



Ocean-atmosphere conditions associated with hydrological drought in Britain

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The British Isles experience considerable hydrological variability, including drought, that impacts significantly on society. This paper aims to advance understanding of the climatic conditions leading to the development and evolution of regional hydrological drought by exploring associations between severe hydrological droughts in Great Britain, drought-yielding weather types (WTs) and sea-surface temperatures (SSTs). Droughts were defined using the Regional Drought Area Index (RDAI). Frequencies of drought-yielding WT (as identified previously based on the RDAI for Great Britain) were derived from the daily OGWL-catalogue, an objective version of the Hess-Brezowsky Grosswetterlagen defined on the ERA40 reanalysis data. Monthly SST data were taken from the ERSST v2 data set. SST variations prior to and during regional drought events are analysed and initial results show the importance of anomalously cool SSTs south of Greenland prior to drought events, combined with anomalously warm conditions in the extra-tropical eastern Atlantic. WT associated with hydrological drought in Great Britain have previously been found to represent anticyclonic conditions with either a high pressure centre, southerly or south-easterly air flow over the respective drought region. Here ocean conditions favouring these drought-yielding WT are further explored.