

## あらせと RBSP 衛星による経度方向に局所的に発生する ULF 波動による高エネルギー flux の周期的な変動

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## Periodic energetic electron flux modulations interacted by the azimuthally-confined ULF waves observed by Arase and RBSP

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We report a drift resonance using data simultaneously observed by the Arase (ERG) and Radiation Belt Storm Probes (RBSP)-B satellites around 06:30 UT on March 30, 2017, when both satellites observed radiation belts at different MLTs but the same L-shell. The Extremely High-Energy Electron Experiment (XEP) carried by Arase observed periodic fluctuations in the energetic electron flux with energies ranging from 500 keV to 2 MeV with an energy dispersion when the satellite was located in the morning local time sector. Significant fluctuations in the ambient magnetic field were not observed by the Magnetic Field Experiment (MGF) on the ERG satellite. We estimated the modulation region using a time-of-flight analysis with the dispersion signature of the energetic electron fluctuations and found that the source regions extended from the post-noon to dusk sector (14&#211;18 Magnetic Local Time (MLT)). The Magnetic Electron Ion Spectrometers (MagEIS) and Electric and Magnetic Field Instrument Suite and Integrated Science (EMFISIS) onboard the RBSP-B, which was located at ~18 MLT, observed Pc5 pulsations in the compressional component and electron flux modulations with energies from 500 keV to 2 MeV with the almost same period. The energy dependence of the amplitude and phase difference relative to the compressional Pc5 pulsations suggests that the drift resonance was excited near 1 MeV. Ground magnetometers with longitudinal extension at 14&#211;03 MLT observed eastward-propagating Pc5 pulsations with a small m number of ~4. These Pc5 pulsations were confined to the afternoon&#211;dusk sector of 14&#211;18 MLT. These results indicate that azimuthally-confined Pc5 pulsations interact with drifting electrons via drift resonance.

We also visually surveyed such periodic energetic electron modulations without ULF waves from the energetic electron flux and magnetic field data observed by Arase from March 21, 2017 through December 31, 2017. We found that energetic electron modulations without ULF waves frequently appear in the dawn side.

In this study, we will show the event on March 30, 2017 and statistical results of periodic energetic electron modulations without ULF waves.