

# Glacially induced volcanic activity on the island of Jan Mayen?

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The Beerenberg volcano in the northern part of the island of Jan Mayen is presently covered by an ice cap with several outlets. No active glaciers exist in the south part of the island. All historically dated/known volcanic eruptions have taken place in the Beerenberg area, but numerous lava flows and pyroclastic deposits are also found in the south.

During the Last Glacial Maximum (LGM) the entire island was ice-covered with greatest thickness over the south. Ice in the north likely was not much thicker than today. TCN dates indicate that the LGM glacier had started to waste back by 19-18 ka BP and that coastal areas deglaciated 13-12 ka ago. During the middle Holocene and the Little Ice Age (LIA), glaciers in the Beerenberg area expanded well beyond their present margins. Holocene glacier expansion likely was much more restricted in the south. Thus, ice was thickest and most extensive during LGM over the south, and over the north during LIA

Our preliminary data indicate that volcanic activity was greatest in the south during the LGM deglaciation and in the north during the LIA deglaciation, thus seemingly linking glacier unloading and volcanic activity. We therefore hypothesise that pressure reduction by glacial unloading caused bubble formation and decreased density in shallow magma resulting in increased likelihood of volcanic eruptions.