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Using river discharge to access the quality of different precipitation datasets over large-scale basins

Emanuel Dutra (1), Gianpaolo Balsamo (1), Fredrik Wetterhall (1), , Florian Pappenberger (1), and Dai Yamazaki (2)

(1) ECMWF, Reading, United Kingdom (emanuel.dutra@ecmwf.int), (2) Japan Agency for Marine-Earth Science and Technology, Yokohama, Japan

River discharge is a natural integrator of meteorological variables. The integration is made over a spatial domain (catchment) which is geophysically appropriate, and over time. It takes into account the correlations and covariances between several meteorological variables in a meaningful way, integrating information from a multidimensional variable space. Furthermore, river discharge observations are available and generally reliable. Therefore, river discharge is an important variable to consider in when evaluating the water balance of large-scale basins. In this study we evaluate different precipitation corrections applied to the ECMWF ERA-Interim reanalysis in terms of long-term means and variability of river discharge over several large-scale basins. We compare the original ERA-Interim dataset, the precipitation correction used in the production of the ERA-Interim/Land dataset (adjusted using GPCP) and the WFDEI dataset (adjusted using CRU). Global simulations with the ECMWF land surface model HTESSEL were performed with the different datasets and the simulated runoff routed using the river-floodplain model CaMa-Flood. Preliminary results highlight the deficiencies of ERA-Interim in several tropical basins (e.g. Congo) while the precipitation adjustments in ERA-Interim/Land and in WFDEI degrade the simulations in several northern hemisphere basins dominated by cold processes (e.g. Mackenzie).