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# Millenial scale changes in flood magnitude and frequency and the role of changes in channel adjustment.

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With access to only limited gauging records ($\sim$ 37 years in eastern Australia), Australia like many parts of the globe is heavily constrained in its ability to meaningfully predict the magnitude and frequency of extreme flood events. Flood inundation data gathered during recent floods (2011 and 213) now forms an essential insight into how landscapes may respond to future floods and to guide planning and policy. This study presents the first singe-catchment flood reconstruction analyses in a region of recognised hydrological variability, as characterised by alternating extremes of floods and droughts. The resultant 'Big Flood' data set consists of a unique combination of high-resolution topographic data on landscape changes during recent floods, and a detailed reconstruction of both the timing and estimated magnitude of past food events derived using OSL dating of flood deposits from a range of sedimentary environments.

While distinct flood and drought 'phases' are recognisable over the timescale of several thousand years, the extent to which these reflect changes in flood magnitude and/or frequency remains complicated by catchment-specific geomorphology. Issues of flood sample preservation are discussed in this talk within the context of geomorphic setting and notably non-linear variations in the capacity for channel adjustment. This talk outlines the key factors which must be considered in evaluating the role of climate, landuse change and geomorphology in informing flood risk management in Queensland.