



## **Distribution of total gaseous mercury in the upper troposphere and lower stratosphere**

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An unique set of total gaseous mercury (TGM) measurements in the upper troposphere and lower stratosphere (UT/LS) has been obtained during the CARIBIC (Civil Aircraft for the Regular Investigation on the atmosphere Based on an Instrument Container, [www.caribic-atmospheric.com](http://www.caribic-atmospheric.com)) flights using a passenger Airbus 340-600 of Lufthansa since May 2005. Altogether more than 100 flights have been made on the route to East Asia (Frankfurt – Guangzhou – Manila), to South America (Frankfurt – São Paulo – Santiago de Chile), and to North America (Frankfurt – Toronto, Frankfurt - Houston, Frankfurt – Denver). The accompanying measurements of CO, O<sub>3</sub>, NO<sub>y</sub>, H<sub>2</sub>O, aerosol particles and many other parameters as well as backward trajectories enable a detailed analysis of these measurements.

The most prominent features of these measurements were a frequent occurrence of plumes from biomass burning and industrial/residential sources in the UT and a pronounced conversion of gaseous elemental mercury to particle bound mercury in the LS, possibly due to reaction with bromine atoms. The measurements provide also the first insights into the climatology of TGM in the UT of both hemispheres. The results will be presented and the underlying mechanisms discussed.