

# 2 site



An aerial photograph of a rugged coastline. The landscape is composed of dark, moss-covered rocks of various sizes, interspersed with numerous small, shallow tide pools that reflect the sky. The word "analysis" is written in a large, white, sans-serif font across the upper right portion of the image. The lighting suggests a low sun, creating long shadows and highlighting the textures of the rocks and water.

# analysis



# The location

The lava hotel will be located in Eldhraun, one of the largest lavafields in Iceland. The lavaflow and the eruption that created it were on a monumental scale, affecting a large part of the world. Despite its size, the landscape within the lavafield itself is more or less the same all over. Small hills, rifts and valleys identify the landscape. Although it has a flat appearance there is a slight height difference of about 10 meters where the center of the field (89m above sea level) is higher than the edges.

The thickness of the layer of lava from the 1783-4 Skaftáreldar eruption is about 22 m. where it is deepest. Due to the difference in height and the focus on the grand views to all directions the lava hotel will be placed on the high ground in the center of the lavafield. This will give the option of having the buildings low without obstructing the view.

Since the lava hotel will be a rather low building the visitors will get a birdseye view over the field towards the mountains to the west, north and east. Having the building on more than one floor will create different viewpoints for the guest to admire the surroundings from. This will create great variety in the views over the lava and create an interplay between man and nature.

In order to make this possible the highest point of the lavafield seems the optimal place for the hotel.





# Geology

Being located on the North Atlantic ridge Iceland is made entirely of lava, the oldest being 20.000.000 years old and the youngest being about five years old.

The appearance of lava changes in time. The younger layers of lava do not have any load on top of them and are therefore often rugged, uneven and can be extremely difficult to walk through. The older layers can however often be quite smooth. Nature has spent thousands of years working them down, either under a heavy load of younger lava, under glaciers, rivers or just using wind and rain. The typical rugged, uneven, harsh and sometimes moss covered lavafield can be found in many different areas around Iceland. This is the expression of lava that most people can relate to and want to experience.

The thickness of each layer of lava can be very different from one to another. The factors that have most to do with the thickness and appearance of each lavafield are how large the eruption creating the lava was, the volume of the lava, how liquified the lava is while flowing, how fast it is flowing and how fast it cools and becomes solid.

When looking at a cross section of lava one can see that the substance of the material is not the same throughout the thickness. The top layers are often more porous and brittle than the core material that is more often solid. This makes it possible to use the more solid lava as a part of the structural materials in the lava hotel.

(The geology of Iceland, Ari T. Gudmundsson, 1982)



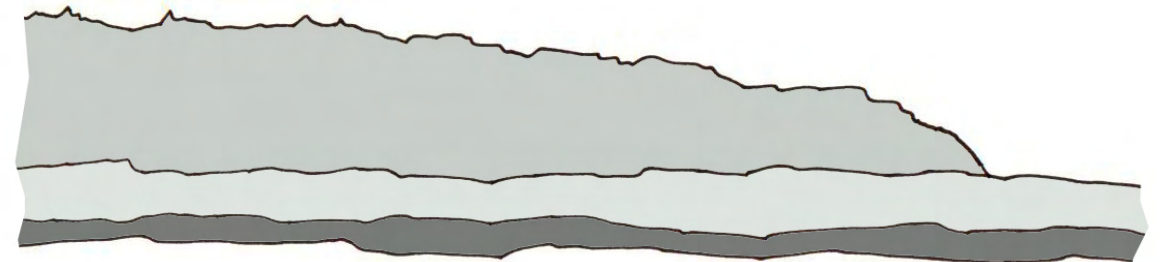
Moss growing on top of the lava

Brittle and porous top layer (ca 70 cm thick)

Solid layer of lava (ca 300 cm thick)

Rugged and uneven lava  
from the Skaftáreldar eruption  
(1783-4)  
< 22 meters thick

Smooth older layers of lava.





# Eldhraun lava

## and the Skaftáreldar eruption

The lavaflow from the Skaftáreldar eruption that created Eldhraun (e. Fire Lava) was on a monumental scale. It is one of the biggest eruptions in the history of Iceland and the third largest lavaflow in the world from the end of the last iceage. It plays a big part in the history of the Icelandic nature.

Following are a few facts about the Skaftáreldar eruption and Eldhraun lava.

The total area that the lava covers is 580 km<sup>2</sup>.  
The total volume of the lava is 15 km<sup>3</sup>  
400-500 million tons of different gases were released  
The fumes reached as high as 15.000 meters.

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The eruption started on the 8th of June 1783. It created about 135 craters on 10 rifts that each are from 2-5 km long.

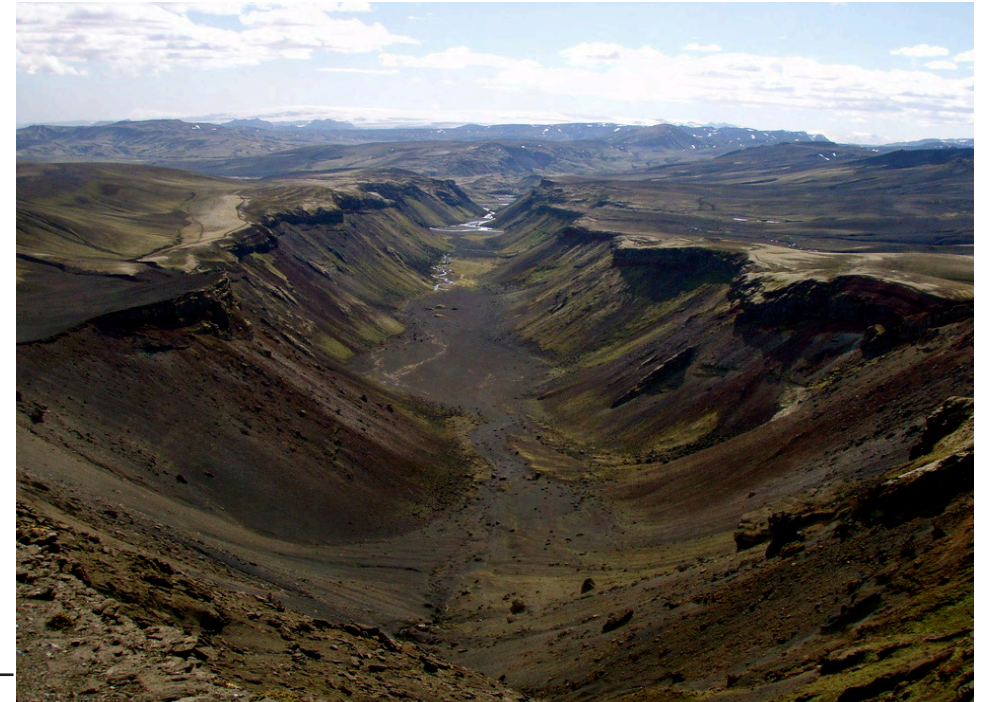
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above: A crater. (photo B. Hauksson)  
right above: Eldhraun lavafield. (photo VHS)  
right: Eldgjá valley. (photo B. Hauksson)

The 200 to 500 meter wide Eldgjá valley was formed. The lava flowed 40 km to lower grounds forming Eldhraun (e. Fire lava). The eruption ended on the 7th of February 1784.

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Apart from burying 20 farms, destroying all crops and killing 50% of the cattle, 60% of the horses and 80% of the sheep, 20% of the population or 10.000 people were killed. A mist of poisonous vapours was distributed to the east over the northern hemisphere, affecting the environment and weather conditions. The average temperature on earth dropped 1,3°.

Two days after the eruption started the mist could be seen in the Faero Islands, Norway and Scotland. Mid June it had reached as far east as Finland and the Adrian Sea and at the end of June it was covering Russia, parts of Siberia and China. In 1783 the rice crops in Japan failed and the condition also had huge impacts in Alaska.

The mist affected the harvests in Europe on a large scale and many historians say that the mist from the Skaftáreldar was the main reason for the start of French Revolution.

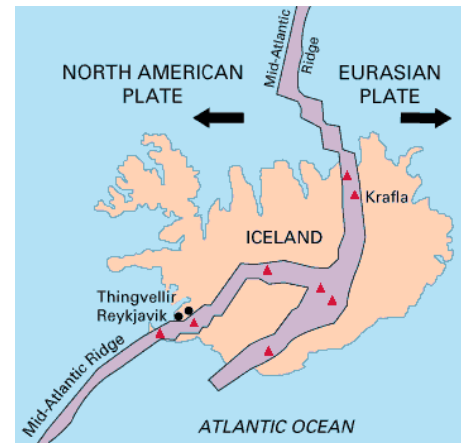
When the mist was at its worst it covered about ¼ of the world. It was not until October that the mist cleared even though it could be seen until February 1784.

(<http://www.islandia.is/hamfarir/jardfraedilegt/eldgos/skaftareldar.html>)



French revolution. (painting by Delacroix)

below: Eruption ([www.vestmannaeyjar.is](http://www.vestmannaeyjar.is))  
right: Lava in town ([www.vestmannaeyjar.is](http://www.vestmannaeyjar.is))



This raises the big question; will it happen again?

The North Atlantic ridge runs through Iceland from SW to NE. Many places on this line are very active volcanically, some erupting roughly every 5-10 years. Even though the chances of something like the Skaftáreldar disaster happening again are limited it is always possible as the people living in the Westman Islands off the south coast of Iceland experienced in 1972. A volcano on the island erupted and the lava buried a large part of the village.

Luckily not one person was harmed.



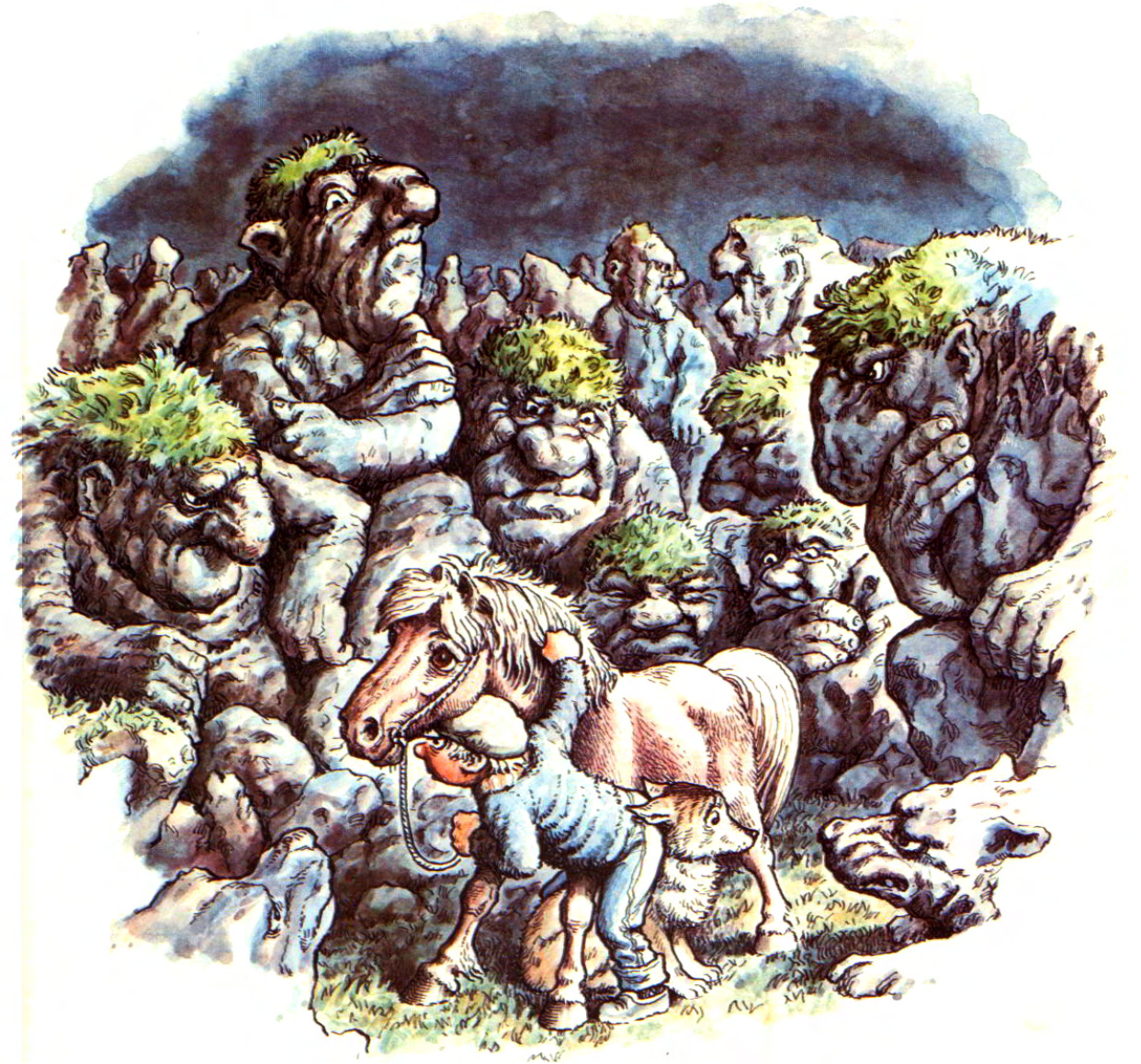
# Trolls, elves and outlaws.

The Icelandic nature is very dramatic. Desolate black deserts, high and often snow covered mountaintops, rugged fields of dangerous lava. In the old days many people perished or simply disappeared when trying to cross these dangerous areas. In many cases these were the postmen risking their lives trying to carry important mail from one part of Iceland to another. In some cases these were dangerous outlaws on the run from the law. The Icelandic folkstories tell tales of haunted areas with cruel outlaws, big trolls, elves or scary ghosts. It is said that if the sun shines on a troll it turns into rock and if you follow a beautiful elf into a rock you will never return. For children these places were, and still are, extremely scary, especially when the sun goes down and the shadows create images that can easily be mistaken for something scary and alive!

These folkstories still live. Usually when Icelanders go on trips into remote areas they tell these stories to one another. They are a big part of Iceland's history and must not be forgotten. Nowadays people take care not to get the children too alarmed but still most of the children like to listen to the "true" stories about the area they are staying in and the creatures living there.

Due to the role these tales play in the history of the Icelandic settlement they are also very popular amongst foreign visitors. Late at night, when it is getting dark, perhaps soaking in a hot spring or sitting around a bonfire, the light from the bonfire creates shadows in the surroundings or the fog and mist from the hot water turns the surroundings into something mystical. Everyone, not only small children, can start seeing things and imagining that there is something out there lurking in the darkness and mist. This is one of the things that foreigners love and should be given the opportunity to experience.

A connection to these old Icelandic tales, the folkstories, will be present in the lava hotel. The lavafield has many faces. Sometimes the sun is out and the views are breathtaking. But when darkness comes or during a foggy, misty day, things become dramatic in a completely different way. This is when Eldhraun lava turns into a true place of mystery. It comes alive.



A drawing from the childrens book  
*Helgi skoðar heiminn,*  
(e/*Helgi discovers the world*)  
by Njörður P. Njarðvík, 1976



Trolls in Eldhraun lava. If the sun shines on a troll it turns into rock.



Trolls in Eldhraun.  
(all photos: VHS)





# Access

The Eldhraun lava is one of the most easily accessed lavafields in Iceland. The Road no 1, often called the Ringroad, goes all around Iceland and passes through Eldhraun Lava. It is safe to say that most of the tourists that travel outside the south western corner of Iceland see the lavafield.

95% of those arriving in Iceland by airplane will be landing in Keflavik airport. Located on the tip of Reykjanes peninsula on the SW corner of Iceland, there is a 30 minute drive by car or bus to Reykjavik. The distance from Reykjavik to Eldhraun is 260 km. The ride takes about 3 hours in a car/bus via the Ringroad no. 1.

During the summer months thousands of people arrive by a ferry to Seyðisfjörður on the east coast. From Seyðisfjörður to Eldhraun is about 400 km. via the Ringroad no.1. This part of the road winds around the eastfjords. The ride takes about 5 hours in a car or bus.

Those wanting a little more adventure can access the Eldhraun area via road no. 208 through the highlands. It passes through Landmannalaugar, one of Iceland's most visited mountain hut and geothermal area. For this road one needs a four wheel drive vehicle and some knowledge in crossing rivers.



All of these roads are also good for riding a bicycle or a motorbike.

It is also possible to charter a plane and fly into some of the small landing-fields located close to the towns of Vik, Kirkjubæjarklaustur or Höfn. This however demands that one has a car or other means of transport waiting in order to travel the last kilometers to Eldhraun.

The Ringroad runs through Eldhraun.  
(photo: VHS)

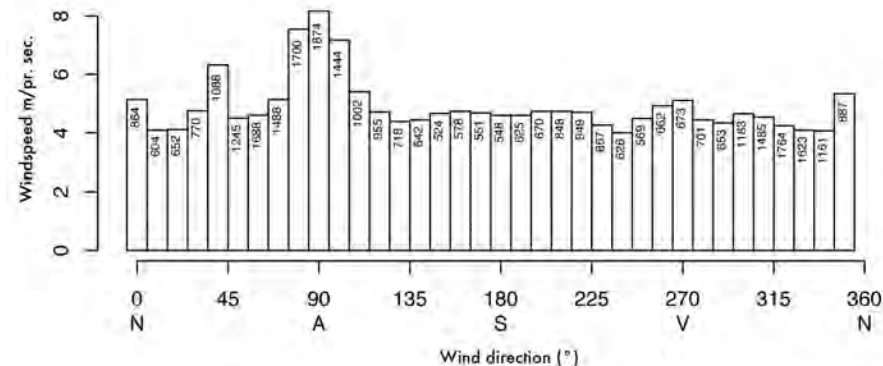


# Climate

The southern part of Iceland has the mildest climate with high temperatures, on an Icelandic scale, during the summer and lower windspeeds than most other areas. This is partly due to the openness and more flat areas than on the west, north and east coasts where the winds increase close to the mountains. The towns of Vík and Kirkjubæjarklaustur receive the most rainfall during the year. This is a good thing for the Lava Hotel since rain, fog and mist add to the impression of the lava and add to the mysterious feeling of the area.

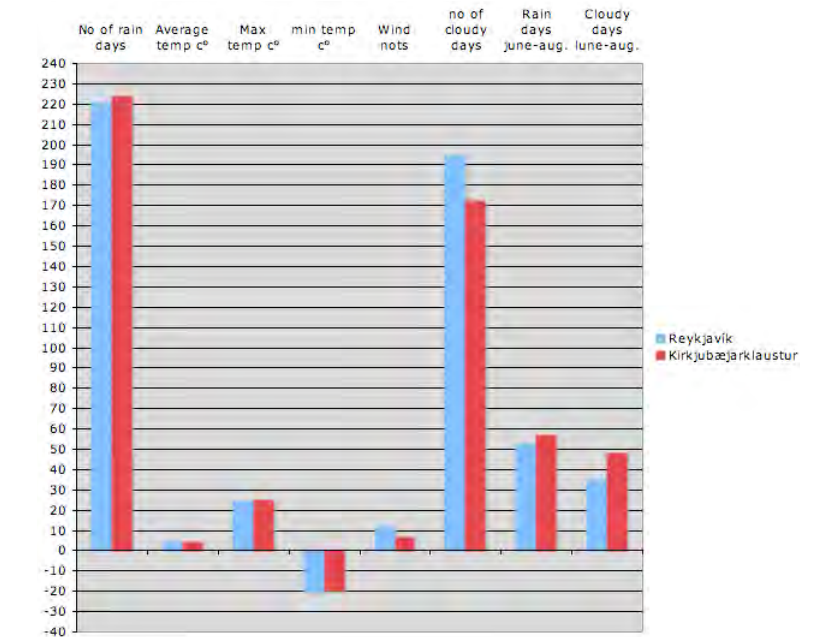
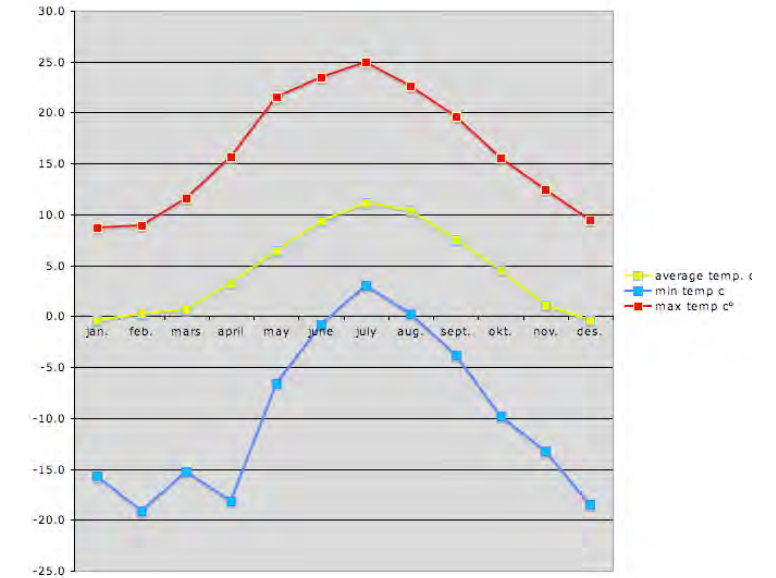
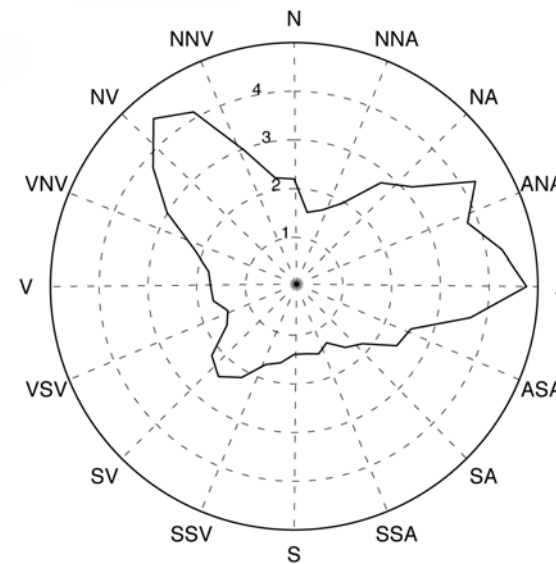
As seen on the windrose (right) the most common wind directions are from NW, ENE and E. This is a good quality since the sky is usually quite clear during a northerly wind. The rain falls when the wind is blowing from the S, SW or SE. This means that the rainfall usually happens in low winds. Judging from the number of rainy days in the area (bottom right) one can see that there are usually low windspeeds in Eldhraun lava.

The winters are also rather mild. However, having the highlands close by to the north and one of the most common wind direction being from the NW, the area gets some cold temperatures and snow blown in from the highlands.  
(Technical data from the Icelandic Meteorological Institute, Jon G. Egilsson)



## Kirkjubæjarklaustur – Stjórnarsandur

Annual windrose





# Vegetation

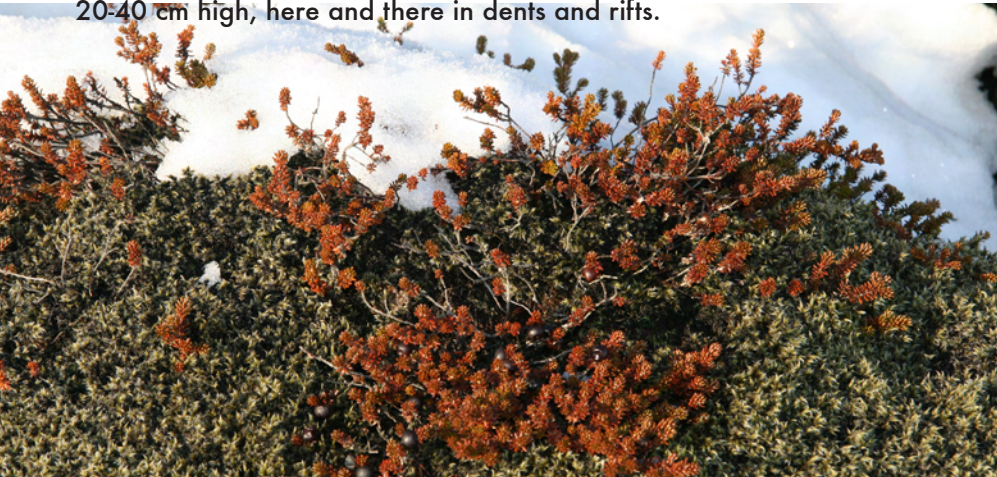
The vegetation within the lavafield is not very variable. This is a very harsh environment for plants to grow in. There is very limited soil, the lava rock is so porous that all rainwater seeps through, down to the older layers of lava buried under ground. There is not much shelter from the wind, except in the small gorges and rifts that fill up with snow during the winter. The vegetation that is there is extremely tough and can withstand extreme conditions.

(Íslensk flóra, 1996, Ágúst H. Bjarnason)

The most obvious type of vegetation is the grey-green moss that covers a large part of the lava. The moss can be up to 50 cm thick and it is soft and spongy. It has taken the moss more than 200 years to grow, since the Skaftáreldar eruption ended. It is green/grey during the cold winter months but turns green/yellow during summer. Along with the moss small patches of reindeer moss can be found in most parts of the lavafield.

Another type of vegetation is the crowberry heather. Usually it manages to grow in sheltered spots facing the sun. The crowberry heather turns rusty red during the winter months but is green in the summer. The change in colours creates a beautiful interplay with the colour of the moss during the changing of the seasons. The small black berries are considered a delicacy.

Apart from these two dominating plants there are small trees or bushes, 20-40 cm high, here and there in dents and rifts.



The vegetation in Eldhraun.  
(all photos: VHS)





