Applications"

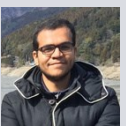
16:30-17:50 JST Session 3: Flood and Multi-hazard Spatial Intelligence



Prof. Tayeb Boulmaiz;

University of Badji Mokhtar Annaba, Algeria

"Mitigating Backscatter Ambiguity in Hyper-Arid Flood Detection: A Component-Level Analysis of Deep Learning Pipelines"



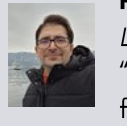
Prof. Mohamed Abdel-Fattah; *MTC, Oman*

"Flash Flood Susceptibility Mapping with Machine Learning in Al-Khaburah, Oman"



Prof. Qiuhua Liang; *Loughborough University, UK*

"Human and Natural Systems (CHANS) framework integrated with reinforcement learning for urban flood mitigation"



Prof. Mohammad Rajabi; *University of*

Luxembourg, Luxembourg

"From 2D Maps to 3D Reality: Machine Learning for Hydrological Modeling"

17:50-18:00 JST Closing Remarks: Prof. Mohamed Saber