



Neolithic Mondsee Culture - Living on lakes and living with floods

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Neolithic lake dwellings in the European Alps became recently protected under the UNESCO World Heritage. Various archaeological sites are known, however, the influence of climatic changes on the settlement activity remains unknown. In particular, unfavourable climatic conditions are discussed to be responsible for the decline of the Lake Mondsee Culture at about 4700 years ago. The abandonment of Neolithic settlements appeared almost synchronously in various lakes in the Austrian Salzkammergut, thus suggesting a significant and overall influence of climate change.

Within the varved Lake Mondsee sediment record covering the last 7000 years, we investigated intercalated detrital layers (0.05–40 mm) to unravel the recurrence pattern of hydro-meteorological events during the Neolithic. We used sedimentological and geochemical methods (microfacies analysis, μ XRF element scanning) to distinguish between debris flow and flood deposits. A period of increased runoff events (30 floods and 6 debris flow events) occurred between 5.8 and 4.7 ka BP and probably affected two different Neolithic settling phases (5.8–5.4 ka BP and 5.2–4.7 ka BP). This period of more frequent flood events corresponds to colder climate conditions in Central Europe. While during the first settling phase lake dwellings on the wetlands dominated, the second settling phase is characterized by lake dwellings built on piles upon the water, possibly indicating an early adaptation to increasing flood risk.

Our reconstruction of flood events from varved lake sediments linked with the archaeological sites of the Mondsee Culture improves the understanding of the complex interplay between past climate changes, hydro-climatic extreme events and the adaptation of human settlements.