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Zoom meeting B ：11/4 PM1 （13:45-15:30）
14:00-14:15

Characteristics of the magnetic field variations at and above proton cyclotron frequency observed by Arase

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Magnetic field variations are regarded as major causes of relativistic electrons in the inner magnetosphere. The Pc5 ULF waves cause the radial diffusion of electrons and consequent acceleration. The whistler waves can accelerate electrons by the energy transfer from the waves to the electrons.
It is told that the radial diffusion process is insufficient to interpret the observed increase of the relativistic electrons. Some comparisons between the measurements and numerical simulation have shown that both radial diffusion by ULF waves and whistler waves would contribute to the increase of the relativistic electrons (Ma+, 2018).
The EMIC waves are considered as the effective process to loss the relativistic electrons by the pitch angle scattering. Meanwhile, magnetic field variations around and above proton cyclotron frequency have not studied in view of the acceleration of the electrons. The magnetospheric disturbance phenomena, e.g., dipolarization and bursty bulk flow from the night-side plasma sheet, are often accompanied by the broadband magnetic field variation. The magnetic field variation in this frequency range has the potential for factor of the rapid increase of the relativistic electrons in the inner magnetosphere.
The magnetic field variations between a few Hz and a few tens Hz are measured by MGF, fluxgate magnetometer, onboard the Arase satellite. For the precise measurement of the magnetic field variation, we have worked to reduce the artificial noises caused by the linearity error of the analog-to digital conversion, inaccuracy of the satellite spin phase at the sampling, and inaccuracy of the satellite clock. The data after reduction of artificial noises enable us to study the magnetic field variation in the frequency range of interest.
We will present the method and benefit to reduce the artificial noise from the magnetic field data. The remaining noise and its effect to the scientific results are studied as well. Based on the knowledge about the restriction to evaluate the magnetic field disturbance, we will discuss the characteristics of the magnetic field variations in view of the acceleration of electrons in the inner magnetosphere.