



Large-scale mass wasting on the northwest Spitsbergen continental slope

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Swath bathymetry and seismic data reveal two slide scars providing evidence for large-scale mass-wasting on the continental slope off northwest Spitsbergen. The largest scar is approx. 35 km long, at least 16 km wide and located between 1300 and 3000 m water depth. The failure is assumed to be of a retrogressive nature, because it affected multiple stratigraphic levels up to at least 200 ms two-way-travel time (approx. 150 m) below the present seafloor. The second largest slope failure affected an area of at least 35 km length, up to 7 km width and 70 ms (approx. 55 m) thickness below 1400 m water depth. It cuts into the south-eastern sidewall of the largest scar between 2700 and 2800 m water depth and deposition of sediment lobes within the largest scar occurred. The bathymetry within this slide scar is relatively smooth compared to the largest scar, but single blocks are visible. These observations suggest a retrogressive configuration of this slide, too. Minor failures along the side walls occur. Both slide scars are filled in with approx. 15 m of acoustically stratified sediments, suggesting that the slope failures occurred almost synchronously. However, the sediment lobes beyond the lower limit of the second largest slide scar suggest that this slide occurred after the largest slide. The slides were most probably triggered by seismic activity leading to failure within contouritic sediments.