

Title: New York State Profiler Network Data

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1.0 Data Set Overview:

- Introduction to data: The New York State Mesonet operates a network of 17 profiler sites. Each profiler site consists of a scanning Doppler LiDAR and a microwave radiometer. All data are collected, quality-controlled, and archived in real-time every 10 minutes (from <http://www.nysmesonet.org/networks/profiler>).
- Time period covered by the data: January 1, 2022 – February 28, 2022
- Physical location: Site latitude, longitude and altitude information is contained in each netcdf file's global attributes

2.0 Instrument Description: (from http://www.nysmesonet.org/documents/NYSM_Readme_Profiler.pdf in Apr 2023)

- LiDAR
 - Description: uses a vertically-pointing eye-safe laser to estimate wind velocities in the vertical. The LiDAR measures the speed and direction of aerosols moving towards and away from the beam, and the reflected energy is analyzed to determine 3-D wind speed and direction. During times of low aerosol concentration, data availability may be limited. The Carrier to Noise Ratio (CNR) plot is a measure of reflected energy as detected by the sensor. Data availability is poor when the CNR is below -25 dB.
 - Measured By: Leosphere WindCube WLS-100 series Doppler LiDAR
- Microwave Radiometer
 - Description: This is a passive instrument that measures the downwelling microwave radiation to estimate vertical profiles of temperature, humidity, and liquid up to 10 km above ground level. Manual calibrations using liquid nitrogen are performed regularly at each site approximately every 6 months.
 - Measured By: Radiometrics MP-3000 series microwave radiometer

3.0 Data Collection and Processing:

- The data were collected in real-time and have not had any quality control applied

4.0 Data Format:

- The data are available in netcdf format.
- The data are written in daily files by site with a time resolution of ten minutes.
- Units are available in netcdf file headers. Netcdf file headers also contain FillValue and long_name for each variable.

5.0 Data Remarks:

- The time stamp is at the beginning of the interval.