

Climatology of diurnal and semidiurnal tides and quasi-two-day planetary waves in the mesosphere and lower thermosphere over the central coast of Peru

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Abstract:

In this work, we present the climatology of diurnal and semidiurnal tides and quasi-two-day planetary waves (Q2DPW) obtained from the analysis of zonal and meridional mean winds, measured using the SIMONE Peru radar, at heights between 80-100 km for two years of data (Oct 2020 - Sept 2021) over the central coast of Peru. The monthly and seasonal variation of tides and Q2DPW amplitudes will be described and analyzed. From the results, we have seen that in general the diurnal tides are more intense than the semidiurnal tides, and that the diurnal tide is stronger in August and September. We have also noticed that the meridional component of the diurnal tide reached a second peak value in April. Furthermore, the Q2DPW is more intense in the local summer months. The methodologies used were spectral and harmonic analysis which allow us to identify the amplitudes and phases of the tides and waves. These methodologies and the discussion of the results will be presented in this work.

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References:

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