



Variation of thermospheric $\sum O/N_2$ Ratio Transition Latitude During Geomagnetic Storms Emilie Lo¹, Yen-Jung Wu¹, Quan Gan², Thomas Immel¹ ¹UC Berkeley Space Sciences Laboratory (SSL), ²University of Colorado Boulder Laboratory for Atmospheric and Space Physics (LASP)



day) on the same scan numbers. Afterwards, by subtracting storm day $\Sigma O/N_2$ data values from prestorm day $\Sigma O/N_2$ data values, a new array of the difference between storm time and the original background data (defined as prestorm day) can be created. To focus on the region best observed by the GOLD satellite, the data are then filtered by longitude, keeping only values within the 60°W to 30°W range. Next, the filtered data are binned by latitude into 3-degree intervals (e.g., 60°N~57°N) to get the average values of $\Sigma O/N_2$ difference values. The plot next to it shows the zonal average $\Sigma O/N_2$ difference of the 60°W~30°W bin as a graph of latitude versus $\Sigma O/N_2$ difference, allowing visualization and quantification of the transition latitude type as it passes the $\Sigma O/N_2 = -0.15$ threshold.

Reference

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