

Upward propagation of atmospheric tides and its impact on the thermosphere

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In the thermosphere, upward propagation of atmospheric tides from the lower atmosphere (Troposphere, Stratosphere and Mesosphere) plays an important role on the thermospheric circulation. Recent observational and numerical studies have revealed that the amplitude of non-migrating tides is comparable to that of migrating tides. The amplitude of diurnal variation at low latitudes in the thermosphere has zonal wave-number 4 structure, and this structure is generated by the non-migrating diurnal tides. In this study, by using a general circulation model, behaviors of the non-migrating tides and migrating tides with higher frequencies (8, 6 and 4 hours periods) are investigated. In particular, we focus our attention on the migrating tides with higher frequencies, and their impact on the general circulation in the thermosphere. We also discuss dynamical coupling between the lower atmosphere and the upper atmosphere by upward propagation of tides.