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Investigation of Pc5 pulsations during a TRINNI event

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Pc5 (1-5mHz) pulsations are global magnetohydrodynamic (MHD) events in the magnetosphere. Identification of the causes of Pc5 ULF pulsations has been a challenging problem in the field of MHD physics because of the complex nature of the magnetosphere. Several studies have shown that high speed ionospheric plasma flow in the night side which are mapped to the magnetospheric tail during magnetically quiet periods are associated with releasing of energy from quick reconfiguration of tail magnetic field lines because of reconnection, and these events are referred to as a TRINNI, which is an acronym for "Tail Reconnection during IMF Northward, Non-substorm Interval". Numerous TRINNI events have been reported using the SuperDARN (acronym for a network of HF radars) and magnetometer data. In this study, we analyse a known TRINNI event for the presence of associated Pc5 pulsations and investigate if TRINNI events could be their driving mechanism. SuperDARN cross-polar cap potential data were used as proxy for a TRINNI. We investigate the relationship between the TRINNI and Pc5 pulsations of this event by using sophisticated Fourier analysis techniques using complex demodulation on the SuperDARN cross-polar cap potential and magnetometer data.

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