

Comparison between migrating atmospheric tides in TIMED/SABER observations and free running WACCM-X simulations

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The Whole Atmosphere Community Climate model –eXtended (WACCM-X) is a comprehensive numerical model with a range from the Earth's surface to the upper thermosphere (~ 500 km) and also includes the ionosphere. Excited in the troposphere and stratosphere, atmospheric tides are the dominant dynamical feature in the mesosphere and lower thermosphere and play an important role in vertical coupling. In this study, we used the least squares method to extract diurnal and semidiurnal migrating tides from free running WACCM-X temperatures in the mesosphere and lower thermosphere region (MLT). The results are compared to observations from TIMED/SABER. Differences in tidal structure and variation during solar maximum and minimum in March and June are examined, to better understand the variation of migrating tides resolved in free running WACCM-X, and its implications for future studies utilizing this model.

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