



## **Evidence for $\beta$ -NAT in MIPAS mid-infrared Limb Emission Spectra of PSCs by new refractive Index Data**

**M. Höpfner** (1), G. Stiller (1), T. von Clarmann (1), H. Fischer (1), B. Luo (2), U. Biermann (3), R. Spang (4), M. Snels (5), G. Di Donfrancesco (6)

(1) Institut für Meteorologie und Klimaforschung, Forschungszentrum Karlsruhe, Postfach 3640, D-76021 Karlsruhe, Germany (michael.hoepfner@imk.fzk.de), (2) Institut für Atmosphäre und Klima, ETH, Zürich, Switzerland, (3) Max-Planck-Institut für Atmosphärenchemie, Mainz. Now at: Referat für Umwelt- und Energiepolitik des SPD-Parteivorstandes, Willy-Brandt-Haus, Berlin, (4) Institut für Chemie und Dynamik der Geosphäre, Forschungszentrum Jülich, Jülich, Germany, (5) Istituto di Scienze dell'Atmosfera e del Clima, Consiglio Nazionale Delle Ricerche, Roma, Italy, (6) Ente per le Nuove tecnologie, l'Energie e l'Ambiente, Roma, Italy.

In the mid-infrared, not only gases but also liquid and solid materials show distinct spectral features. Thus, when observing the atmosphere with high-resolution FTIR spectrometers signatures of trace gas molecules are mixed with those of aerosols and cloud particles. In limb-emission spectra of polar stratospheric clouds (PSCs) measured by the Michelson Interferometer for Passive Atmospheric Sounding (MIPAS) a strong spectral band has been identified around  $820\text{ cm}^{-1}$ . This band had already been observed in Cryogenic Infrared Spectrometers and Telescopes for the Atmosphere (CRISTA) measurements and was attributed to NAT through the atmospheric temperature of its appearance. However, with available refractive index data of PSC candidates, including NAT, it was not possible to fit this strong signal. By use of recently derived refractive index data of  $\beta$ -NAT we were able to model this signature of the  $\nu_2$ -band of the  $\text{NO}_3^-$  ion. Further, also in the broadband range, the new spectroscopic data reproduce the measurements well.