

Regional assessment of low flow processes and prediction methods across European regimes

GREGOR LAAHA¹, ANNE F. VAN LOON², CLAIRE LANG DELUS³ & DANIEL KOFFLER¹

1 University of Natural Resources and Life Sciences, BOKU Vienna, Peter Jordan-Straße 82, A-1190 Vienna, Austria
gregor.laaha@boku.ac.at

2 Hydrology and Quantitative Water Management Group, Wageningen University, PO Box 47, 6700 AA, Wageningen, The Netherlands

3 Departement of Geography, University of Lorraine, France

Abstract In this contribution we present two pilot studies initiated from the EURO FRIEND-Water Low Flow group. The first study gives an example for bi-lateral assessment of regionalization methods for predicting low flows at ungauged sites. The study covers the Meuse and Moselle basin in NE-France and investigates the performances of the geostatistical method top-kriging and a process-based method, the catchment model GR4j, in different hydrological environments. The second study aims to explore low flow generating processes on a catchment scale by comparing runoff signatures on a regional scale. Based on hydrological drought types we use hot spots of close-by gauges to explore climate-catchment interactions based on catchment similarity. The outcome shall build the foundation for a hydrological drought typology across European regimes. The examples illustrate that FRIEND-Water provides a very precious network which facilitates international collaboration of water experts to tackle wicked water problems.

Key words low flows; droughts; regionalisation; top-kriging; drought typology