



Dating of raised beach deposits in Gipsdalen, coastal west Svalbard, using surface exposure dating (^{10}Be , ^{36}Cl) and radiocarbon ages

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Raised beach deposits were sampled in the Gipsdalen area (inner Isfjorden) to quantify the isostatic rebound of the area in western Svalbard. The region has been covered by a 300-100 m thick Weichselian ice sheet extending west from the Barents Sea (Siegert & Dowdeswell, 2002, *Marine Geology* 188, 109). Isostatic rebound of the land mass after the melting of the ice raised late glacial beach deposits in the study area up to 90 m above the present sea level. A series of raised beach deposits were mapped and surveyed in the Gipsdalen and Gipshuken area. Three samples from glacially abraded bedrock constrain the downwasting of the Late Weichselian ice cover in the area. The surface exposure ages (^{10}Be and ^{36}Cl) of these samples provide a maximum age of the Late Weichselian Marine Limit of the research area. Amalgamation samples were taken from sediment bodies of raised beaches at five different locations. Surface as well as depth samples were taken to quantify the inherited nuclide concentrations of the sediments. We found shells and whale bones in the same sediment bodies that we sampled for radiocarbon dating. They allow evaluating the reliability of our age modelling. Furthermore, we found organic material (whalebones and wood fragments) well embedded in raised beach deposits from a series of nine raised beaches of probably Holocene age. Our results will constrain the late glacial uplift rates of the area as well as the marine limit for different time periods. This combined approach of radiocarbon and surface exposure dating allows investigating the applicability of surface exposure dating with terrestrial nuclides for young, Holocene sedimentary surfaces at low altitude and high latitude. First results will be presented at the conference.