

Interactive comment on “On the structural changes in the Brewer-Dobson circulation after 2000” by H. Bönisch et al.

Dr. Hegglin

michaela@atmosp.physics.utoronto.ca

Received and published: 3 January 2011

This paper is an interesting contribution to the literature, but as a member of the SPURT science team I have to point out that there seems to be an unjust imbalance between how the SPURT aircraft campaign is referenced in comparison to the STREAM and other earlier campaigns. You cite 5 papers for STREAM in the data description section, but only the overview paper by Engel et al. 2006 for SPURT. While relevant SPURT papers to the discussed topics (Hoor et al. 2004 and Hegglin et al. 2006) appear in the reference list, they are not cited at the most relevant spots. In particular, the seasonal cycle in the O₃/N₂O relationship from the SPURT aircraft campaign has been published previously in Hegglin et al. 2006 (and for that matter also in Hegglin and Shepherd 2007, using the more extensive ACE-FTS satellite data), along with the

C11862

explanation of where the seasonal cycle stems from, namely the seasonal changes in the relative strength of downward transport of aged stratospheric air and poleward transport from the tropically controlled transition region due to horizontal mixing from synoptic scale wave breaking; see Fig. 9 of Hegglin and Shepherd 2007. (There is of course also poleward advection associated with this synoptic scale wave drag, but for tracer distributions the meridional transport is dominated by mixing, as is very well known.) I would have expected the authors to acknowledge these earlier studies in their discussion on pages 28409 and 28410 (lines 1-14).

Hegglin, M. I., and T. G. Shepherd, O₃-N₂O correlations from the Atmospheric Chemistry Experiment: Revisiting a diagnostic of transport and chemistry in the stratosphere, *J. Geophys. Res.*, 112, D19301, doi:10.1029/2006JD008281, 2007.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 28399, 2010.

C11863