Preliminary validation results of SAGE III-ISS ozone data

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The Stratospheric Aerosol and Gas Experiment III on the International Space Station (SAGE III-ISS) was launched in February 2017. It is the 2nd instrument from the SAGE III project, and an extension of previous satellite instruments (SAM I, SAM II, SAGE I, SAGE II, SAGE III/Meteor-3M) that go back to 1975. Similar to its predecessor instruments, SAGE III-ISS uses solar occultation measurements to retrieve vertical profiles of ozone (O_3), water vapor (H_2O), nitrogen dioxide (NO_2) and aerosol extinctions at several wavelengths. Its solar occultation measurements provide better spatial coverage (~60^0N to 60^0S) compared to previous SAGE III/Meteor-3M instrument due to ISS's inclined orbit. The SAGE III-ISS can also retrieve ozone from lunar occultation and limb scattering technique (e.g. Rault, 2005), which can provide complementary global coverage compared to observations by solar occultation technique alone.

We will present comparison results between SAGE III-ISS ozone (mainly from solar occultation) and correlative measurements from ground based (e.g. ozonesondes, lidar) and satellite (e.g. Aura MLS, Odin-OSIRIS) instruments. We will also use Global Modeling Initiative (GMI) simulations integrated with a meteorological reanalysis such as MERRA2 (GMI-MERRA2) (Strahan and Douglass, 2018) to help the evaluation of SAGE III-ISS ozone data.

Key words: ozone, SAGE III-ISS, validation, atmospheric composition

References

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