



## **Eyjafjallajökull2010 - The activity of the eruption plume during the first 2 weeks**

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On 14 April 2010 an eruption started in Eyjafjallajökull, in southern Iceland. This was an explosive eruption in the caldera, beneath the glacier. During the first two weeks the eruption went through two phases, an explosive phase with much tephra and ash production and a calmer phase with less productivity and some lava production.

During the explosive phase 14-17 April, the plume altitude was about 5-7 km but occasionally increased up to 8 km height, there was lightning activity in the plume and the material produced was mainly ash and tephra. It is estimated that the production was peaked at about 750 tons/s. The local ash fall on 17 April was the worst by far for the local community to the south of the volcano as about a 1 km thick ash cloud flowed almost continuously from the volcano and over the region. During this phase the upper level winds over Iceland were strong, northwesterly 40-50 m/s, and the emitted ash was advected southeastward toward northwestern Europe. This caused major disruption in air traffic.

During the second phase 18-29 April there was a reduced net output from the volcano, lava production was estimated as 10-30 tons/s and tephra and ash production of less than 10 tons/s. The height of the plume was estimated as 3-5 km.

Local ash fall predictions were made for the areas within a 500 km radius from the eruption site and prediction maps published on the website of the Icelandic Met Office. Information on local ash fall were collected from synoptic weather stations but also from the general public and the media. An internet web registration form was made public and advertised. In 6 days 95 reports of ash fall were made. This information together with other ground observations and remote sense observations are important for validations of ash fall prediction, near field and far field, as well as ensuring that the impact of the volcanic eruption is well understood, in a geological, geophysical and biological sense but also the societal impact on the communities affected.