

## ***Interactive comment on “Southern hemispheric halon trends and global halon emissions, 1978–2011” by M. J. Newland et al.***

**Anonymous Referee #2**

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This paper describes the mixing ratios of H-1211, H-1301, H-2402, and H-1202 from Cape Grim Tasmania between 1978 and 2011. The authors use the measurements and a two-dimensional atmospheric model to calculate annual emissions and lifetimes.

Comments: The abstract states that “The continued increase of H-1301 mixing ratios means that the contribution of the halons to total tropospheric bromine is not declining” is true for now, but will change relatively soon according to Figure 4 because of faster decline in H-1211 relative to the increase of H-1301.

In the analysis section, the authors explain excluding the pre-1989 H-1211 and H-2402 but the data are present in the inset graphs in Figure 1.

More explanation is needed for the differences in measurements between the three

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groups, especially since UEA and NOAA are using the same calibration scale. What are the AGAGE values based on, e.g. do they make up their own standards and calibration scale? If so, have there been any direct intercomparison exercises between the groups?

It would be helpful to have errors in Table 2 for each compound based on the lifetime from Montzka and Reimann in addition to those based on the revised lifetime. If possible errors on the HTOC and AGAGE calculations in Table 2 would be useful. It's difficult to tell if the differences are significant or not.

Section 5 on the source of H-1202 is very interesting. It would strengthen the argument considerably if the authors actually tested existing H-1211 fire extinguishers. Is this feasible?

Section 6.2, is there a reference for the 1-D atmospheric model?

Section 7 on cumulative emissions and halon banks seems very speculative and probably should not be included in the paper without further data driven justification.

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