

Precipitation Chemistry Metadata

Cary Institute of Ecosystem Studies

We collect precipitation chemistry data using a Yankee Environmental Systems collector, which uses a sensor that causes a cover to open, revealing a clean bucket when precipitation occurs and closes when the precipitation ceases. The instrument collects all kinds of precipitation including snow and ice as well as rain. Samples are collected after every event and analyzed at the Cary Institute for pH and a suite of other constituents that are important for understanding acid deposition.

Data Codes:

- YEAR - Year during which event ended
- MONTH - Month during which event ended
- # OF EVENTS - Number of events during that month
- CM PRECIPITATION - Total volume of precipitation during that month (cm)
- CA - Calcium ion volume-weighted mean (mg/L) (DL 0.01 mg/L)
- CL - Chloride ion volume-weighted mean (mg/L) (DL 0.02 mg/L)
- K - Potassium ion volume-weighted mean (mg/L) (DL 0.01 mg/L)
- MG - Magnesium ion volume-weighted mean (mg/L) (DL 0.01 mg/L)
- NA - Sodium ion volume-weighted mean (mg/L) (DL 0.01 mg/L)
- NH4 - Ammonium ion volume-weighted mean (mg/L) (DL 0.02 mg/L)
- NO3 - Nitrate ion volume-weighted mean (mg/L) (DL 0.02 mg/L)
- PO4 - Phosphate ion volume-weighted mean (mg/L) (DL 0.002 mg/L)
- SO4 - Sulfate ion volume-weighted mean (mg/L) (DL 0.02 mg/L)
- H - Hydrogen ion volume-weighted mean (mg/L)

Equipment:

- **Precipitation sample collection 1983-2008** Aerochem Metrics, Model 301, Automatic Sensing Wet/Dry Precipitation Collector, 2009-present Yankee Environmental model TPC-3000 Total Precipitation Collector
- **Precipitation volume 1983-June 2007** Belfort Instrument Co. Universal Recording Rain Gauge, Series 5-780, sensitivity +0.05 inch (1.3 mm), recommended significant figs. 2. Gauge was encircled by wind alter-shields. The tops of the alter-shields were level with the opening of the rain gauge. Precipitation amount from each event was checked using a standard plastic rain gauge and/or a snow depth / rain gauge. July 2007-present, Geonor Precipitation Gauge Model T-200B from co-located USCRN station.

Online Sources:

<http://www.caryinstitute.org/science-program/research-projects/environmental-monitoring-program/precipitation-air-quality>

http://www.caryarchive.org/emp_precipitation.html#variables