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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Halogens and their role in polar boundary-layer ozone depletion" *by* W. R. Simpson et al.

W. R. Simpson et al.

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We thank the reviewer for careful reading of the manuscript and useful comments. The reviewer request that we add a table of contents to the article. If this is possible in the style of ACP, we would do this change.

The reviewer comments at the bottom of page 1947: "One of the major problems underscored (but perhaps not sufficiently) is the lack of definitive knowledge of the how chlorine and bromine from sea salt get transferred to the atmosphere and also the idea of the bromine explosion. The latter idea is concerned with the rapidity of release of bromine from the surface." To address these comments, we will add emphasis to the community's current lack of knowledge with regard to salt transfer from the ocean to the atmosphere a bit more. With regard to the "rapidity" comment of the reviewer, we will add emphasis to the fact that the "explosion" refers to the non-linear process and

that models show that it takes hours to days to get an ODE - depending on conditions of course.

The reviewer correctly notes that our statement on p4297, L27 regarding Br / BrO partitioning is only the result of a simple back of the envelope calculation. We will clarify this point. The reviewer proposes speculating on what might happen when Br atoms grow to high densities. This part of the paper is introducing the concepts of halogen cycling, and thus does not seem the best place to discuss the uncommon example of high Br atom densities. We do discuss the effects of halogens on hydrocarbons and aldehydes in section 4.2.

The reviewer points out a number of specific areas where the text can be further clarified. We appreciate the effort that this reviewer has put into finding these points and will make appropriate changes to the text for each of these points.

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 4285, 2007.