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Global stratospheric BrO observations by the SCIAMACHY instrument

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Bromine plays an important role in stratospheric ozone depletion. One important question is whether the stratospheric bromine loading is consistent with known sources of bromine, with the ultimate goal to be able to predict how the stratospheric bromine loading will change as a result of changes in emissions and under a changing climate.

Vertically resolved global measurements of stratospheric bromine are performed by the SCIAMACHY instrument which was launched on board ENVISAT in March 2002. The SCIAMACHY instrument measures the scattered and reflected solar radiation in limb and nadir geometry in the spectral range from 240 to 2380 nm and achieve the global coverage in 6 days.

First results of SCIAMACHY BrO observations during September 2002 were presented by Sinnhuber et al. (Geophys. Res. Lett, 2005). Subsequently, substantial steps toward an establishment of a global climatology of BrO and understanding of the bromine chemistry were made by Sioris et al. (JGR, 2006) and Sheode et al. (Atmos. Chem. Phys., 2007). However, the results reported by different groups are not always in agreement. Here, we present the newest validation results of BrO vertical retrievals form SCIAMACHY limb measurements as well as an improved climatology of BrO based on these measurements.