

Aschmann and Sinnhuber., 2013. –ACPD

This paper builds on the authors' previous work to quantify of the contribution of VSL bromocarbons to stratospheric bromine (Br_y^{VSL}). The authors did an excellent job in presenting a comprehensive and detailed analysis using various model simulations to examine the sensitivity of Br_y^{VSL} to vertical transport, photochemistry, dehydration, and heterogeneous chemistry. I recommend the paper to be published in ACP after addressing my following comments, mostly minor editorial comments.

1. The chemical formula for Halon-1211. Sometimes CClBrF_2 is used and sometimes CBrClF_2 is used, please choose one and stick with it.
2. The word "gasphase" is used in at least three places, replace with "gas phase" or "gas-phase".
3. The word "unpertubated" is used in at least three places, replace with "unperturbed".
4. Page 30289, line 2: Change to "JPL recommendations 2010".
5. Page 30289, line 24: change to "started in 2004".
6. Page 30289, line 25: change to "until the end of ...".
7. Page 30291, line 22: change to "more than half of ...".
8. Page 30292, line 26: change to "with an opposite change ...".
9. Page 30292, line 27-28: "as one ... modifications." Awkward. Please rephrase.
10. Page 30295, line 9: delete "as well".
11. Page 30296, line 10: change to "the reactions of Br with HCHO ...".
12. Page 30299, line 20: change to "which correspondes to an average effective particle radius of 10 μm according to the utilized parameterization by Bohm (1989)."
13. Page 30300, line 9: change "is" to "are".
14. Page 30300, line 11: change "conditions" to "condition".
15. Page 30302, line 16: change to "high biased".
16. Page 30302, line 28: change to "longer-lived".
17. Page 30306, lines 23-25 & Page 30285 line 10. I have to say the tone of this conclusion is a bit on the strong side. It is important to point out that the upper range of 6 ppt contribution is pre-set by the B3DCTM structural design, which assumes a uniform 5 ppt for CHBr_3 and CH_2Br_2 in the upper troposphere. This assumption sets the upper limit of how much CHBr_3 and CH_2Br_2 are available to start with. In reality, high VSL emission regions tend to collocate with deep convection, therefore potentially delivering higher levels of CHBr_3 and CH_2Br_2 into the upper troposphere, and subsequently to the lower stratosphere. The TC4 measurement from Figure 6 is a clear example of such situations. The western Pacific is a more typical region when high oceanic emissions of VSL collocate with active troposphere-to-stratosphere transport region. I understand it is not easy to address this with B3DCTM, but it is noteworthy to add a short discussion explaining the caveats of the pre-set uniform boundary condition.