

## 国際宇宙ステーションからのVHF帯電磁波を用いた雷観測 VHF observations on lightning discharges from the International Space Station

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We present the lightning observation missions from space using the electromagnetic waves.

In 2012, Global Lightning and sprIte MeaSUREMENTS (GLIMS) mission has been conducted on Exposed Facility of Japanese Experiment Module (JEM-EF) of the international space station (ISS) which is orbiting the earth at an altitude 400 km. The VHF broadband digital interferometer (VITF) attached on JEM-EF is designed to estimate the direction of arrival of electromagnetic waves. The VITF has the bandwidth from 70 MHz to 100 MHz. The VITF on GLIMS is developed on the heritage of a VHF sensor on Mado-1 satellite. The VITF consists of two antennas, band-pass filters, amplifiers, and 2-channel-AD-converter. The electromagnetic radiations from lightning discharges received by the antennas are digitized by the AD converter synchronizing with another channel through the filters and the amplifiers. The band-pass filter and the amplifier of the VITF are exactly the same as the ones of the VHF sensor on Mado-1 satellite. The basic specification and most of devices in the AD converter of VITF are proven by the one of VHF sensor on Mado-1 satellite.

We will introduce the outline of the mission and the VITF. The initial observational results with the VITF of the JEM- GLIMS mission will be presented. We discuss the results and the VHF wave propagation characteristics through the ionosphere.

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