Groundbased in-situ particle measurements in the nearfield of Grimsvoetn volcano, Iceland 2011

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During the eruption period of Grimsvoetn volcano, a series of particle measurements where performed in the direct near field of the eruption event. Two fixed monitoring stations in the south of Iceland (south westerly of the eruption event) are established to discriminate continuously the plume dispersion. Both stations in Skogar and Hvolsvollur are approximately 150km linear away from the eruption event at two significant positions.

In situ particle characteristics were measured using a Grimm 107 optical particle counter (OPC). The OPCs were able to detect particles in a size range between 0.25- 32 micron in 31 classes. By converting of the particle size distribution with a refractive index correction a more detailled size distribution can be calculated.
The number concentrations, delivered by the OPCs, were converted to mass concentrations for TSP (Total Suspended Particles), PM10, PM2.5 and PM1 which are important for limit values.

To characterize the measured particles, they were collected to filters for study the optical and chemical properties. The results show the propagation of the particles and their changes of the size distribution during the eruption event. The chemical property of the particles from this eruption event varies to the particles of the Eyjafjallajoekull.