

Meteorological and Deposition Chemistry Monitoring at the Lye Brook Wilderness CASTNET Site - 1994 -

Cooperators: Green Mountain National Forest, EPA AREAL Laboratory

Abstract:

Continuous monitoring of meteorology and wet and dry deposition chemistry has been conducted at the VMC Lye Brook Wilderness site. The U.S. EPA, in cooperation with the Green Mountain National Forest and the VMC, has established a CASTNET (Clean Air Status and Trends Network) site at the Lye Brook Wilderness research area (729 m), in southwestern Vermont. The monitoring activities began January 1, 1994. This project provides continuous, site specific air quality data on meteorology, dry deposition of SO₂, HNO₃, particulate sulfate, nitrate and ammonium, wet deposition of major ions, and hourly average ozone concentrations. The site was established to research the effects of air pollution on the Air Quality Related Values (AQRV'S) of this Class I Wilderness Area. Data from this project are available from the VMC Data Manager.

Methods:

Meteorological and deposition chemistry has been monitored at the Lye Brook site in 1994:

1. Basic Meteorology - The EPA CASTNET site at the Lye Brook Wilderness Area includes a continuous meteorological monitoring station for ambient temperature at 2 and 10 m, relative humidity, surface wetness, precipitation, wind speed and direction and solar radiation. The site is managed by Environmental Science and Technology, Inc. in Durham, NC, under contract from Ralph Baumgardner at the EPA-CASTNET AREAL Laboratory, NC. Data from this site has been obtained by the VMC. Figure one on the following page illustrates monthly temperature and precipitation data for this site.

2. Precipitation Chemistry - Precipitation amount is measured and collected on a weekly basis at the Lye Brook Wilderness Area CASTNET site. Samples are analyzed for major ions, acidity, pH and conductivity. The results of the analysis are comparable with other regional and national sites including 200 sites in the NADP network. Data are collected by Environmental Science and Technology, Inc of Durham, NC. This data has not been summarized and made available to the VMC as of yet.

3. Dry Deposition - Dry deposition monitoring at the Lye Brook Wilderness Area is conducted as part of the CASTNET project. Weekly sampling for SO₂, HNO₃ vapor, particulate sulfate, nitrate and ammonium is collected and analyzed. The results of this research are comparable with other regional and national sites, including the National Dry Deposition Network and ten sites in the NOAA DDIM program. Data is collected by Environmental Science and Technology, Inc., under contract from Ralph Baumgardner, EPA-CASTNET, AREAL Laboratory in NC. The data for this project has been obtained by the VMC but is not presented here.

Significant Findings:

No analysis of trends has been completed at this time.

Figure 1. Monthly Temperatures and Precipitation at the Lye Brook Wilderness CASTNET Site 1994

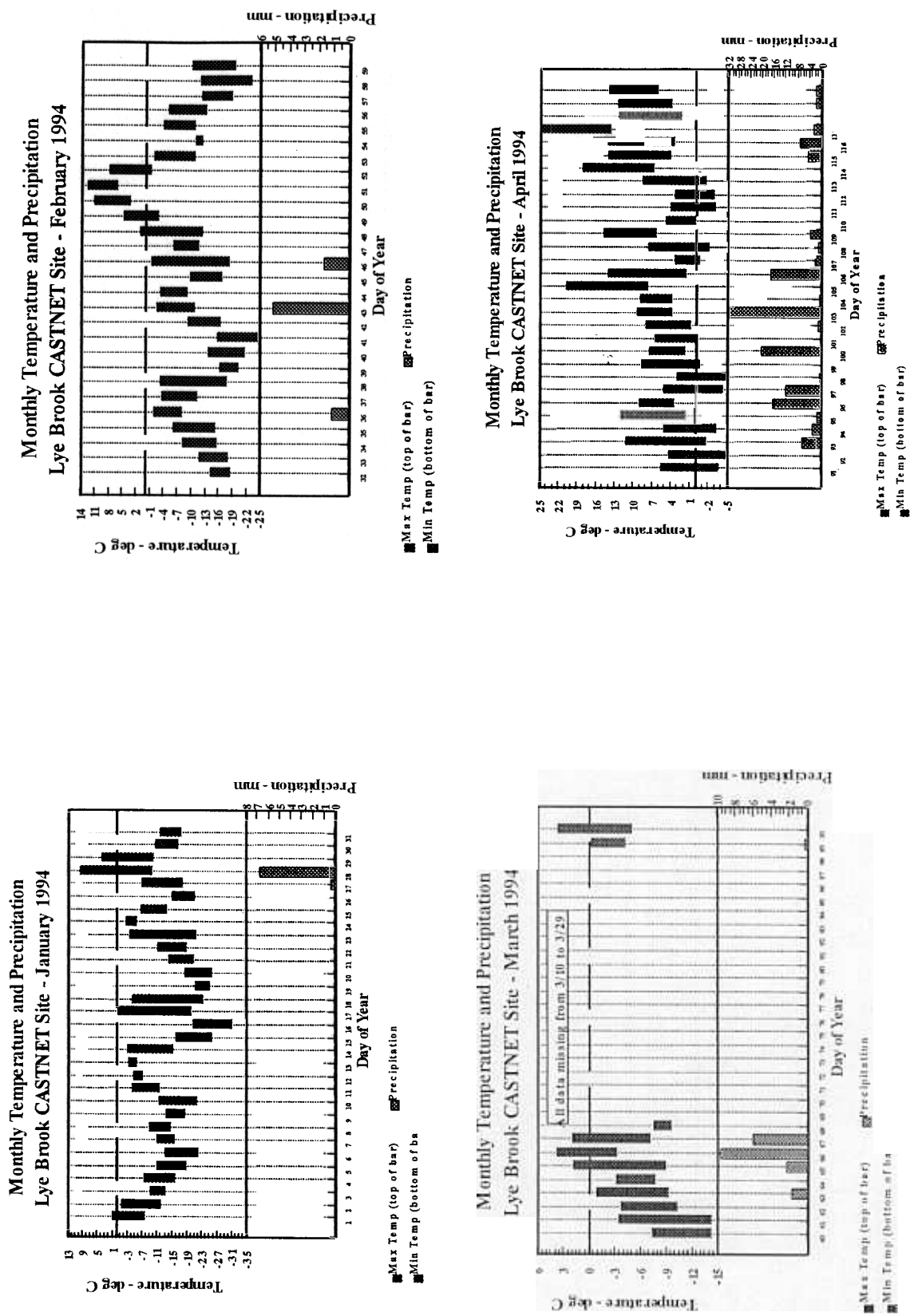


Figure 1 (cont'd) Monthly Temperatures and Precipitation at the Lye Brook Wilderness CASTNET Site 1994

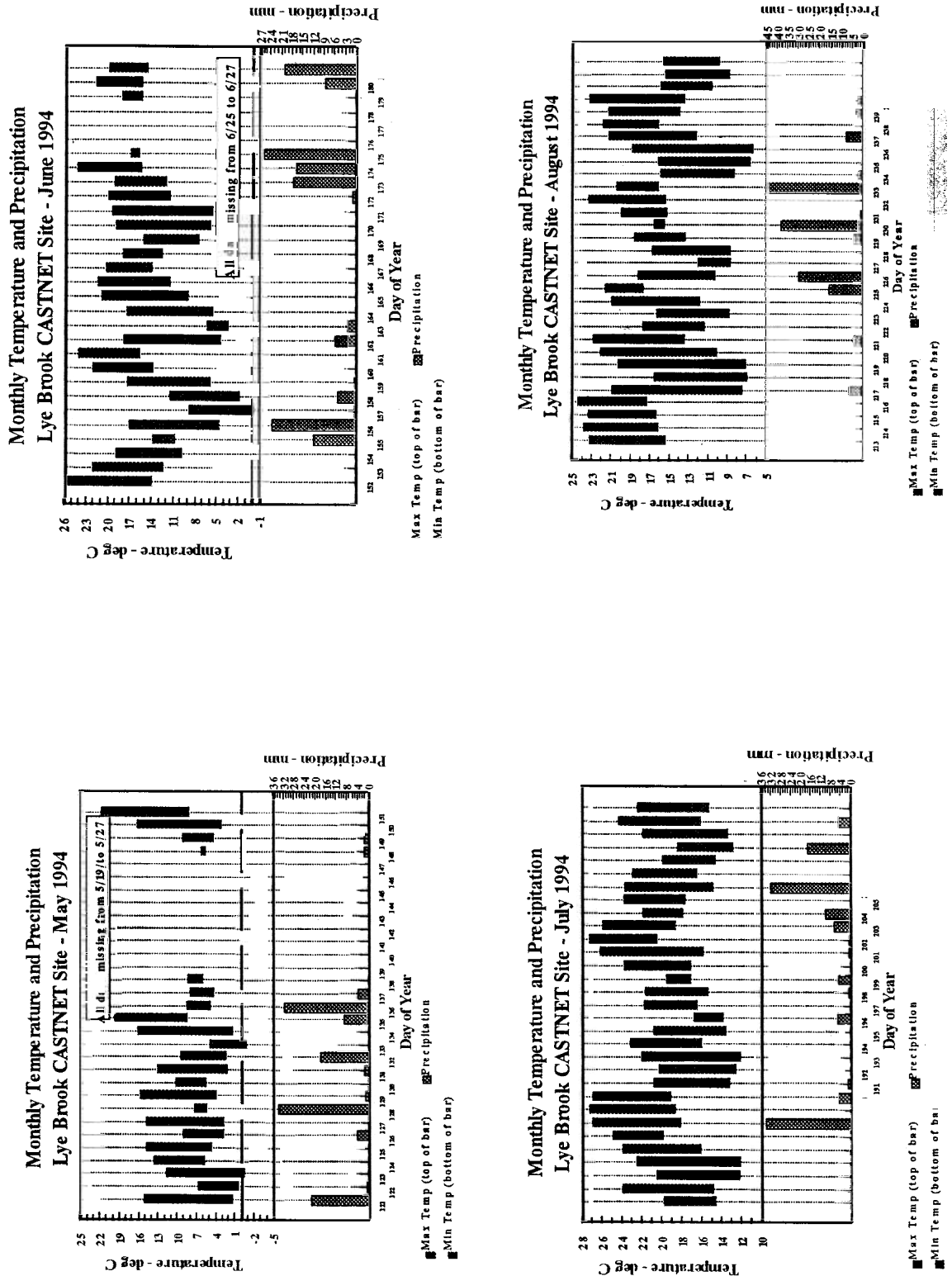
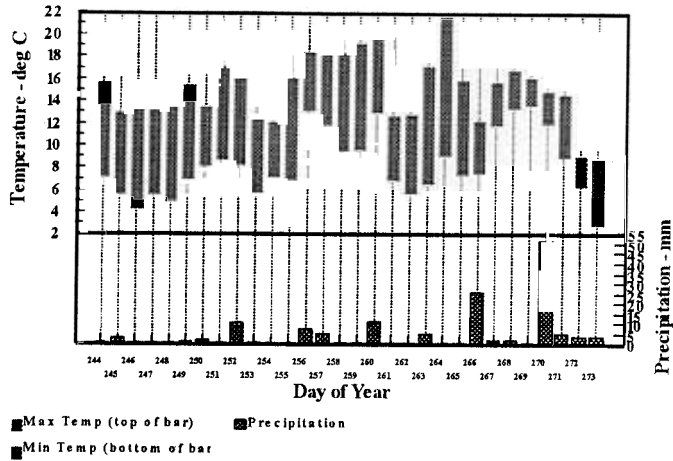
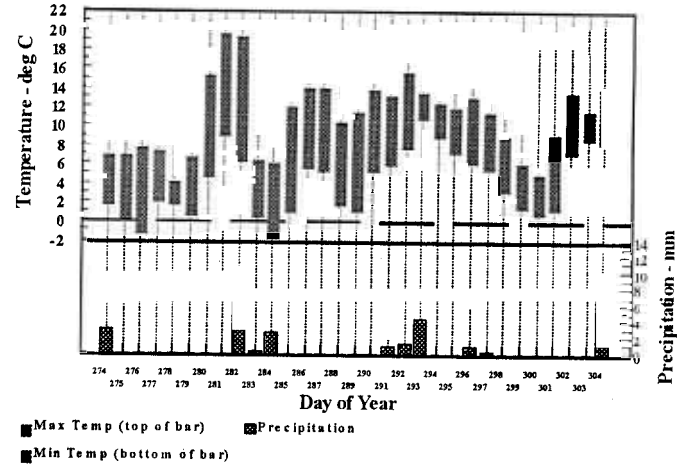


Figure 1 (cont'd) Monthly Temperatures and Precipitation at the Lye Brook Wilderness CASTNET Site - 1994

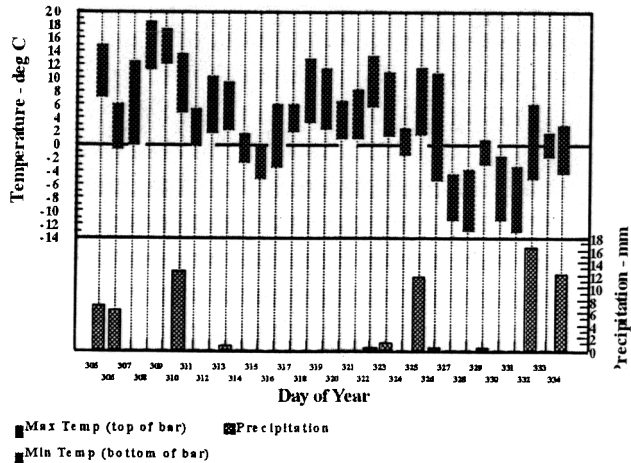
Monthly Temperature and Precipitation
Lye Brook CASTNET Site - September 1994



Monthly Temperature and Precipitation
Lye Brook CASTNET Site - October 1994



Monthly Temperature and Precipitation
Lye Brook CASTNET Site - November 1994



Monthly Temperature and Precipitation
Lye Brook CASTNET Site - December 1994

