R005-40
Zoom meeting C ：11/2 PM1 (13:45-15:30)
14:15〜14:30

地磁気静穏時に発生したpseudo breakupにおける電離圏変動に対する熱圏風変動

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Thermospheric wind response to ionospheric variations at a pseudo breakup during geomagnetically quiet conditions

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Thermospheric wind response at F-region altitude to a sudden westward turning of the ion velocity at high latitude was studied by analyzing data obtained during a conjunction event with Fabry-Perot interferometer (FPI; 630 nm), Dynasonde and Swarm A/C satellites in northern Scandinavia. The event was found during a period of geomagnetically quiet conditions with Kp of 0 to 1 through the night, but some auroral activity in the north. From the Swarm measurement, the ionospheric trough was identified at 70-72N. The collocated FPI and Dynasonde measured thermospheric winds (**U**) and ionospheric plasma velocities (**V**), respectively, at the equatorward edge of the trough. A notable scientific message that was revealed by this study is a possible role of the thermospheric wind in the energy dissipation process. Negative **U**・**V** indicates that kinetic energy of the thermosphere is dissipated into the ionosphere by particle collisions, and this can occur when the thermospheric wind is not able to follow instantly a sudden **V** change due to inertia. At a pseudo breakup during the conjunction event, the Dynasonde-measured **V** suddenly changed the direction from eastward to westward within 10 min. The FPI-measured **U** was also accelerated westward after the pseudo breakup, but its development was more gradual than that of **V**, so that **U** remained eastward for a while after the pseudo breakup. During this transition interval of about 10 min, **U**・**V** was negative. An irresistible force of the thermosphere such as seen in this study should be found frequently at high latitudes because sudden direction change in **V** is a typical ionospheric feature at the substorm onset. Sign of **U**・**V** may be used as the indicator to find time and location where the thermospheric inertia plays a role in the energy dissipation process.