



## **The Bjørnøya Fan Slide Complex – Recurrent Pleistocene Mega-Failures on the NE Atlantic Margin**

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The Late Neogene history of the NE Atlantic continental margin is characterized by numerous mass movement features reflecting a variety of scales and processes. Such slide processes have also been reported on the margin off the western Barents Sea, where the <300 ka Bjørnøyrenna Slide is a major feature. We have now studied the Late Neogene sequences in this area further by analyzing high quality multi-channel seismic lines on the continental slope and in the adjacent Lofoten Basin, allowing resolution of slide features at depth. The seismic data reveal the existence of three pre-Holocene mega-slides, which together with the smaller Bjørnøyrenna Slide, comprise the Bjørnøya Fan Slide Complex (BFSC). We have determined the extent, timing and the volume of sediment involved in these mass movements. We also document that the mega-slide events have occurred as far back as 1.0 Ma, and that the largest slide, BFSCII (0.5-1.0 Ma), affected an area of  $120 \times 10^3 \text{ km}^2$  and involved about  $25 \times 10^3 \text{ km}^3$  of sediments. In terms of sediment volume, the two oldest mega-slide events are as much as a magnitude larger than the Holocene Storegga Slide, considered the world's largest exposed submarine slide. Even the smallest slide, BFSCIII, is comparable with the Storegga Slide. During the past 2.6 Ma, the Northern Hemisphere Glaciations resulted in deposition of a thick cover of dense deposits over a softer substratum. Together with very high depositional rates, this setting promoted instable conditions favourable for releasing the mega-slides, that possibly were triggered by earthquakes or gas hydrate dissociation.