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Variability and Extremes of the Hydrological Cycle in the Yangtze Catchment

F. Sienz (1), O. Bothe (1), R. Blender (1), K. Fraedrich (1), I. Bordi (2), and A. Sutera (2)

(1) Meteorological Institute, University of Hamburg, Germany, (2) Department of Physics, University of Rome "La Sapienza" (Italy)

The Yangtze River is one of the longest rivers in the world, accounting for 38% of all Chinese surface water. The analysis is based on observed daily discharges in the stations Yichang, Cutan, and Datong since 1892 and precipitation in the catchment area. Wet and drought periods are described by the standardized precipitation index (SPI). These are compared with coupled climate model simulations of ECHAM5/MPI-OM: a pre-industrial control experiment, a 20th century simulation with anthropogenic forcing and 21st century scenario prediction. The impact of ENSO is considered. Observed and simulated data are analysed by extreme value statistics with emphasis on return values and their modificatons due to climate change. Precipitation data and the discharges in the stations reveal different extreme value distributions.