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Retrieving the vertical distribution of stratospheric OCIO from Odin/OSI RIS limb-scattered sunlight measurements

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Abstract. The first vertical profiles of stratospheric OCIO retrieved from Odin/OSIRIS limb-scattered sunlight radiances are presented. The retrieval method is based on a two-step approach, using differential optical absorption spectroscopy combined with the maximum a posteriori estimator. The details of the spectral window selection, spectral corrections and inversion technique are discussed. The results show that OCIO can be detected inside the South polar vortex region between about 14 and 22 km altitude with a 2–5 km height resolution and an estimated retrieval error better than 50% at the peak. OCIO concentrations show the expected relation to the atmospheric conditions in the lower stratosphere in the austral spring 2002. This unique data set of OCIO profiles is very promising to study the stratospheric chlorine activation in both polar regions.

■ <u>Final Revised Paper</u> (PDF, 486 KB) ■ <u>Discussion Paper</u> (ACPD)

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