# The 1732 phreatomagmatic eruption of Eggoeya, Jan Mayen.

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Jan Mayen is a volcanic island situated at 71 degrees N and 8 degrees W making it the northernmost active surface volcano in the world. The Island is build up of two main edifices, South Jan and North Jan (Beerenberg). Volcanic activity on the island is little known, however at least 5 eruptions are documented on the island since early 18th century.

Expeditions to the island in summer 2011 and 2012 reveal that the first of these eruptions formed the tuffcone Eggoeya in 1732 AD. The Eggoeya tuffcone is situated at the south-west foot of the Beerenberg volcano. The tuffcone, now partly eroded by the sea, is about 1.5 km in diameter and emerged from about 35 m depth to reach the altitude of at least 217 m above sea level. Pre Eggoeya lava flows on the coast north of the edifice are covered by up to 2,1 m of fallout and pyroclastic surge deposits some 2 km from the vent. These lava flows have previously been suggested to be formed in the 1732 eruption and the 1818 eruption of Jan Mayen. However, they are covered with the Eggoeya tephra and thus older than the 1732 eruption. Tephra from the Eggoeya eruption forms the uppermost tephra layer on most of Jan Mayen. Contemporary description of the 1732 eruptions tell of an explosive eruption at the foot of Beerenberg observed by German whalers from the 17th to 21st of May, when a change of wind allowed them to leave, but also covered their sails and decks in volcanic ash. A Dutch whaler group arriving to the island in June that year, report fine ash covering the island in such a way they sank up to mid leg into it.

Our study shows that the only eruption these descriptions fit is the Eggoeya eruption, dating it precisely to the spring 1732. The eruptive products are made up of vesicular tephrite-basanite to trachybasaltic glass groundmass and ol, px and fs crystals, in line with other primitive flank eruptions of Beerenberg. In this presentation we shall present the eruption chronology, glass chemistry, eruptive processes, emplacement mechanisms, distribution and volume calculation of the eruption.