Atmos. Chem. Phys. Discuss.,
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Atmospheric Chemistry and Physics Discussions

Interactive comment on "The maintenance of elevated active chlorine levels in the Antarctic lower stratosphere through HCl null-cycles" *by* Rolf Müller et al.

Anonymous Referee #2

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1 General remarks

The paper presents a classical process study on important details of the Antarctic ozone hole and is suitable for ACP after minor improvement.

2 Specific remarks

Page 3, line 28 and Figure 2: Wouldn't it be better to use for the range of HCHO photolysis branching cases near the experimental uncertainty? The totally unrealistic limits give a larger separation of the curves but what do we learn from that?

Page 7 and 8, cycles C3 and C4: These cycles require a lot of ozone. Late September or early October ozone might be too depleted for that and chlorine deactivation starts. Please give some remarks on that, best with typical threshold values. It is too difficult to estimate that from the figures like presented.

Section 3.5: There CLAMS should be mentioned (cited) also in the text and not only in the caption of Fig.4 and in section 2.1.

3 Technical corrections

Figure 4 might be easier to read with colored curves for the extreme cases.

Page 14, line 16: Initials messed up?

Page 15, line 3: order of words or parentheses wrong.

Figure A1: A step of 0.2ppmv and an ordered legend would be better.

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