Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

PEM09-03 会場:304 時間:5 月 20 日 16:10-16:30

Pc1/EMIC waves observed at subauroral latitude during sudden magnetospheric compressions

Pc1/EMIC waves observed at subauroral latitude during sudden magnetospheric compressions

Khan-Hyuk Kim[1*], Kazuo Shiokawa[2], Dong-Hun Lee[1], Hyuck-Jin Kwon[1], Martin Connors[3]
KIM, Khan-Hyuk[1*], Kazuo Shiokawa[2], Dong-Hun Lee[1], Hyuck-Jin Kwon[1], Martin Connors[3]

[1]School of Space Research, Kyung Hee University, South Korea., [2]Solar-Terrestrial Environment Laboratory, Nagoya University, Nagoya, Japan., [3]Centre for Science, Athabasca University, Canada.
[1]School of Space Research, Kyung Hee University, South Korea., [2]Solar-Terrestrial Environment Laboratory, Nagoya University, Nagoya, Japan., [3]Centre for Science, Athabasca University, Canada.

It is generally accepted that sudden compressions of the magnetosphere cause electromagnetic ion cyclotron (EMIC) wave growth by increasing the proton temperature anisotropy. These compression-associated EMIC waves are expected to be on higher latitudes (i.e., higher-L regions close to the magnetopause). In this study we examine Pc1 pulsations, which are believed to be generated by the EMIC instability, observed at subauroral latitude near the nominal plasmapause when the magnetosphere is suddenly compressed by solar wind dynamic pressure variations, using induction magnetometer data obtained from Athabasca, Canada (geomagnetic latitude = 61.7deg N, L ˜ 4.5). We identified 9 compression-associated Pc1 waves with frequencies of ˜0.5-2.0 Hz. The wave activity appears in the horizontal H (positive north) and D (positive eastward) components. All of events show low coherence between H and D components. This indicates that the Pc1 pulsations in H and D oscillate with a different frequency. Thus, we cannot determine the polarization state of the waves. We will discuss the occurrence location of compression-associated Pc1 pulsations, their spectral structure, and wave properties.

キーワード: EMIC, Pc1, Magnetospheric compression, Temperature anisotropy, Plasmapause, Subauroral latitude
Keywords: EMIC, Pc1, Magnetospheric compression, Temperature anisotropy, Plasmapause, Subauroral latitude