

地球磁気圏内における ULF 波動に対する多点衛星観測データを用いた波動ベクトル解析

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Wave vector analysis using multi-spacecraft observation on ULF waves in the magnetosphere

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Wave vector analysis techniques utilizing multi-spacecraft observations, such as the four spacecraft of the Cluster mission, have been developed in this decade [e.g., Narita, 2017]. Recent Magnetospheric Multiscale (MMS) mission enable us to resolve smaller wavelength in the ion kinetic range for the first time. It is important to measure the wave vectors directly by in-situ observations for estimating the energy transportations and diffusion coefficients. We applied the wave vector analysis techniques to ULF waves in the terrestrial magnetosphere, including the electromagnetic ion cyclotron waves and their rising tone emissions. The estimated frequency-wave vector distributions agree with those calculated by the linear theory, but tend to disagree when the spacecraft are close to the wave sources.