



Multi-Year Analysis of Short-Period Gravity Waves Over Alaska

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We present a four-year analysis of short period gravity waves measured by an airglow imager situated in Poker Flat, Alaska (65 N, 147 W). The imager is the cornerstone of the mesospheric airglow imaging and dynamics (MAID) project. This project is a collaborative effort between Utah Valley University, University of Alaska, Fairbanks and Utah State University, and employs the NICT Rayleigh Lidar System together with support observations from the co-located MF Radar and the NSF sponsored Poker Flat ISR. The overarching goal of the project is to characterize the waves, their variability, and how stratospheric weather impacts the observed wave field. A recent study utilizing two years of data (2011-2012) showed a preponderance for eastward propagating waves, which is in stark contrast to other polar sites that have shown dominant westward motions. Furthermore, the study revealed a significant year to year variability in the observed phase speeds. In the study presented here, two years of additional data have been analyzed to further investigate the year to year variability and correlate the observed wave parameters to stratospheric weather phenomena including the Aleutian low, the polar vortex, and sudden stratospheric warming events.