Geophysical Research Abstracts, Vol. 9, 01953, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-01953

The Hinlopen/Yermak Megaslide (north of Svalbard, Arctic Ocean): Size, Timing and Dynamic of an exceptional Submarine Slide

D. Winkelmann (1) and R.Stein (1)

(1) Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany

With increasing interest in slope stability issues on continental shelves the causes and trigger mechanism of submarine slides get more and more into the scientific focus. The Hinlopen/Yermak Megaslide constitutes an exceptional retrogressive submarine slide on the continental margin north of Spitsbergen. The extent of this megaslide has been revised based on new acoustic and detailed bathymetric data. Its true geometry, with an affected area of at least 10,000 km^2 and more than 2400 km^3 involved sedimentary material, puts the megaslide among the largest exposed submarine slides worldwide. Details from its internal structure give evidence for one complex main failure event during MIS 3 followed by repeated minor events. Following the initial and partial removal of the Hinlopen Trough Mouth Fan, the slide involved a variety of sedimentary and dynamic processes involving and affecting the surrounding slope sediments. The megaside's geometry and internal physical appearance point to a tectonically induced partial shelf collapse around 30 kyr. BP. The timing coincides with the transition of the Kapp Ekholm Interstadial into Glaciation G of Svalbard (Mangerud et al., 1998) and the build-up phase of the Svalbard-Barents Sea Ice Sheet. Thus, the megaslide occurred during a period of falling sea level, increasing ice volume and, presumably, increasing glacio-tectonic activity. The triggering scenario of this exceptional slide is presented separately within the same session.