Quantifying volcanic SO$_2$ emissions using GOME-2 measurements

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Volcanic activity is a large source of emission of trace gases and aerosols into the atmosphere, both during explosive eruptions and through degassing. In particular volcanic eruptions can produce large plumes of SO$_2$ that, depending on injection altitude, can be transported over large distances.

Using the strong UV absorption bands of SO$_2$, it can be detected in satellite measurements of the scattered solar flux. Using the well known DOAS technique, SO$_2$ emissions from several volcanic eruptions in 2007 and 2008 have been investigated using measurements from the GOME-2 instrument on board of MetOp. The emphasis is on estimating the total amount of SO$_2$ emitted and evaluating the uncertainties of the method.