Prof Jacky Croke, University College Dublin

Using Palaeoclimate data to better inform hydroclimate variability and the benefits to the water industry.

Date: 15th April, 2021

Time: 13:00-14:00

Where: Zoom - https://ucd-ie.zoom.us/j/61261225697

Abstract:

Palaeoclimate data relating to hydroclimate variability over the past millennia have a vital contribution to make to the water sector globally. The water industry face considerable challenges accessing climate data sets that extend beyond the typical 100-year timespan of historical gauging stations. Without this information, capturing variability around the extremes of floods and droughts, makes stress-testing infrastructure design and changing patterns of water supply and demand next to impossible. Practical challenges for the industry include: (i) accessing standardised and quality assured palaeoclimate data and (ii) an efficient process to determine which proxies are most relevant to a planning scenario, and geographic area, of interest. This seminar presents details on constructing such a database- PalaeoWISE (Palaeoclimate Data for Water Industry and Security Planning), a fully integrated, and quality-assured database of relevant proxy data from the southern Hemisphere. The database and resultant correlations are then used to derive catchment-specific reconstructions for 9 hydroclimate variables relevant to the water industry. The benefits and implications of using this extended time series for water inflow modelling are also discussed. The approach can be applied to other areas and offers water managers and the scientific community a valuable resource to understand, and manage for, future climate changes.

About the Presenter:

Jacky Croke is a Professor in the School of Geography at University College Dublin. Her research interests lie in fluvial geomorphology, environmental change and landscape response over timescales ranging from the Quaternary (2.5Mill Years) to the more recent Anthropocene. A constant focus has been showcasing the contribution of past climates to inform future predictions of water availability. Key projects include the Big flood Project (www.thebigflood.com.au), an Australian Research Council funded project involving industry and research partnerships that defined landscape response to extreme flood events in southeastern Queensland Australia. The Palaeoclimate for Water Security (www.palaeoclimate.com.au) project uses evidence preserved in palaeoclimate proxy records such as tree-rings, coral bands and lake sediments, to reconstruct past and future floods and droughts across Australia. Both projects are heavily linked to planning and policy in the area of water management. Research interests in Ireland include the classification of Irish Rivers based on their hydrological and geomorphic characteristics which together provide an informed view of water availability, water quality, and flood risk in Ireland. She is currently Head of School, co-Director of the BSc in Sustainability and Director of the MSc in Risk, Resilience and Sustainability.