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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Dynamics of the Antarctic and Arctic mesosphere and lower thermosphere – Part 1: Mean winds" *by* D. J. Sandford et al.

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Answers to referees comments:

1. Comments on Beldon and Mitchell 2009 have now been added to the discussion.

2. The number of successful wind determinations does decrease towards the out height gates. However this is only $\sim$ 10% of the available data in the lowest and upper most height gate. In the central height gates there is $\sim$ 5 % of the data unsuccessfully determined. Even with $\sim$ 10 % of the data missing, this does not significantly affect the statistics shown. Comments indicating the amount of unsuccessful wind determinations have been added to the manuscript.

3. The centres of the upper and lower most height gates are at 80.8 and 97.1 km according to studies of the Esrange data. Data has been interpolated between 80 and 98 km to give a more representative height range, in order to make model results and other observations easier to compare. There were no significant increases in amplitude due to this interpolation and the large standard deviations seen over Rothera in July are representative of the actual observations.

Minor Remarks

Text has been added to the manuscript in line with the comments and corrections have been made.

P17543 and 17544 comments: The zonal and meridional observations have been initially dealt with independently. The amplitude of the difference between observations and model has been included to quantify the differences. It is true that the zonal winds are generally much larger than meridional and so when comparing zonal and meridional percentage differences are more appropriate. However, in this case, we were comparing inter hemispheric differences of each component separately. Therefore we believe the amplitudes are appropriate.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 17527, 2010.