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Decadal changes in O_3, NO_2, and BRO from SCIAMACHY limb soundings and inter-instrumental comparisons

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The SCIAMACHY/ENVISAT satellite instrument (2002-12) has monitored Earth' atmosphere globally for almost one decade. In its limb viewing geometry, it measured the vertical profiles of the atmospheric limb scatter. O_3, NO_2, and BRO are among the retrieved species. Their vertical profiles are obtained in 1 km altitude steps. Longterm changes as well as periodically varying features are reflected by the resulting time series. The longterm changes are statistically described by trends.

The trend profile of SCIAMACHY limb O_3 extends throughout the stratosphere and is a function of the latitude. There are contrasts and parallels between the tropics and the mid-latitudes. With O_3 being in the focus of interest for several decades now, there is a range of parallel measurements. Thus, the quality of the SCIAMACHY ozone trends is confirmed by inter-instrumental comparisons. There are contemporary satellite instruments as well as different measurement techniques.

In our talk, we further present trend profiles of NO_2 and BRO. Being crosslinked through chemical reactions, their trend profiles are potentially related among each other and to O_3.