

Analysis of low-frequency plasma wave observed by Waveform Capture (WFC) onboard KAGUYA

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KAGUYA was launched on September 14, 2007. KAGUYA consists of three satellites in polar orbit, main satellite at about 100km altitude and other two small satellites.

The WaveForm Capture (WFC) is one of the subsystems of Lunar Radar Sounder (LRS) onboard KAGUYA. The WFC measures two components of electric wave signals detected by two orthogonal 30m tip-to-tip antennas. WFC consists of WFC-L and WFC-H. WFC-L measures waveforms with the frequencies less than 100Hz. WFC-H is a fast sweep frequency analyzer covering the frequency range from 1kHz to 1MHz. The scientific objectives of the WFC are lunar science and extra-lunar science. The former is the science of the plasma physics related to the moon itself. One of the most specific phenomena is the plasma dynamics in the lunar wake region. As for the extra-lunar science, various kinds of plasma waves and radio waves from the Earth, the Sun and Jupiter are expected to be observed.

In this study, we will make analysis of low-frequency plasma wave using data observed by WFC-L, in particular about low-frequency plasma waves less than 100Hz.