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Aerosol extinction profiles at 525 nm and 1020 nm derived from ACE imager data: comparisons with GOMOS, SAGE II, SAGE III, POAM III, and OSIRIS

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Abstract. The Canadian ACE (Atmospheric Chemistry Experiment) mission is dedicated to the retrieval of a large number of atmospheric trace gas species using the solar occultation technique in the infrared and UV/visible spectral domain. However, two additional solar disk imagers (at 525 nm and 1020 nm) were added for a number of reasons, including the retrieval of aerosol and cloud products. In this paper, we present first comparison results for these imager aerosol/cloud optical extinction coefficient profiles, with the ones derived from measurements performed by 3 solar occultation instruments (SAGE II, SAGE III, POAM III), one stellar occultation instrument (GOMOS) and one limb sounder (OSIRIS). The results indicate that the ACE imager profiles are of good quality in the upper troposphere/lower stratosphere, although the aerosol extinction for the visible channel at 525 nm contains a significant negative bias at higher altitudes, while the relative differences indicate that ACE profiles are almost always too high at 1020 nm. Both problems are probably related to ACE imager instrumental issues.

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