

Overview

The National Atmospheric Deposition Program (NADP) is continuing its Mercury Litterfall Monitoring Initiative to complement the Mercury Deposition Network (MDN) monitoring for mercury in precipitation and the Atmospheric Mercury Network (AMNet) monitoring for mercury in air. The Litterfall Initiative offers a means by which an NADP site sponsor can obtain an estimate of an important component of mercury dry deposition to a forested landscape. A site sponsor subscribes to the litterfall initiative for a fee and receives: supplies for collecting annual samples of litterfall in a forest study plot near their MDN or AMNet site, mercury analysis of the samples, and data on mercury concentrations and litterfall mercury deposition. Like other NADP network data, the litterfall mercury monitoring data for all sites are publicly available. In combination with data from the MDN and AMNet networks, litterfall data can be used to examine ranges of mercury dry deposition, to estimate combined wet and dry mercury deposition, and to evaluate mercury models.

History

In April 2012, the NADP Executive Committee approved the new initiative for litterfall mercury monitoring. This initiative is described in a 12-Point Plan required by NADP. This plan was supported by advocates from the U.S. Geological Survey, U.S. Environmental Protection Agency, National Park Service, U.S. Forest Service, and continues to be supported by the NADP Executive Committee. The plan was reviewed and recommended for approval by a panel appointed by the Executive Committee and discussed in meetings of the NADP Network Operations and Joint Subcommittees. Elements of the plan are based on a preliminary 3-year study at 23 MDN sites in 15 states that was published in a scientific journal, Risch et al., 2012, *Environmental Pollution*, 161: 284-290. A second paper reported on data for 2007-14, Risch et al., 2017, *Environmental Pollution*, 228: 8-18.

Transition Program

The Mercury Litterfall Monitoring Initiative is currently operating as an NADP transition program, run by the Wisconsin State Laboratory of Hygiene. The transition program will support ongoing evaluation and improvements typical of new initiatives, while maintaining a network of sites with annual litterfall mercury data. There are two requirements for an NADP site to participate in the litterfall mercury monitoring initiative as part of the transition program: (1) forest located near the NADP site that is suitable for establishing a representative study plot to collect annual litterfall samples; and (2) payment of an annual fee to the NADP Program Office to support the costs of sampling supplies, sample analysis, shipping, and site support. The 2020 annual fee is \$2,000 per site.

For More Information

Additional details about the new initiative for litterfall mercury monitoring are in the 12-Point Plan, including protocols for site selection, sample collection, and data management. For more information about starting litterfall sample collection, contact the NADP HAL and Program Office Manager, Mark Olson at 608-335-4232, mark.olson@slh.wisc.edu.

The 12-Point Plan is available at: <http://nadp.slh.wisc.edu/newissues/litterfall/litterfall12pointplan.pdf>



Figure 1. Litterfall Sample Collector

Two papers based on data from the Litterfall Mercury Monitoring Network are available at: <https://www.sciencedirect.com/science/article/pii/S0269749111003319> and <https://www.sciencedirect.com/science/article/pii/S0269749117300544>