



Compression-related EMIC waves and associated precipitation of relativistic electrons

Dedong Wang (1), Zhigang Yuan (1), Xiaohua Deng (1,2), Meng Zhou (2), and Shiyong Huang (1)

(1) 430072 Wuhan University, Space Physics, School of Electronic Information, China (wangdedong@whu.edu.cn), (2) 330031 Institute of Space Science and Technology, Nanchang University, P.R. China

In this paper, we have presented observations of solar wind compression-related dayside electromagnetic ion cyclotron (EMIC) waves and associated precipitation of relativistic electrons on Jan 1, 2007. Dayside structured EMIC waves were observed by the Finish network of search coil magnetometers for several hours during the period of enhanced solar wind compression. Simultaneously, NOAA 15 and NOAA 16 satellites passing through the region of EMIC wave activity and registered a localized enhancements of precipitating electrons flux with energies $>3\text{MeV}$. While in this region, precipitations of protons with energies $>30\text{ keV}$ enhanced. The footprints of NOAA 15 and NOAA 16 during this precipitation event fit well with the Finish network of search coil magnetometers observing Pc1 waves simultaneously. Since such a Pc1 wave can be considered as a signature of an EMIC wave propagating off the equatorial plane to low altitudes. Our observations suggest that compression-related EMIC waves can interact with relativistic electrons and cause them to precipitate into the atmosphere.