Impact of gravity waves on the middle atmosphere of Mars: a non-orographic gravity wave parameterization based on Global Climate modeling and MCS observations

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Figure S1.

Introduction This supporting information provides a Figure showing an example of zonal mean wind (m/s) simulated by the LMD-MGCM at standard resolution 64x48x32 (as in the paper), compared with higher vertical resolution 64x48x54 runs with the LMD-MGCM. The figure shows that increasing the vertical resolution from 6-7 km (i.e. 32 vertical levels) to 2-3 km (i.e. 54 vertical levels) does not have a significant impact

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on the GW drag, demonstrating that using a refined resolution is not critical in our study. Similarly to other parameterizations, the non-orographic GW parameterization implemented in our model does not strongly depend on the vertical resolution.
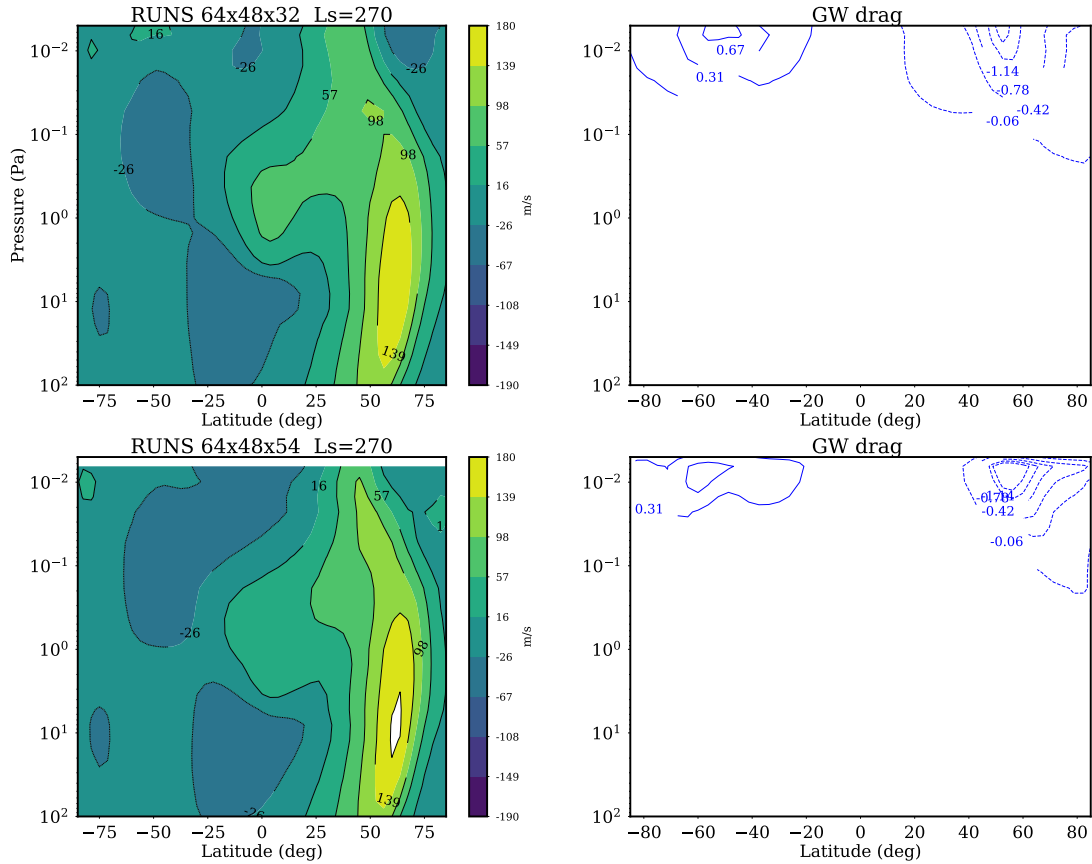
Figure S1. Left panels: Simulated LMD-MGCM zonal wind performed using the standard resolution 64x48x32 (upper panel) for early northern hemisphere winter (L_s=270°) with the non-orographic GW scheme include, as in Figure 4 (panel c), together with higher vertical resolution 64x48x54 (lower panel) for the same L_s. Right panels: corresponding (daily averaged) GW drag on the zonal wind.