MLT dynamics from meteor radar measurements at 7.4˚S during 2005

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Observations of the atmospheric neutral winds in the mesosphere and lower thermosphere (MLT) region at heights from about 80 to 100 km, by meteor radar, have been carried out at São João do Cariri (7.4˚ S, 36.5˚ W). The wavelet analysis of the hourly-average winds obtained along the year 2005 shows distinct power spectrum with peaks associated with tides as well as low-frequency oscillations. The prevailing zonal winds show a structure characterized by a semiannual oscillation (SAO) and are westward most of the time, whilst the prevailing meridional winds are weak and exhibit an annual cycle. Diurnal and semidiurnal meridional wind oscillations also exhibit time and height variability. In general, the diurnal and semidiurnal amplitudes for the meridional wind component were larger than those for the zonal component. Spectral energy associated with low-frequency oscillations with periods ranging from 2 to 20 days, and time-varying amplitudes, can be seen in the zonal wind component. The meridional wind component exhibits intense spectral energy associated with quasi-two-day waves during January-February and at other times of the year, but with less intensity.