Review of: Southern hemispheric halon trends and global emissions, 1978-2011 by Newland et al., 2012, submitted to ACPD

The paper describes the development of the evolution of halon mixing ratios measured at the Southern hemisphere background site of Cape Grim (Australia). Measurements are used to estimate global emissions and to hypothesize about the source of H-1202. Furthermore, atmospheric lifetime corrections are applied to estimate the amount of halons in banks.

General:

I am not in favor of publishing the manuscript in ACP in its present form, as there are too many messages packed in this paper which are rather speculative, which could be resolved in a better way (assumptions about the source of H-1202 and estimations of banks, based on the application of a simple 2-D model and new lifetimes from a paper in ACPD).
More specific reasons and potential corrections are indicated below.

Specific issues

P.29290 L.8: Mention that the increase of H-1301 is still on-going in 2011, in order to distinguish this finding from that made in chapter 1 of WMO (2011).

P29292. L.12 Do authors mean stratospheric?

P29293. L5ff Mention that these samples were measured at UEA. Or were some samples measured at Cape Grim/CSIRO?

P.29293 L: 26: It is mentioned that measurement before 1989 were excluded from the analysis. Why are then brown data points shown in Figure 1? Does that in essence mean that the analysis should only go back to 1989 (then the title needs to be changed)? Or do authors use numbers from a different source (e.g. Fraser et al. 1999)? Then this should be mentioned.

P. 29296 L6ff: I don't really see the point why the OH radical is included, as halons do practically not react with OH (or not to my knowledge).

P.29297 L 11: From the figure 1 it looks more like 3.75 ppt than 3.9, which would also be more in line with AGAGE and NOAA measurements.

P.29297 L 13: be more specific: began to slowly decline in 2006.

P.29302L.17ff This hypothesis could be either easily tested by measuring a sample of H-1211 (as you suggest on page 13. Line 22, and I strongly suggest that you do this) or by asking HTOC (see below) what they think about this. If this is the case and H-1202 is contained to about 4% in H-1211 this would be a major finding of the paper.

Another reason could be that there is another source not connected directly with the usage of H-1211 and which also has stopped.

Interestingly, I have found a safety data sheet for recycled H-1202 at a specialised companyfor fire protection in airplanes and for military applications.

http://www.walterkidde.net/Files/KiddeAeroSpace/Global/US-en/Recycled_Halon_1202_-_KA005_1107.pdf

A very good person to ask (or THE world expert in the field) is Dan Verdonik DANV@haifire.com, who is part of HTOC. I would strongly suggest that you ask him about this issue.

P 29308. L22ff: Here authors are also advised to get in contact with HTOC. It just seems very speculative to have only 10 Gg of banks left. The purple line is actually from HTOC and tells something about the emissions from banks (bottom-up). So it would be a good thing to see by how much production has to be elevated with the new lifetimes so that the banks are again fitting to those estimated by HTOC.