



First estimates of mass concentrations from Eyjafjöll over The Netherlands using PCA on multi-wavelength Raman lidar data

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Volcanic ash can be dangerous for aviation, when large amounts of ash are sucked into the engines. On 15 April 2010 the Eyjafjöll volcano in Iceland sent a huge ash cloud towards western Europe. Subsequently, the air space was closed over most parts of western Europe. After 5 days some air space corridors were opened, but a criterion to base the restrictions on was missing. Here we present first results of mass concentrations over central Netherlands, using an new method for the inversion of multiwavelength Raman lidar data.

The U.S. military consider mass loadings of volcanic ash $> 50 \text{ mg m}^{-3}$ as a potential hazard. Over The Netherlands a limit has been proposed of 1 mg m^{-3} . Our first estimate of the ash concentrations that occurred over The Netherlands after the Eyjafjöll eruption is a mean total volume concentration of about $36 \mu\text{m}^3 \text{ m}^{-3}$ with a maximum of $50 \mu\text{m}^3 \text{ m}^{-3}$. Using an ash particle density of 2 g cm^{-3} a mean ash mass concentration of 0.07 mg m^{-3} is found with a maximum of 0.1 mg m^{-3} .