

Preliminary results of the first ERG-ground campaign observation of the inner magnetosphere using the PWING ground network

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Dynamical variation of particles and waves in the inner magnetosphere is one of the most important research topics in recent space physics. The inner magnetosphere contains plasmas in wide energy ranges from below electron volts to Mega-electron volts. These plasmas (electrons and ions) interact with ULF/ELF/VLF waves at frequencies of 0.1 Hz to 10 kHz to cause their energization in the equatorial plane of the magnetosphere and loss into the ionosphere. In order to provide global distribution and quantitative evaluation of the dynamical variation of plasmas and waves in the inner magnetosphere, we have started PWING Project (study of dynamical variation of Particles and Waves in the INner magnetosphere using Ground-based network observations, http://www.isee.nagoya-u.ac.jp/dimr/PWING/PWING_web_e.htm), which will last for 5 years from April 2016, as a Grant-in-Aid for Specially Promoted Research of the Japan Society for the Promotion of Science (JSPS). In this PWING project, we operate all-sky aurora/airglow imagers, 64-Hz sampling induction magnetometers, 40-kHz sampling ELF/VLF receivers, and 64-Hz sampling riometers at 8 stations at ~60 MLAT around the north pole, as well as two EMCCD cameras at two stations. The stations are distributed in Canada, Iceland, Finland, Russia, and Alaska. We combine these longitudinal network observations with the ERG (Arase) satellite, which was launched on December 20, 2016, and global modeling. The first campaign observation of PWING project with the newly-launched ERG satellite is planned in the second half of March 2017. In this presentation, we show preliminary results obtained from this first campaign observations based on the PWING ground network observations of these instruments.

Keywords: inner magnetosphere, ERG satellite, PWING project, longitudinal network

Ground-based stations of the PWING Project.

● Existing sites ★ New sites

