

Interactive comment on “Growth rates of stratospheric HCFC-22” by D. P. Moore and J. J. Remedios

D. P. Moore and J. J. Remedios

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We thank referee number 1 for his constructive comments on the paper, and in particular we have made every effort to update references where necessary.

reply to specific comments:

1) pg. 10516, l.11 and pg. 10521, l. 10, replace ';' with ':'

We have altered as requested.

2) pg. 10516, l. 25. The IPCC reference is not correct and in any case needs to be replaced by a reference to the 2006 WMO ozone report.

The IPCC 2001 estimate of the HCFC-22 ODP compared to CFC-12 is consistent with the ODP's recommended in the 2006 WMO ozone report. However, we have updated

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this reference to now include the 2006 WMO ozone report instead.

3) pg. 10517, l. 20, 2006 WMO ozone report cites 16 years which should be added.

The authors do not agree with this statement as tables, 1.7, 8-1 and 8-2 in the 2006 WMO report list the atmospheric lifetime of HCFC-22 to be 12 years, within the boundaries of the estimates already quoted in the article.

4) pg. 10517, l. 24, "stratospheric with a mixing"

This has been replaced as requested.

5) pg. 10518, l. 15, add the MIPAS ACP or ACPD overview reference

The MIPAS overview paper by Fischer et al. (currently still on ACPD) has been added as a reference.

6) pg. 10520, l.9 and l. 11, x should be bold

This has now been corrected

7)pg 10522, l 8-15 all of the appropriate new MIPAS cal/val papers from the ACP or ACPD special edition need to be cited and any values changed as needed.

We have updated these references as far as possible. We note that there is not an update to the accuracy of the water vapour in the special edition of ACP and so the 'old' reference of Lahoz et al. from 2004 is still used. The values have been re-calculated accordingly.

Specific updates - a) Temperature : Ridolfi et al., 2007, ACP b) Ozone: Cortesi et al., 2007, ACP c) Nitric Acid: Wetzel et al., 2007, ACP d) Pressure: Raspollini et al, 2006, ACP

8) pg. 10527, l. 27, update to IPCC 2007, which gives 114 years.

We have updated this in the text. As this number is used to calculate the lifetime of HCFC-22 in both the 20-50N and 60-80S regions we have scaled the lifetime estimates

accordingly, replacing them in the text and conclusions. The ratio of the lifetime of HCFC-22 compared to N₂O remains unchanged to 2 d.p.

9) pg 10528, l. 14, update to IPCC 2007.

The reference has been updated.

10) The report has a nice discussion on HCFC-22 and some of this material could be presented in the introduction or in the discussion.

We were a little unclear as to which report the referee is referring to here. We are unable to find a detailed discussion on HCFC-22 in the 2007 IPCC report. Although frequent general comments about (H)CFCs are made throughout, the only two direct references discussing HCFC-22 are made on page 146 (trend discussion) and page 147 (reference to HCFC-22 being used to estimate trends in OH). We have rewritten paragraph 3 of the introduction to include a statement about the increase.

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 10515, 2007.

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