



Anomalous Small-scale gravity wave activities in the Arctic mesopause region during the 2015/2016 winter

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Using the datasets observed with the OH all-sky imager and Fabry-Perot Interferometer (FPI) at Resolute Bay, Nunavut, Canada (74.7°N, 265.1°E), Microwave Limb Sounder (MLS) from September 2014 to December 2017, we found a few unusual small-scale GWs in 2015/2016 winter, of which there are two clear events in November and December with wavelengths of ~ 18 km and lifetimes of ~ 35 min. We calculated momentum flux of these waves and analyze their characteristics preliminarily. The occurrence of these small-scale GWs may be related to the anomalous events in lower atmosphere, although it may be related to anomalous QBO and strong El Nino events during that winter. However, the detailed mechanisms are still unknown.