**Atmospheric
Chemistry
and Physics
Discussions**

Interactive comment on "Quantitative performance metrics for stratospheric-resolving chemistry-climate models" *by* D. W. Waugh and V. Eyring

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We thank Dr Braesicke for his comments.

We are, in general, in agreement with his comments in part (1), and don't think any changes are needed to the manuscript.

We also agree with the two "problems" identified in part (2). We agree that what works for the past might not work for the future, and we will make this clearer in the revised manuscript. (See also response to reviewer 2.)

We agree that modelers may adjust and improve their models so they get better grades. In fact we hope they do. Isn't this what we want? The fact that because of analysis

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of this kind modelers might change their models to do a better job reproducing key processes is a key reason to do it!

Yes, there is a lot more to explore, and we think we clearly state in multiple places that this is only an initial step and there is a lot more research that is needed. However, we have to start somewhere.

We disagree that using a particular grading bypasses expert knowledge. Expert knowledge is needed to identify the key processes and the weighting of these to form model grades. The hope is that this study will be the first of many studies that will explore the issue of model grading, and that the combined expert knowledge of study authors will lead to a sensible set of diagnostics that can be used to weight model projections. We are not there yet, but we believe we should be aiming to get there.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 10873, 2008.