

## ***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.

We have added some material on estimating Cly and Bry (see reply to Dr. Pfeilsticker).

We have added a paragraph describing how to derive a fractional release value from an age-of-air estimate, the observation of a stratospheric species such as CFC-11, and its associated surface trend.

The  $f_r$  values used herein are identical to those used in Newman et al. (2006). The Newman et al. paper computed empirical fits of  $f_r$  to age for all of the species, while Schauffler et al. showed only ranges of  $f_r$  for a few species.

The lifetime discussion has been removed and the lifetimes have been deleted from the table. We felt that the point about the relationship of the lifetimes to fractional

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release was minor and that the discussion was perhaps too complicated for this paper, detracting from the main messages.

At the risk of being argumentative, we must disagree about the “trend” seen in the Farman et al. (1985) paper during the 1970s. First, Jones & Shanklin (1995) showed a statistically significant trend of -5 DU/yr at Halley for the 1970-1980 period. We have statistically proven this downward trend by applying a simple t-test on the October Halley linear trend for different ranges of years. This t-test shows that the downward trend is significantly different from a zero trend at the 95% confidence level for the 1957-1973 period. Adding subsequent years simply improves the confidence levels of that downward trend.

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