Supporting Information for

Contribution of gravity waves to universal vertical wavenumber ($\sim m^{-3}$) spectra revealed by a gravity-wave-permitting general circulation model

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Introduction

Since it may be useful for comparison with lidar and radar observations in the future, vertical wavenumber (m) spectra for the height regions of z = 30–60 km and 80–100 km in JAGUAR hindcasts from 5–20 December 2018 are shown. The methods of extraction of fluctuations and spectral calculation are the same as those used for the spectra shown in Fig. 1g (see Section 2 and 3.1).
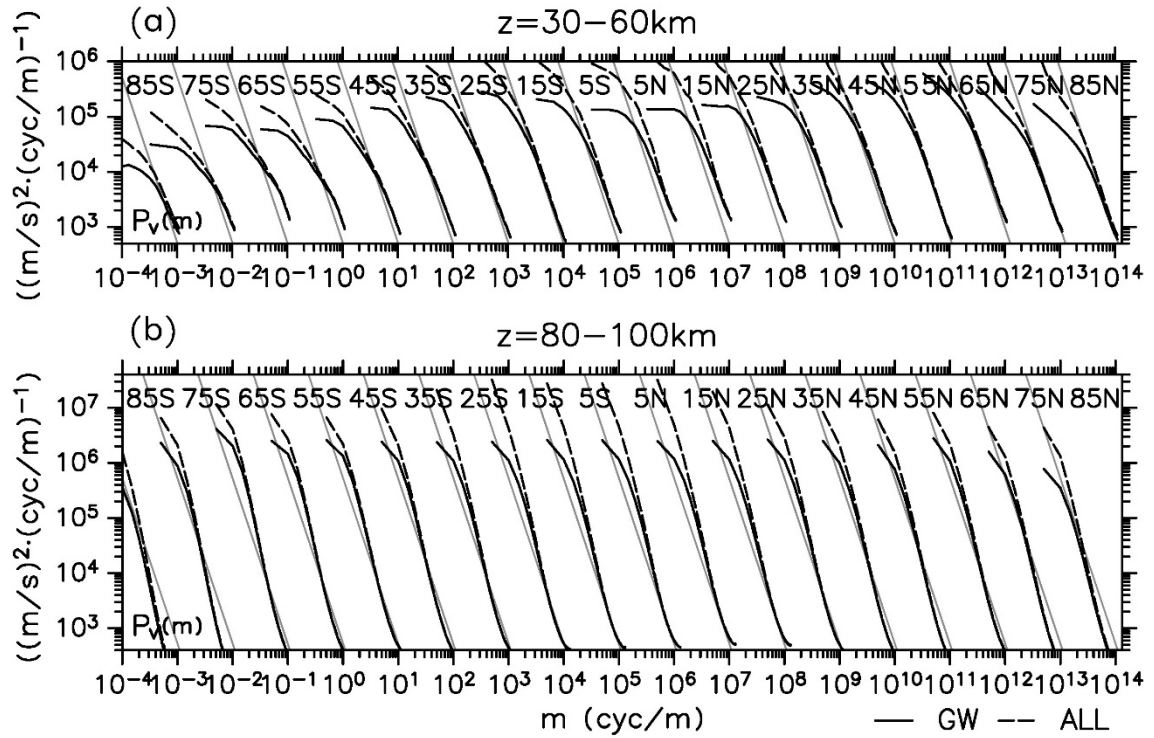
Figure S1. Meridional wind m spectra from 5–20 December 2018 for (a) z= 30–60 km and (b) 80–100 km. The results are averaged zonally and over the respective latitude regions of ±5° of the center of the latitudes shown in the figure. Solid and dashed curves show the spectra of gravity waves and all-fluctuation components, respectively. Gray lines are the theoretical spectra from Smith et al. (1987). The scale of the horizontal axis is for the spectra at 85° S and curves for the other latitudes are shifted by an order of magnitude one by one.