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Enhanced levels of nitrous acid during daytime derived from MAX-DOAS measurements during the AQABA campaign in late summer 2017

Steffen Dörner[1], Sebastian Donner[1], Lisa Behrens[2], Steffen Beirle[1], Sergey Osipov[1], and Thomas Wagner[1]

[1]Max Planck Institute for Chemistry, Satellite Remote Sensing, Mainz, Germany (steffen.doerner@mpic.de)
[2]University of Bremen, Science Institute of Environmental Physics, Bremen, Germany

During the Air Quality and Climate Change in the Arabian Basin (AQABA) campaign a MAX-DOAS instrument was set up on board of the Kommandor Iona. The ship route covered a variety of regions with different atmospheric compositions: Clean air in the Mediterranean and the Arabian Sea, anthropogenic air pollution near the oil fields in the Arabian Gulf or in areas of dense ship traffic like the Suez Channel or the dust clouds of the nearby deserts in the Red sea. The measured spectra in the UV/VIS spectral range (302 to 467nm) provide sufficient information for the retrieval of aerosol and trace gas profiles. In this study, we focus on evidences of direct nitrous acid emission sources in harbor areas around Jeddah and Kuwait. Since HONO daytime chemistry is debated in recent literature and missing sources are being discussed, we compared the results of the MAX DOAS measurements to WRF-Chem model output in order to identify potential daytime sources in maritime/harbor regions.