

R006-23

B会場：11/27 AM2 (11:05-12:35)

11:50~12:05:00

マルチ観測網で捉えた特異な高周波 VLF バーストパッチの出現統計と伝搬特性

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Statistics and propagation of unusual ‘high frequency’ VLF bursty-patches from multi-point observations

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In the magnetosphere, Extremely Low (ELF) and Very Low Frequency (VLF) plasma waves occur naturally in the 3 Hz to 30 kHz frequency range. Through wave-particle interactions they influence radiation belt dynamics, accelerating electrons or scattering them into the atmosphere. Bursty-patches are a recently identified class of VLF emissions, occurring at frequencies above half the equatorial electron gyrofrequency ($f_{ce}/2$) at the corresponding L-shell of observation. Usual VLF waves should not be able to propagate to the ground at these frequencies and locations. However, they have been observed at multiple ground-based stations with little information on their occurrence rates or propagation characteristics.

In this study, we use data from VLF receiver stations in Finland to discuss the properties and specific propagation of bursty-patches to the ground. We mainly analyzed 1 year of data from Kannushleto (KAN, MLAT=65.0N, L=5.5) and Oulujarvi (OUJ, MLAT=61.3N, L=4.4) to assess overall occurrence rates, as well as investigate simultaneous and conjugated observations. We also present preliminary results from the Angeli station (ANG, MLAT=66.1N, L=6.3). From a unique conjugate event (showing one-to-one correspondence) observed by KAN, OUJ, and the Arase satellite in the magnetosphere, we also investigated the wave propagation characteristics using polarization and ray tracing analysis.