

あらせ衛星搭載 LEPi による低エネルギーイオン観測

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Observations of low-energy ions with Arase/LEPi

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LEPi is one of the instruments onboard Arase, which is an energy-mass spectrometer designed to measure ions with energies from $\sim 0.01\text{keV/q}$ up to 25keV/q . In order to discriminate species of incoming ions, LEPi uses a TOF (Time-Of-Flight) technique. TOF also works as a noise rejector, which is useful for rejection of background noise due to high energy particles in the inner magnetosphere. LEPi has passed the initial checkout phase after launch, and now under regular observations. Since the regular observation started (end of March, 2017), Arase encountered several magnetic storms driven by CIR and CMEs. LEPi observed sudden flux enhancement and subsequent gradual decay of low-energy ($\sim 10\text{eV/q}$) ions around $L=4$ associated with the magnetic storms. In some cases, these flux modulations coincide with eclipse (absent of Sun light on the spacecraft), but others do not. Spacecraft potential decreases when the spacecraft gets eclipse. Therefore, a part of ions whose energies are lower than energy range of LEPi are accelerated and appeared inside the range. These fluxes might reflect transportation / energization of cold component in the inner magnetosphere. We will present current LEPi operations and initial scientific results.