



## The Eyjafjallajökull eruption in April 2010 – detection of volcanic plume using in-situ measurements, ozone sondes and lidar-ceilometer profiles

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Volcanic emissions from the Eyjafjallajökull volcano eruption on the Southern fringe of Iceland in April 2010 were detected at the Global Atmosphere Watch (GAW) station Zugspitze/Hohenpeissenberg (Germany) by means of in-situ measurements, ozone sondes and ceilometers. Information from the German Meteorological Service (DWD) ceilometer network (Flentje et al., 2010) aided identifying the air mass origin. We discuss ground level in-situ measurements of sulphur dioxide (SO<sub>2</sub>), sulphuric acid (H<sub>2</sub>SO<sub>4</sub>) and particulate matter as well as ozone sonde profiles and column measurements of SO<sub>2</sub> by a Brewer spectrometer. At Hohenpeissenberg, a number of reactive gases, e.g. carbon monoxide and nitrogen oxides, and particle properties, e.g. size distribution and ionic composition, were additionally measured during this period. Our results describe the arrival of the volcanic plume at Zugspitze and Hohenpeissenberg during 16 and 17 April 2010 and its residence in the planetary boundary layer (PBL) for several days thereafter. The ash plume was first seen in the ceilometer backscatter profiles at Hohenpeissenberg in about 6–7 km altitude. After entrainment into the PBL at noon of 17 April, largely enhanced values of sulphur dioxide, sulphuric acid and super-micron-particle number concentration were recorded at Zugspitze/Hohenpeissenberg till 21 April.

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