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Ozone Profiles from the Ozone Monitoring Instrument - First validation and initial science

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In this paper we present the first results of validation and science of the vertical ozone profiles retrieved from the nadir observations by the Ozone Monitoring Instrument (OMI) aboard the NASA EOS Aura platform. Advantages of the nadir sounding of the ozone profile are the high spatial resolution and coverage, while the vertical resolution is limited to 6-7 km. With an updated version of the ozone profile algorithm developed at the Royal Netherlands Meteorological Institute the complete OMI mission has been reprocessed. Validation and scientific results of this dataset will be presented. Comparisons with ozone profile recordings by the Microwave Limb Sounder, aboard the NASA EOS Aura platform, provide an excellent opportunity for the validation of the OMI ozone profile product, because of the large amount of good collocated profiles. In addition to validation with MLS, comparisons with SAGE and HALOE ozone vertical profiles satellite data and balloon sonde data will also be presented. Finally, we compare the sum of all profile sub-columns with the OMI DOAS total ozone column data. The lowest layers of the retrieved OMI ozone profile provides information on the tropospheric ozone column. First results of the tropospheric ozone column will be presented and compared to other satellite products and chemistry transport model data.