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Mid- to late Holocene oxygen isotopes from Voldafjorden, western Norway

Heidi Kjennbakken, Hans Petter Sejrup, and Haflidi Haflidason
University of Bergen, Department of Earth Science

Basin-water in deep-silled Norwegian fjords is primarily influenced by inflowing Atlantic water, originating from the Norwegian Atlantic Current (NwAC). Previous studies suggest that benthic foraminiferal oxygen isotope records from deep-silled fjords are strongly influenced by variability in the NwAC. The objective of this study is to investigate the mid- to late Holocene temperature development in the basin water of a deep-silled fjord; Voldafjorden, utilizing two benthic foraminifer oxygen isotope records. The oxygen isotope analyses are performed on the two benthic foraminifer species *Uvigerina mediterranea* and *Cassidulina laevigata*. The age model is based on 10 radiocarbon dates on marine carbonates and on one plant macro fossil, showing that the two records extend from 6000 to 2200 cal yr BP with an average time-resolution of 17 years. The δ^{18}O *C. laevigata* record has systematically larger amplitudes compared to the δ^{18}O *U. mediterranea* record. This is most likely related different life-cycles/periods of calcifications. The oxygen isotope results show a clear shift towards higher values between 5000 and 4000 cal yr BP, interpreted to reflect a temperature drop in the basin water of c. 1 ˚C. After the temperature drop, the high-frequency variability (centennial and multi-decadal) changes abruptly towards higher amplitudes and the centennial sub-periodicity changes, where a pronounced 370 year cycle in the δ^{18}O *C. laveigata* record disappears after 3800 cal yr BP. The basin-water cooling indicates that the temperature of the inflowing Atlantic water dropped. The following change in high-frequency variability suggests a transition towards more variable conditions after the cooling.