

Characterization of gravity waves in the stratosphere and lower mesosphere at McMurdo, Antarctica

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Five years' temperature data have been accumulated since University of Colorado Boulder Lidar group deployed an Fe Boltzmann Lidar at McMurdo Station, Antarctica. This study characterizes the vertical wavelength, period, phase speed, occurrence rate/time, and potential energy density of gravity waves among Rayleigh region (from 30 km to 50 km) over the past five years (from 2011 to 2015). A close correlation between potential energy density, background wind, and the position of polar vortex were also revealed.

Key words: Gravity wave characterization, stratosphere and lower thermosphere, potential energy density, polar vortex, critical layer filtering.