



The National Atmospheric Deposition Program (NADP) Mercury Deposition Network Atmospheric Initiative

Monitoring Atmospheric Mercury Species and Mercury Wet Deposition

At its Summer 2005 meeting, the NADP's Executive Committee instructed the Mercury Deposition Network (MDN) to proceed with a proposed **Atmospheric Initiative** to establish a network of monitoring stations that measure atmospheric mercury species (also called mercury fractions) across North America. The new network will be an intensively operated subset of the NADP-MDN, co-located where possible with stations from other national atmospheric monitoring networks. At each station, the following data will be collected: concentrations of atmospheric mercury species from continuously automated and manually operated measuring systems; concentrations of total mercury in precipitation; and meteorological measurements for computing mercury wet deposition and estimating mercury dry deposition. Data will be collected with standardized methods developed through USEPA research, quality assured and archived in an NADP online data base.

Key Monitoring Objectives

There are several objectives for this initiative:

- determine the status and trends in concentrations of atmospheric mercury species (reactive gaseous, particulate-bound, and elemental) in select locations;
- offer high-quality measurement data to estimate dry and total deposition of atmospheric mercury to aquatic ecosystems and other locations influenced by emissions and transport on the local, regional, and global scale; and
- offer high-quality data necessary for atmospheric mercury model evaluation and development.

Approach

The network established under the MDN Atmospheric Initiative will begin operation in early 2007 with sponsors and participants coordinated through the structure and organization of the NADP. The network will initially focus on monitoring in areas with mercury-emitting sources affected by emerging state and federal regulations. The network will include stations in sensitive ecosystems in order to provide data to link atmospheric mercury emissions to methyl mercury bioaccumulation in fish and wildlife. Over the long term, the network will include locations representative of global, regional, and local mercury transport. Monitoring will include atmospheric mercury species, mercury in precipitation, and meteorological data. Quality-assured values of atmospheric mercury species concentrations and mercury wet deposition at the monitoring stations will be archived in an NADP online database. Standard procedures for sampling, analysis, network operation, quality assurance, and data management will be documented and managed by NADP steering committees.

The NADP Role

The NADP will provide infrastructure for the operation of an initial and a long-term network established under the MDN Atmospheric Initiative, which builds on NADP's more than 25 year commitment to collaborative, long-term environmental monitoring. The NADP organization will support a network that can produce data that are **accessible, quality assured, and comparable**. Specific NADP functions include:

- coordinate the network through the established, transparent, collaborative NADP process;
- produce sampling and analysis standard operating procedures for network operation;
- produce quality assurance procedures and auditing services to provide confidence and consistency in network data;
- provide data management and validation; and
- provide multi-station data in a forum that supports mercury research and modeling efforts.

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