

Title: Detecting Solitary Waves in Earth's Magnetopause

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Abstract: When the solar wind magnetic field interacts with Earth's magnetic field, magnetic reconnection is driven in the magnetotail. New field line structures are created, some of which move away from Earth while the portion that travels towards Earth slows due to energy loss. Our purpose was to investigate how this energy transfer occurs. The reconnection process drives currents which then are thought to create solitary waves. These are a nonlinear wave mode detected by searching for bipolar and monopolar spikes in the parallel and perpendicular components of the electric field. By analyzing wave count density as well as current density, our findings demonstrate a strong correlation between the two on the day side of Earth. However, the night side showed no clear relationship and further research is needed.