

## Evaluation of a statistical significance by wave data processing in the WPIA

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The Wave-Particle Interaction Analyzer (WPIA) is a software function installed on the Exploration of energization and Radiation in Geospace (ERG) satellite. The WPIA directly measures the quantity of energy transfer between whistler-mode chorus waves and resonant energetic electrons by using plasma wave vectors and velocity vectors of plasma particles. In order to statistically evaluate the significance of the quantity of energy transfer, the WPIA require accurate phase angles of waves and electrons. In the WPIA, the waveform data over a wide frequency range is observed by electric and magnetic sensors on the satellite and the data is used as input of WPIA processing. To obtain chorus waves, the WPIA processing applies a passband filter with appropriate frequency range of the waveform. Additionally, the chorus emissions often appear with weak hiss-like waves in the same frequency band. Such waves give a decreasing of the S/N ratio for the WPIA calculation. In the presentation, we evaluate a statistical significance in the WPIA measurement depending on the passband filter using chorus element reproduced in the simulation.