



NATIONAL COMMISSIONER OF THE ICELANDIC POLICE
DEPARTMENT OF CIVIL PROTECTION AND EMERGENCY MANAGEMENT



THE SCIENTIFIC ADVISORY BOARD OF THE ICELANDIC CIVIL PROTECTION

Date: 23.01.2015 **Time:** 09:30 **Location:** Crisis Coordination Centre, Skogarhlid.

Regarding: Volcanic activity in the Bardarbunga system.

Attending: Scientists from Icelandic Met Office and the Institute of Earth Sciences University of Iceland along with representatives from the Icelandic Civil Protection, Directorate of Health and The Environment Agency of Iceland.

Main points

- Volcanic eruption in Holuhraun
- Air quality
- Scenarios

Notes

- Insubstantial changes have been in the volcanic eruption in Holuhraun over the last few weeks. The lava field has thickened substantially but activity on the surface has decreased.
- The subsidence in Bardarbunga caldera was measured from air on Wednesday. The volume of the subsidence is now 1.7-1.8 km³. The change in volume from the last measurement corresponds to a flow of magma from underneath Bardarbunga of about 60 m³ per second. The greatest subsidence is now about 61 meters. Over the last few weeks the geothermal cauldrons in Bardarbunga have enlarged.
- Seismic activity in Bardarbunga continues to be strong. Over the last few weeks it has though been quite weaker than in the first months of the event. No earthquake over M_{5,0} has been detected in Bardarbunga for 15 days, which is the longest period between M_{5,0} earthquakes since the seismic activity started in August. The strongest earthquake since the last meeting of the Advisory Board on Tuesday was measured M_{4,7} yesterday at 03:07. Eight other earthquakes between magnitude M_{4,0}-_{4,7} were detected over the period and about 37 earthquakes between M_{3,0}-_{4,0}. In total around 150 earthquakes have been detected around the caldera since last Tuesday.
- Around 65 earthquakes were detected in the dyke during the same period, the strongest one was measured M_{1,5}.
- Insubstantial earthquake activity was detected in Tungnafellsjokull, Askja and Herdubreid.
- GPS measurements near northern Vatnajokull glacier show continuing slow deflation towards Bardarbunga.
- Around 2200 µg/m³ SO₂ were recorded on Thursday in Reykjahlid and at lake Myvatn. Very high values of SO₂, about 84000 µg/m³, were recorded at the eruption site in Holuhraun on Wednesday, being the highest values recorded at ground level since the eruption started.

Air quality:

- Today (Friday) gas pollution will be strongest northeast and east of the eruption site. Tomorrow (Saturday) gas pollution might be felt in many places in the northeast parts.
- The Icelandic Met Office provides two-day forecasts on gas dispersion from the eruptive site in Holuhraun. Most reliable are the forecast maps approved by meteorologist on duty, see [Gas forecast](#). And although still being developed further, an automatic forecast, see [Gas model](#), is also available (trial run, see [disclaimer](#)).



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- Measurements of air quality can be found on the webpage www.airquality.is Data from handheld gas monitors, spread around the country, can also be found on that page
- Instructions:
 - People who feel discomfort are advised to stay indoors, close their windows, turn up the heat and turn off air conditioning. Use periods of good air quality to ventilate the house. People experiencing adverse effects should be in immediate contact with their healthcare centre. Measurements of air quality can be found on the webpage www.airquality.is The Meteorological Office issues forecast on its web-page and warnings if conditions change to the worse.
 - Instructions from [The Environment Agency of Iceland](#) and [Chief Epidemiologist](#) can be found on their web-sites.
 - Check the Icelandic Met Office forecasts for sulphuric gas dispersion on the web as described above.
 - Handheld meters have been distributed around the country for SO₂ measurements three times a day.
 - Information and any questions on air pollution can be sent to The Environment Agency through the email gos@ust.is. The Environment Agency is especially looking for information from people who have been in contact with high concentrations of gas; where they were, at what time it happened, how the gas cloud looked (colour and thickness of the cloud) and how they were affected by it.
- The volcanic eruption has now been going on for over four months, the lava flow is still great in Holuhraun and the rate of the subsidence of the Bardarbunga caldera is still significant. Three scenarios are considered most likely:
 - The eruption in Holuhraun continues until the subsidence of the Bardarbunga caldera stops. The eruption can still go on for many months.
 - The volcanic fissure may lengthen southwards under Dyngjajokull, resulting in a jokulhlaup and an ash-producing eruption. It is also possible that eruptive fissures could develop in another location under the glacier. If such an eruption would be prolonged it could eventually produce a lava flow.
 - Volcanic eruption in the Bardarbunga caldera. Such an eruption would melt large quantities of ice, leading to a major jokulhlaup, accompanied by ash fall.

Other scenarios cannot be excluded.

- **From the Icelandic Met Office:** The Aviation Colour Code for Bardarbunga remains at 'orange'.
- The next meeting will be held on Tuesday 27th of January 2015.