



Bromine and sulfur studies during the Mt. Etna 2006 eruption

N. Bobrowski, G.B. Giuffrida, F. Vita, A. Sollami and S. Inguaggiato

Istituto Nazionale di Geofisica e Vulcanologia Geochemistry Section of Palermo, Italy

n.bobrowski@pa.ingv.it

Volcanic gas emissions and chemical processes in volcanic plumes are inadequately understood today. A better understanding of it could lead to an improvement of the forecast of volcanic eruptions by monitoring gas emissions. One powerful class of gas emission measurement methods regards the optical remote sensing techniques. The Differential Optical Absorption Spectroscopy (DOAS) is one of them and can measure simultaneously several trace gases.

In 2006 field studies took place concentrating on halogen oxides and sulphur dioxide emissions with a Mini-MAX-DOAS instrument; they were carried out during a series of different volcanic activities of Mt. Etna, including Lava flows and strombolian explosions.

A BrO/SO₂ time series, collected at 6 km from the emission source, as well as the gas emissions close to the different main craters and above lava flows were studied. The BrO/SO₂ ratio, the BrO fluxes themselves, which were calculated by using simultaneously measured SO₂ fluxes, are compared with volcanic activity changes of Mt. Etna in 2006 and will be discussed. An attempt to interpret the volcanological meaning of the data will be presented.