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The use of MLS and OMP LP ozone profiles to validate OMPS NM and NP normalized radiances

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Measured normalized radiances (radiances divided by solar flux) from both the Ozone Mapping and Profiler Suite (OMPS) Nadir Mapper (NM) and Nadir Profiler (NP) have been validated to the 2% level. The measurements were compared with TOMRAD radiative transfer code calculations using co-located ozone profile retrievals inputs from both the Microwave Limb Sounder (MLS) and from the OMPS Limb Profiler (LP). To minimize the effects of clouds and aerosols, only low reflectivity and low aerosol scenes were used. We will describe the details of the comparison technique, including how low reflectivity / low aerosol scenes were determined. We will also extend our study to compare radiances from two separate sensors, the OMPS NM and the Ozone Monitoring Instrument (OMI). Finally, we will outline our plans to use OMPS NM normalized radiances to validate measurements from the upcoming polar orbiting Tropospheric Monitoring Instrument (TROPOMI) and, even further out in the future, from a trio of Geostationary instruments: Korea's Geostationary Environmental Monitoring Spectrometer (GEMS); the European Space Agency's (ESA's) Sentinel 4 UVN sensor; and the National Aeronautics and Space Administration's (NASA's) Tropospheric Emission: Monitoring of Pollution (TEMPO) sensor.