



Impact of climate change on river flooding in Irish catchments

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The goal of this research is to identify which river basins in Ireland are most susceptible to increased flood risk due to climate change, and to identify the geographical and climatological characteristics behind this vulnerability. Boundary data from the European Centre Hamburg Model Version 5 (ECHAM5) global climate model are used to force the Rossby Centre Atmosphere Model (RCA3) regional climate model to produce dynamically downscaled precipitation and temperature data under past and future climate scenarios. This is used as forcing data for the HBV model, a semi-distributed conceptual rainfall/run-off model developed by the Swedish Meteorological and Hydrological Institute (SMHI) and widely used in climate change studies. Previous work, in which the HBV model was applied to the Suir catchment, demonstrated the feasibility of the method outlined above. Here results are presented for several catchments, selected to ensure varying topography, geology, climatology and expected climate change. Results from the extreme value analysis are examined in conjunction with this ancillary data to identify which characteristics are shared by catchments with similar response to climate change. While the data used are from Irish catchments, the method and results are relevant to all studies concerning the impact of climate change on flooding.