

# **The AGWs variability due to geomagnetic activity observed in the middle latitude mesosphere in the Northern hemisphere**

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Temperature observations by the Mesopause Oxygen Rotational Temperature Imager (MORTI) and Spectral Airglow Temperature Imager (SATI) data were chosen to study the gravity wave activity due to several geomagnetic storms existed in period of 1999, 2000, 2004, 2005 over Almaty (43.05°N, 76.97°E), Sierra Nevada (37.2°N, 356.7°E) and Delaware (42.87°N, 278.62°E). The response of the mesosphere to geomagnetic storms associated with coronal hole (CH) and coronal mass ejection (CME) is investigated and discussed. The spectral region response to harmonic oscillations with periods from 50 min to 7 hours is examined in term of Krassovsky's ratio. The results of the current investigation have shown that the spectral parameters of the wave disturbances generated in the middle atmosphere may be sufficiently altered under the influence of the magnetic storm. The results from the analysis of the vertical waves propagation for the periods considered are also discussed.