

## Publication

### Chironomids as proxies for palaeoenvironmental changes in east Greenland: a Holocene record from Geographical Society Ø

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A 2.6 m long sediment sequence from a small lake on Geographical Society Ø, central East Greenland, was investigated for chronology, lithology, biogeochemistry, and fossil chironomid assemblages. The sediment sequence comprises the complete lake history since the deglaciation of the area. Based on earlier investigations of the same sediment sequence, the lacustrine sedimentation without glacial influence started at ca. 10,000 cal. yr BP in the lake basin. The climate history inferred from the sediment sequence based on geochemical analyses is in accordance with other palaeoclimate records from the region and indicates an early Holocene warming at ca. 9,000 cal. yr BP. Climatic deterioration started at 6,500 cal. yr BP. The second half of the Holocene after ca. 5,000 cal. yr BP is characterised by a relatively cool climate. High resolution biogeochemical analyses indicate a number of short-term climate events, most of which, however, seem to have a local character. A total of 21 samples were analysed for subfossil chironomid assemblages and provide the first chironomid record from Greenland spanning almost the entire Holocene. Because major changes in the chironomid assemblages could have been associated with long-term environmental changes, chironomids seem to have a considerable potential as palaeoclimatic indicators in the high arctic environments of East Greenland. However, sparse information about the extant regional chironomid assemblages and their habitats hampers the use of fossil chironomids as a direct proxy for climatic parameters, as has been successfully done in other regions.

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