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Retrieval of stratospheric ozone profiles from OMPS measurements in limb viewing geometry

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Due to its crucial role in the radiative budged of the stratosphere as well as its importance for the mankind as an absorber of biological-damaging UV radiation, a continuous monitoring of the vertical and spatial distribution of the stratospheric ozone has been a priority for the scientific community. At the beginning of 2012 the European ENVISAT satellite, carrying among others ozone-science relevant instruments as GOMOS, MIPAS and SCIAMACHY, ceased its operations: as a consequence, only a few older satellite missions, such as OSIRIS, MLS, ACE-FTS, and SMR have been still operating, contributing to the task of continuous monitoring stratospheric ozone distributions. At the end of 2011, just some months before the end of ENVISAT lifetime, SUOMI-NPP mission carrying OMPS instrument was launched. The OMPS suite enables the study of the vertical distribution of stratospheric ozone by analyzing the intensity of the scattered solar light at UV-VIS wavelengths in limb viewing geometry.
The focus of our study is to adapt the algorithm developed at the University of Bremen for the retrieval of stratospheric ozone vertical distributions from SCIAMACHY limb measurements to OMPS limb observations, with the final aim to obtain a continuous data set from both instruments. The retrieval method is based on the optimal estimation technique in a 1D geometry; the settings account for the instrumental design by optimally exploiting different spectral ranges at UV wavelengths as well as in the visible region to retrieve ozone concentrations at different tangent heights. A cloud filter based on the Color Index Ratio is applied and surface albedo is retrieved simultaneously, accounting for stratospheric aerosol. The retrieval results over six months are compared in this poster with the NASA retrieval product and validated using MLS and ozonesondes collocated observations.