

Interactive
Comment

***Interactive comment on* “Stationary planetary wave propagation in Northern Hemisphere winter – climatological analysis of the refractive index” by Q. Li et al.**

Anonymous Referee #3

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Comments on “Stationary Planetary Wave Propagation in Northern Hemisphere Winter - Climatological Analysis of the Refractive Index” by Li, Graf, and Giorgetta

In this study, the authors investigated the climatology of the propagation properties of stationary planetary waves by introducing a new analysis tool f - the probability density of negative refractive index squared. They presented that the f is able to cover all the individual findings made previously by other authors. Planetary wave propagation is suggested to be controlled not only by distribution of atmospheric zonal wind and wind shear, but also by distribution of atmospheric stability. The differences of f between stratospheric strong and weak polar vortex regimes and the relation of f to Eliassen-

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Palm flux are documented in detail. The results are significant for understanding the planetary wave propagation characteristics. I recommend publication subject to minor revisions, as detailed below.

1. p9038, line 17. Formula (3) clearly has type errors.
2. p9045, lines 24-25. “The ZWN 1 wave ... 2 and 3 waves.” This is not correct. The contribution from wave 2 is comparable to that from wave 1 in both troposphere and stratosphere.
3. p9047, lines 7-8. “in order to ... avoid the unimodal problem ...”. Here, with the daily values the unimodal problem cannot be avoided based on the findings of Gillet et al. (2002).
4. p9050, line 26. “... to propagatate from troposphere and stratosphere.” Should be “... troposphere to stratosphere.”

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 9033, 2006.

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