Atmos. Chem. Phys. Discuss., 6, S497–S498, 2006
www.atmos-chem-phys.org/acpd/6/S497/
European Geosciences Union

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Analysis of the frequency-dependent response to wave forcing in the extratropics" *by* A. J. Haklander et al.

Anonymous Referee #2

Received and published: 8 April 2006

1. General Comments

This paper is well-written and contains an interesting approach to calculating the radiative timescale in the troposphere and stratosphere. However, I do feel that the authors place a little too much confidence in the results of their study; there are areas where perhaps they ought to be a little more self-critical and admit some of the shortcomings of their approach. With a few caveats and warnings about the limitation of this work added to the text, as well as the comments below being addressed, I feel that it is suitable for publication.

2. Specific Comments

1. The use of a data assimilation model to investigate these results is an interesting decision. Assimilating the data leads to many extra forcings that are not included in the original model in Garcia (1987). How do we know that the forcing of inserting the data, or of the gravity-waves introduced as the assimilation model adjusts to a balanced state are not causing a miscalculation of the radiative rates and lengthscales? The authors should comment on the implications of this for their work.

2. I feel that more should be written in the discussion section as to why the results compare favourably or not with previous work. The differences are highlighted, but very little is actually hypothesized as to what the causes of the differences could be. Currently it is stated that these results fit in with the general range of estimates, but essentially the paper does little more than throw out more numbers into the general disagreement about radiative damping rates.

3. More explanation should be given of the way that the curves were fit to the data points. The reader is left very much in the dark as to the precise way in which it was accomplished. The exact methodology will have implications on the calculation of α and μ.

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 1399, 2006.