



The Mesospheric OH layer above Spitsbergen: Observation of the OH rotational emission with high resolution Fourier Transform Spectroscopy

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The hydroxyl (OH) layer which is centred at about 87 km height is one of the dominant features of the mesopause region. Vibrationally excited OH molecules are produced via the reaction of ozone and atomic hydrogen. Due to radiative deexcitation of the OH molecules, this layer contributes to the night-glow, which we can observe by ground based measurement techniques. For low excitation levels ($\nu \leq 5$) it can be shown that the observed emission is a measure of the ambient temperature hence enabling us to study mesopause temperatures from the ground.

Particularly in the polar regions, the analysis of mesopause temperatures gives us a deeper insight into the dynamics of the mesosphere and its interaction to changes in the stratosphere, e.g. induced by polar stratospheric warmings. For this purpose a Fourier Transform (FT) Spectrometer, which is located at the AWIPEV Arctic Research Base in Ny-Ålesund, Spitsbergen (79°), has been equipped with an InGas-detector to perform measurements of the OH emission layer at high spectral resolution of 1 cm^{-1} in the region from 5900 cm^{-1} to 6500 cm^{-1} .

In this poster we present first results of temperature measurements from our FT spectrometer and discuss the revealed temperature trends at different rotational emission bands.