



Comparison of OMPS LP aerosol profiles with SAGE III/ISS

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The OMPS LP instrument is designed to provide high vertical resolution ozone and aerosol profiles from measurements of the scattered solar radiation in the 290-1000 nm spectral range. It collected its first Earth limb measurement in January 10, 2012, and continues to provide daily global measurements of ozone and aerosol profiles from the cloud top up to 60 km and 40 km respectively. The relatively high vertical and spatial sampling allow detection and tracking periodic events when aerosol particles are injected into the stratosphere, such as volcanic eruptions or meteor explosions. OMPS LP can extend the long-term records of stratospheric aerosol at high vertical resolution produced by variety of sensors, such as SAGE II, OSIRIS and CALIPSO.

For many years, SAGE II have been the benchmark for studies related to stratospheric changes, trend analysis, and international assessments. The recent deployment of SAGE III instrument on ISS in February 2017 will ensure the resumption of valuable solar occultation dataset which will provide atmospheric data essential for the interpretation and calibration of other satellite sensors, including OMPS LP.

In this study we will compare OMPS aerosol measurements with SAGE III/ISS, OSIRIS and CALIPSO. Initial results shows good agreement with SAGE III and OSIRIS measurements to within 20%, with larger bias in the southern hemisphere. Agreement with CALIPSO is also good, within 25% between 50S to 50N, although the bias is dependent on the extinction-to-backscatter ratio used. In addition, we will present OMPS LP aerosol observations at different altitudes, showing the dispersal of volcanic aerosols in the stratosphere following the eruptions of Kelut and Calbuco as well as the plumes from the Canadian boreal fires in 2017.