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Quasi two day wave in the lower atmosphere over hyderabad during summer of 2009

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The characteristics of quasi-2-day wave in the lower atmosphere (1-50 km) has been investigated using wind and temperature data obtained from India Meteorological Department (IMD), Hyderabad (17.4^{o}N, 78.5^{o}E) and ECMWF Re-Analysis (ERA) data for (18oN, 78oE) which is the nearest grid to the location of observation. The high resolution (in height) data of wind and temperature (IMD) between 15 May and 24 September, 2009 in the altitude range of 1-25 km have been used for the present study. ERA data of wind and temperature for the same period between the pressure levels of 1-1000 mb have been analyzed for 2-day wave. Appreciable amplitudes of waves could be observed in both IMD and ERA data sets of winds and temperature. FFT analyses identified the waves in two period bands (44-52 h and 56-60 h) with longer periods becoming more prominent in the months of August and September. Maximum amplitudes of ~4 ms -1 are found in the upper troposphere and lower stratosphere in IMD data. The thermal amplitude maximum is ~2 K in the same region. Amplitudes obtained from ERA data are little lower than those obtained from IMD data. Wavelet analyses show systematic bursts of QTDW during the summer solstice and a clear modulation of 2-day wave amplitude by a planetary wave of 5-8 days period. There is an indication that the propagating QTDW interacts with the background wind and alters the mean flow.