

## Characteristics of long-period magnetic pulsations observed at two ground-based magnetometer networks during huge magnetic storms

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Long-period continuous pulsations during huge magnetic storms were studied by using data from the CPMN (the Circum-pan Pacific Magnetometer Network) and the INTERMAGNET (International Real-time Magnetic Observatory Network) stations. We examined the wave characteristics and the generation mechanisms of the phenomenon.

As an analytical condition, the magnetic storm below the Dst index  $-300\text{nT}$  was handled as a huge magnetic storm. Over a 15-year period (1990 to 2004) there were several huge magnetic storms satisfying this condition, but in this presentation we only examined two events: (1) 15-17 July 2000 ( $-301\text{nT}$  of minimum Dst index) and (2) 29-31 October 2003 ( $-401\text{nT}$  of minimum Dst index). The magnetic data band-pass-filtered ( $T=300\text{-}1000\text{s}$ ) was used to understand a fundamental wave characteristic of the long-period pulsation. The amplitude, the period  $T$ , and the phase difference were calculated.

As a result of the analysis, the following was established. The 1.5 - 3 mHz pulsation was stronger all over the earth simultaneously during the magnetic storm recovery phase of both events.

Other characteristics that are discussed are: (1) wave motion characteristics that depend on latitude and longitude, (2) correlation with solar wind data, and (3) relationship with high energy particles in magnetosphere.