



## **In search for coastal amplification of rock weathering in polar climates – pilot Schmidt hammer rock tests surveys from sheltered fjords of Svalbard and tsunami-affected coasts of Western Greenland.**

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Recent decade has seen the major advance in Arctic coastal geomorphology due to research progress along ice-rich permafrost coastlines of Siberia, Alaska and NW Canada. On the contrary little attention was paid to Arctic rocky coastlines and their response to the reduction of sea ice cover and increased number of storms reaching Arctic region. In this paper I present results from a pilot survey of rock resistance using Schmidt Hammer Rock Tests across rocky cliffs and shore platforms developed in:

- sheltered bays of Billefjorden, Svalbard characterised by prolonged sea-ice conditions and very limited operation of wave and tidal action
- Vaigat Strait and Isfjorden in W Greenland influenced by landslide-triggered tsunamis and waves induced by ice-berg roll events.

The aim of a pilot study was to test the hypothesized coastal impact on the rate of rock weathering in polar climates.

To do so I characterise the changes in the rock resistance on the following coastal landforms:

- modern and uplifted wave-washed abrasion platforms– focusing on a relation between the degree of rock surface weathering and the distance from the shoreline as well as thickness of sediment cover on shore platform surface
- modern and uplifted rocky cliffs – focusing on a relation between the degree of rock surface weathering and the distance from the shoreline as well as difference in height above the sea level and relation to rock lithology.

The results present another line of argument supporting intensification of rock weathering processes in the Arctic coastal zone.

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