

Study of the method of wave data processing for Wave-Particle Interaction Analyzer (WPIA)

Mitsuru Hikishima[1]; Yuto Katoh[2]; Hirotsugu Kojima[3]; Yoshiharu Omura[3]; Yoshizumi Miyoshi[4]; Takayuki Ono[2];
Yuto Katoh WPIA discussion group[5]

[1] Grad. Sch. Sci., Tohoku Univ.; [2] Dept. Geophys., Grad. Sch. Sci., Tohoku Univ.; [3] RISH, Kyoto Univ.; [4] STEL, Nagoya Univ.; [5] -

The Wave Particle Interaction Analyzer (WPIA) is a new instrumentation measuring resonant interactions between plasma waves and charged particles directly and quantitatively in space plasmas, which will be installed as a software function in the ERG satellite (Exploration of energization and Radiation in Geospace). In the WPIA, we use the wave vector and velocity vector of each electron respectively measured by wave and particle instruments onboard spacecraft. The aim of the WPIA is to measure an energy transfer between waves and particles by calculating the quantity W which is represented as inner product of E and v , where E and v are the wave electric field and the velocity vector of an electron, respectively. To measure the accurate quantity W on the WPIA, we need to obtain exact phase variation of chorus waves. In the presentation, we introduce the method of waveform processing for WPIA calculation.