

Bárðarbunga

2014-08-20 10:11 UTC
Bárðarbunga update

Compiled by

Melissa Anne Pfeffer Sara Barsotti Martin Hensch Ásta Rut Hjartardóttir Hildur María Friðriksdóttir

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

No eruption. Daily measurements of water samples from Upptyppingar on Jökulsá á Fjöllum have shown a stable conductivity of 200 $\mu\text{S}/\text{cm}$ since Sunday.

Conditions at eruption site

No eruption.

Seismic tremor

No sign of harmonic (volcanic) tremor detected.

Earthquakes

The earthquake swarm that began on 16 August at 03:00 is still ongoing. Intense earthquake activity is concentrated in the region between Bárðarbunga and Kverkfjöll calderas. The swarm continues to migrate towards the NE, however at a slower rate than in the last days. The swarm north of Bárðarbunga caldera (at the edge of Dyngjújökull just E of Kistufell) has diminished. There

have been some earthquakes within the Bárðarbunga caldera. Throughout the whole sequence until now, the majority of seismic events have been calculated to be at 5-10 km depth. There is no sign of upward migration. The event rate is still high. ~4000 events have been automatically detected since the beginning of the swarm on Saturday morning, ~700 since midnight today. Activity ebbs and flows in pulses of several hours lengths. The last pulse of high activity rate started at 9:30 this morning and is still continuing. All events since Monday morning have been magnitude 3.0 and less.

GPS deformation

The results of continuous GPS measurements continue to indicate magma intruding within the Bárðarbunga volcanic system. During the period between 8 am on the 15th of August and 4 pm on the 18th of August a GPS station on Dyngjuháls moved 5,4 cm towards the northwest and a GPS station on Grímsfjall moved 1,8 cm towards the south. Models suggest that the most likely explanation for the movements of the GPS stations is that there is an ongoing dyke intrusion east of Bárðarbunga.

Overall assessment

There have been no observations of migration towards the surface or any other signs of imminent or ongoing volcanic activity. We cannot exclude that the current activity will result in an explosive subglacial eruption, leading to an outburst flood (jökulhlaup) and ash emission.