Measurement of mesopause temperature from Hydroxyl nightglow at Kolhapur (16.8˚ N, 74.2˚ E), India

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The nighttime intensities of OH (8 – 3), (7 – 2) and (6 – 2) band emissions have been monitored at Kolhapur (16.8^o N, 74.2^o E, dip latitude 10.6^o N), India since November 2002 with objective of investigating mesopause dynamics based on derived OH rotational temperature. Assuming local thermal equilibrium, this OH rotational temperature represents the temperature of mesopause. Preliminary results suggest that the mesopause temperature varies in 185 – 215 K range and small wave-like variations (periodicities $\sim$ few hours) superimposed over long term variations in derived temperatures are present. The diurnal and seasonal variability of derived mesopause temperatures have also been discussed. The dependence of derived temperatures on choice of transition probabilities (Mies, 1974; Langhoff et al., 1986; and Turnbull & Lowe, 1989) and the correlation of mean nightly temperature with Ap & F 10.7 cm flux have also been investigated. The results of comparison of derived temperature with MSISE 90 model predictions have also been presented.