

Data analysis of ELF emissions in the vicinity of magnetic equator observed by AKEBONO

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Electromagnetic ion cyclotron wave and magnetosonic wave were frequently observed around the magnetic equator by AKEBONO [1,2]. On the other hand, the next inner magnetosphere explorer mission named "ERG" is now under planning [3]. The ERG mission aims to investigate the plasma dynamics of the inner magnetosphere by measuring three-dimensional plasma distributions over a broad energy range from eV to MeV and electric and magnetic field from DC up to HF range simultaneously near the equatorial plane. It is pointed out that ion cyclotron wave and magnetosonic wave play important roles in wave-particle interaction in the radiation belt.

In the present study, therefore, we analyze these data again observed by Akebono to examine their characteristics such as polarization and spectrum feature. According to the analyses, we also propose required frequency and time resolution and additional functions to be implemented on the Plasma Wave Experiment (PWE) onboard ERG to achieve detailed measurements of these ELF emissions.

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[2] Y. Kasahara, H. Kenmochi, and I. Kimura, Propagation Characteristics of the ELF Emissions Observed by the Satellite Akebono in the Magnetic Equatorial Region, *Radio Science*, 29, 751-767, 1994.

[3] ERG Working Group, ERG (Energization and Radiation in Geospace) working group proposal, 2008.

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