

Meteor radar observations of Quasi Two Day Wave Activity during major Sudden Stratospheric Warming events

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Studies on polar stratospheric sudden warming (SSW) events improved our understanding of the different coupling processes between vertical, latitudinal as well as inter hemisphere. Studies have shown that this winter time mega event could alter the dynamics and energetics of the middle atmosphere right from pole to equator. The role of planetary wave activity for the occurrence of SSW is well established beyond any doubt. In the present study an attempt is made to delineate the quasi 2-day wave (Q2DW) activity low latitude middle atmospheric region during major sudden stratospheric warming (SSW) events. The Q2DW is a recurring, westward propagating, planetary-scale disturbances with zonal wave numbers 2, 3 and 4 found in the upper stratosphere up through the thermosphere. The meridional winds from meteor radar in the Mesospheric Lower Thermospheric region (MLT) over a low latitude station, Trivandrum (8.5°N, 77°E) is utilized to investigate the Q2DW activity during the SSW events. Meridional winds from a general circulation model have also been used to explore the wave characteristics. The results will be discussed in detail.