Mercury as a Global Pollutant – 5th International Conference
May 23-28, 1999, Rio de Janeiro, Brazil

MERCURY IN RAIN WATER PARTICULATE MATERIAL ON A COASTAL SUB-TROPICAL REGION IN SE BRAZIL

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Mercury concentrations were measured in rain water particulate matter collected in three sampling stations along the cost of Rio de Janeiro State, SE Brazil: at the center of Rio de Janeiro City, a typical highly industrialized and populated metropolitan area; Maricá district; a tourist center at the east part of Rio de Janeiro City; and at Ilha Grande, located in the Praia do Sul Biological Reserve in the southern most of the Ilha Grande Bay, a site characterized by humic atlantic forest and remote from any significant Hg source. Bulk samples were collected monthly during a period of one year, from August 1993 to August 1994, using teflon funnels and tubes, stored in pre-cleaned teflon bottles. Samples were filtered through acid pre-washed and pre-weighed 0.45 μm Millipore® membranes (47 mm diameter), dried during a week at room temperature in a laminar flow Hood and weighed. The particulate mercury concentrations were determined by Instrumental Neutron Activation Analysis in the nuclear reactor of the IPEN-CNEN/SP. Two reference materials: Coal Fly Ash (ICHTJ-CTA-FFA-1) and Urban Particulate Matter (NSB-SRM-1648), were analyzed in order to check the precision and accuracy of the method. Particulate mercury concentrations from monthly samples ranged from 15 to 138, 21 to 294 and 26 to 285 ng.L^{-1} in Maricá, Rio de Janeiro City and Ilha Grande respectively, but no seasonal pattern of variations was observed. The large of variations range was observed in Rio de Janeiro City, probably as a result of its higher industrialization, and in Ilha Grande, suggesting atmospheric inputs derived from the mega-urban centers of São Paulo and Rio de Janeiro. These results are in agreement with published values for similar areas of the world.