

**[7SE-23] Magnetospheric and ionospheric responses to the passage of solar wind discontinuity on 24 November 2008**

Khan-Hyuk Kim<sup>1</sup>, Jong-Sun Park<sup>1</sup>, Dong-Hun Lee<sup>1</sup>, Young-Deuk Park<sup>2</sup>,  
 V. Angelopoulos<sup>3</sup>, N. Nishitani<sup>4</sup>, T. Hori<sup>4</sup>, K. Shiokawa<sup>4</sup>,  
 K. Yumoto<sup>5</sup>, and D. Baishev<sup>6</sup>

<sup>1</sup>*School of Space Research, Kyung Hee University, Gyeonggi, South Korea.* <sup>2</sup>*Solar and Space Weather Research Group, Korea Astronomy and Space Science Institute, Daejeon, Korea.* <sup>3</sup>*IGPP, University of California, Los Angeles, California, USA.*

<sup>4</sup>*Solar-Terrestrial Environment Laboratory, Nagoya University, Nagoya, Japan.* <sup>5</sup>*Space Environment Research Center, Kyushu University, Fukuoka, Japan.* <sup>6</sup>*Laboratory of Magnetospheric and Ionospheric Researches (LMIR), IKFIA, Russia*

The passage of the interplanetary discontinuity (i.e., sudden increases in the solar wind speed, density, and IMF strength) was detected by ACE near GSE (x, y, z) ~ (222, -36, 3) Re upstream of Earth around 22:48 UT on November 24, 2008. About 55 min later, this solar wind discontinuity was observed by Geotail near GSE (x, y, z) ~ (23, 18, -7) Re in front of Earth's bow shock. From the propagation time of the solar wind discontinuity between ACE and Geotail, it is expected that the discontinuity front is aligned with the Parker spiral and strikes the postnoon dayside magnetopause first. Using coordinated multi-point measurements (THEMIS and GOES) at or in geosynchronous orbit, we observed a tailward propagating sudden impulse (SI), excited by the interplanetary discontinuity, around 23:50 UT with its front retaining alignment similar to that of solar wind discontinuity. The SI event appears a negative-then-positive variation in the H component at high latitude Chokurdakh (CHD: MLAT ~ 64.7 deg) in the prenoon sector, which is opposite sense of normal SI event. During the positive deflection at CHD, the SuperDARN Hokkaido radar detected the downward motion of the ionosphere, implying westward electric field enhancement, at subauroral latitudes near CHD meridian. In our study we will discuss magnetospheric and ionospheric responses to the passage of the solar wind discontinuity using multi-point observations in space and on the ground.