



## **Application of the angular position of the visible horizon for atmospheric trace gases retrieval by MAX-DOAS method**

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Significant impact on the retrieval process of atmospheric trace gases by MAX-DOAS has accuracy of the elevation angle adjustment of the telescope unit. Additional information about the magnitude of the true elevation angles in MAX-DOAS system is very important because a slight change in elevation at angles  $0^\circ - 5^\circ$  leads to a change in the geometry of the observation that has a strong influence on the measured value (slant column density).

For monitoring the state of the atmosphere automated device based on the spectrograph ORIEL MS257 with a cooled CCD Andor Technology, spectral range 411-493 nm, FWHM = 0.5 nm has been constructed. This instrument records the spectrum of scattered sunlight in the range of elevation angles  $0^\circ - 90^\circ$  within an aperture of  $1.3^\circ$ . The number of registered spectra per day amounts to 4000.

This device passed MAX-DOAS intercomparison campaign in the Max-Planck-Institute for Chemistry (Mainz) for the period 20.06.2013 – 10.09.2013. Procedures of the retrieval of nitrogen dioxide parallel measurements has been performed, the results of comparisons will be presented. Series of data about the angular position of the visible horizon line for two months of observation has been obtained. Using this pattern, corrections can be made in determining the elevation angle of the telescope unit, during the processing of the experimental data by MAX-DOAS.