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Atmospheric Chemistry and Physics Discussions

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

Anonymous Referee #1

Received and published: 15 November 2006

The paper reports new results about stationary planetary waves by introducing likelihoods of the refractive index valid for long-term averages. The paper is lengthy and profusely discussed. While I (and perhaps the other referees) do not agree with all of their conclusions about previous work (and the paper would be rather uninspiring were it to carry all critics along with the foundations of the structure), this caveat means simply that there will be profitable discussion of the paper after it is published.

Similar to the other referees, I recommend publication subject to minor revisions, as suggested below.

1) page 9042 lines 1-10: I agree with referee #2 that a high f area, the extratropi-

cal region at 70 mbar in Fig. 2, does not coincide with a region of negative vertical wind shear in Fig 3b. Generally, I ask myself about your averaging propcedure. As I understand, you compute your mean values, e.g. the refractive index value n**2 as plotted in Fig.2, in the following way (?): You take the daily mean NCEP data, then use equation(1) to compute one value of n**2 per day, and, finally, average over several thousand values of daily n**2 to get a seasonal average from 1958-2002 (=Fig.2). On the other hand, you could start to average over winds, temperature, etc., and then use equation 1 once with the averaged input. These two ways of averaging are also valid for computing vertical wind shear and quadratic vertical wind shear, respectively Which one do you use in Fig.3 ? At least, you should perform this simple second approach in order to test the results of your averaging procedure. (I do not expect identical results.)

2) page 9038 line 4: Your sentence starts with ‘And’ (delete the And).

3) page 9059: two times ‘quadric’ (figure heading and legend) insert quadratic

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