Abstract Submitted
for the 4CF06 Meeting of
The American Physical Society

Propagation and Ducting of Short-Period Gravity Waves over Antarctica KIM NIELSEN, MICHAEL TAYLOR, Center for Atmospheric and Space Sciences, Department of Physics, Utah State University, ROBERT HIBBINS, MARTIN JARVIS, British Antarctic Survey, Cambridge, UK — Short-period gravity waves are known to be significant sources of momentum deposition in the upper mesosphere. Recent studies using an extensive imaging data set obtained as part of a collaborative program with British Antarctic Survey have identified significant momentum transported by short-period waves as observed from Halley Station (76 $^\circ$ S,) on the Brunt ice shelf. However, this result is recognized to be an upper limit since it assumes that all of the wave motions were freely propagating. In this study we utilized available mesospheric wind data from Halley to investigate the propagation nature (i.e. freely propagating, evanescent, or Doppler ducted) of these waves observed over Halley during the 2000 and 2001 austral winter seasons to help provide a more realistic assessment of the impact of short-period waves on the Antarctic environment. A total of $\sim$170 short-period wave events were observed with available coincident wind measurements. The majority of these waves were found to be freely propagating ($\sim$76%) with only $\sim$2% of the observed events clearly Doppler ducted. In the remaining cases (22%), the mesospheric winds did not support propagating waves (evanescent).

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Date submitted: 11 Sep 2006 Electronic form version 1.4