

Multiple excitation of large-scale traveling atmospheric disturbances (TADs) by solar wind fluctuations

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Fluctuations on timescales of minutes to hours are common in the solar wind. When the fluctuations encounter the Earth, they could excite gravity waves in the auroral regions. These gravity waves, particularly large-scale ($> \sim 1000$ km) gravity waves, will give rise to traveling atmospheric disturbances (TADs) with typical amplitudes of 20-40% in the upper thermosphere. We report here the detection of multiple excitation of large-scale TADs by Alfvén waves embedded in high-speed solar wind streams, and also by interacting coronal mass ejections.

Keywords: solar wind fluctuations, gravity waves, thermosphere