

# Retrieval of mesospheric Mg/Mg<sup>+</sup> from SCIAMACHY limb data

**M. Scharringhausen** (1), A.C. Aikin (2), J.P. Burrows, (1), J. Notholt (1), C. v. Savigny (1), N. Wieters (1), M. Sinnhuber (1)

(1) Institute of Environmental Physics, University of Bremen, (2) The Catholic University of America, Washington D.C.

We present first results of trace gas retrievals from mesospheric emission signals observed in the SCIAMACHY limb measurements. Mesospheric emission signals are observed throughout the UV and visible spectral range. We focus on measurements in the UV-C region (214 - 330 nm).

In the UV region, band emissions of molecular species (e.g. NO, OH) are observed as well as line emissions of metallic species like Mg, Fe, Na, Si and their ionized counterparts. These emissions are partly due to resonance fluorescence. In this case number densities of the ground-state can be retrieved from the observed emission signals.

A retrieval of NO and Mg/Mg<sup>+</sup> assuming resonance fluorescence has been developed. First results of altitude profiles as well as monthly averaged global distributions of Mg/Mg<sup>+</sup> will be presented. These are the first simultaneous observations of Mg and Mg<sup>+</sup> in the mesosphere yet, neither of these species has been measured on a global scale yet before. Variations in the ratio of the two species are analysed. Concurrent retrievals of the two species provide insight into sources and sinks of mesospheric Mg/Mg<sup>+</sup>. Additionally, the correlation between total abundances of Mg/Mg<sup>+</sup> and the solar activity is investigated.