# SSHCZO Metadata Worksheet

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| Data File Name | **CZMW10\_DO.csv** |
| Date Prepared | 2019-08-05 |
| Descriptive Title | CZMW 10 Dissolved Oxygen |
| Update Frequency | Continuous |
| Abstract | CZMW 10 was drilled on 2017-11-21 using an Acker Soil Scout® Track Mounted Drill Rig by [Mountain Research, LLC](http://www.mountainresearch.com/index.php). A direct push drilling method was used to collect overburden soil from 0 to 10 feet (0 to 3.05 meters) below ground surface. A 6.25 inch inner diameter HSA was used to auger from 0 to 3.05 meters. A Mission SD 6 inch diameter down-hole pneumatic driven rotary percussion hammer was used to drill from 10.0 to 40.0 feet (3.05 to 12.19 meters). Competent rock was observed about 30 feet (9.14 meters) below ground surface. 4 inch inner diameter PVC/riser casing was installed and sealed with 5 50 pound bags of 3/8 inch bentonite chips (Halliburton Baroid Industrial Drilling Products).CZMW10 well was completed using an air rotary Mission SD 4 inch diameter down-hole pneumatic driven rotary percussion hammer from 40 to 115.0 feet (12.19 to 35.05 meters). The completed well is 4 inch diameter open bedrock borehole from 40 to 115.0 feet (12.19 to 35.05 meters).CZMW\_10 is continuously monitored using a vented [Meter Environment HYDROS 21 sensor](https://www.metergroup.com/environment/products/hydros-21-water-level-monitoring/). The sensor measures depth, water temperature, and conductivity (CTD). Measurements are made every 3 minutes, averaged, and are recorded every 15 minutes to a Campbell Scientific CR1000 data logger. The logger is programed and calibrated to manual water level measurements below ground. If changes are made in the offset between top of casing (TOC) and water level, the program will automatically store the old offset after the new offset is entered. A Campbell Scientific CS-511 Dissolved Oxygen sensor was installed 2019-08-02. The sensor is set at 9 meters and zip-tied to its own cable, so the sensor is at a slight angle to prevent air bubbles on the membrane. The sensor is programmed to scan every minute, store a sample measurement every 15 minutes, and use measurements every 3 minutes to average over a 15-minute period. The multiplier used to for calibration is 0.29839 and will be calibrated annually. Older multipliers will be stored automatically once a new multiplier is entered.  |
| 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.eduAndrew Shaughnessy, Geosciences PHD student, ars637@psu.edu |
| Data Value Descriptions | * COL1: label = TmStamp; Timezone = UTC
* COL2: label = RecNum; internal logger reference
* COL3: label = DOmv; Units = millivolts
* COL4: label = DOppm; Units = parts per million; converted using .29839 as multiplier
* COL5: label = DOppm\_Avg, Units = parts per million; 5 measurements over 15 minutes averaged
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| Keywords | Groundwater Depth, Groundwater Temperatures, Hydrology |
| Methods | Groundwater level measurements are recorded every 15 minutes with a vented [METER Environment HYDROS 21 sensor](https://www.metergroup.com/environment/products/hydros-21-water-level-monitoring/) (previously Decagon CTD) wired to a [Campbell Scientific CR1000](https://www.campbellsci.com/cr1000) data logger. Data are streamed to campus via Ethernet and fiber optic connections to the University network.TOC above land surface = 0.29 metersSensor location down borehole from TOC = 7.00 metersSensor location from ground level = 6.71 metersThe water table below land surface is measured by subtracting the head pressure and above ground casing length from the sensor depth.  |
| Sites | Shale Hills Valley: 40.66477, -77.90712(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. |