Atmos. Chem. Phys. Discuss., 10, C2832–C2834, 2010
www.atmos-chem-phys-discuss.net/10/C2832/2010/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Estimation of Antarctic ozone loss from Ground-based total column measurements" *by* J. Kuttippurath et al.

Anonymous Referee #1

Received and published: 19 May 2010

General comments:

This paper applies the passive tracer method of calculating chemical ozone loss and applies it to ground-based and satellite-borne measurements of Antarctic ozone loss. The method is also applied to southern mid-latitude stations.

The method has been used previously in the Arctic, and applies to the Antarctic well. The paper also highlights the importance of maintaining a ground-based network of ozone measurements – the ground-based instruments are able to measure earlier in the winter than the satellites can.

The paper is well-structured, but in places the English is a bit awkward. I recommend it be edited for readability. Otherwise, I recommend publication after a few minor edits.

Specific comments:

pg. 7642, lines 17-19: I'm not sure what you're saying here. Is this 40-50% at Rio Gallegos in Oct.-Nov. 2008-2009 and 25-35% at Kergulen in Oct.-Nov. 2005-2009?

pg. 7646, line 5-15: Are the SCIAMACHY data used retrieved using all three viewing modes? If not specify which one(s) are used.

pg. 7650, line 1 and Fig. 4: Is it possible to indicate these three phases of ozone loss on Figure 4? Perhaps with shading?

pg. 7650, Section 3.3.1: What coincidence criteria were used for OMI and SCIA? Can any of the differences between the ground-based instruments and satellite instruments be explained by differences in geographical location of the measurements? Were the models sampled at the same time as the data?

pg. 7652, lines 2-4: What effect does excluding the South Pole have on the other data sets?

pg. 7652, lines 10-11: What anomaly in the OMI data?

pg. 7652, lines 26-27: Is there a reason that the loss from the model is smaller than from the data? It seems odd that 2006 would be different from the other years where the agreement was much better.

pg. 7653, line 14-15: In Section 4 it is stated that the first signs of depletion occur in July for 2007-2009.

Technical comments:

throughout the paper:

SCIAMACHY should be fully capitalized.

I found it a bit distracting that the paper switched between South Pole and Amundsen-Scott. Pick one and use it throughout.

pg. 7644, line 4: spell out AURA and SCIAMACHY here, as this is the first time they are used.

pg. 7644, line 21: AMFs (no apostrophe)

pg. 7653, line 13: small differences (instead of insignificant)

pg. 7760, line 26: Should be O'Connor

Figure 3: Move the last sentence of the caption to before "Top: ...".

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 7641, 2010.