

## ***Interactive comment on “Indicators of Antarctic ozone depletion: 1979 to 2019” by Greg E. Bodeker and Stefanie Kremser***

**Anonymous Referee #1**

Received and published: 3 December 2020

### **1 Overall Remarks**

This is a comprehensive and well written paper on the long-term evolution of the Antarctic ozone hole using a number of measures. It is well suited for publication in ACP, and I have only a few minor suggestions. If at all possible, it would be great to also include the 2020 ozone hole, which was rather on the large size again.

### **2 Comments**

line 4: "Antarctic" should be "Antarctica", or "the Antarctic"

C1

line 28: replace "has led" by "should lead". Even in 2020, we are still far from "recovered".

line 56: delete "a continuous body of"?

line 91: The correlation between ozone mass deficit and EEASC is the same, no matter how you scale the axes. What you did, is obtain the axis scaling from a linear fit of EEASC to mass deficit. So: delete "selected", replace "maximizes ... between" by "is obtained from fitting", replace "deficit and EEASC" by "deficit to EEASC"

lines 93, 94: Yes, it is really interesting that the data points scatter so much more after 2000, compared to before. Did Southern Hemisphere meteorology become much more variable? Does that have anything to do with the shift of climate patterns / jet streams in the Southern Hemisphere due to climate change and the ozone hole? You might want to add some text and cite a few references (e.g. recent ozone assessments)?

Figs. 1, 3, 4, 8: it might be useful to show / mention the correlation of the different time series with EEASC (overall correlation over the entire time series). Is there one measure that correlates best with EEASC? That might be the best measure to capture a dependence of the Antarctic ozone hole on ozone depleting substance loading.

A well written paper! It is very rare that I have so few comments on a paper.

---

Interactive comment on Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2020-1095, 2020.