MESOSPHERIC OZONE DEPLETION DUE TO ELECTRON PRECIPITATION AT THE SOUTH ATLANTIC MAGNETIC ANOMALY DURING GEOMAGNETIC STORMS

by

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ABTRACT

The effect of energetic electron precipitation at the South Atlantic magnetic anomaly during intense geomagnetic storms on the local mesospheric ozone concentration is investigated. In the mesosphere, the ionization produced by precipitation acts as a source of odd hydrogen. Since odd hydrogen processes dominate ozone destruction in this region, a decrease in the ozone concentration should be expected during these events. Apart from simple assumptions regarding the processes by which ion reactions by particle precipitation influence neutral chemistry, it is estimated that the mesospheric ozone concentration may considerably change around 60 km during these events, mainly at the center of the anomaly region.