Bárðarbunga update 25082014

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Bárðarbunga update

Compiled by

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Based on

Seismic, GPS, Hydrology

Eruption plume

Height (a.s.l.)

No eruption and no eruption cloud.

Heading

No eruption and no eruption cloud.

Colour

No eruption and no eruption cloud.

Tephra fallout

No eruption and no eruption cloud.

Lightning

No eruption and no eruption cloud.

Noise

No eruption and no eruption cloud.

Meltwater

Discharge- and conductivity measurements at Jökulsá á Fjöllum, Upptyppingar are similar to what it has been the last days. The data is within typical range observed at this time of the year in the last decade. Conductivity measured in Jökulsá á Fjöllum at the bridge north of Vaðöldu, in the Rjúpnabrekkukvísl and in the Köldukvísl is similar to what has been measured the last days.

Conditions at eruption site

No eruption.

Seismic tremor

No harmonic (volcanic) tremor observed.

Earthquakes

Intense seismicity continues in the dike NE of Bárðarbunga caldera. Seismicity in this region continues to migrate northward. Seismicity is now concentrated on the 10 km long tip of the dike extending 7 km beyond the edge of the Dyngjujökull glacier. Event depths remain unchanged at about 5-10 km. At 20:39 last night an earthquake of magnitude ~5 was observed beneath the Bárðarbunga caldera. Since then earthquakes in the caldera have been smaller than 5.

GPS deformation

The most recent GPS measurements indicate continuation of magma flowing into the dike under Dyngjujökull, now propagating north of the ice edge. This is supported by the current seismic activity at Dyngjujökull ice edge. Model calculations suggest that a total volume of 300 million cubic meters have intruded into the crust since the activity started. Currently there are plans to install two new GPS stations, one north of Vonarskarð and another at Urðarháls.

Overall assessment

There are no indications that the intensity of the activity declining. Currently, three scenarios are considered most likely: 1) The migration of magma could stop, attended by a gradual reduction in seismic activity. 2) The dike could reach the surface of the crust, starting an eruption. In this scenario, it is most likely that the eruption would be near the northern tip of the dike. This would most likely produce an effusive lava eruption with limited explosive, ash-producing activity. 3) An alternate scenario would be the dike reaching the surface where a significant part, or all, of the fissure is beneath the glacier. This would most likely produce a flood in Jökulsá á Fjöllum and perhaps explosive, ash-producing activity. Other scenarios cannot be excluded. For example, an eruption inside the Bárdarbunga caldera is possible but presently considered to be less likely.