



Observations of the ultra-fast Kelvin wave using meteor radar over a Brazilian extra-tropical station

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Characteristics of the equatorial 3.5-day ultra-fast Kelvin (UKF) wave are investigated with four year meteor radar wind observations over Cachoeira Paulista (22.7S, 45W). UKF signature manifests as discrete bursts spanning over various times of the year with generally less amplitude during fall equinox and early winter span. Daily as well as seasonal mean amplitude of the UKF wave is found to be sufficiently smaller than that observed previously from equatorial stations. Estimated vertical wavelength of the UKF wave comes out to be larger than 80 km. Comparison of present results with another Brazilian equatorial station exhibits latitudinal invariance of the wave as well as transient local dynamical influence to its variability. High zonal acceleration caused by momentum flux convergence due to the UKF wave just after equinoxes is supposed to be responsible for driving westerly phase of the mean zonal wind immediately after equinoxes and hence the mesospheric semiannual oscillation. There is a clear signature of modulation of the UKF wave amplitude by various harmonics of the annual oscillation.