



MAX-DOAS measurements of tropospheric NO₂ and SO₂ during the AROMAT-campaign in Rumania in September 2014

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The Airborne Romanian Measurements of Aerosols and Trace gases (AROMAT) campaign took place in Rumania during September 2014. The aim of the AROMAT campaign was to measure the spatial distribution of trace gases (mainly NO₂ and SO₂) and aerosols.

We carried out car-borne Multi-AXis Differential Optical Absorption Spectroscopy (MAX-DOAS) measurements using two Mini-MAX-DOAS instruments covering the UV and visible spectral range. During the first week car-MAX-DOAS measurements were carried-out on circles around Bucharest. From these observations, together with information on the wind fields, we derive the total NO_x emissions from the city. We also provide estimates on the SO₂ emissions, but these estimates have rather large uncertainties because the SO₂ measurements are close or below the detection limit. We also made measurements within the city to quantify the spatial gradients. This information is especially important for the validation of satellite observations.

In the second week, the car-MAX-DOAS measurements were carried-out around large power plants at Turceni. During these measurements, very strong SO₂ absorptions were observed downwind of the power plants. From these observations, we estimate the SO₂ emissions. We also determine the NO₂ / SO₂ ratio and investigate its dependence on the distance from the power plant.