

Bárðarbunga update 29082014

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Bárðarbunga update

Compiled by

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Based on

Seismic, GPS, Hydrology, Radar, Webcam, PIREP, visual observations

Eruption plume

Height (a.s.l.)

No plume was detected by radar (detection limit above 1 km) and webcam indicated low level gases and steam from lava fountains during the night.

Heading

No plume now, but winds were about 10 m/s from SE during the night.

Colour

No plume now.

Tephra fallout

No tephra fall now.

Lightning

No lightning during eruption according to ATDnet of the UK Met Office and WWLLN-system.

Noise

None.

Meltwater

The eruption was 5 km N of the glacier, therefore without a jökulhlaup. No indication of changes in water flow in rivers. The conductivity still remains at the same high level as in the previous days. The size of the cauldrons recently observed on the glacier has been estimated to be 30-40 million m³, but not clear where the meltwater has gone.

Conditions at eruption site

At 00:02 UTC signs of a lava eruption were detected on web camera images from Mila. The web-camera is located at Vaðalda, north-east of the eruption site. Around midnight, weak signs of increased tremor were apparent on IMO's seismic stations near to the eruption site. At 00:20 UTC scientists in the field from the Icelandic Met Office, Institute of Earth Sciences and Cambridge University confirmed the location of the eruption. The eruption occurred on an old volcanic fissure on the Holuhraun lava field, about 5 km north of the Dyngjufjökull ice margin. The active fissure was about 600 m in length. A small amount of lava drained from the fissure and by around 04:00 UTC, lava flow is thought to have stopped. According to seismic data and web-camera imagery, the eruption peaked between 00:40 and 01:00 UTC. Aerial observations by the Icelandic Coastguard

show that only steam is rising from the site of the lava eruption. Location of eruption site is at 64°52'N, 16°50'W.

Seismic tremor

Weak eruption tremor seen after midnight, that diminished with the eruption. No signs of tremor now.

Earthquakes

At the beginning of the eruption, seismic activity decreased, although seismicity has since returned to levels observed in recent days. An earthquake (4.8) occurred at 11:15 and another (5.2) at 12:21, both on the N-rim of the Bárðarbunga caldera.

GPS deformation

The most recent GPS measurements from stations at Dyngjuháls and Kverkfjöll indicate continuation of magma flowing into the dike. A new GPS station has been set up north of Vonarskarð. In the following days, three new stations will be installed: one at Urðarháls and two south of Askja, on either side of the dike.

Overall assessment

At this moment it is unclear how the situation will develop. However, three scenarios are considered most likely: * The migration of magma could stop, resulting in a gradual reduction in seismic activity and no further eruptions. * The dike could reach the Earth's surface north of Dyngjujökull causing another eruption, possibly on a new fissure. Such an eruption could include lava flow and (or) explosive activity. * The intrusion reaches the surface and an eruption occurs again where either the fissure is partly or entirely beneath Dyngjujökull. This would most likely produce a flood in Jökulsá á Fjöllum and perhaps explosive, ash-producing activity. At 10:00 UTC, IMO changed the Aviation Colour Code for Bárðarbunga to 'orange', signifying that significant emission of ash into the atmosphere is unlikely. The aviation colour-code for the Askja volcano remains at 'yellow'. Other scenarios cannot be excluded. For example, an eruption inside the Bárðarbunga caldera.