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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Gaseous mercury distribution in the upper troposphere and lower stratosphere observed onboard the CARIBIC passenger aircraft" *by* F. Slemr et al.

F. Slemr et al.

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Anonymous Referee #1

We thank referee #1 for his constructive remarks. Our response is as follows:

1. The unnecessary details in the abstract have been deleted. The numbers of individual flight legs in Figures 2 and 6 have not been deleted because they relate to Tables 1 and 4.

2. To avoid contamination of the instrument and the tubing connecting the sampling manifold with the instrument during ascents and descents in heavily polluted areas next to most larger airports, the internal pump is switched on only at ambient pressure

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below 500 hPa. Correspondingly, the measurements start at an altitude of 5 km. This is now mentioned in the text. For this reason and because of the long sampling time we do not present any vertical profiles. The measurements made during the ascents and descents in the altitude range of 5 – 9 km are included in Figures 3 and 4. But they will not substantially influence the distribution because of their small number combined with a typically small vertical gradient of atmospheric mercury in the troposphere above 5 km.

3. The forward facing inlet is now mentioned in the text.

4. Yes we have toggled between a channel with a soda lime trap and a channel without. But as mentioned in our response to comment of Dr. Jaffe we had problems with contamination and abandoned the technique after four monthly flights. Therefore, the measurements from different seasons are not available yet.

5. Backward trajectories have been calculated at 1 min intervals along the flight path as mentioned in Section 2. As each mercury measurement integrates over 15 or 10 min intervals, 15 and 10 backward trajectories were automatically available for each measurement, respectively. This might appear unnecessary but in view of integration over typically 225 and 150 km sampling paths it provides information about the homogeneity of the sampled air masses.

6. The April 28, May 30 and July 6 were exceptions because their correlation were significant only at $>$95% level. This is now mentioned in the text.

7. The first sentence of section 3.3 has been reworded.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 18651, 2008.