

**Can model uncertainty estimates be transferred from gaged to ungaged catchments? Confronting spatial proximity- and physical similarity-based approaches on 913 French catchments.**

There is a growing demand for better estimates of hydrological simulations uncertainty, and many methods have been proposed to this aim for gaged catchments (Beven, 2009; Liu and Gupta, 2007; Montanari, 2011). On ungaged catchments however, hydrologists are still searching for methods able to provide a satisfactory simulation (see e.g. Oudin et al., 2008; Oudin et al., 2010) and the estimation of associated uncertainties is still in its infancy (Wagener and Montanari, 2011). In this study, following the work by Oudin et al. (2008), we compare two approaches allowing the transfer of model uncertainty estimates from gaged to ungaged catchments over a large set of 913 catchments located in France. Two kinds of approaches are considered: regionalization based on spatial proximity and regionalization based on physical similarity. We evaluate the efficiency of our uncertainty estimates based on two criteria: reliability and spread. Our comparison shows that in France both approaches hold interesting perspectives, and we discuss the potential for progress with methods that would combine spatial proximity and physical similarity.