

Initial report on PMC observations by Himawari-8

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Polar mesospheric clouds (PMCs) or noctilucent clouds (NLCs) consist of water-ice particles, which can be produced at cold summer mesopause region, mainly at high latitudes. PMC observations have been widely performed by various methods from the ground as well as from the space. Optical observations by ground-based cameras, imagers or lidars are often limited by the weather, because the clear sky is required for such observations. Hence, satellite observations from the space are valuable for more continuous observations, which enable more systematic data coverage. Such systematic data coverage would be of benefit, for example, to monitor long-term PMC activities, which may be related with the global change because mesosphere cooling, which can enhance water-ice particle production, may be induced by CO₂ and CH₄ increases.

In this presentation, we will make an initial report on PMCs observed by Himawari-8, the Japanese Geostationary-Earth-Orbit (GEO) meteorological satellite. In the regular operation of Himawari-8, full-disk images of the Earth are obtained every 10 minutes with ~1 km spatial resolution. We can find PMC emissions in the Earth's limb region of the full-disk images. Thus, Himawari-8 provides PMC observations by continuous limb-viewing from its almost fixed locations relative to the Earth. We will introduce our initial results on Himawari-8 observed PMCs and discuss future PMC research utilizing the Himawari-8 observations.

Keywords: PMC, NLC, Himawari-8, Geostationary-Earth-Orbit satellite, Space-borne imaging