

Dear Reviewer,

We would like to thank you for your positive comments and for carefully reading the manuscript, as well as for providing a list of points that need to be better clarified.

One main comment is about a better motivation of the approach by giving a description of the physical meaning of δx and δt . It should be noted that horizontal scale δx and time scale δt used in the convective GW source scheme (Song and Chun, 2005) are arbitrary, while the vertical scale of an excited GW is given by the latent heating profile and the resonance effect. Therefore, our first effort is to find out whether we can reproduce the observed spectrum by varying δx and δt . Only after that, the physical meaning of δx and δt will be discussed. We will add one or two sentences in the introduction to clarify the motivation.

The second important point in your comments is that the regions defined as “deep convection” are not illustrated clearly enough, which could lead to some misunderstanding while comparing with observations. As mentioned in the paper, to be able to compare model spectra with respective spectra from observations, these regions are the same as in Ern and Preusse (2012). The criterion for choosing these regions was to match areas where enhanced GW momentum fluxes due to convective GWs are observed. We therefore in this reply show a global map (Figure 1), where these regions of deep convection are marked. For the northern hemisphere, three regions of deep convection are demonstrated by three red rectangles. For the southern hemisphere, three regions of deep convection are indicated by three green rectangles. This figure will be included in the revised manuscript.

Other minor comments and technical corrections will be implemented and shown in details in the later author response.

Again, we thank you very much for your effort and contribution!

Sincerely,

Thai Trinh

References

- Ern, M. and Preusse, P. (2012). Gravity wave momentum flux spectra observed from satellite in the summertime subtropics: Implications for global modeling. *Geophys. Res. Lett.*, 39.
- Song, I. S. and Chun, H. Y. (2005). Momentum flux spectrum of convectively forced internal gravity waves and its application to gravity wave drag parameterization. Part I: theory. *J. Atmos. Sci.*, 62:107–124.

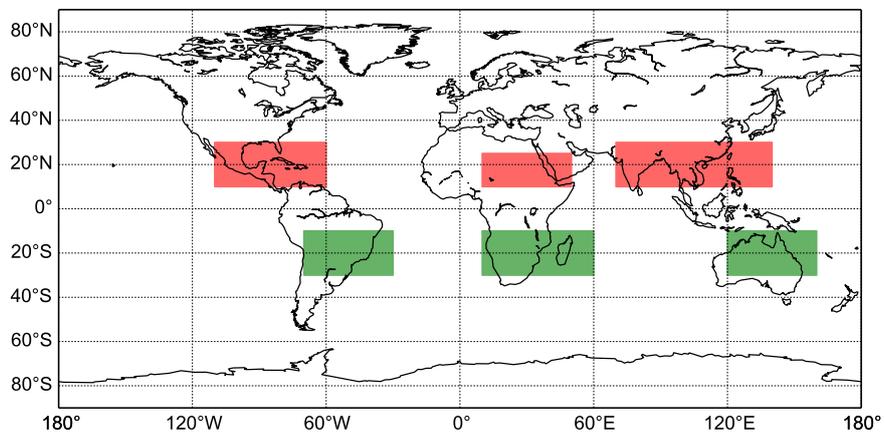


Figure 1: Regions of deep convection. For the northern hemisphere, three regions of deep convection are demonstrated by three red rectangles. For the southern hemisphere, three regions of deep convection are indicated by three green rectangles.