



MAX-DOAS measurements of African continental pollution outflow over the Atlantic Ocean

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Enhanced levels of atmospheric key pollutants can regularly be identified over the Atlantic Ocean in global trace gas maps retrieved from satellite measurements. The aim of the DFG project COPMAR (Continental outflow of pollutants towards the marine troposphere) was to validate these enhanced values using ship-based measurements and to identify the spatial gradients of the pollutants NO_2 , CHOCHO , and HCHO over the Atlantic Ocean. Therefore, a multi-axis differential optical absorption spectrometer (MAX-DOAS) was installed on board the research vessel Maria S. Merian for the cruise MSM58/2. This cruise was conducted in October 2016 and went from Ponta Delgada (Azores) to Cape Town (South Africa), crossing between Cape Verde and the African continent. The instrument was continuously scanning the horizon looking towards the African continent, and the ship sailed at nearly constant speed during the whole cruise.

In this study, we present the results from the MAX-DOAS measurements for the three species. We discuss the influence of different fit settings and a-priori assumptions on the results and present the observed spatial gradients along the cruise track. Finally, we compare our results with satellite measurements by the GOME-2 and OMI instruments and discuss possible sources of the discrepancies.