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Situated between the North Atlantic and the Greenland ice sheet, the thousands of lakes in the Kangerlussuaq area of West Greenland (67°N) present excellent targets for paleoclimate studies. Paleoshorelines surrounding multiple closed-basin lakes in this area record fluctuations in lake level since deglaciation. Shorelines along two of these lakes, Hundeso and Lake E, were surveyed and trenched to reconstruct the history of lake-level change. The stratigraphies of the trenches were described, and a chronology has been developed using radiocarbon dating of organic material. Preliminary results indicate a highly variable hydrologic regime throughout the late Holocene.

Hundeso had high-stand lake levels ~810 and 1950 14C yr. B.P., reaching elevations 4-5 meters above present lake level. Topographic data show that at these times Hundeso was joined with several neighboring lakes to form a "mega lake" that covered over 520 ha. Lake E also experienced high stands at the same time (830 and 1920 14C yr. B.P.), with lake levels 1-2 meters above present.

This study presents the first direct evidence of Holocene lake-level variability in this region, which can be used to constrain the interpretation of other paleoclimate proxies in cores from regional lakes. Our data suggest substantial hydrologic variation during the last 2000 years, including the highest lake stands since the lakes were formed ~8000 years ago.

Abstract Categories: Changes on Land

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