Nescaum Regional Particle Monitoring Network

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Air Quality monitoring at the Underhill, VT VMC site includes a station in a regional particle monitoring network, initiated in 9/88 by the Northeast States for Coordinated Air Use Management (NESCAUM). The NESCAUM monitoring objective is to promote a better understanding of aerosol concentration and composition in the northeastern US. Seven regionally representative sites are operated by the State Air Pollution Control Programs in NY, NJ, CT, MA, ME, NH, and VT, in cooperation with the Crocker Nuclear Laboratory at the University of California at Davis (UCD).

Fine fraction (< 2.5 micron) particles are collected for 24 hours, 3 times a week, and analyzed at UCD for mass, light absorption and the elements: Al, As, Br, Ca, Cr, Cl, Cu, Fe, H, K, Mg, Mn, Na, Ni, Pb, Se, Si, S, Ti, V, and Zn. Particles in this size range include a majority of aerosol-phase sulfates, nitrates, toxic metals and organics which potentially affect human health and visibility. They are particularly susceptible to long-range atmospheric transport, and form efficient condensation nuclei, ultimately transferred by rain, snow, fog and clouds to terrestrial and aquatic ecosystems at considerable distance from pollutant sources.

NESCAUM sampling and analytical methods are compatible with several larger US networks, including the National Park Service Congressional network (NPSC), and the Interagency Monitoring of Protected Visual Environments (IMPROVE). The NESCAUM sites are scheduled for inclusion in the planned EPA Clean Air Status and Trends Network (CASTNET). The NESCAUM aerosol data through 11/31/91 are readily available in ASCII or Voyager formats, and will be included in the VMC Data Integration Pilot Project. A list of currently available reports and publications is attached.

The high-resolution sampling and analytical methods provide a detailed picture of aerosol concentration and composition at the VMC site, as in Figure 1. Comparable methods and data format allow the data to be viewed in a larger regional or national context, as in figure 2. Inclusion in CASTNET would assure continuation of a relatively long-term record.
NESCAUM Regional Particle Monitoring Network (NEPART)
Reports and Publications Utilizing NEPART Data


R.L. Poirot, P.J. Galvin, N. Gordon, S. Quan, A. Van Arsdale, R.G. Flocchini (1991), "Annual and Seasonal Fine Particle Composition in the Northeast: Second Year Results from the NESCAUM Monitoring Network" 91-49.1, 84th Annual AWMA Meetings, Vancouver, B.C.


B.A. Schichtel and R.B. Husar (1992), "Aerosol Types over the Continental U.S. Spatial and Seasonal Patterns", 92-60.07, 85th Annual AWMA Meetings, Kansas City, MO.

B.A. Schichtel, R.B. Husar, W. Wilson, R.L. Poirot and W.C. Malm (1992), "Reconciliation of Visibility and Aerosol Composition Data over the U.S.", 92-59.08, 85th Annual AWMA Meetings, Kansas City, MO.


