



## **Understanding signatures in hydrological calibration - A Bayesian perspective**

Dmitri Kavetski (1,2), Fabrizio Fenicia (2), Peter Reichert (2), and Carlo Albert (2)

(1) University of Adelaide, Adelaide, Australia (dmitri.kavetski@adelaide.edu.au), (2) Eawag, Swiss Federal Institute of Aquatic Science and Technology, Dübendorf, Switzerland

Calibration and prediction using hydrological models has received tremendous attention in the literature. Calibration based on streamflow signatures, such as flow duration curves, is of particular interest - it offers fascinating opportunities to capture hydrological characteristics of interest and to undertake calibration in data-sparse conditions. Despite its clear appeal, signature calibration requires careful development and implementation to produce meaningful results, especially if reliable uncertainty estimates are desired.

This talk provides a Bayesian perspective on hydrological calibration using streamflow signatures, and its implementation using Approximate Bayesian Computation (ABC) algorithms. Following a brief theoretical expose, including the relationship to traditional calibration, we provide a series of case studies that elucidate the advantages and limitations of signature calibration under a variety of scenarios.