



An Integrated 1500 Year Record for the River Trent (UK) Using Geomorphological and Geoarchaeological Data

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The river Trent is the 3rd longest river in the UK and particularly prone to extreme floods. It is also almost certainly the most sensitive of large UK catchments to future climate change. Both its geomorphology and hydrology are more like major continental rivers than most rivers draining the British Isles. Over the last 20 years many studies of the geomorphology, hydrology and archaeology of the Middle and Lower Trent have provided evidence of extreme floods spanning the last 1500 years. Improvements in sediment dating and the use of dendrochronology, archaeological dating and documentary sources have provided a high resolution chronology for these events. This record includes the so-called Medieval Warm Period, the Late Medieval Climatic Deterioration and the Little Ice Age. It is now the estimation of flood magnitude which remains the main obstacle to the full quantification of these long flood-series. This paper will integrate these records and discuss methodological approaches to the determination of event magnitude from the geomorphological record. The Trent records will then be compared with proxies for these events in the UK. The flood record can be related to both synoptic and catchment factors and provide valuable information on possible future hydrological response to climate forcing. The hydro-archaeology of the river also suggests that the unpredictable hydrology and periods of hydrological change has in the past lead to an element of innovation in human response – an element of the current climate-change debate that is rarely addressed.