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Interactive comment on "Ozone loss derived from balloon-borne tracer measurements and the SLIMCAT CTM" *by* A. D. Robinson et al.

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Comment to chapter 4.2 Measurement and Model Agreement

The authors show a comparison between ClO measurements conducted on board the HALOZ payload on 8 March 2000 and SLIMCAT model simulations (cf. Fig. 5). They wrote that the agreement between measurements and model is good in terms of both the positions and magnitude of the ClO maximum .... However, the model simulations significantly overestimate (by a factor of 2 or more) the ClO measurements above 500 K potential temperature. Similar results were reported by Vogel et al. [JGR, 2003]. Vogel et al. compared ClO measurements obtained from a balloonborne instrument launched in Kiruna on 1 March 2000 (one week before HALOZ) on board the TRIPLE

payload to model simulations performed with the CLaMS model. They found a layer between 525 and 550K where measured ClO is substantially lower than simulated ClO. The model results presented by Robinson et al. support the hypothesis of Vogel et al. that at those altitudes, substantial NOx production has occurred by a hitherto unknown mechanism.

References:

Bärbel Vogel, Rolf Müller, Terry Deshler, Jens-Uwe Grooss, Juha Karhu, Daniel S. McKenna, Melanie Müller, Darin Toohey, Geoffrey C. Toon and Fred Stroh, Vertical profiles of activated ClO and ozone loss in the Arctic vortex in January and March 2000: In situ observations and model simulations, J. Geophys. Res., 108, 8334, doi:10.1029/2002JD00256, 2003.

Interactive comment on Atmos. Chem. Phys. Discuss., 4, 7089, 2004.