

On the Occurrence and Variability of ter-diurnal tide in the equatorial MLT region

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In this paper we study the occurrence characteristics and variability ter-diurnal tide (8 hr) in the Mesosphere and Lower Thermosphere (MLT) region using the MF/Meteor radar observations of zonal and meridional winds at three locations near equator viz., Tirunelveli (77.8 E, 8.7 N), Koto Tabang (100.3 E, 0.2 S), and Pameungpuek (107.43 E, 7.38 S). The ter-diurnal tide is observed as a distinct wave signature at three locations. However, the amplitude of ter-diurnal tide is less than that of diurnal and semi-diurnal tides. The ter-diurnal tide shows a clear seasonal variation with maximum amplitude being in equinoxes. The characteristics and seasonal variation of the tide are compared at three locations. The variability of phase of the tides is also studied. The source mechanisms of the ter-diurnal tide are discussed. A correlative analysis between ter-diurnal tide and diurnal, semi-diurnal tides is carried out to see the possibility of non-linear interaction between them.

Keywords: Mesosphere and Lower thermosphere, Tide, MF and Meteor radar