

R005-28

A 会場 : 11/27 PM1 (13:45-15:45)

15:15~15:30:00

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Mesoscale plasma flow in the near-noon high-latitude ionosphere: Scale-dependent features

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High-latitude plasma convection is known to reflect different controlling processes depending on the spatial scale. On large scales, typically several hundred kilometers or more, the convection pattern is mainly determined by solar wind and magnetospheric conditions. At the other extreme, small-scale variations below about 10 km are attributed to Alfvén waves propagating along magnetic field lines. The focus of this study is on the intermediate, mesoscale range of 20 – 200 km, where the controlling mechanisms are less well understood. In particular, we aim to identify whether near-noon mesoscale convection exhibits unique properties that are not simply a consequence of large-scale drivers or small-scale Alfvénic fluctuations. To investigate this, we used ion drift data from the Swarm A and Swarm B satellites spanning more than 10 years (December 2013 – March 2025). We selected intervals when the two satellites passed through nearly the same MLT-MLAT region near noon with time differences of 40 – 180 s. By systematically comparing the paired observations, we examined how plasma flow characteristics depend on spatial scale and assess their temporal persistence. These results are expected to contribute to a better understanding of mesoscale plasma convection and its role in the high-latitude ionospheric dynamics.