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SO_2-flux measurements and BrO/SO_2 ratios at Guallatiri volcano, Altiplano, northern Chile

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Sulphur dioxide (SO_2) fluxes were measured recently at Guallatiri volcano using two UV SO_2-cameras and one IR SO_2-camera. Furthermore, measurements of reactive halogens (e.g. BrO, OClO) were investigated using a high performance DOAS (Differential Optical Absorption Spectroscopy) instrument. Guallatiri ($18^\circ\ 25'\ 00''$ S, $69^\circ\ 5'\ 30''$ W, 6.071 m a.s.l.) is situated in the Altiplano in northern Chile, close to the Bolivian border. The last known eruption of Guallatiri was in 1960. The measurements were performed during a short-term field trip on three days in November 2014 (20.11.-22.11.2014). During that time, the volcano showed a quiescent degassing behaviour from the summit crater and from a fumarolic field on the southern flank.

A preliminary evaluation of the spectra recorded with the DOAS instruments showed SO_2 column amounts (SCDs) up to $3 \cdot 10^{17}$ molec/cm^2 and BrO-SCDs of the order of several 10^{13} molec/cm^2. This corresponds to BrO/SO_2-ratios of the order of 10^{-4} which is a typical order of magnitude for volcanic emissions.

We will present SO_2-flux estimates for Guallatiri volcano during these three days as well as BrO/SO_2-ratio estimates in dependence of different plume ages. Furthermore, we will compare the results retrieved with the two UV-cameras with the data recorded simultaneously with the IR-camera.