

R005-09

A 会場 : 11/26 PM3 (16:40-18:25)

17:25~17:40:00

#Fu Junxian¹⁾, 大塚 雄一¹⁾

⁽¹⁾ISEE

Multi-Source Ionospheric Disturbances and Conjugate effects During The 2024 Typhoon Shanshan

#Junxian Fu¹⁾, Yuichi OTSUKA¹⁾

⁽¹⁾The Institute for Space-Earth Environmental Research, Nagoya University

Typhoons have been widely reported to induce ionospheric disturbances through various atmospheric and electrodynamic coupling mechanisms. The passage of Typhoon Shanshan in 2024 provided a unique opportunity to investigate such disturbances over Japan using GNSS-derived total electron content (TEC) data. A fourth-order Butterworth bandpass filter was applied to extract the perturbation component of vertical TEC. During 15:00 – 16:30 UT on 12 September 2024, two distinct types of TEC anomalies were identified: (1) nighttime medium-scale traveling ionospheric disturbances (MSTIDs), and (2) concentric ionospheric disturbances (CIDs) associated with typhoon-induced gravity waves. By incorporating conjugate observations from GNSS stations in Australia, this study further examines conjugate effects driven by electric field and the contrasting spatial characteristics of these two disturbance types. Results show that conjugate effects associated with nighttime MSTIDs are clearly observable in the southern hemisphere, consistent with electric field transmission along geomagnetic field lines. In contrast, conjugate signatures related to typhoon-induced gravity waves are absent or weak, suggesting a more localized or hemispherically asymmetric generation mechanism.