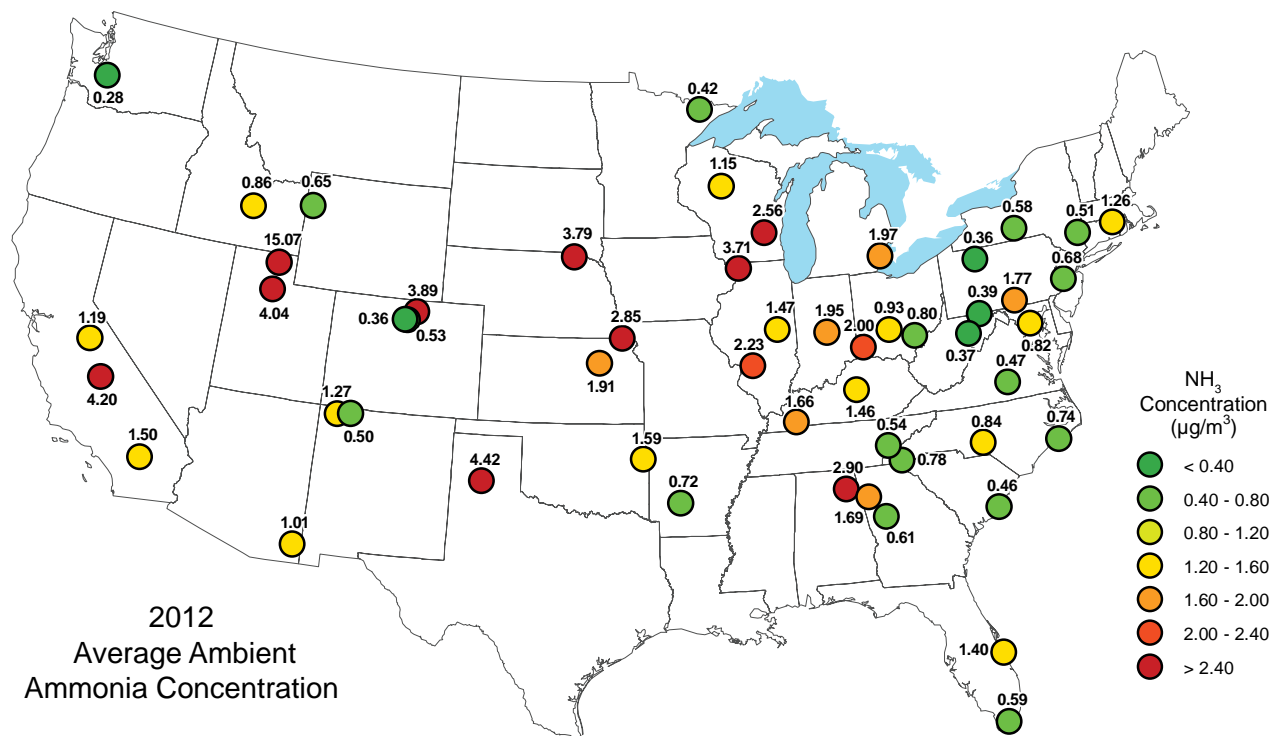


Ambient Ammonia Monitoring Network (AMoN)



The Ammonia Monitoring Network (AMoN)

provides land managers, air quality modelers, ecologists, and policymakers critical data that allows them to:

- assess the long-term trends in ambient NH₃ concentrations and deposition of reduced nitrogen species;
- validate atmospheric models;
- better estimate total nitrogen inputs to ecosystems;
- assess changes in atmospheric chemistry due to SO₂ and NO_x reductions; and
- assess compliance with PM_{2.5} standards.

There are currently 66 AMoN locations (see back cover).



AMoN field site at Sequoia National Park (CA83)

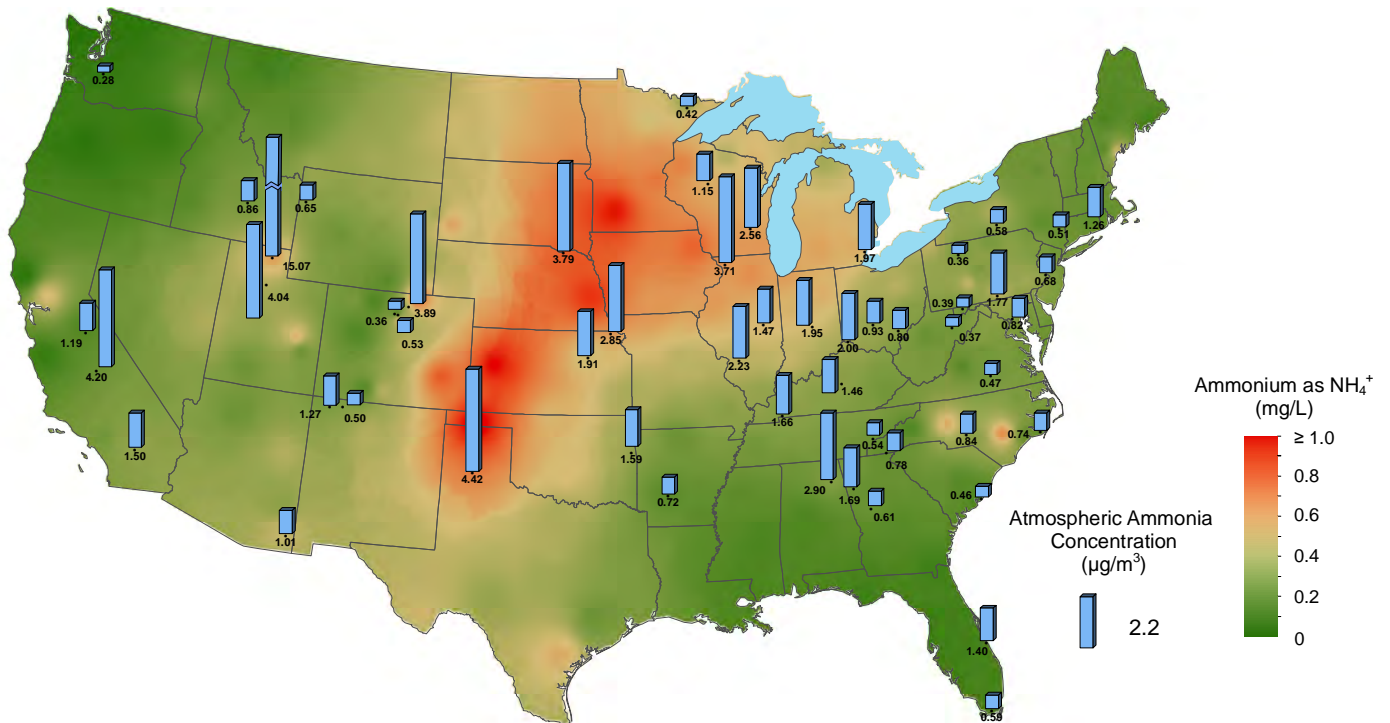


National Atmospheric Deposition Program

The Importance of Ammonia in the Atmosphere

Ammonia (NH_3) is a gas readily released into the air from a variety of biological sources, as well as from industrial and combustion processes. It is the principal basic gas in the atmosphere. While NH_3 has many beneficial uses, it can detrimentally affect the quality of the environment, through the acidification and eutrophication of natural ecosystems, the associated loss of biodiversity, and the formation of secondary particles in the atmosphere.

The dominant source of NH_3 emissions in the U.S. is agriculture (~85%), largely from animal waste and commercial fertilizer application. Data from the National Atmospheric Deposition Program/National Trends Network (NADP/NTN), a 35+ year wet deposition network with over 260 sites across the U.S., has shown “hot spots” of ammonium ion (NH_4^+) concentrations in the U.S. (see figure below). Yet, despite its importance in atmospheric chemistry and its impact on ecosystems, there has been no routine national monitoring of ambient NH_3 until recently. The NADP has established and has operated a routine, long-term, cost efficient passive NH_3 monitoring network since October 2007.

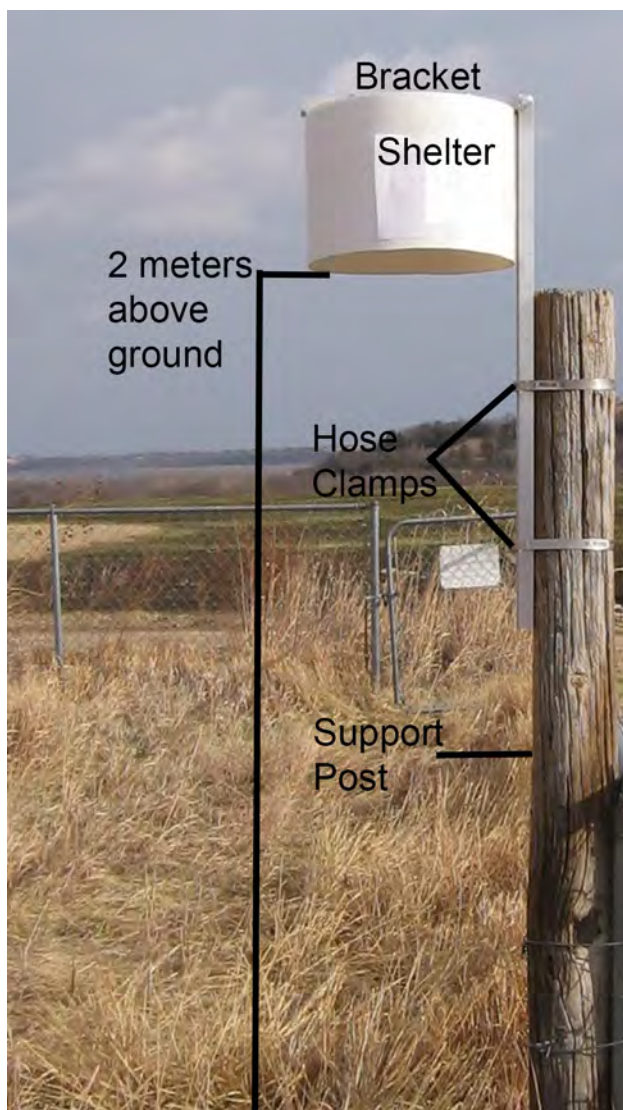


The background map represents the 2012 precipitation weighed mean ammonium ion concentration over the continental United States as measured by the NADP/National Trends Network (NADP/NTN). The blue bars represent the 2012 annual average atmospheric ammonia concentration as measured by AMoN.

AMoN Sampling Methods

The AMoN uses Radiello® passive samplers (<http://www.radiello.com>), which do not require electricity or a data logger. AMoN sites can be installed almost anywhere, provided that the area meets the siting criteria. An example of the site setup is shown below.

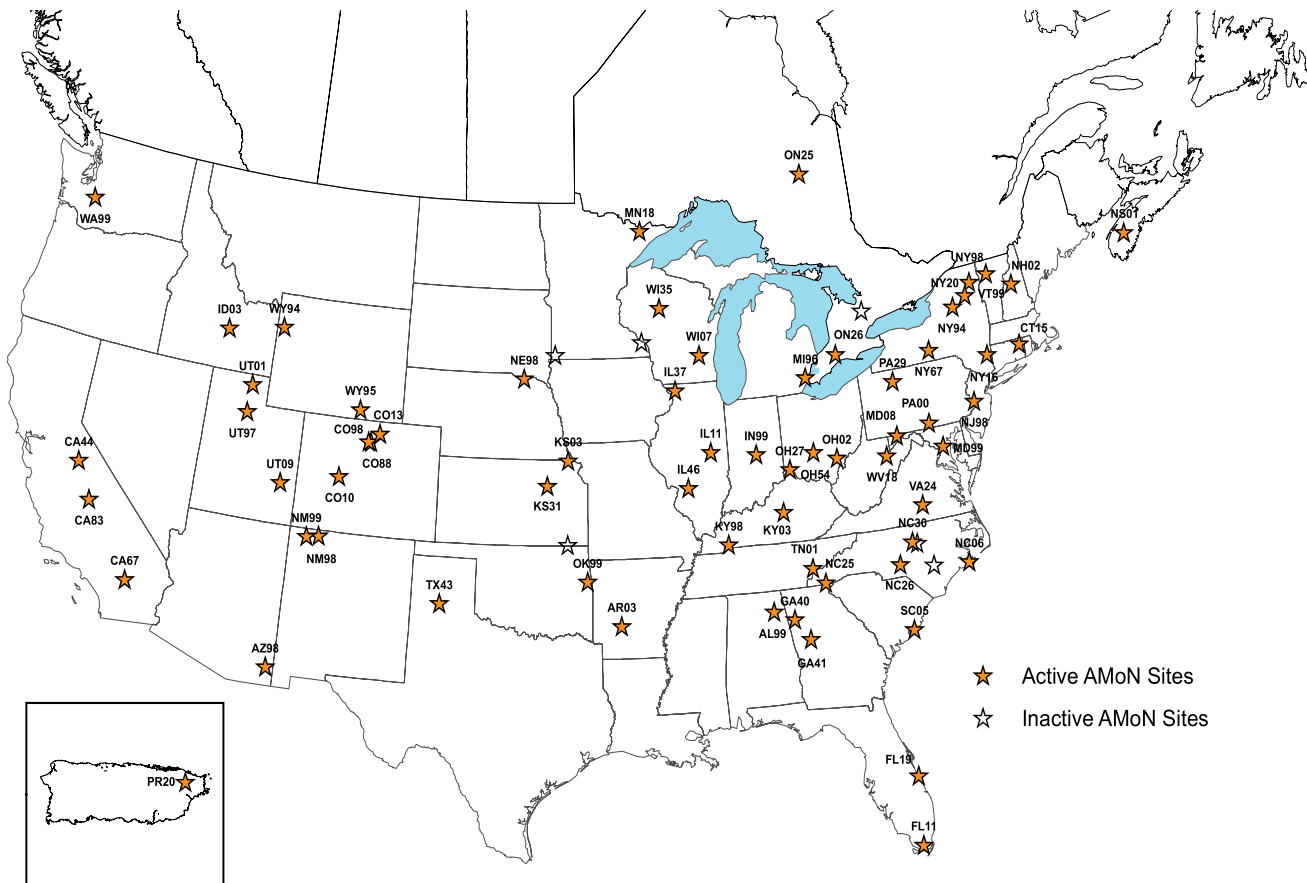
Samples are deployed for 2 week periods. The time commitment of the site operator is approximately 30 minutes at the site every two weeks. The NADP's Central Analytical Laboratory assembles and ships passive samplers to sites and, when returned, analyzes, quality assures, and provides the analytical data to the NADP. The AMoN data including site specific information are available for download at <http://nadp.isws.illinois.edu/AMoN>.



The Future of the AMoN

Future plans for the AMoN include:

- growing the network to 300+ sites, covering all sensitive ecoregions of the continental U.S.;
- utilizing the measured NH_3 concentrations for validation of air quality and deposition models; and
- providing educational outreach materials highlighting the hands-on experience in atmospheric science that students can receive by participating in AMoN.



AMoN Site Costs

The annual cost of participating in the network is \$3,100 per site/year. This annual cost includes site supplies, shipping to and from the site, sample analysis, quality assurance activities, and data reporting on the internet. A site installation kit is required (\$250), and this cost will be added to the initial contract.

**For more information, visit the AMoN website at
<http://nadp.isws.illinois.edu/AMoN>.**



National Atmospheric Deposition Program

The NADP is National Research Support Project-3: A Long-Term Monitoring Program in Support of Research on the Effects of Atmospheric Chemical Deposition. More than 250 sponsors support the NADP, including private companies and other non-governmental organizations, universities, local and state government agencies, State Agricultural Experiment Stations, national laboratories, Native American organizations, Canadian government agencies, the National Oceanic and Atmospheric Administration, the Environmental Protection Agency, the Tennessee Valley Authority, the U.S. Geological Survey, the National Park Service, the U.S. Fish & Wildlife Service, the Bureau of Land Management, the U.S. Department of Agriculture - Forest Service, and the U.S. Department of Agriculture - National Institute of Food and Agriculture, under agreement no. 2012-39138-20273. Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the authors and do not necessarily reflect the views of the sponsors or the University of Illinois.