

NEON's Collection and Analysis of the Atmospheric Wet Deposition

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The National Ecological Observatory Network (NEON) is a large facility project funded by the National Science Foundation. NEON is creating a new national observatory to collect ecological and climatic observations across the continental U.S., Alaska, Hawaii and Puerto Rico, whose overarching question is ‘how will ecosystems respond to changes in natural- and human-induced forcings such as climate, land use, and invasive species across a range of spatial and temporal scales’. As such, chemical climate will be observed, and as a chemical input in wet deposition. NEON will collect wet deposition samples from strategically selected sites across the continent for 30 years to provide insight in the generation, transportation and deposition of the some atmospheric pollutants.

The chemical analyses and archival samples will follow NADP protocols. However, our collection design have three key differences from NADP protocols: 1) NEON collectors locates at a tower top above the canopy in the well mixed surface layer verses NADP protocols on the ground in clearings of various sizes, 2) NEON will use the refrigerated N-COM dual collector, while NADP approved, few NADP sites utilize them, and 3) NEON sample collection are planned to be every 2 weeks. But before NEON establishes a final operational design, NADP and NEON will be conducting side by side comparisons at sites where both organizations already co-exist: Walker Branch TN, Harvard Forest MA, Windriver WA, Rocky Mountain NP CO, Santa Rita AZ, etc. Once we collectively characterize how our approaches compare, then we will assess what, if any, changes in NEON collection approaches are needed (e.g., some sites may need more frequent sampling). Here, we also outline the overall NEON observatory strategy, detail the wet deposition measurement strategy, and plans on how NADP and NEON are working together.

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