

Grímsvötn volcano

Status Report: 16:00 GMT, 24 May 2011

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- Based on: IMO seismic monitoring; IES-IMO GPS monitoring; IMO hydrological data; weather radar; ashfall reports; UK Met Office ATDnet; MODIS and NOAA satellite images
- Eruption plume:
- Height (a.s.l.): The ash plume was not visible on radar for most of the night and early this morning due to weather conditions at the eruption site and around it. The estimated height is below 5 km since clouds over the glacier were at 5-7 km and the plume did not reach above the cloud deck. The ash plume reached 8 km briefly at 14 UTC today, but decreased shortly thereafter. According to pilot reports the plume is visible at around 10 thousand feet, mostly light gray or brown in color, but pulsating to 15 thousand feet, and becoming darker in the process. Based on plume height, the estimated magma discharge rate equals 10-70 tonnes/s of ash. A large part of Vatnajökull is covered by clouds and the eruption plume is not well defined in satellite images. South of Iceland images show visible ash extending over 800 km from the eruption site towards the south and southeast.
- Heading: A large part of the ash heads to the south.
- Colour: Mostly light gray.
- Tephra fallout: The axis of the main tephra sector has a direction S - SSW from Grímsvötn. Ash clouds are mainly confined between Lomagnupur and Myrdalsjökull. It is not very thick and it is mixed with blowing ash. In Kirkjubaejarklaustur the ashfall has decreased compared to yesterday. The visibility this morning was around 200 m but around noon only 100 m and the sky became dark.
- Lightning: No lightning strikes have been detected since yesterday afternoon.
- Noise: No noise from the volcano has been reported.
- Meltwater: There is no sign of flooding in the rivers Gígjukvísl or Núpsvötn, which drain from the Skeiðarárjökull glacier. As the eruption is

occurring at the same location as the 2004 eruption, little ice is available for melting. A large outburst flood (jökulhlaup) is unlikely, assuming that the eruption remains in the same location. The electrical conductivity of Núpsvötn has continued to increase; this is due to ash-fall on the western side of Skeiðarárjökull. Conductivity levels in Gígjukvísl remain unchanged.

Conditions at eruption site: The eruption site is in the southwest corner of the Grímsvötn caldera. Weather conditions have prevented overview flights since yesterday. The eruption has not yet been visited on ground.

Seismic tremor: Seismic tremor at the Grímsfjall station has been fairly stable since yesterday afternoon but some fluctuations are observed.

Earthquakes: No earthquakes were recorded in the volcano today. Three earthquakes or possible icequakes occurred about 12-20 km south of the volcano yesterday evening.

GPS deformation: The GPS-station at Mt. Grímsfjall showed insignificant displacements from 00:00 – 24:00 yesterday.

Overall assessment: Based on the development of plume height, ash fall in inhabited areas in Iceland, number of lightning strikes, seismic tremor and ground deformation, it is inferred that the strength of the eruption continues to decline, with present explosive activity only a small fraction of its initial values.