Tuning of a convective gravity wave source scheme based on HIRDLS observations

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This revised paper describes an application of the Song and Chun, 2005 convective gravity wave source parameterization using the GROGRAT ray-tracing model, an observational filter consistent with limb sounders (e.g. HIRDLS) with a focus on January and July 2006 (using MERRA Reanalysis data). The papers aim is to better understand the confounding influence of convective sources (and their concomitant wave spectra) and the filtering of the background winds on the climatology of observed small scale gravity waves. The study represents a bold attempt in using a combination of source parameterizations and (ray-tracing) modelling (including dissipation mechanisms) to gain additional useful information in light of the current paucity of suitable (satellite) observations.

The paper has about the right number of suitable figures for a paper of this type and restates briefly all the main conclusions in the abstract. It is generally well written and the writing has improved since the first draft.

My first review had two main points, (1) the influence of the unique stratospheric conditions around the time of January 2006 possibly affecting the interpretation of the results, and (2) the influence of the observational filter for reproducing the steep drop-off of GWMF seen in observations compared to models, especially climate (resolution) models. I am pleased by the inclusion of the appendix material for addressing (1) and the paper is stronger now for it. The authors have chosen not to test the observational filter for a steep drop in GWMF in altitude, citing that the Geller et al study did not discriminate GW sources and looked at global coverage, whereas in the present study convective GW are the focus. I am not convinced that the observed affect described in Geller et al 2013 should be overly sensitive to descriptions of source and I would expect the affect to be simply the response of waves being Doppler shifted from visible to not-so-visible parts of the spectrum on vertical propagation. I would not want the paper to be held back by this one point, but it would be good for a sentence or two be written to comment on this – it is a notable point to clarify in text.

Pending the very minor points outlined below in the revised text, I recommend publication.

(Line 94) “Until recently…”
(Line 98) Please explain what a ‘hot-spot region’ is.
(line 101) “…spectral information of global observations…”
(line 102) Presumably you mean the following, “The spatial distributions are then used as an additional test: we estimate the relative importance of…”
(Line 141) Capitalize theta.
(line 206) “Although Eq. 3 is based on a monochromatic wave assumption…”
(line 210) not sure what is meant by ‘larger distortions’ in the present context.
(line 261) “…and b) to validate…”
(line 301) “…likely due to the QBO…”
(line 421) “…similarly strong…”
(line 636) presumably the ‘one hemisphere’ referred to is the Northern Hemisphere?