Geophysical Research Abstracts
Vol. 12, EGU2010-7235, 2010
EGU General Assembly 2010

Regional Impact on Pollution Event in the Upper Troposphere during CARIBIC Flights between South China and the Philippines

S.C. Lai (1), A.R. Baker (1), T.J. Schuck (1), P. van Velthoven (2), D.E. Oram (3), A. Zahn (4), M. Hermann (5), A. Weigelt (5), S. Slemr (1), and C.A.M. Brenninkmeijer (1)

(1) Max Planck Institute for Chemistry, Atmospheric Chemistry, Mainz, Germany (senchao.lai@mpic.de), (2) Royal Netherlands Meteorological Institute (KNMI), P.O. Box 201, NL-3730 AE, de Bilt, the Netherlands, (3) National Centre for Atmospheric Science, School of Environmental Sciences, University of East Anglia, Norwich, NR4 7TJ, UK, (4) Institut für Meteorologie und Klimaforschung (IMK), Forschungszentrum Karlsruhe, Weberstr. 5, 76133 Karlsruhe,Germany, (5) Leibniz-Institut für Troposphärenforschung (IFT), Permoserstr. 15, 04318 Leipzig, Germany

The research project CARIBIC (Civil Aircraft for the Regular Investigation of the atmosphere Based on an Instrumented Container, phase II) is designed to conduct regular, long-term and detailed observations of the free troposphere and UT/LS regions where passenger aircraft happen to cruise. A fully-automated measurement container (1.5 tons) was equipped onboard an Airbus 340-600 operated by Lufthansa Airlines during regular passenger flights to conduct real time trace gas and aerosol measurements and to collect aerosol and air samples on a near monthly basis. During May 2005 – March 2008, CARIBIC observations have been performed along the flight tracks of Frankfurt-Guangzhou-Manila. Data have been collected in the upper troposphere during a total of 81 flights over the region between South China and the Philippines. Carbon monoxide was used an indicator to identify the pollution events and to access the regional impacts of fossil fuel burning and biomass/biofuel burning on upper tropospheric air. Five regions, i.e. Northeast Asia, South China, Indochina Peninsula, India and Indonesia/Philippines, are identified as the major source regions to be related to the observed pollution events. The characteristics of the events from these regions are investigated. The contributions of different source categories are also estimated.