Update: NADP Atmospheric Mercury Initiative

We report on progress made over the last two years to establish a North American atmospheric mercury speciation network to support dry deposition estimates, emission regulatory assessments, model evaluation, and long-term trends.

Two years of progress:

- Convened an atmospheric mercury workshop to harmonize field methodologies into a standard operating procedure: NADP Atmospheric Mercury Measurement Expert Workshop Oct 3-4, 2007 – Chicago, IL
- Developed an automated daily instrument QA and data reduction computer program
- Collaborating with operators of 20 established monitoring sites to generate speciated mercury data in accordance with network data quality, data completeness and data submittal requirements
- Added 8 new sites to the network within the past year of operation
- Developed a database of atmospheric mercury speciation data obtained from participating monitoring sites, with over 25 years of QA’d data
- Established a site liaison position to provide field instrument technical support to collaborating site operators
- Coordinated and contributed to a larger national effort to establish a multi-media mercury monitoring program: MercNet National Mercury Monitoring Workshop May 5-7, 2008 – Annapolis, MD

Site liaison accomplishments:

Mark Olson (USGS) is the site liaison for NADP’s emerging ambient mercury network. He has been operating Tekrans since 1995. He is readily accessible by phone or email.

In the last year, Mark Olson has performed a number of QA activities including:

- Visited 15 network sites for QA tests and network conformance
- Wrote 15 site reports for each site visit
- Performed a manual QA review of all 2009 uploaded data
- Drafted a site visit SOP
- Co-developed a site early warning system for remote QA of network data

Quality Assurance

- Field SOP development:
  - We have completed and distributed version 2.0 of the field SOP to provide Tekran users with consistent procedures that are scientifically reviewed. The quality assurance procedures for GOM, PbM_2.5, and GEM concentration measurements are detector calibration, contamination prevention, air flow calibration, leak checking, temperature control and ensuring the CVAFS detector is maintained and operates within acceptable limits.

- Data SOP development:
  - We have completed version 1.0 of the SOP and the computer programs to automate data review, QA flagging, and Quality Rating Codes (A/B/C quality). The goal is for the Data Management system to ensure quality, consistency, and timely data availability to users. Data will be retrieved from the mercury instruments in one of two ways (FTP/data logger or manual upload). Hourly speciated concentrations will be determined to be either valid or invalid; criteria are outlined in the data management SOP. A minimum 75% data completeness will be required for daily, weekly, monthly, seasonal, and annual averages.

For more information please visit: http://nadp.sws.uiuc.edu/amn/