Geophysical Research Abstracts
Vol. 14, EGU2012-12390, 2012
EGU General Assembly 2012

Validation of SCIAMACHY NO_2 and BrO with Lauder and Arrival Heights ground-based observations - challenges and results

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This paper deals with the validation of SCIAMACHY NO_2 and BrO vertical columns with ground-based data acquired at Lauder, New Zealand, and Arrival Heights, Antarctica. Both locations are expected to show little or no anthropogenic influence in NO_2 vertical columns. SCIAMACHY is a 8-channel satellite mounted spectrometer measuring in the UV/vis/NIR spectral region. Data are available since August 2002. The viewing geometry for this type of trace gas measurements is nadir. The ground-based spectrometer at Lauder and Arrival Heights are part of the Network for the Detection of Atmospheric Composition Change (NDACC). The main challenge during the validation work was the difference in satellite overpass and daytime (sunrise/sunset) of best ground-based measurement. We will present approaches to deal with these issues and show the results for the time period 2003-2011.