

Quantitative retrieval of polar stratospheric cloud (PSC) volume density profiles from MIPAS in comparison to CALIPSO

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The Michelson Interferometer for Passive Atmospheric Sounding (MIPAS) was in operation from 2002 until 2012 on board the polar orbiting satellite Envisat. MIPAS is a Fourier Transform spectrometer that resolved the atmospheric infrared spectrum in limb-geometry. Apart from its main focus, the quantification of atmospheric temperature and trace gases from the upper troposphere to the mesosphere, MIPAS also detected particles, like tropospheric clouds, volcanic aerosols, polar mesospheric clouds and polar stratospheric clouds (PSCs). The wealth of MIPAS data analysis and research on PSCs has been performed with regard to their detection and the type differentiation. In this contribution, we show results from a quantitative retrieval of PSC volume density during one Antarctic winter season. The retrieval approach will be discussed with respect to the influence of various sources of uncertainties, like the assumption on PSC composition, homogeneity, and scattering of radiation from the nadir direction in combination with particle size. The altitude distributions of PSC volume density will be intercompared to co-located observation from the CALIPSO lidar instrument.