



Extreme precipitation over European river basins in global Met Office Unified Model high-resolution climate simulations

Reinhard Schiemann (1), Marie-Estelle Demory (1), Matthew S Mizielinski (2), Malcolm J Roberts (2), Jane Strachan (1), and Pier Luigi Vidale (1)

(1) NCAS Climate, University of Reading, Meteorology, Reading, United Kingdom (r.k.schiemann@reading.ac.uk), (2) Met Office Hadley Centre, Exeter, United Kingdom

Flood events affecting large European river basins, with a drainage area on the order of 100 000 square kilometres, are largely caused by extreme precipitation over these river basins immediately preceding the river floods and lasting for one or several days. In this study, we evaluate the representation of such extreme precipitation events in the Met Office Unified Model (MetUM). Extreme-value distributions of basin-scale precipitation are estimated for high-resolution (down to about 25 km grid spacing) global MetUM simulations conducted in the project UPSCALE (UK on PRACE: weather- resolving Simulations of Climate for globAL Environmental risk), and for gridded gauge-based reference precipitation from the European Climate Assessment & Dataset (ECA&D) E-OBS product. Particular emphasis will be placed on how the representation of these extreme events depends on the horizontal grid resolution of the global atmospheric UPSCALE simulations.