Geophysical Research Abstracts
Vol. 12, EGU2010-2761, 2010
EGU General Assembly 2010

Global emissions of mercury to the atmosphere in 2005 and their 2020 scenarios

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About the three quarters of the total anthropogenic emissions of mercury in the year 2005 estimated to be 1930 tonnes comes from sources where mercury is emitted as a by-product, and the rest is emitted during various applications of mercury. The largest emissions of Hg to the global atmosphere occur from combustion of fossil fuels, mainly coal in utility, industrial, and residential boilers (almost 47 %), followed by artisanal mining (almost 17 %), non-ferrous metal production, including gold production (13.5%) and cement production (about 9.5 %).

Doing nothing for the improvement of the Hg emission reductions (so-called Status Quo – SQ scenario) will cause an increase of the emissions in 2020 by almost 100 % compared to the 2020 Extended Emission Control (EXEC) emission reduction scenario. Even larger increase is estimated when the 2020 SQ scenario of Hg emissions is compared with the 2020 Maximum Feasible Technical Reduction (MFTR) emission reduction scenario. The EXEC scenario assumes economic progress at a rate dependent on the future development of industrial technologies and emission control technologies, i.e. mercury-reducing technology currently generally employed throughout Europe and North America would be implemented elsewhere. It further assumes that emissions control measures currently implemented or committed to in Europe to reduce mercury emission to air or water would be implemented around the world. The MFTR scenario assumes implementation of all solutions/ measures leading to the maximum degree of reduction of mercury emissions and its loads discharged to any environment; cost is taken into account but only as a secondary consideration.

Emissions of Hg in various industrial sectors, such as cement production and metal manufacturing in the year 2020 can be 2 to 3 times larger if nothing will be done to improve emission control in comparison with the EXEC scenario.