

Observation of the O₂ (0-0) atmospheric band nightglow by the IMAP/VISI: a case study

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The Visible and near-Infrared Spectral Imager (VISI) of the IMAP mission has been launched onto the International Space Station (ISS) since July 21st 2012. IMAP/VISI begins its nominal operation from the middle of October and will make a continuous observation for the next 3 years. IMAP/VISI is now operated in the nightside hemisphere with a range of +/- 51 deg. GLAT, measuring three different airglow emissions of OI at 630 nm, the OH Meinel band at 730 nm and the O₂ (0-0) atmospheric band at 762 nm at an altitude of ~400 km with the typical spatial resolution of 16 ? 50 km. Since the start of nominal operation in the middle of October 2012, IMAP/VISI has been observing airglow emission in the MLT region and found many interesting features. One of the rare events observed by IMAP/VISI is a concentric pattern of gravity wave on the O₂ (0-0) airglow emission. This pattern was observed on October 18, 2012 over northeastern part of Japan around 1200 UT. The similar pattern was also observed by all-sky camera at Rikubetsu in the 557.5 nm and OH airglow emissions. From the MTSAT satellite, we found a strong convective activity over Honshu Island around the same hour, which could be the source of this rare pattern. We will report the case study of this event and a possibility to do the statistic study on this concentric pattern if we could find other events from IMAP/VISI observation.

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