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Title:

Stratospheric Aerosol Retrievals from OSIRIS and SCIAMACHY

Abstract:

Stratospheric aerosols play an important role in Earth's climate, both in terms of chemistry and radiative forcing. As they are also highly variable, long term as well as continued monitoring is crucial. To this end, the SAGE II mission formed the backbone of stratospheric aerosol observations for two decades. The high quality measurements and occultation technique provided excellent signal to noise as well as the inherent calibration important for long term measurements. However, with the end the of the SAGE II mission in 2005, limb scatter measurements have become some of the most commonly used measurements of stratospheric aerosols. While providing important advantages over occultation these measurements are more difficult to interpret, and despite much work and improvement on the retrieval algorithms the retrieval error is still poorly characterized. This work explores the operational aerosol retrievals of two limb scatter instruments, SCIAMACHY and OSIRIS, through a series of comparisons and simulation studies with the goal of estimating the magnitude and understanding the cause of the biases in the aerosol retrievals.