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Zoom meeting C ：11/3 AM1 (9:00-10:30)
09:15-09:30

Polar mesospheric cloud structure tracking with data from the meteorological satellite Himawari-8

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A cloud tracking technique is applied to polar mesospheric cloud (PMC) data from the Geostationary-Earth-Orbit (GEO) meteorological satellite Himawari-8 to examine the diurnal PMC variations. While previous PMC observations from the ground and Low-Earth-Orbit (LEO) satellites have a limitation on local time coverage, observations from the GEO satellite provide a great opportunity to study the PMC variability with all local time coverage and a wide field of view. The band 1 (the blue band, 0.47 μm) data of the Advanced Himawari Imager (AHI) onboard Himawari-8 is resampled to the horizontal versus vertical grids data on the Earth-s limb with the grid-box size of 10 km (horizontal) and 5 km (vertical). A pattern matching technique is applied to the PMC peak radiance of the resampling data, and the horizontal movement of PMC along the transverse direction to the line of sight is derived. The horizontal movement shows diurnal and semi-diurnal variations with a mean westerly movement of about 10 m/s. The westerly mean movement is consistent with the horizontal wind derived from PMC images taken with the Cloud Imaging and Particle Size instrument (CIPS) on the Aeronomy of Ice in the Mesosphere (AIM) satellite, and the wind of HWM14. The horizontal movement of PMC observed by Himawari-8 is likely to be subjected to wind advection.