



## **MAX-DOAS measurements of NO<sub>2</sub> in Bucharest and Măgurele using the SWING platform**

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Atmospheric pollution is one of the most important aspects that influence human life. One of the most studied topics related to atmospheric pollution is monitoring the emissions of trace gases. This paper aims to determine the column densities (VCDs) of nitrogen dioxide (NO<sub>2</sub>) and their variation during the cold season. The low temperatures recorded during the winter may have an impact on the mentioned trace gas concentrations due to the increased amount of fuel needed for domestic heating. Also, during the winter and thusly because of the low temperatures, the lifetime of NO<sub>2</sub> is longer and we can expect to record higher concentrations than in the warmer seasons and we aim to emphasize these impacts. The instrument used for these measurements is the SWING (Small Whiskbroom Imager for atmospheric composition monitorinG), which is a compact payload dedicated to monitoring trace gases. The instrument is designed to perform airborne measurements, but for the purpose of this paper it was adapted for ground-based use. The principle of operation is based on a remote sensing determination method, namely the MAX-DOAS (Multi-AXis Differential Optical Absorption Spectroscopy) technique, which relies on UV and Visible absorption measurements of scattered sunlight at different elevation angles. The measurements are performed in two locations: an urban area, at the National Institute for Aerospace Research "Elie Carafoli" in Bucharest, Romania, and a sub-urban area, at the National Institute for Research and Development in Optoelectronics in Măgurele, Romania starting from the end of October 2018 until April 2019. The SWING instrument was used in a static ground-based configuration, mounted on a tripod at a height of about 5 meters above ground. We present the status of our analysis of this activity and the preliminary results. Also, we show a comparison between data retrived with the SWING and two other instruments: PANDORA and another compact MAX-DOAS instrument using an amateur telescope mount, both located at the National Institute for Research and Development in Optoelectronics in Măgurele, Romania.