

## **THE VARIABILITY OF MIDLATITUDE MLT WINDS RESPONSE ON THE EXTERNAL FORCING**

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We believe that the atmosphere is a single system with links between all levels. The horizontal winds in the mesosphere/lower thermosphere (MLT) over East Siberia were regularly measured by “spaced-receivers technique” since 1975. The database for more than 20 years allows us to obtain insights into the atmospheric coupling by study of the external forcing of MLT winds from below ( stratospheric disturbances) and from above (geomagnetic storms as the consequence of magnetospheric disturbances) with rather sufficient statistical significance. Stratospheric sudden warming is a dramatic departure of the winter stratosphere from its climatological mean state and can change the structure of the whole middle atmosphere. The effects of stratospheric warmings and strong geomagnetic storms on the prevailing winds and semidiurnal tidal amplitudes were evaluated by the superposed epoch statistical method. It is shown that coupling from below depends on the type( intensity) of stratospheric warmings and on the phase of quasi-biennial oscillations (QBO phase). The effect of geomagnetic storms (  $A_p \geq 100$ ) manifests the decreasing of the eastward prevailing wind and increasing of the semidiurnal zonal tidal amplitude. The response of MLT winds on the external forcing is rather different for the 21st and 22d solar cycles.

External forcing, MLT winds

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