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Validation of SCIAMACHY limb NO_2 and BrO operational data products 2002-2012

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SCanning Imaging Absorption spectroMeter for Atmospheric Chartography (SCIAMACHY), aboard Envisat (2002-2012) observed the Earth's atmosphere in nadir, limb and solar/lunar occultation geometries covering UV-Visible to NIR (240-2830 nm) spectral range with a moderate spectral resolution of 0.2-1.5nm. The decadal time series (2002-2012) of SCIAMACHY's products are valuable for long term trend analysis and interpretations, as well as stratospheric ozone studies and assessments. An important prerequisite for such studies is to verify the quality of the available datasets. The ESA project SCILOV-2010 (SCIAMACHY long term validation 2010) aims at monitoring the quality of different operational data products retrieved from SCIAMACHY measurements in limb and nadir observation geometries by validations and comparisons to the correlative measurements from other satellite and ground based instruments. The limb observations from the instrument provide vertically resolved information on global scale. NO_2 and BrO play important roles in the stratospheric ozone chemistry. NO_2 controls the stratospheric ozone abundances by direct catalytic destruction or by mitigating ozone depletion through formation of reservoirs of active halogens. BrO has a large ozone depletion efficiency and contributes to ozone destruction by catalytic reactions with different radicals. Here we present the long-term comparisons of operational NO_2 and BrO (ESA/DLR V5.02) limb profiles with the corresponding scientific SCIAMACHY retrievals at the Institute of Environmental Physics (IUP) Bremen and to other satellite measurements e.g. ACE-FTS, HALOE, SAGE and OSIRIS in case of NO_2 and for BrO, with SMILES.