Atmos. Chem. Phys. Discuss., 10, C1229–C1231, 2010
www.atmos-chem-phys-discuss.net/10/C1229/2010/
© Author(s) 2010. This work is distributed under
the Creative Commons Attribute 3.0 License.

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Rapid growth of HFC-227ea (1,1,1,2,3,3,3-Heptafluoropropane) in the atmosphere" *by* J. C. Laube et al.

Anonymous Referee #1

Received and published: 4 April 2010

Review of "rapid growth of HFC-227ea (1,1,1,2,3,3,3-Heptafluoropropane) in the atmosphere" by Laube et al., submitted to ACPD.

In the paper the authors describe the abundance of HFC-227ea in samples from firn air and from the high troposphere/low stratosphere are models to derive trends and global emissions.

I suggest that the manuscript shall be published in ACP after the corrections have been applied and suggestions have been considered.

Major issues

Title: A rapid growth is a very nice and glossy title. But in principle every compound that has been introduced anthropogenically will grow rapidly from nothing. So I strongly

suggest that authors revise the title to something more scientifically.

A suggestion would be Trend of atmospheric HFC-227ea derived from firn air and high-altitude samples

This brings me to the second major point. Throughout the manuscript authors speak of remote regions of the atmosphere or background atmosphere. Although this is in a wider sense true, I would strongly suggest changing this and say firn air samples and high-altitude samples. Background implies sampling in more than these rather specific parts of the environment (e.g. also on the ground in the Southern hemisphere).

Minor issues: P7677 L.5 . . .in the current northern. . .

L. 17 for the anthropogenic stratospheric. . .?

L. 22 missing here are the publications for HFC-134a and HFC-125 (O'Doherty. . .) and HFC-152a (Greally). Perhaps you could just mention Clerbaux and Cunnold 2007 here to make it shorter.

P7678 L. 6ff I would strongly recommend using data from Forster et al., 2007, which are: Lifetime 34.2 and GWP 100=3220, as these are the latest publicly available data.

L.10 EDGAR project team? I am sure there is a more official way of citing EDGAR

L. 11 also here the remote atmosphere should be replaced as indicated above.

P7680 L1: It would be essential to know what has been the final precision of the standard and what its actual concentration was when it was used to measure the atmospheric samples.

L.2ff Details of the identification could possibly be shifted to the supplement.

P7862 L5 Where this sample has been measured?

L24. How is this 6% justified? Any other similar compounds?

P7863 L1ff Following the on-line discussion about usage of different types of Arrhenius

ACPD

10, C1229–C1231, 2010

Interactive Comment

equations I don't see the point in using the more complicated one just for the sake of the argument. Therefore, I strongly suggest to use the more straightforward expression, as suggested by S. O'Doherty in his comment on March 29.

P7866 L19. The dilution system has not been a central issue in the rest of the paper, so it should no be mentioned here.

Fig.1 If authors would invert the x-axis of the upper figure it would be easier for the reader to compare both figures at one glance.

Furthermore, you it would be illustrative if you include data points from the firn air samples into the lower panel. This would allow the reader to evaluate the quality of the model.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 7675, 2010.