



Assessing Arctic Submarine Slope Stability – Investigating the Glide Planes of the Hinlopen/Yermak Megaslide by Scientific Ocean Drilling

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The Arctic experiences the most drastic changes following global warming. Slope stability issues arise from the presence of large hydrate and permafrost provinces that are subject to future warming. Hence, understanding of the slope stability system (conditioning, triggering and consequences) within the slopes of the Arctic Ocean is a crucial condition for assessing the risks associated with submarine failures that will potentially be caused by rising temperatures.

The Hinlopen/Yermak Megaslide is the first and so far only large-scale slope failure of the Arctic Ocean proper. Its enormous headwalls document the translation of very thick sedimentary slabs reaching 1800 m. Yet, we lack understanding of the processes that allowed the development of glide planes at such deep levels inside the slope. Therefore, we propose to recover glide plane material through scientific ocean drilling and investigate its nature by state-of-the-art techniques. Further, we propose to monitor ongoing changes in the slope through in-hole observatories.