

Interactive comment on “The two-day wave in the Antarctic and Arctic mesosphere and lower thermosphere” by V. M. Tunbridge and N. J. Mitchell

Anonymous Referee #1

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The paper describes the characteristics of the quasi-2-day-wave in the Arctic and Antarctic mesopause region using identical radars. The paper presents new data at conjugate latitudes and therefore provides an interesting contribution to the understanding of atmospheric dynamics.

Main remarks

While there is, in my opinion, no fundamental problem with the manuscript, the paper could be improved by presenting some more data in section 3.1. Especially Fig. 2 is not very useful, since it shows spectra from different hemispheres in different seasons. At least two more panels would be very helpful. I understand that these figures are meant

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to show examples, but Figs 1-4 show examples from different years. I recommend to show the data for each year 2005-2008 in the respective figures, at least for Figs. 1 and 2. This would give a better insight in direct comparison and interannual variations.

Only on very rare occasions the authors note that there is considerable interannual variability. at least a Esrange data there seems to be enough years of data to show whether this variability is somehow systematic (a QBO, for instance). This could be discussed a bit broader, e.g. range of amplitudes, periods, duration of QTDW bursts.

Minor remarks:

Generally, in the literature the QTDW strength has been given as amplitudes, and the authors on some occasions present this parameter. Although I understand that from spectral analysis it is more logical to present the variance, the readers may be more familiar with the amplitudes to compare them with literature results.

p 10281, first paragraph. There are only 3 years at Rothera for the summer wave, and the mean may be dominated by the 105/06 event. So the conclusions regarding the duration of the season should be made with some more care.

p 10273, l 18, p 10278, l 18: The wave not exactly maximises in late summer, but generally in July/January, which is midsummer, maybe a bit shifted towards the end of July.

p 10276, l 19: To be exact, this can only be inferred from Fig 1, but not Fig. 2, since this one shows different seasons.

p 10279, l 19: Writing “two examples” suggest that there are many more, however, there are only 4 panels in total. the sentence should be deleted.

p 10279, l 27: 200 m2s2, but in the abstract it reads 160 m2s2,

Technical remarks:

p 10265 l 6: is a “since” missing after “radar”?

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References Jacobi et al. : It is always a problem with mutated vowels. In the final version “Kurschner” should be changed to “Kürschner”

Figure 6: As long as Fig. 6 and 7 are not shown next to each other, there is no need to show all the empty panels in Fig. 6.

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 10271, 2009.

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