

Studies on Broadband Electrostatic Noise (BEN) by using PWS onboard Akebono satellite and All-Sky Imager at South Pole

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Broadband Electrostatic Noise (BEN) was researched by Hawkeye1, IMP6, Viking and GEOTAIL satellite all over the Earth's magnetosphere [Gurnett and Frank, 1977; Dubouloz et al., 1991; Matsumoto et al., 1994; Pottelette and Treumann, 1998]. Akebono satellite is one of the satellites that surveys BEN in polar region. BEN was observed by PWS onboard Akebono satellite, and was classified into three types by Miyamoto (2000) based on the simultaneous electron and ion spectra. The occurrence of two types of BEN was associated with precipitation in the auroral region.

In our study, the relationship between BEN and auroral emission was examined by using PWS data and all sky imaging data at South Pole (SP-ASI). The footprint of the Akebono satellite was traced by using IGRF model along the magnetic field line, and mapped on the all sky images. In the result of this analysis, we found two examples, which show the relation between locations of auroral emission and BEN. The BEN observed by PWS was located at higher magnetic latitude than the position of auroral emission. There is difference in the distributions of plasma particles between auroral emission and BEN. We conclude that the positional relation between auroral emission and BEN is important in terms of the simultaneous observation.