



## Mercury in air and volcanic gasses at Mt. Etna area

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Mercury emissions from areas with strong tectonic activity are considered to be one of the main natural sources of mercury to the global atmosphere. The extent of volcanic contribution on global and regional scale remains highly uncertain. Volcanic emissions may be rich in elemental gaseous ( $\text{Hg}^0$ ), reactive gaseous ( $\text{Hg}^{II}$ ) and other mercury forms that have to be determined in order to understand global and regional patterns of atmospheric mercury distribution and speciation. Mt. Etna (Sicily) is the largest volcano in Europe and one of the most active in the world; consequently, it is of great importance to know the extent of its contribution to the regional Hg budget. Mercury concentrations were measured during two campaigns in fall 2004 and fall 2005 in fumaroles, bubbling and soil gases as well as in air background levels. Mercury concentrations measured in air in November 2004 ranged between 4 and 30  $\text{ng m}^{-3}$  in the eastern and southeastern flanks of the volcano up to an altitude of 1500 m, and between 65 and 132  $\text{ng m}^{-3}$  in vicinity of the summit craters at altitudes from 2000 to 3000 m. Hg concentrations in fumarole and soil gases in the lower SW and E flanks showed temporal variations that reached the highest values in fall 2005 (up to 240  $\text{ng m}^{-3}$ ). Hg levels in the crater plume and fumarole gases near the summit of the volcano ranged between 2 and 64.2  $\mu\text{g m}^{-3}$ , with the highest values at site Torre del Filosofo (2900 m a.s.l. on the S flank) and on the rim of the Summit Crater.