

R005-39

Zoom meeting C : 11/2 PM1 (13:45-15:30)

14:00~14:15

衛星 GOCE による熱圏の大気密度の日変動について

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Day to day variability of neutral density in the thermosphere observed by GOCE satellite

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It is well known that extreme space weather events (e.g., intense geomagnetic storms) cause day-to-day variabilities of neutral density and wind in the ionosphere/thermosphere system (IT system) (Liu et al(2021)). On the other hand, the density and wind in the IT system are variable even during the quiet time. During quiet times, the IT system is strongly influenced by the lower atmosphere. In J.G.Charney(1990), the summer circumpolar anticyclone and the winter circumpolar cyclone in the upper stratosphere and mesosphere are little influenced by lower atmosphere motions. Energy may escape into the mesosphere near the equinoxes, when the upper-atmosphere zonal flow reverses. Therefore, effects from lower atmosphere to upper atmosphere are so important. However, it is poorly understood that quantitative roles of the lower atmosphere and outer space to the IT system variability are during quiet times.

This study will show the day-to-day variation of the neutral density observed by GOCE satellite during quiet times ($K_p \leq 3$). Also, we will compare the neutral density with F10.7, K_p , and wind in the lower atmosphere to reveal whether the main driver of the neutral density is impacts from the outer space or the lower atmosphere.