



Recent variability and trends in UK sub-daily rainfall: evidence for more rapidly changing extremes?

Stephen Blenkinsop and Hayley Fowler

Newcastle University, Civil Engineering & Geosciences, Newcastle, United Kingdom (s.blenkinsop@ncl.ac.uk)

Recent UK floods have reinforced the need for a better understanding of how its exposure to flooding may change in the future with climate change. Short-duration intense rainfall is responsible for flash flooding, particularly in fast-responding catchments and urban areas. The new generation of very-high resolution climate models are providing better simulations of such rainfall events but an improved understanding of observed variability and trends in short-duration rainfall is also required. To date this has been confounded by the lack of high quality observations but is being addressed by the INTENSE project which is gathering global datasets of sub-daily rainfall.

Methods to quality control such data have been tested to produce a high quality dataset of hourly rainfall for the UK. Here we use this dataset to examine trends and variability in seasonal UK hourly rainfall extremes and compare changes with those on daily timescales. In particular we consider whether we can more readily detect changes in hourly extremes than daily extremes in the observed record. This might be expected given that several studies have provided observational evidence of larger changes in hourly and sub-hourly extremes with temperature. We therefore assess evidence for an amplified response to warming on shorter timescales. Such studies may provide additional evidence that complements that derived from climate models.