



DIWA Flagship at EGU

**Sessions | Orals |
Posters & PICOs**

Meet the DIWA Flagship team and
researchers at EGU 2026!

SESSIONS, POSTERS & PRESENTATIONS

HS2.2.10

DIWA Session: Data-driven insight into hydrological processes and hydrologic digitization

Convener: **Hannu Marttila** | Co-conveners: **Elizabeth Carter, Eliisa Lotsari, Jan Olsman**

Orals | 6th of May | Room 2.15 | 16:15–18:00

- **Omer Abubaker**, 16:20-16:30
Interoperability Strategies for Process-Based Models in Digital Water Twins: An Architectural and Framework-Based Synthesis
- **Seyed Hossein Hosseini**, 16:30-16:40
Large Language Model-Based Multi-Agent Systems: The Next Frontier in Digital Water Engineering
- **Carlos Gonzales-Inca**, 16:50-17:00
Spatial modeling of the vulnerability-resilience-sustainability nexus in complex socio-hydrological system
- **Antero Kukko**, 17:00-17:10
Multi-source approach for reach scale river bed modeling - a case study on Rambla de la Viuda
- **Ville Kankare**, 17:10-17:20
Capturing the geomorphological change of a sub-arctic riverbank through unique long term terrestrial laser scanning time series
- **Linnea Blåfield**, 17:20-17:30
From Intermittent Observations to Continuous Monitoring: Advancing Under-Ice River Flow Measurements
- **Muhammad Farhan Humayun**, 17:30-17:40
Learning-assisted InSAR DEM Enhancement for High-Resolution, Terrain-Aware Hydrologic Digital Twins

- **Mehran Mahdian, 17:40-17:50**

Uncertainty-Aware Data-Driven Framework for Near Real-Time Lake Ecological Status Assessment under the EU Water Framework Directive

- **Sami Ghordoyee Milan, 17:50-18:00**

Hybrid Numerical–Machine Learning Framework for Predicting Aquifer Drainage

Posters | 6th of May | Hall A | 10:45-12:30

- **Siamak Bazzaz, A.21**

The I-DT Hydro Framework: Immersive Digital Twin Platforms for Hydrologic Systems

- **Kaisa-Riikka Mustonen, A.17**

Climate-driven extreme winter thaw triggers summerlike microbial activity in a subarctic stream

- **Parsa Parvizi, A.14**

Detection of Groundwater–surface water Contributions in a Subarctic Stream using Distributed Temperature Sensing, Topographic Indices, and Spatial Hydrological Model

- **Farid Mousavi, A.12**

When Physics Meets Machine Learning for Nowcasting of Hydrological Sensors Fault Detection

- **Getnet Demil, A.19**

Identifying Scale-Dependent Snow patterns from learned fusion of Multi-modal, Multi-resolution satellite observations

- **Elham Kakaei Lafdani, A.15**

From acoustic Doppler backscatter to near-real-time suspended sediment monitoring in Finnish boreal rivers using a Bayesian-optimized data-driven model

- **Ritesh Patro, A.139**

Hydropower 2.0 Powering green transition in a more sustainable way: Project RE-HYDRO

- **Elsa Culler, A.20**

An investigation of post-wildfire changes in hydrologic parameters using data assimilation in a southern California watershed

OTHER SESSIONS

HS8.2.6

Groundwater in cold climate hydrosystems; processes, changes, and adaptation

Co-convener: **Hannu Marttila**

Orals | 4th of May | at 8:30-10.15 | Room 2.17

- **Pietari Pöykkö**, 9:05-9:15

Climate change effects on the annual cycle in shallow subarctic groundwater over 50 years

HS1.1.3

Advances in river monitoring and modelling, including UAS and satellite based methods

Posters | 4th of May | at 8:30-10:15 | Hall A

- **Karoliina Korkiakoski**, A.11

From short-term vertical ADCP measurements to continuous Side-Looking current meter monitoring in a high-latitude river

- **Reeta Vaahtera**, A.16

River ice under climate change: integrating modelling and data acquisition methods for detecting changes

GM10.1

Fluvial systems: dynamics and interactions across scales

Co-convener: **Eliisa Lotsari**

Orals | 5th of May | at 8:30-12:30 | Room G1

- **Karoliina Lintunen**, 11:05-11:15

Changing cold-region rivers: Flow characteristics and sediment transport beneath ice cover and shifts in discharge regimes

- **Marijke de Vet**, 10:55-11:05

Assessing the Impact of Subsurface Ice Roughness on Hydrodynamics in Ice-Covered Rivers

Posters | 4th of May | 14:00-15:45 | Hall X3

- **Joshua Johnson**, X3.66

Remotely Operated Vehicle Stereo-camera photogrammetry and positioning techniques for topographic measurements under river ice cover

- **Eliisa Lotsari**, X3.64

Spatio-temporal development of frazil ice at a sub-arctic meandering river – a case study based on close range remote sensing and numerical modelling

HS5.1.3

From Water Sharing to Water Scarcity: Managing Depleted Aquifers, Dried Lakes, and Shrinking Glaciers in Transboundary Water Systems

Convener: **Ali Torabi Haghighi**

Orals | 5th of May | at 10:45-12:30, 14:00-15:45 | Room 2.44

- **Elizabeth Carter**, 14:33-14:43

New Level-3 datasets demonstrate that robust field-level groundwater use accounting is possible at continental scales: what is next for transboundary aquifer governance?

Posters | 5th of May | at 8:30-10:15 | Hall A

- **Matin Rafipour-Langeroudi**, A.84

A Pareto-Based Simulation–Optimization Framework for Decision Support in Reservoir Cascades: A Transboundary River Basin Case Study

- **Sami Ghordoyee Milan**, A.79

Evidence from remote sensing: Do the transboundary basins exhibit signs of regulated water upstream and associated dangers and stress downstream?

HS9.2

Hydro-morphological processes in open water systems -
numerical modeling, measurement and monitoring approaches

Co-convenor: **Marijke De Vet**

Orals | 7th of May | at 14:00-18:00 | Room 3.16/17

- **Can Ding**, 17:20-17:30
Ice-covered river hydraulics and bedload transport: Insights from three-dimensional modelling

EOS2.4

Geospatial Computational Education in the Era of Big
Earth Data

Convener: **Elsa Culler**

Co-convenor: **Maija Taka**

Posters | 7th of May | at 10:45-12:30 | Hall X4

- **Mohammad Imangholiloo**, X4.198
Improving the Usability and Adoption of Digital Data Solutions: An Example for Researchers in the Digital Waters Flagship and PhD Pilot
- **Elizabeth Carter**, X4.200
Co-developing research-assisting AI for water resources professionals: the Digital Waters Flagship

Oral presentations in other individual sessions

HS2.3.5, Water quality at the catchment scale: measuring and modelling of nutrients, sediment and eutrophication impacts

- **Beata Plutova**, Room 3.29/20, 5th of May, at 16:35-16:45
The impact of seasonal hydroclimatic variability and NDVI on long-term nutrient dynamics in a Finnish agricultural catchment draining to the Baltic Sea

HS2.2.5, New Developments in Hydrological Synthesis

- **Asvath Singh Kunadi**, Room 3.16/17, 6th of May, 9:15-9:25

A Water Year Definition that Works Everywhere

SSS7.1, Plastic in soils - where do we stand?

- **Darrell Tang**, Room 0.16, Thu 7th of May, 15:20-15:30

Mechanisms of microplastic accumulation in the root zones of agricultural soils

EOS3.2, 10th anniversary of the session Promoting and supporting inclusive excellence in the geosciences

- **Marijke De Vet**, Room -2.92, 8th of May, 16:40-16:50

Assessing Gender and Geographic Diversity Progress in Coastal Geoscience and Engineering Prestige Academic Roles

Posters in other individual sessions

HS3.6, Explainable and hybrid machine learning for hydrology and land surface processes

- **Sadegh Kaboli**, Hall A | A.34: 4th of May, 10:45–12:30

Estimating the timing of the peak snowmelt floods in unregulated boreal catchments using machine learning techniques

HS3.5, Deep Learning in Hydrology

- **Bilal Liaqat**, Hall A | A.67: 5th of May, 16:15-18:00

Enhancing the Robustness of Deep Learning Hydrological Models in High-Latitude Catchments

AS2.2, Air-Land Interactions

- **Jon Page**, Hall X5 | X5.64: 7th of May, 10:45–12:30

Turbulent Fluxes at a Sub-Arctic Peatland and the Role of Data Processing Choices in Carbon Dynamics

EOS3.2, 10th anniversary of the session Promoting and supporting inclusive excellence in the geosciences

- **Karoliina Lintunen**, Hall X4 | X4.120: 8th of May, 8:30-10:15

Planning and conducting successful fieldwork in the boreal-subarctic region - What to take into account during different seasons?

PICOs in other individual sessions

HS2.4.2 PICO, Large-Sample Hydrology: Advancing dataset developments, enhancing process understanding, and unifying insights through catchment modeling

- **Iiro Seppä**, PICO A.9: 4th of May, 11:09-11:11

Feature importance for deep learning rainfall-runoff modeling in the boreal zone

HS5.3.2 PICO, Innovation in Hydropower Operations, Planning and Retrofitting to Integrate Renewable Energy Sources and Optimize the Water-Energy-Ecosystem Nexus

Convener: **Ritesh Patro**

- **Raffa Ahmed**, PICO 1b.9: 5th of May, 8:59-9:01

Hydropower in Cold Climates Under Climate Change: A Systematic Review

BG3.22 PICO, Modeling agricultural systems under global change

- **Best Bhattarabhop Viriyaraj**, PICO 2.12: 7th of May, 8:57-8:59

Unveiling Characteristics of the Global Crop Production System

GeoCinema - Short film

- **Anukka Pekkarinen**, Room E1, 7th of May at 18:10-18:30

Polar Kinships - A journey between the livi of Greenland and the Kawésqar from Chile