



Holocene climate variability reflected in river-floods recorded in Meringsdalsvatnet, Southern Norway

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In semi-continental eastern and central southern Norway changes in river discharge are at present highly connected to changes in solid winter precipitation, and the subsequent spring-snowmelt season with episodically large river floods. Extreme events such as river-floods are by definition rare, and instrumental and historical records that only extend about 100 years back in time, offer limited information to characterize these events and their connection to shifting climates. Based on a lake-fill sedimentary succession, we extend the river-flood record by 10 000 years, and thus opens the possibility of investigating the changing characteristics of river-flood events in shifting climates.

River-floods are recorded throughout the Holocene, with large differences in flood-frequency through time. After the deglaciation, a period of c. 1000 years with high river-flood frequency is recorded, followed by a low frequency river-flood interval during the Holocene thermal optimum (c. 7700-6000 cal. yr BP). Entering the Neoglacial period in southern Norway, c. 6000 cal. yr BP, the river-flood frequency increased. Subsequent to c. 2500 cal. yr. BP, corresponding to the Subboreal-Subatlantic transition, the river-flood frequency was significantly higher than during any earlier interval in the Holocene, however, with periods of decreased river-flood frequency at around 1000 and 400 cal. yr BP.