

## Seasonal variations of characteristics of the hydroxyl airglow

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Investigation of variations of the hydroxyl airglow characteristics such as intensity and rotational temperature is important for understanding the aeronomical processes in the mesopause region. For this aim the data of the ground-based spectrographical observations of the rotation-vibration OH bands in the near infrared region from 0.8 to 1  $\mu\text{m}$ , made at the Zvenigorod Observatory (56N, 37E) during 2000-2001, are analyzed. On their base the seasonal variations of intensities and rotational temperatures of different hydroxyl bands are derived. The analysis of these variations showed a dependence of their amplitudes and phases on a vibrational level of the hydroxyl excitation. So, a maximum of the annual harmonic of temperature, obtained on the base of band of the emission from the higher vibrational level ( $v=9$ ), leads a maximum of the corresponding harmonic of temperature of band, emitted from the lower vibrational level ( $v=3$ ), by 1 month. The most amplitude of the annual harmonic (29 K) is seen in temperature of band, arising from the middle vibrational level ( $v=6$ ). Some explanation of these facts is a height shift of the hydroxyl emission layers and a height change of both the atmospheric parameters and characteristics of their seasonal variations.