

Measurement of auroral particles with REIMEI satellite

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REIMEI satellite was launched in August, 2005. The satellite is on a sun-synchronous (00:50-12:50LT) polar orbit with an altitude of ~630km. Five scientific instruments are onboard REIMEI, which are auroral particle analyzers (ESA/ISA), a multi-spectral auroral camera (MAC), current probes (CRM), and magnetic field sensors (GAS). All the scientific instruments are working well so far. MAC was ready to make observations three weeks after launch, and ESA/ISA was available for routine operation after the end of October.

Time resolution of ESA/ISA is 20ms, which corresponds to ~150m in distance. In order to cover all pitch angles, satellite attitude can be controlled to keep geomagnetic field directions within field-of-view of ESA/ISA. By using this special attitude control mode, ESA/ISA can make observations with full pitch-angle coverage.

However, we cannot use satellite spin for data compensation since REIMEI is three-axes stabilized. In addition, effect of satellite shape is important since Larmor radius is relatively small, because of geomagnetic field around the satellite is strong. These artificial effects are removed as much as possible, in order to make scientific data available.

Raw data obtained so far, their compensations and analysis will be presented.