

Observation of Meteor radar neutral winds over 11 stations and comparison with GSWM

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A successful combining observations were performed in October 2014 with 11 stations along 125°E in both northern and southern hemispheres, which provided a powerful way to investigate atmospheric tides and other waves and to compare with numerical models. Based on harmonic fitting equation to generate prevailing component and the diurnal and semidiurnal tidal component for each station, we present the vertical profiles of every tidal component, compare the results with GSWM. It is found that the diurnal tide dominates at lower latitudes, and the semidiurnal tide is the main tidal form at higher latitudes, though there are some differences between the two hemispheres. The variations of tidal phase denote the energy upward propagating. By comparison with GSWM, the matches between diurnal tidal and GSWM are very well not only for zonal but for meridional in the northern hemisphere. For the two tidal components, diurnal amplitudes for the range of 86km-90km at Kunming station are the maximum and larger than that of GSWM. The results at southern hemisphere are always smaller than that of GSWM. For the semidiurnal tidal, the observations in the northern hemisphere are always larger than values of GSWM, especially at middle and higher latitudes, but smaller than values of GSWM in southern hemisphere.

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