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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Global CFC-11 ($CFCl_3$) and CFC-12 (CF_2Cl_2) measurements with the Michelson Interferometer for Passive Atmospheric Sounding (MIPAS): retrieval, climatologies and trends" *by* S. Kellmann et al.

Anonymous Referee #2

Received and published: 27 September 2012

Review of ACPD-2012-442

Global CFC-11 (CFCl3) and CFC-12 (CF2Cl2) measurements with the Michelson Interferometer for Passive Atmospheric Sounding (MIPAS): retrieval, climatologies and trends

by S. Kellmann et al.

This manuscript describes global infrared measurements of CFC-11 and CFC-12 by MIPAS and their anticipated scientific usage in monitoring the stratospheric chlorine

budget. The retrieval characterization and associated errors are described with satisfactory detail. The manuscript is suitable for publication. I have some minor corrections and questions which are outlined below.

/xxx/ ==> delete xxx [xxx] ==> add xxx

P18328, L11 /are/ [have been] measured

P18328, L25

Aura HIRDLS also measured CFC-11 and CFC-12

P18329, L16-L17

slide[s] MIPAS /was/ [has] operat/ing/[ed] /from/ [since] ... 2005 /on/

P18329, L18

measurements [only] in

P18329, L5

Surely the five other attempts (make that six including the official ESA products) to retrieve CFCs from MIPAS merits further discussion?

Why so many alternative datasets from the same instrument? Why do we need yet another? How do the others compare?

I noticed that the Moore et al (2004) reference is for an abstract which is no longer accessible according to ... http://www.geophysical-research-abstracts.net/volumes.html

Geophysical Research Abstracts (GRA) is published primarily online as an open access publication.

Volume 6, 1st EGU General Assembly, The volume is no longer online available.

P18330, L12-L15

/relevant/ [specific] to ... (non-LTE[) developed] /not used ... CFCs/ at the ... (IAA). Non-LTE effects are not relevant to the retrieval of CFCs.

P18330, L23 and elsewhere

/gridwidth/ [grid spacing]

P18331, L3

Seems odd to use zero as the a priori for a product with significant non-zero values when there is apparently an ESA climatology available. The intent is presumably to avoid introducing a latitude dependent bias in the data products arising from a varying a priori contribution. Or does it mean the initial guess retrieval is set to zero?

P18331, L14

SI units would be useful to know in addition

P18331, L28 and P18332, L9

Artefact or Artifact? Either is ok, probably should prefer the former for a European journal.

P18332, L3

and [these data] /results]

Introduce the specific data versions produced by IMK/IAA (V5R_CFC..., V4O) at the end of first paragraph of section 3. Also useful to indicate where/how/if users may obtain the data products.

P18332, L14

retrievals [f]or which

P18333, L22

in /a/ [the] sense

P18334, L20 and P18357 Table 5

Suggest the following replacement ... Negative distances are displacements away from the satellite, beyond the tangent point.

P18336, P17

At first I thought that the ESA climatology was being described. I suggest adding a clarification.

MIPAS CFC climatologies have been [developed from the retrieved data presented here and] prepared ...

P18336, L23

generation of /this/ [these] climatologies

P18337, L20

/in consistence/ [consistent]

P18337, L27

between ... [,respectively,] in the Northern Hemisphere[,] ...

P18343, L1

CFC-12 [was] still increasing

P18372, Fig 11 P18375, Fig 14

Fix the ugly labels on the y-axes

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 18325, 2012.