



## **A radiocarbon-based deglaciation chronology and Late Glacial relative sea-level history for outer Boknafjorden, western Norway**

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The outer part of Boknafjorden in western Norway was one of the first areas in Norway to become ice-free following the Last Glacial Maximum (LGM), which makes it a key area for studying the earliest ice front variations, relative sea-level history, and glacio-isostatic adjustment associated with the deglaciation of the Scandinavian ice sheet. We present new age constraints for the deglaciation of outer Boknafjorden based on radiocarbon dating, and reconstructions of Late Glacial relative sea-level (RSL) change for the islands Karmøy and Bokn from isolation basins. Karmøy is situated at the very mouth of Boknafjorden, whereas Bokn lies about 12 km inside the fjord mouth, and our results show minimum deglaciation ages of 18 ka BP and 15.5 ka BP for these two islands, respectively. For both sites the marine limit coincides with deglaciation, and has an altitude of 16-18 m above present sea level (asl) on Karmøy and 22-24 m asl on Bokn. This is in contrast to sites further inside the fjord, where the marine limit coincides with the culmination of the Younger Dryas transgression. In general, RSL in the outer Boknafjorden area fell slowly following deglaciation, before accelerating at the transition to the Bølling interstadial. A Late Glacial regression minimum was reached between 13.8 and 13 ka BP, with RSL falling a few (4-5) meters below present sea level on Karmøy, and down to about 11 m asl on Bokn. Following this a transgression of about 10 m occurred at both sites, culminating close to the Younger Dryas-Holocene transition, before a rapid regression is seen in the early Holocene. We compare our data to eustatic sea-level reconstructions and modelled gravitational effects on the geoid by the Scandinavian ice sheet, in order to investigate the glacial-isostatic adjustment history and Late Glacial shoreline gradients in outer Boknafjorden.