

Bárðarbunga update 24082014

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Bárðarbunga update

Compiled by

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Based on

Seismic, GPS, water samples

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 measurements at Jökulsá á Fjöllum, Upptyppingar to day are similar to what was measured yesterday. Waterlevel or discharge is of the typical range observed at this time of the year in the last decade until now but the conductivity is slightly higher. Conductivity measured in Jökulsá á Fjöllum at the bridge north of Vaðöldu, in the Rjúpnabrekkukvísl and in the Köldukvísl is similar what was measured at the same time yesterday.

Conditions at eruption site

No eruption.

Seismic tremor

Strong low-frequency (~1Hz) tremor has not been detected since yesterday at 13:00.

Earthquakes

More than 1000 earthquakes have been automatically detected in the area of Bárðarbunga caldera and along the propagating dike intrusion since midnight today (24 August). By far most of them were located at the northern tip of the dike. Dike region NE of Bárðarbunga caldera: The seismic activity has increased in number and intensity of the events since around 06:00 UTC and is still high at the moment. The northern-most front of the seismicity is already located outside the glacier margin, but appears to be migrating at smaller rates than yesterday. Along the dike more than 20 earthquakes were larger than M3 and three larger than M4. Event depths remain unchanged at about 5-10 km. Bárðarbunga caldera: Two earthquakes larger than M5 occurred along the caldera rim (M5.3 at 00:09 UTC and M5.1 at 05:33 UTC). Same as for recent strong events in the caldera, they were located at about 2-5 km depth. These events mark the largest earthquakes recorded at the Bárðarbunga caldera since 1996. Joint interpretation of seismic and gps data suggest that the caldera might be responding to stress changes caused by the intruding dike.

GPS deformation

The most recent GPS measurements indicate continuation of magma flowing into the dyke under Dyngjujökull. This is supported by the current seismic activity at Dyngjujökull ice edge. Model calculations suggest that a total volume of 270 million cubic meters have intruded into the crust since the activity started.

Overall assessment

There are no indications that the activity is slowing down, and therefore an eruption can not be excluded. Observations show that a sub-glacial eruption did not occur yesterday. The intense low-frequency seismic signal observed yesterday has therefore other explanations. The Icelandic Meteorological Office has decided to move the aviation color-code from red to orange.