



Large-scale assessment of random forests for data-driven hydrological modelling at monthly scale

Georgia Papacharalampous (1) and Hristos Tyralis (2)

(1) National Technical University of Athens, School of Civil Engineering, Department of Water Resources and Environmental Engineering, Athens, Greece (papacharalampous.georgia@gmail.com), (2) National Technical University of Athens, School of Civil Engineering, Department of Water Resources and Environmental Engineering, Athens, Greece (montchrister@gmail.com)

We assess the performance of random forests in modelling mean monthly streamflow based on mean monthly precipitation and potential evapotranspiration for 293 catchments. The assessment is made by computing the values of 18 metrics for the calibration and test periods, as well as by comparing these values with their respective computed for a lumped conceptual hydrological model with two parameters. The results are presented in maps and in an aggregated form. While the performance of the conceptual model is mostly similar for the two examined periods, the performance of random forests is far better for the calibration period than it is for the test period. Still, random forests perform better than the conceptual model for both periods.