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Overview of studies making use of monitored speciated mercury

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This overview briefly summarizes studies making use of monitored speciated atmospheric mercury data. Research topics include identifying potential sources of speciated mercury using various receptor-based analysis methods, evaluating mercury transport models, quantifying mercury dry deposition at local to regional scales, and exploring gas-particle partitioning and mercury cycling in the atmosphere. A comparison of various receptor methods was conducted. Large discrepancies between modeled and measured ambient concentrations of oxidized mercury were identified and causes of these uncertainties were explored. The concept of the relative importance of the three forms of atmospheric mercury to the dry deposition budget over forested areas was changed. The relative contributions of oxidized gaseous mercury and fine and coarse particulate mercury to wet deposition were quantified. Regression models for gas-particle partitioning of oxidized mercury as a function of temperature and relative humidity were developed. Newly proposed chemical processes in literature and emission sources of speciate mercury could also be validated using speciated mercury data.

Biography

Leiming Zhang is a research scientist at Environment Canada. He received his Bachelor and Master of Science degrees from Nanjing University, China and his PhD from York University, Canada. His research covers diverse areas of air quality model development and data analysis and he has published over 80 journal papers.

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