

## ***Interactive comment on “A new formulation of equivalent effective stratospheric chlorine (EESC)” by P. A. Newman et al.***

**P. A. Newman et al.**

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Thank you for the comments.

In the first comment, Dr. Pfeilsticker asked us to “calibrate” the model against observations. We now include a few sentences on 2 comparison papers in the text. We have shown in Newman et al. (2006) a Cly comparison to HCl from HALOE as an approximation of Cly in the auxiliary material (Figure S2). Lary, D. J. et al. (GRL, 2007, in press) have also shown comparisons to Cly in “Variations in Stratospheric Inorganic Chlorine Between 1991 and 2006”. This Lary et al. paper uses a neural network to analyze a series of satellite chlorine observations. Fig. 3 of that paper shows an excellent comparison of the Cly evolution and magnitude in comparison to our estimates.

For our Bry estimates, we can include additional Br to account for VSLs, but that is

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just an additive factor and doesn't generally affect the results of this paper. We added some brief material on the offset of Bry because of the VSLs. For an  $\alpha=60$ , we estimate that an additional 180-480 ppt Bry contribution to EESC should be included, with an additional 100 ppt of Cly for a total contribution of 280-580ppt.

I (PAN) was unaware of the Sinnhuber et al. (2006) ACPD paper. We now include a reference to that paper and have included some additional comments on  $\alpha$  in the text. We primarily are interested in assessing the  $\alpha$  factor's importance for EESC and its impact on recovery.

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Interactive comment on Atmos. Chem. Phys. Discuss., 7, 3963, 2007.

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