

Interactive comment on “A negative feedback between anthropogenic ozone pollution and enhanced ocean emissions of iodine” by C. Prados-Roman et al.

R. Sander (Referee)

rolf.sander@mpic.de

Received and published: 28 October 2014

Prados-Roman et al. investigate the feedback between anthropogenic ozone and marine iodine emissions. The study is very interesting and I recommend publication in ACP after considering my suggestions as described below.

My only major scientific concern is the question if surface iodide will remain constant in the future. If ozone levels continue to increase, and the oxidation of surface iodide by ozone also becomes faster, will this lead to a depletion of surface iodide? As far as I can see, the model calculates iodide as a function of temperature only. How fast

C8551

is surface iodide replenished? How would the results change if the concentration of surface iodide decreases in the future?

Minor remarks

- Page 21918, line 22: You write that the main sinks for ozone include “dissociation”. What is meant by this?
- You define ISG as “inorganic iodine source gases”. What does the “I” stand for? Why not IISG?
- Methods section: I think it would be good to mention CESM here as well.
- Page 21920, line 16: What is a “24 h annual average”? Are you averaging over a day or over a year?
- Eqn. (2): Add square brackets to iodide in the last term.
- At several places in the text, you use the term “ozone loss” even though you refer to a scenario with increased ozone concentrations. This is confusing. I think it would be better to use the expression “ozone destruction rate” in these cases.
- Page 21926, line 1: Change “bugfet” to “budget”.
- The section 3.4 “Geochemical feedback mechanism” does not describe anything new. Rather, it summarizes the text from the previous sections. I suggest to move this text into the conclusions.
- In the acknowledgements, you mention that data supporting this article can be requested from the corresponding author. I think it would be much better if these data are included in the electronic supplement of the paper. I often had problems

C8552

getting data for older papers because the authors could not be reached anymore. Putting the data into the supplement, however, they will be permanently archived together with the main article.

- Fig. 1: Is this plot for a specific longitude or averaged?
- Fig. 6: I think that a multicolored pie-chart with a 3D effect is an overkill for presenting just 5 numbers. In my opinion, a small table would have been sufficient.

Interactive comment on Atmos. Chem. Phys. Discuss., 14, 21917, 2014.