

## ***Interactive comment on* “Transport mechanisms for synoptic, seasonal and interannual SF<sub>6</sub> variations in troposphere” by P. K. Patra et al.**

**P. K. Patra et al.**

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We thank both the reviewers for providing us with useful comments to improve the discussion and quality of the manuscript, and they are now acknowledged. Based on their comments the discussion of age and its relation to SF<sub>6</sub> transport has been enhanced. Thus the title of the article is now changed to “Transport mechanisms for synoptic, seasonal and interannual variations of SF<sub>6</sub> and ‘age’ of air in troposphere”, and the short title to “SF<sub>6</sub>, age of air, transport processes in troposphere”.

Firstly, both the reviewers found the age of air discussion interesting. Following their suggestions we have increased the discussion 8211; last three paragraphs in Section 3.2 and Figs. 5 and 6 (newly added to the revised article). We hope this added discussion will satisfy all parts of First Important Point of Reviewer-1 and Reviewer-2’s comment “It would have been useful to show the sensitivity of the simulated age distri-

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bution to changes in the model (i.e., an estimate of model error).” This part constitutes most significant revision of our ACPD article.

Revisions due to the 2nd important point (new paragraph at the end of Section 3.3) and all other specific comments by Reviewer-1 are incorporated as per the “reply to reviewer-1” on the ACPD Interactive Discussion.

All other comments by Reviewer-2 have been accounted for in the text as per our reply to Reviewer-2 on the ACPD Interactive Discussion. In this regard, ACTM nudging and description, advantage of online modeling, NCEP2 vs ERA-40 (in Section 2), overall checks on nudged-ACTM’s performance (end paragraph of Section 3.1), annual mean tendency in SF<sub>6</sub> (Fig. 10).

We sincerely hope that the revised version meets the quality of ACP.

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Interactive comment on Atmos. Chem. Phys. Discuss., 8, 12737, 2008.

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