

Soil heat flux plate (DP1.00040.001)

Measurement

Heat flux (watts/m²) through the soil at a given depth.

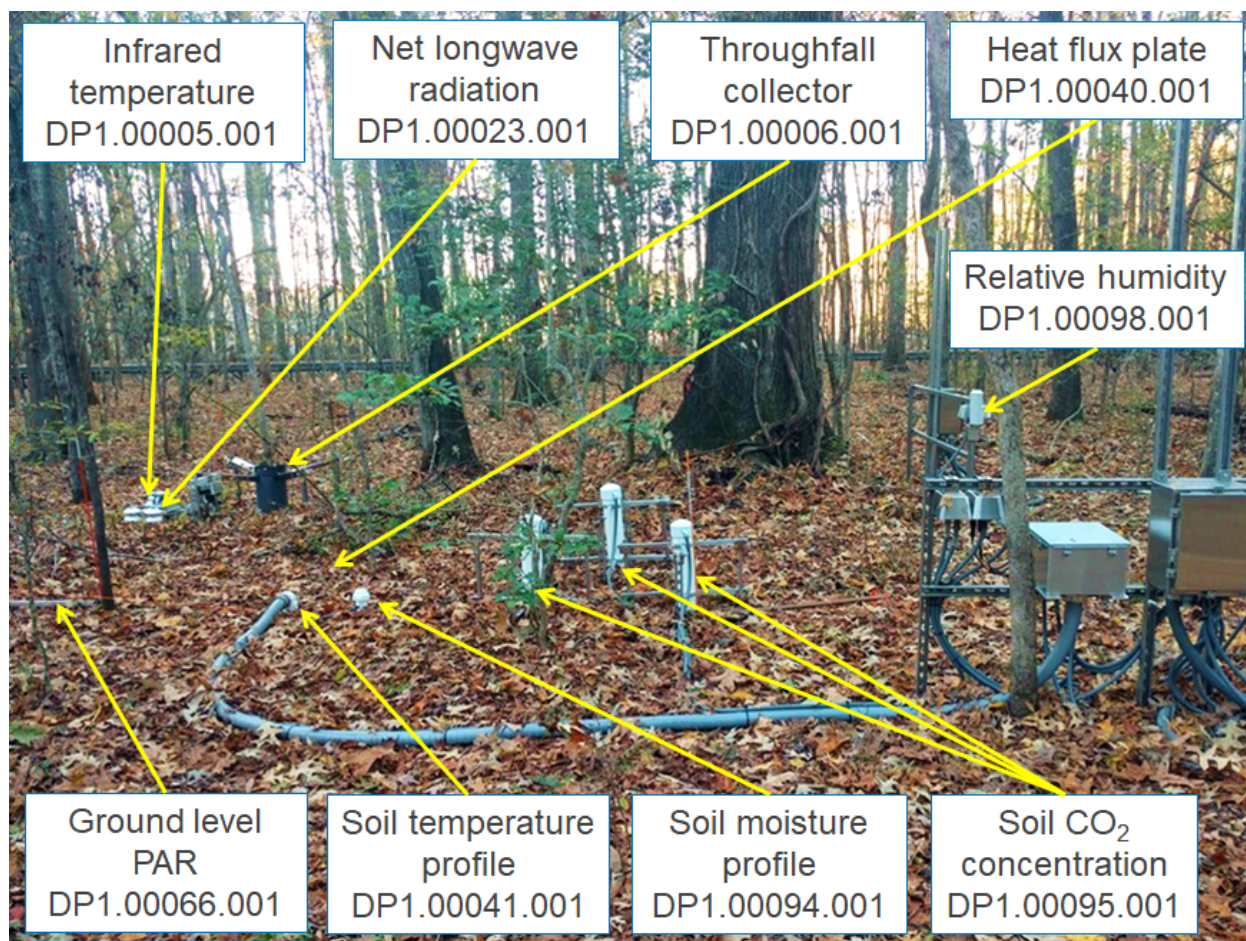
Collection methodology

At each terrestrial site, self-calibrating soil heat flux plates are placed in three of the five soil plots within the TIS soil array. The sensor is installed a few centimeters below the soil surface. Measurements represent a point, are made at 0.1Hz, and published in 1- and 30-minute averaging intervals.

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

The sensors self-calibrate at least once a day. Preventative maintenance is limited to aboveground components and typically performed every 2 weeks.



Sensor-based soil plot at D08 LENO. Not all measurements are made in every soil plot.

Data package contents

SHF_30min: The amount of thermal energy moving by conduction across an area of soil averaged over 30 minutes

SHF_1min: The amount of thermal energy moving by conduction across an area of soil 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

Each measurement is accompanied by a final quality flag (finalQF). NEON recommends only using data where corresponding final quality flag is 0. Data with a final quality flag of 1 are potentially inaccurate and should only be used with caution. The final quality flag is based on automated QA/QC tests, including range, step, and spike tests, as well as a manually set science review flag if applicable. Each measurement is

accompanied by an estimate of measurement uncertainty, expressed at the 95% confidence level (SHFExpUncert), which comprises known and quantifiable uncertainties.

Standard calculations

For wrapper functions to download data from the API, and functions to merge tabular data files across sites and months, see the [neonUtilities R package](#).

Sensor depth (zOffset; m) and the latitude, longitude (referenceLatitude, referenceLongitude; °), and elevation (m) of the soil plot reference corner are in the sensor positions file (...sensor_positions...csv). Use the HOR.VER component of the time series file name (horizontalPosition and verticalPosition if stacked using neonUtilities) to link to the corresponding row in the HOR.VER column of the sensor positions file. HOR indices 001-005 correspond to soil plots 1-5, and VER index 501 corresponds to the depth position.

Table joining

N/A

Documentation



[NEON Sensor Command, Control and Configuration \(C3\) Document: Soil Heat Flux](#)

NEON.DOC.000395vD | 241.4 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 \(ATBD\): TIS Soil Heat Flux](#)

NEON.DOC.000814vC | 541.4 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/DP1.00040.001>

Citation

To cite data from Soil heat flux plate (DP1.00040.001), see citation here:

<https://data.neonscience.org/data-products/DP1.00040.001>

For general guidance in citing NEON data and documentation, see the citation guidelines page:

<https://www.neonscience.org/data-samples/guidelines-policies/citing>