Geophysical Research Abstracts
Vol. 12, EGU2010-2268-1, 2010
EGU General Assembly 2010
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Estimate of springtime atmospheric mercury distribution in East Asia by CMAQ model

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In this study some chemical transport simulations on atmospheric mercury in the springtime of 2005 in East Asia were conducted with CMAQ chemical transport model. East Asian Air Pollutant Emission Grid Database (EAGrid2000 ; Atmospheric Environment (2007) by A. Kannari et al.) were chosen as emission inventories of precursors and emission inventory of mercury was obtained from Arctic Monitoring and Assessment Programme (AMAP). Grid size was set to 0.5 degree x 0.5 degree, and average concentration and deposition amount of elemental mercury Hg(0), reactive mercury Hg(2), and particulate mercury Hg(P) were calculated in East Asia, respectively. Comparing calculated values with observed values measured at several points in Japan, comparably good agreements were shown, however, near industrialized area, especially, many ironworks are located, calculated values were overestimated or underestimated. That is because AMAP inventory is not involved local emission of mercury in East Asia. Therefore emission inventory of mercury should be revised in the future works.