

New index reveals that recent flood could signal climate change

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(Phys.org) —A new investigation of long-term weather records suggests that recent flooding in the south of England could signal the onset of climate change.

The research, from UWE Bristol, Loughborough University and the University of East Anglia has produced a new index of flooding trends called the Fluvial Flood Indices. This enables widespread flooding and [weather patterns](#) to be viewed in the context of the last 150 years, revealing that four of the six most severe flood episodes since 1871 have occurred in the last 30 years.

The new index was developed by Professor Rob Wilby from Loughborough University and Associate Professor Nevil Quinn from UWE Bristol, and was published in the Journal of Hydrology last year. With the collaboration of Dr Colin Harpham from the University of East Anglia, the index has been updated to cover the most recent flooding.

The indices match weather patterns and river flow data collected over the last 60 years to reconstruct the likelihood of widespread flooding in Britain back as far as the 1870s. The index is broken down by British region and updated weekly from atmospheric pressure data.

Professor Quinn, who is a hydrologist and specialist in flood risk management, said, "One of the greatest difficulties in flood estimation is that recorded flood data are rare – very few stations were operating prior to 1950. The [index](#) is based on the association between the atmospheric pressure patterns at the time and the concurrent recorded flood events. Since we have a classification of [atmospheric pressure](#) patterns called Lamb Weather Types going back to 1871 we can contextualise floods in relation to a much longer period. "

The indices reveal that the sequences of weather leading to the recent floods in southern England occur on average once every 25 years. The worst flooding suggested by the series happened in 1872, with later flood-rich episodes in the 1950s, 1980s and 2000s.

Professor Wilby said, "The extraordinary events in 1872 show the extent to which flood severity varies from one decade to the next. This flooding was so significant it was even captured in a painting by Monet.

"However, to experience four of the six most severe episodes in the last 30 years is disconcerting. Such a flood-rich period in the context of a 144-year record is very unusual and linked to the large number of cyclones passing over the country."

It is envisaged the indices could be used by researchers and agencies interested in tracking long-term changes in weather patterns linked to widespread flooding.

More information: The flood indices can be accessed online:
[www.cru.uea.ac.uk/cru/data/lwt... indices for British](http://www.cru.uea.ac.uk/cru/data/lwt...indices_for_British)

Provided by University of the West of England

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