Hurstwood reservoir in spring 2010 © United Utilities

Drought: Understanding and reducing vulnerability through monitoring and early warning systems

Tuesday 17th March 2015, 10:00 – 16:15

Centre for Hydrology and Ecology, Benson Lane, Crowmarsh Gifford, Oxfordshire OX10 8BB

Drought is a recurrent feature of the UK's climate. Past droughts, such as the 'benchmark' drought of 1975/76 and the drought episodes of the 1990s have caused severe social, economic and environmental impacts. Our continuing vulnerability to drought was underlined from 2010 until early 2012, when a protracted drought caused serious environmental stress, impacted severely on agriculture and eventually threatened water supplies across much of southern Britain. The impacts and costs of drought are significant and expected to continue rising in a warming world.

Although little can be done in the short term to prevent a drought, actions can be taken to reduce the vulnerability of society to the event, including the development of drought monitoring and early warning (M&EW) systems. But, globally, current M&EW systems are reliant on physical indicators (of rainfall, river flows, groundwater levels, etc) for capturing drought severity and these do not adequately reflect the complexity of inter-related human and environmental causes, effects and impacts. At present in the UK, there is no drought-specific national-scale M&EW system, although hydrological situation monitoring is carried out by water companies, the environmental regulators (EA, NRW, SEPA) and CEH (see links at end). Seasonal forecasts are also issued by the Met Office alongside these organisations via the Hydrological Outlook UK.

The aim of this workshop is to improve our collective understanding of drought and M&EW practices currently applied in the UK, to pave the way for developing more effective strategies for M&EW that can provide decision-relevant information to a wide community of potential users. The design will enable participants to: share their different experiences of and responses to drought; improve our understanding of how drought monitoring is undertaken at present; and help identify the requirements for improved M&EW systems in the future.

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The workshop is initiated by the DRIVER project (http://www.drought.uni-freiburg.de/) funded by the Belmont Forum (https://igfagcr.org/), with the UK component funded by NERC. This project brings together researchers from the Centre for Ecology and Hydrology (UK), Open University (UK), University of Freiburg (Germany), National Drought Mitigation Center (USA) and CSIRO (Australia). The aim is to share experiences in M&EW across three continents in order to develop improved M&EW systems.

The DRIVER project is collaborating with other drought projects recently funded by the UK Research Councils, to help maximise the potential of our combined research. Specifically, the workshop is being co-organised with the following projects:

IMPETUS (Improving predictions of drought for user decision-making) – aims to improve monthly to decadal forecasts of UK drought and water scarcity to support user decision making. A follow-up workshop initiated by the IMPETUS project, exploring the utility of monthly to seasonal drought forecasting, will be held in late 2015.

Historic Droughts – an interdisciplinary project which aims to develop a systems-based understanding of the drivers and impacts of drought, and their interactions, through study of historical droughts in the UK from the late 19th Century to present.

OMPORS (Oxford Martin Programme on Resource Stewardship) project 'The Usability of Forecasts' – an interdisciplinary project, funded by the Oxford Martin School, that brings together social and physical science to address why and how scientific predictions about weather and climate are used in decision-making for the management of natural hazards and resources.

Contact information:

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Further information on current monitoring and early warning systems in the UK:
CEH Hydrological Summaries: http://www.ceh.ac.uk/data/nrfa/nhmp/monthly_hs.html
Hydrological Outlook UK: http://www.hydoutuk.net/
EA Water Situation reports: https://www.gov.uk/government/collections/water-situation-reports-for-england

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