

ICWRER conference, Koblenz 2013

Session description

Title: Low flows and streamflow droughts

Session Organizers: Gregor Laaha (University BOKU Vienna), Claire Lang (Université de Lorraine)

Co-Sponsored by: UNESCO FRIEND-Water Low flow and droughts group & CILFAD – Project Climate Impacts on Low Flows And Droughts of the Austrian Climate & Energy Funds.

Droughts and associated low streamflows are significant hydrological hazards. During low flow periods, a wide range of water uses depend on minimum available stream flow, its seasonal occurrence and temporal dynamics. Reduced river flows due to direct and indirect human impacts (climate change) may have significant impacts on the water quality and the ecological status of the water bodies. In addition, population growth, intensive agriculture, urbanisation and industry have increased water demand. The consequence of both factors is that water resources are increasingly limited and need to be protected both in terms of quantity and quality.

The EU-Water Framework Directive was introduced in 2000 to improve water resources management and environmental protection. The estimation of available water resources under drought is a fundamental issue for the EU-Water Framework Directive enforcement. However, the directive is not very explicit how low flows and droughts should be assessed. Reliable methods to assess past, current and future low flows and streamflow droughts are, hence, required to make water resources management and environmental protection more effective.

The main objectives of this session are:

- to present the different low flow and streamflow drought indices that are operationally used across European countries, and software tools for their calculation;
- to discuss their ability to assess ecological impact as required by the European Water Framework Directive: which indices should be used considering the required environmental flow to ensure aquatic life during drought?
- to discuss the ability of indices to represent hydrological change
- to present innovative regionalisation methods for low flow regime and streamflow drought characterisation at ungauged catchments;
- to present methods and practical applications to assess past, current and future low flow and drought conditions;
- to present methods and applications of low flow and drought forecasting
- to present latest research focusing on water resources management under low flows and droughts for water managers and policy makers.

The scope of the session includes both general methodological contributions and case studies in different hydro-climatological contexts. The session shall bring together researchers of various disciplines, stakeholders and water managers interested in the assessment of present and future water resources under drought conditions and on the impact on ecological status of water bodies.