

Interactive comment on “Investigation of inertia-gravity waves in the upper troposphere/lower stratosphere overnorthern Germany observed with collocated VHF/UHF radars” by A. Serafimovich et al.

Anonymous Referee #1

Received and published: 3 September 2004

The paper shows a case study of inertia-gravity waves, processed using an interesting variety of methods, and should be publishable. However there is repeated work from Peters et al. (2003, hereafter P2003), and some results depend on the choice of data processing.

Specific comments

Section 3.1 describes wavelet processing of same or similar data as P2003. This is already covered in a few sentences of P2003, (p.30, ‘First of all a wavelet analysis was used (not shown here) in order to find some of the dominant frequencies of the

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unfiltered data, these defining the window for band pass filtering'), and resulted in different bandpass limits from the submitted paper. Most of the paper assumes two separate waves, with very different properties; however this is based on Fig 3 where the waves are not clearly separate. The paper should at least explain the reason for bandpass limits different from P2003, despite similar wavelet processing of same data. How dependent is Fig 3 on the choice of wavelet ?

Section 3.3, Table 4. Arbitrary height shifts produce a drastic effect on wave parameters in Table 4. Even if a 500m shift is plausible, the results are not then quantitatively meaningful.

Figures 6,7 should include FFT of unfiltered data for comparison.

Figure 10 would be clearer with horizontal phase lines added. Is the marked phase difference for one wave at different times, not phase difference between radar locations at one time?

p 4350, line 4, 'without additional temperature information': or vertical wind from profilers.

Minor comments

Tables 2,3 and their captions contain duplicate text. Data from Table 3 could be included in brackets in Table 2 (also Tables 5 and 6 can be merged).

Fig 2a,b is a duplicate of Fig 7a,b in P2003.

Why is zonal wind plotted in Fig 4 and meridional wind in Fig 5, preventing comparison?

p 4343, 3 lines up: 'decays just before the zonal jet maximum occurs' or, the wind rotates.

p 4348, line 1-3: bandpassed data agrees with wavelet results by definition, since wavelet results are used to decide the bandpass limits.

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p 4356, 6 lines up: 'observed horizontal horizontal phase speed', delete one 'horizontal'.

Interactive comment on Atmos. Chem. Phys. Discuss., 4, 4339, 2004.

ACPD

4, S1703–S1705, 2004

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