

CHARACTERISTICS OF HIGH FREQUENCY GRAVITY WAVES OBSERVED IN OH NIGHTGLOW FROM LOW LATITUDE INDIAN REGION DURING JANUARY AND FEBRUARY 2007

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The role of short scale high frequency gravity waves in the upper mesosphere lower thermosphere (UMLT) region is now well appreciated. Still their global distribution and source regions are not well known. All-sky imaging of nightglow emissions provide a unique way to study the high frequency waves in the UMLT region. In this work we have studied the characteristics of the waves observed in OH Meinel band emissions over Tirunelveli (8.7°N, 77.8°E) during January and February months of 2007. We have concentrated on the OH band observations because they have better SNR than other emissions and also wave activity is more in OH than other nightglow. From Indian sector, this is the first statistical study of short period waves with nightglow imaging. Our study shows the predominance of meridionally propagating waves indicating wind filtering effects in the lower atmospheric region. Such predominant meridional propagation during solstice periods is also seen from few other sites. Apart from that considerable number of waves propagated towards northwest direction. This may be an indication for existence of strong source region situated to the southeast of the observation site. It should be noted that the strong convective activity over and around Indonesian region is situated southeast to Tirunelveli. The average wavelength and apparent phase velocity of the observed waves are 17.7 km and 52.0 m/s respectively. These parameters are obtained from observations made during winter period only. A wider picture will be available once the characterization is over for a wider dataset covering other seasons also.

Nightglow emissions, gravity waves, all-sky imaging

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