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A study on effects of geomagnetic extreme events in the middle atmosphere using Space-Borne Satellite and SuperDARN.

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Geomagnetic extreme events are geophysical phenomena observed as a result of Sun's violent eruptive nature. As the Sun is the main driving factor of the atmosphere, there are vast number of works made to understand and explain the overall effects in dynamics, reaction and compositions of the atmosphere. But, due to the complexity of the interaction in the atmosphere it remains less understood. Events based studies help to ease the studies of the effects of geomagnetic storms in the middle atmosphere, this work presents effects of extreme storm events in the Mesosphere and Lower Thermosphere (MLT). A number of geomagnetic storm events are identified from satellite observations for this studies. Energetic particles precipitation data into the atmosphere, associated with storm events which may affect the atmospheric temperature and composition, obtained from NOAA Polar Orbiting Environmental Satellites (POES) measurements. SuperDARN, South African National Antarctic Expedition IV (SANAE IV) and its vicinity riometer data which are located in the Southern Hemisphere are employed to estimate ionospheric responses and conventions, and absorptions. Results show that extreme geomagnetic storms coupled with intensified energy absorption and possible middle atmosphere heating from the energy transport model calculations, which agrees with a number of well established results.

Apply to be considered for a student award (Yes / No)?

No

Level for award (Hons, MSc, PhD, N/A)?

MSc

Main supervisor (name and email) and his / her institution

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Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

No

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