



VOLCANIC LANDSCAPE

Various upland areas around Myrdalsjökull glacier, such as Landmannalaugar, Þórsörk and Fjallabaksleið north and south, are popular tourist destinations. Many visitors hike in the area or drive 4x4s on the mountain tracks, and horseback trips enjoy growing popularity.

The region is famed for its spectacular landscape and rock formations, shaped by volcanic activity and glacial action over thousands of years. Geological features include black volcanic sands, barren wilderness and lava fields, as this is an active volcanic zone. Mt. Katla generally erupts only once or twice every hundred years, and always gives some warning before the eruption takes place, so the risk should not discourage visitors from enjoying the beauty of the region.

But volcanic eruptions can be dangerous. Where the volcano is underneath a glacier a special risk arises, as the heat of the eruption melts the ice, leading to sudden floods. Hence visitors to the area should be aware of the risks arising from such eruptions, and know what to do in case of glacial flooding.

ERUPTIONS AND GLACIAL BURSTS

Mt. Katla is a volcano under the Myrdalsjökull glacier. It generally erupts once or twice in a century, throwing up volcanic tephra (ash) and partially melting the ice, leading to floods. Eruptions beneath the glacier are preceded by a series of "swarm" of earthquakes and tremors, which are detected by seismic sensors operated by the Meteorological Institute and other bodies. When an eruption is imminent a warning is sent out to the Civil Protection, which then puts emergency procedures into action to ensure the safety of residents and travellers in the region, by evacuation and road closures (*see map*).

When the volcanic material reaches the surface of the ice cap, a flood of melted ice from under the glacier may be expected within one or two hours. The floodwater will reach inhabited areas shortly after that.

The glacial flood or "burst" is a mixture of water, tephra, rock and ice floes. In the largest floods from Mt. Katla, the water flow is believed to have been 300,000 m³ per second, at 10-20 km per hour. Glacial bursts have left traces in many places around Myrdalsjökull, especially on the Myrdalssandur sands, where such floods have been most frequent (*see map*). Floodwater can spread all over the area from Múlavísl in the west to Meðalland in the east, and north to Hrífunes.

Floods have also been experienced on the Sólheimasandur sands, between Skógar and Pétursey. Research reveals that glacial floods have also flowed down Emstrur and the Markarfljót river flats, spreading over the region between Fljótshlíð and the Eyjafjöll mountains, and west to Bykkvibær (*see map*). When Mt. Katla begins to erupt it can be hard to tell which way the floodwater will flow. Hence caution is necessary in all these areas when an eruption warning is given.

Principal flooding routes from melting of the Myrdalsjökull glacier in eruptions of Mt. Katla (*see map*).

- Entujökull glacier:** glacial burst down Emstrur and the Markarfljót river flats.
Extent of glacial bursts on Markarfljót river flats.
- Sólheimajökull glacier:** glacial burst down Sólheimasandur sands.
Extent of glacial bursts on Sólheimasandur sands.
- Kötlujökull glacier:** glacial burst down Myrdalssandur sands.
Extent of glacial bursts on Myrdalssandur sands.

Eruptions under other glaciers, such as Eyjafjallajökull and Vatnajökull, may also lead to glacial floods.

Eruptions of Mt. Katla normally produce large quantities of tephra (volcanic ash), which may be dispersed by winds over large areas.

WARNING SIGNALS AND DANGERS

Maroons and flares

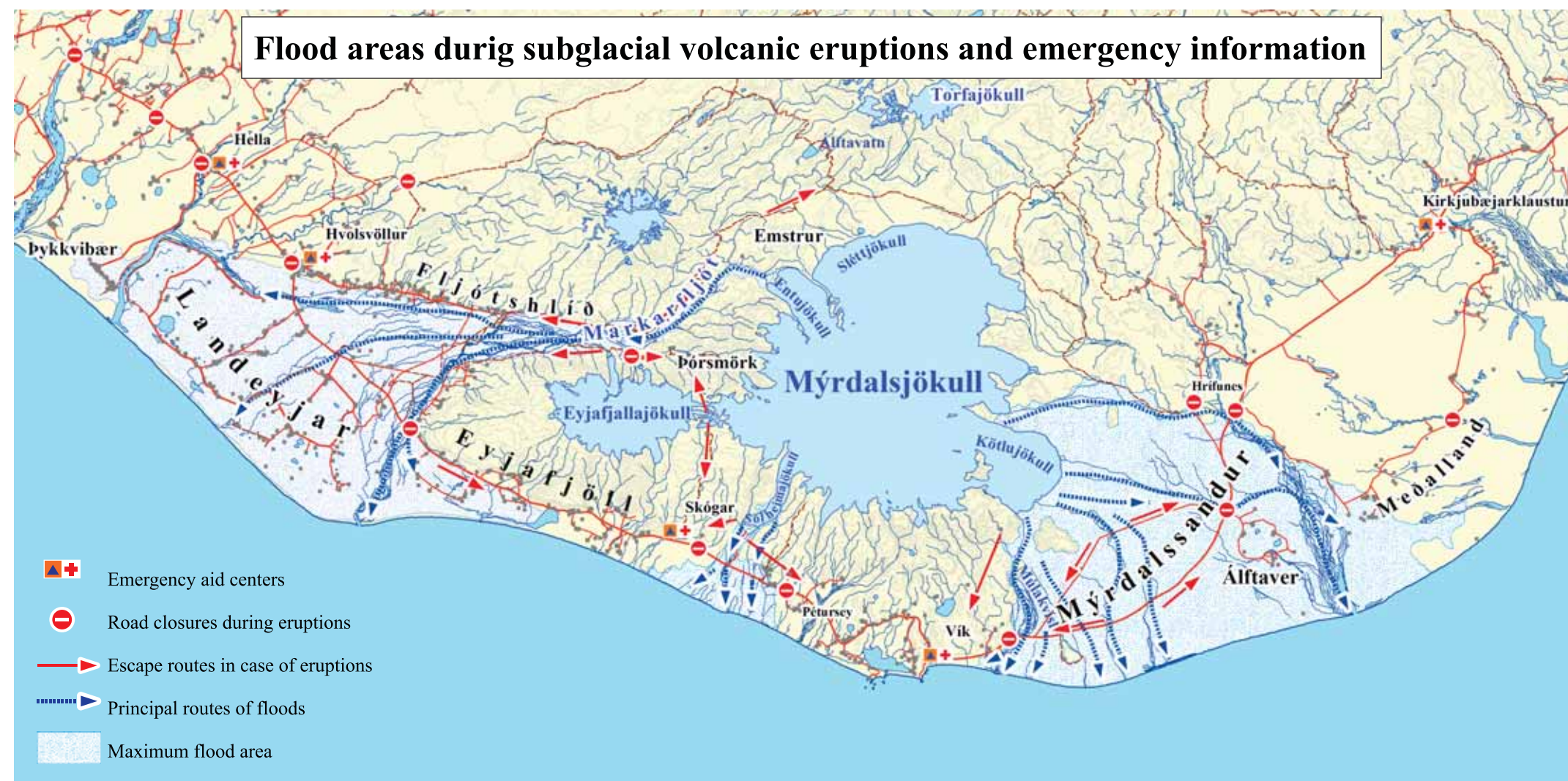
When it has been confirmed that Mt. Katla has started to erupt, warnings are passed to all the main tourist venues in the region. During the summer season, land wardens at the major mountain cabins in the risk area will fire maroons (which explode with a loud bang) and flares to warn travellers in the region. The warning signal for an eruption is five maroons and five flares. The signal is repeated twenty minutes later.

Move to high ground

Examine the map to see where glacial floods have flowed in the past. If an eruption warning signal is given, keep to the upper slopes. The main escape routes are shown by red arrows on the map. No Entry signs indicate road closures.

Tephra

Freshly-fallen volcanic tephra may be grainy with a coarse texture, or a finer dust. It has an odour of sulphur. As tephra is very slippery, it can make both driving and walking difficult. It is advisable not to drive where tephra is falling, as it can damage the engine. Tephra may fall so densely as to block out sunlight. It is also harmful to the eyes and respiratory system.



Risk of lightning

The plume of volcanic material thrown up by Mt. Katla is highly conductive, and there is a risk of "lightning" strikes within a radius of 30-40 km from the volcano.

Keep to the slopes of hills or mountains, avoid the highest areas. If you take refuge in a vehicle, keep the doors and windows shut. Do not use radio-telephones or other telecommunications equipment. Avoid metallic objects which may conduct electricity. Keep at least five metres away from the next person if you think lightning may strike near you.



In this area there is a risk of lightning within the plume of volcanic material in an eruption of Mt. Katla.

Toxic gases

In windless weather, avoid hollows and depressions around the volcano, as toxic gases may accumulate there (i.e. CO₂, H₂S). Hydrogen sulphide, H₂S, is a clear gas or liquid with a pungent odour of bad eggs. As it is heavier than air, it collects in hollows, and in basements of buildings. The odour disappears as the concentration of hydrogen sulphide in the air increases, reaching potentially lethal levels of toxicity.



Myrdalsjökull

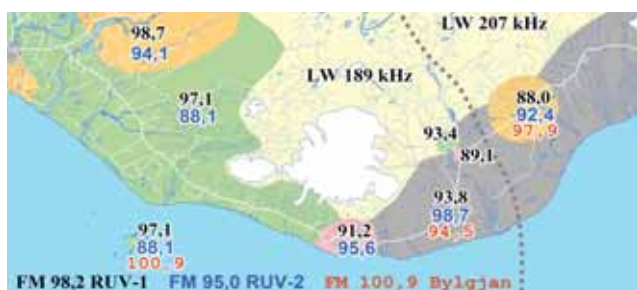
Floes after the flood

Glacial floods leave ice floes in their wake. As ice floes melt, dangerous patches of quicksand may form. Take great care in the vicinity of ice floes.



Radio

Listen to the radio for announcements and news, and follow any instructions given.



Frequencies of principal radio stations.

Emergency aid centres

Those who are in or near a town or village when the eruption warning signal is given should report to the nearest emergency aid centre or contact the police. Emergency aid centres (Fjöldahjálparstöð) are identified by the logos (*see picture*) of the Red Cross (Rauði kross Íslands) and the Civil Protection (Almannavarnir). Centres are in the Suður-Vík preschool in Vík í Mýrdal, and in the primary schools (grunnskóli) in Hella, Hvalsöllum, Skógar and Kirkjubæjarklaustur.



Evacuation sign

When a home is evacuated due to an eruption, a House Evacuated (Heimili yfirgefið) sign is displayed (*see picture*).



Emergency kit

Always travel with a first aid kit, and torch/flashlight, radio, spare batteries, blankets, dried and tinned food, and liquids for drinking.

Road conditions
information from the Public Roads Administration
tel. 1777

Red Cross
information line during eruption, tel. 1717

Emergency phone 112
In case of accident or to request assistance ring 112.



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Have a safe journey and be careful at all times!

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English

ERUPTION EMERGENCY GUIDELINES

Beneath the Myrdalsjökull glacier in south Iceland is an active volcano, Mt. Katla. When the volcano erupts – once or twice in a century – it partially melts the ice, causing sudden floods in the surrounding lowlands.

