

Interactive comment on “Twelve years of global observation of formaldehyde in the troposphere using GOME and SCIAMACHY sensors” by I. De Smedt et al.

Anonymous Referee #2

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This is a comprehensive piece of work that thoroughly deserves to be published in ACP. I have a few comments below that should be addressed by the authors. In general, the paper is too long, reflecting lots of unnecessary introductory material.

1) 18 figures are excessive and in the interest of readability I suggest the authors seriously consider reducing this number.

2) Page 7557, line 8. Should include Palmer et al, 2003 that developed the theory to infer VOC emissions from HCHO columns.

3) Page 7557, line 19. "Despite SCIAMACHY provides..."??

4)Page 7562, line 4. Later of latter?

5)A serious concern is that the model, used to determine the air-mass factors, is driven by monthly mean meteorology. Is this really good enough to capture daily variations in isoprene? The authors have provided only scant evidence of the model ability to reproduce mean statistics of aircraft profiles over North America and yet show global distributions. I appreciate that a companion paper might cover this in some detail but it might be worth summarising where (and why) the model perform well and badly.

6)There are qualitative (and hollow) statements about data sprinkled throughout the paper, e.g., "fairly good agreement" and "very satisfactory". I suggest the comparisons are quantified or the qualitative statements are removed.

7)What is the origin of the localized hotspot of HCHO over the Highveld region in South Africa?

8)Why is the South Atlantic anomaly more pronounced in SCIAMACHY than GOME data?

9)To reduce the length of the paper, I suggest the authors consider removing/reducing some of the review information that is discussed in published papers, e.g., averaging kernels and air mass factor calculations.

10)Page 7575, line 17. What is the reason for the smaller seasonal variation in the BIRA HCHO product?

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 7555, 2008.

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