

# **Sedimentological context and distribution of quick clay around ice-marginal positions in Trøndelag and Finnmark, Norway**

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Quick-clay landslides pose a significant geohazard in regions that were previously glaciated and located below the marine limit. In Norway alone, over 100,000 residents inhabit areas with definitive evidence of quick clay, while a much larger population resides on marine clays that are potentially quick. Quick-clay landslides occur annually in Norway, sometimes leading to fatal outcomes. Therefore, mapping and predicting the distribution of quick clay is of high societal importance.

The occurrence of quick clay is commonly explained by the change in porewater chemistry of marine clay deposits due the leaching of ions through long-term groundwater seepage. However, both syn- and post-depositional processes play a role for the occurrence of quick clay. Coarser-grained layers in association to the clay potentially enhance the leaching process and thus play a role for the distribution of quick clay.

The present study aims to enhance our understanding of how and where quick clay occurs within a sedimentological and geomorphological context. Also, this study aims to explore the potential of using soil index properties (e.g. grain size, water content, Atterberg limits and sensitivity) alongside field methods in sedimentological studies. This is achieved through statistical analysis of data from geotechnical drilling reports, and sedimentological field investigations. Such data compilation will help to assess whether and how the regional sedimentological settings and internal structures influence the distribution of quick clay in the selected study areas.

Our focus areas are the marine deposits surrounding major ice-marginal deposits in Trøndelag (Tillerryggen) and Finnmark (Alta), Norway. Both regions feature widespread evidence of landslides involving quick clay. The sedimentological setting in these areas is complex due to readvancing glaciers potentially overconsolidating proximal marine deposits while simultaneously depositing coarse-grained glaciofluvial material that interlayers with fine-grained marine material. Preliminary results from this study will be presented. This will aid in discussing if and how the distribution of quick clay can be correlated to the distribution of coarse-grained deposits.