

Single aspirated air temperature (DP1.00002.001)

Measurement

Air temperature, available as one- and thirty-minute averages derived from 1 Hz temperature observations collected by a single Platinum Resistance Thermometer (PRT).

Collection methodology

PRTs use a known linear relationship between electrical resistances of platinum and ambient temperature to determine temperature. These PRTs are similar to those used for triple aspirated air temperature. However, single aspirated air temperature PRTs can be found at each boom arm along NEON tower infrastructure and at NEON aquatic sites with micromet stations.

For information about disturbances, land management activities, and other incidents that may impact data at NEON sites, see the [Site management and event reporting \(DP1.10111.001\)](#) data product.

Maintenance and calibration

If needed, the sensor can be cleaned with a soft sponge or soft bristle brush to remove debris. As with all sensors, they are replaced on an annual basis with new or refreshed sensors and calibrated before being installed.

Data package contents

SAAT_30min: Single aspirated air temperature averaged over 30 minutes

SAAT_1min: Single aspirated air temperature averaged over 1 minute

variables: Description and units for each column of data in data tables

readme: Data product description, issue log, and other metadata about the data product

sensor_positions: Geospatial locations of individual sensors

Data quality

The data products of Instrumented Systems are flagged by a number of quality assurance checks. These can be either for individual measurements or as a summary from averaged measurements. An automated despiking algorithm is used as part of the data quality checks in place for this data product among other quality flags and quality metrics. In cases where sensors failed calibration a "Suspect Calibration" flag will be added to the corresponding data. Range tests are used to ensure observations fall within the ideal minimum and maximum values. Any large jumps in the data that might be missed with the Range test are typically

captured with a Step test. Similarly, persistence tests are used to ensure the fluctuation of recorded values is realistic. If there are missing data points, a null test monitors the amount of missing points over a given period of time.

Documentation



[NEON Sensor Command, Control, and Configuration \(C3\) Document: Single Aspirated Air Temperature](#)

NEON.DOC.000302vD | 311.7 KiB | PDF



[NEON Algorithm Theoretical Basis Document \(ATBD\) – Single Aspirated Air Temperature](#)

NEON.DOC.000646vD | 512.4 KiB | PDF



[NEON Algorithm Theoretical Basis Document \(ATBD\) – Time Series Automatic Despiking for TIS Level 1 Data Products – QA/QC](#)

NEON.DOC.000783vB | 374.8 KiB | PDF



[NEON Algorithm Theoretical Basis Document \(ATBD\) –Quality Flags and Quality Metrics for TIS Data Products](#)

NEON.DOC.001113vC | 1.1 MiB | PDF



[NEON Algorithm Theoretical Basis Document \(ATBD\) – QA/QC Plausibility Testing](#)

NEON.DOC.011081vD | 476.8 KiB | PDF

For more information on data product documentation, see:
<https://data.neonscience.org/data-products/DP1.00002.001>

Citation

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