The Hekla Eruption of 1970 *

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Course of Events

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After a repose lasting at least two and a half centuries a new period of activity began in Hekla in 1104 A.D. The activity of the volcano since then is summed up in Table 1, which is based on detailed tephrochronological studies combined with a critical evaluation of written records (THORARINSSON, 1967a). These studies reduced the number of eruptions hitherto ascribed to Hekla. Their number is not 20, as it would be according to Thoroddsen’s classical Geschichte der isländischen Vulkane (THORODDSEN, 1925), it is 15.

After the Hekla eruption of 1636 the length of repose between the eruptions steadily increased and the large eruption in 1947-48 was preceded by a repose of 101 years. It was therefore a rather unexpected eruption that broke out in the evening of May 5th 1970. The seismographs in Reykjavik registered earthquake shocks which began at 20:58 IMT (=GMT) and culminated about 22:00. Their maximum magnitude was about 4 on the Richter scale.

The only precursory symptoms noticed before the earthquake were nervousness and restlessness in the dogs at the Búrfell hydro-powerstation, situated 15 km NW of Hekla, which was noticed some hours before the first earthquake shocks were felt.

The eruption started visibly at 21:23 IMT ± 2 or 3 minutes, when fissures opened up nearly simultaneously on the SSW and W flanks of the Hekla ridge.

The real Hekla fissure (Heklugjá) which is about 5.5 km long and splits the NE-SW running Hekla ridge lengthwise (Fig. 2) opens up in its entire length during major eruptions. This time it opened up only in the extreme SW.

![Diagram of Hekla's eruptions showing tephra dispersion](image)

**Fig. 1** - Map showing in which direction the tephra was dispersed during the initial phase of each of Hekla's 15 eruptions in historical times. The width of each arrow indicates roughly the relative size of the tephra layers' estimated volume.

The first two craters opened up on the SSW-flank, on a line running S55°W-N55°E, at an elevation of about 800 m. The distance between them was about 0.5 km. A third crater, and by far the most productive during the tephra producing phase of the eruption, opened up a little later at an elevation of 780 m. It is on a fissure running nearly N-S, which gradually opened up to a length of 0.8 km. At 22:30 a fountain of lava, continuously uprushing and glowing to a height of at least 1 km, rose from the largest crater. The fountains from the other two were considerably lower.