# SSHCZO Metadata Worksheet

|  |  |
| --- | --- |
| Data File Name | **SPVF\_SiTS\_CO2.csv** |
| Date Prepared | 2020-03-19 |
| Descriptive Title | SPVF SiTs CO2 |
| Update Frequency | Continuously streamed – updates every 15 minutes |
| Abstract | Two [Eosense CO2 GP](https://eosense.com/products/eosgp-soil-water-co2-sensor/) sensors are installed at 50 and 70 centimeters in a pit adjacent to the normal CZO GroundHOG SPVF pit. Sensors are wired to Campbell Scientific CR1000X data logger. Measurements are made during a 15 minute period and averaged, stored, and transmitted to campus. Date installed: 2020-03-19 |
| InvestigatorContact Info | Dr. Susan Brantley, Professor of Geosciences, The Pennsylvania State University, 2217 Earth and Environmental Systems Institute, University Park, PA, 16802, (814)865-1619, sxb7@psu.edu.Caitlin Hodges, PhD student, The Pennsylvania State University, cah423@psu.edu |
| Data Value Descriptions | * COL1: label = TmStamp; Timezone = UTC
* COL2: label = RecNum; data logger reference line number
* COL3: label = CO2\_50\_low; units = ppm; concentration of CO2 from 0 – 6,000ppm
* COL4: label = CO2\_50\_hi; units = ppm; concentration of CO2 from 0 – 50,000ppm
* COL5: label = CO2\_50\_tempC; units = degC; sensor temperature at depth of 50cm
* COL6: label = CO2\_70\_low; units = ppm; concentration of CO2 from 0 – 6,000ppm
* COL7: label = CO2\_70\_hi; units = ppm; concentration of CO2 from 0 – 50,000ppm
* COL8: label = CO2\_70\_tempC; units = degC; sensor temperature at depth of 50cm
 |
| Keywords | Soil Gas, Soil Temperatures, CO2 |
| Methods | A small pit was hand dug to a depth of 80 cm. Looking upslope CO2 sensors (paired with O2 sensors) were installed at a depth of 50 and 70 cm on the right-side of the upslope face. A 6-inch pvc pipe was installed vertically beside them to allow for additional microbial electrodes. The pit was backfilled by hand maintaining soil type continuity as best as possible. Two [Eosense CO2 GP](https://eosense.com/products/eosgp-soil-water-co2-sensor/) sensors are installed at 50 and 70 centimeters in a pit adjacent to the normal CZO GroundHOG SPVF pit. Sensors are wired to Campbell Scientific CR1000X data logger. Measurements are made during a 15 minute period and averaged, stored, and transmitted to campus. These are raw data but due compensate for soil temperature. The measurements do not consider atmospheric pressure. One could easily do so using the ideal gas law correction:$$C^{corr}=C\*\frac{P\_{ref}}{P\_{i}}$$Ccorr = corrected concentrationC = raw concentrationPref = reference pressure (101.35 kPa)P­I = measured atmospheric pressure in kPa |
| Sites | Shale Hills Valley: 40.664511, -77.906281 (NAD\_1983\_StatePlane\_Pennsylvania\_South\_FIPS\_3702) |
| Publications | none |
| Citation | The following acknowledgment should accompany any publication or citation of these data: Logistical support and/or data were provided by the NSF-supported Susquehanna Shale Hills Critical Zone Observatory. |
| Data Use Notes | The user of Susquehanna Shale Hills CZO data agrees to provide proper acknowledgment with each usage of the data. Citation of the name(s) of the investigator(s) responsible for the data set, in addition to the generic statement above, constitutes proper acknowledgment. Author(s) (including Susquehanna Shale Hills CZO investigators) of published material that makes use of previously unpublished Susquehanna Shale Hills CZO data agree to provide the Susquehanna Shale Hills CZO data manager with four (4) copies (preferably reprints) of that material for binding as soon as it becomes available. The user of Susquehanna Shale Hills CZO data agrees not to resell or redistribute shared data. The user of these data should be aware that, while efforts have been taken to ensure that these data are of the highest quality, there is no guarantee of perfection for the data contained herein and the possibility of errors exists. These data are defined as either public or private, such that a password may be required for access. |