



The eruption that missed Europe - A comparison of the weather situation during the Eyjafjallajökull 2010 and Grímsvötn 2011 eruptions

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The volcanic eruption of Eyjafjallajökull in Iceland in the spring of 2010 was a medium size eruption of unusually long duration, lasting 39 days, 14 April-23 May. The eruption had two explosive phases separated by a phase with lava formation and reduced explosive activity. During the explosive phases there were episodes of strong winds that advected ash to the south and southeast leading to widespread disruptions in air traffic. Especially, during the first explosive phase from 14-19 April persistent northwesterly winds aloft lead to ash dispersal over crowded airspace of continental Europe and lead to a shutdown of the airspace over much of northern Europe during 15-23 April.

The eruption of the Grímsvötn volcano in Iceland in the spring of 2011 was a far more intense eruption, but of shorter duration 21-28 May, with the most intense phase during the first 30 hours. During those initial thirty hours, winds aloft were from a southerly direction, sparing Europe from the copious amounts of ash produced. On 23 May upper level winds turned to northwesterly direction, enabling ash transport towards Europe. The direction and strength of upper level flow at this time was not dissimilar from the conditions prevailing during the first explosive phase of the Eyjafjallajökull eruption a year earlier. However, the eruption intensity had subsided to such a degree that there was little risk of ash dispersal from the volcano causing the same havoc as the year previously. Had the initial phase of the eruption occurred two days later, the situation for European airspace would have been much more serious.