[구SE-15] Modeling of Energetic Neutral Atom (ENA) Emissions During a Magnetic Storm for CINEMA/TRIO

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Energetic neutral atoms (ENAs) are emitted by charge exchange collisions between energetic ions and cold neutral atoms. ENAs can be used as an alternative measure of the energetic ions in the source region because they maintain the energy and pitch angle of the source energetic ions. In the present study we present simulation results of the ENA emissions during a magnetic storm to be measured by the STEIN instrument onboard the CINEMA/TRIO satellites. The CINEMA/TRIO mission consists of three identical cubesats with low-altitude orbits. The STEIN instrument onboard each cubesat can measure ENAs with energies from ~4 keV to ~20 keV as well as suprathermal electrons and ions. The measurement of ENA emissions from ring current by STEIN is simulated using the models for energetic ring current ions and geocoronal neutral atoms. Especially we will discuss about the energy spectrum of the ENAs and the effect of transient variations of the ring current.

[구SE-16] Pc1/EMIC waves observed at subauroral latitude during sudden magnetospheric compressions

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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 = 61.7° 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.