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Winter Climatology of Short-Period Polar Mesospheric Gravity Waves Observed Over Poker Flat Research Range, Alaska (65°N, 147° W)
MICHAEL NEGALE, Utah State University, KIM NIELSEN, Utah Valley University, MIKE TAYLOR, DOMINIQUE PAUTET, Utah State University, MARGIT DYRLAND, The University Centre in Svalbard — Short-period gravity wave observations over the Arctic region are few and their impact on the Arctic mesosphere lower thermosphere region via momentum deposition is of high interest. The Mesospheric Airglow Imaging and Dynamics project was initiated in January 2011 to investigate the presence and dynamics of these waves over the interior of Alaska. Observations were made from Poker Flat Research Range (PFRR) using an all-sky imager. This site provides an exceptional opportunity to establish a long-term climatology of short-period gravity waves in the Arctic Region. We present summary measurements of prominent gravity waves over two consecutive winters and compare their characteristics with recent observations at Resolute Bay, Canada (75° N), ALOMAR Station, Norway (69° N), Svalbard (78° N), and Rothera Station (76° S). The wave parameters measured at PFRR were found to be similar to the other high-latitude sites, except for the wave headings. The waves at PFRR exhibited dominant eastward motion, while the other observations reported westward motion. To investigate this wave directionality, we look at the effects of critical level filtering.

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