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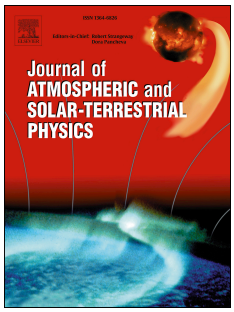

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Effect of geomagnetic storms on the daytime low-latitude thermospheric wave dynamics

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Abstract

The equatorial- and low-latitude thermospheric dynamics is affected by both equatorial electrodynamics and neutral wave dynamics, the relative variation of which is dependent on the prevalent background conditions, which in turn has a seasonal dependence. Depending on the ambient thermospheric conditions, varying effects of the geomagnetic disturbances on the equatorial- and low-latitude thermosphere are observed. To investigate the effect of these disturbances on the equatorial- and low-latitude neutral wave dynamics, daytime airglow emission intensities at OI 557.7 nm, OI 630.0 nm, and OI 777.4 nm are used. These emissions from over a large field-of-view (FOV~100^0) have been obtained using a high resolution slit spectrograph, MISE (Multiwavelength Imaging Spectrograph using Echelle grating), from a low-latitude location, Hyderabad (17.5^0N, 78.4^0E; 8.9^0N MLAT), in India. Variations of the dayglow emission intensities are investigated during three geomagnetic disturbance events that occurred in different seasons. It is seen that the neutral dayglow emission intensities at all the three wavelengths showed different type of variations with the disturbance storm time (Dst) index in different seasons. Even though the dayglow emission