

Calibration of HEP instrument onboard Arase and investigation of flux drop out of the outer belt during storms

Inchun Park[1]; Yoshizumi Miyoshi[2]; Takefumi Mitani[3]; Takeshi Takashima[4]; Satoshi Kurita[2]; Mariko Teramoto[5]; Tomoaki Hori[2]; Nana Higashio[6]; Ayako Matsuoka[7]; Iku Shinohara[8]

[1] ISEE, Nagoya univ.; [2] ISEE, Nagoya Univ.; [3] ISAS/JAXA; [4] ISAS, JAXA; [5] ISEE, Nagoya University; [6] JAXA; [7] ISAS/JAXA; [8] ISAS/JAXA

Since the Arase satellite was launched to orbit in 2016, new observation data has been obtained. In order to precise scientific data, the data should be calibrated and then converted to the physical unit. The HEP instrument onboard Arase is designed to observe 70 keV- 2 MeV high-energy electrons. In this energy range, the background radiation caused by energetic protons interferes with observations. Our research aims to discriminate background radiation events through data calibration. Using the Geant4 simulation tool, we conduct the particle simulation to calculate more realistic G-factor of the HEP instrument by designing the geometry of the HEP detector. The energy dependence of G-factor will be also calculated using the Geant4 simulation. We also investigate the loss processes of the outer belt electrons during March 2017 storms, using HEP and XEP data. During the periods, Arase was on the dawn side, while Van Allen Probes was on the dusk side, so that comparative study between two satellites provides the spatial information on the loss region. In this study, we investigate both Arase and Van Allen Probes MagEIS data and estimate the time differences for commencements of electron losses.