

Danube Water Balance

Danube Water Balance Project Featured at EGU General Assembly 2025

The European Geosciences Union (EGU) is the leading organisation for Earth, planetary and space science research in Europe. With partner organisations worldwide, it fosters fundamental geoscience research, alongside applied research that addresses key societal and environmental challenges. The EGU publishes a number of diverse scientific journals, which use an innovative open access format, and organises topical meetings, and education and outreach activities. It also honours scientists with a number of awards and medals. The annual EGU General Assembly is the largest and most prominent European geosciences event, attracting over 21,000 scientists from all over the world in the year 2025. The meeting's sessions cover a wide range of topics, including volcanology, planetary exploration,



the Earth's internal structure and atmosphere, climate, as well as energy and resources.

The Danube Water Balance project was prominently featured during the European Geosciences Union (EGU) General Assembly 2025 in Vienna, Austria, in a dedicated session titled „Water balance and integrated water management in transboundary systems“. The sessions were moderated by several representatives of Danube Water Balance partnership. The first session was opened with a presentation on developing a “Safe Operating Space” framework for water management in the Danube River Basin, followed by discussions on hazardous substance emissions, persistent pollutants.

From the side of Danube Water Balance project team, Zsolt Kozma from PP2 – BME presented the preliminary results of the establishment of a harmonized hydrological data repository. Additional presentations explored broader transboundary water challenges, including groundwater monitoring in the Baltic countries and Estonian–Latvian aquifers, the Lancang–Mekong cooperation, remote sensing in the Bug Basin, and water modelling in North America and India. Presenters discussed advances in data repositories, modelling tools, and conceptual frameworks for transboundary water management, including case studies from Europe, Asia, and North America.

In the afternoon, the focus returned to the Danube, highlighting long-term discharge simulations, projections under climate change, and innovative modelling tools like MONERIS and WetSpa. The session concluded a presentation about evaluating European meteorological data by Vlad Amihăsesei from PP16-National Meteorological Administration, Romania. The afternoon poster session added further depth, showcasing innovative methods and cross-regional research.

Topics included:

- Media-based analysis of transboundary water conflict and cooperation;
- National-scale hydrological modelling for Austria;
- Historical flood patterns in the Danube and Main catchments;
- Remote sensing for snow cover mapping;
- RIBASIM water allocation modelling for the Danube under low-flow conditions;
- Groundwater level projections in the Carpathian Basin;
- Hydrogeological studies in the Lithuanian Karst region;
- Machine learning applications in soil hydraulic conductivity;
- Baseflow separation techniques for estimating hazardous substance loads in small catchments.

These posters highlighted both methodological innovation and the geographic diversity of current hydrological research in transboundary basins.

The EGU General Assembly provided an excellent platform for the project team to share their progress, engage with the scientific community, and strengthen partnerships for future collaborative efforts in transboundary water management.

