# CZO Metadata Worksheet

|  |  |
| --- | --- |
| Data File Name | Surface Flux Data |
| Date Prepared | 06/13/14 |
| Descriptive Title | Shale Hills CZO flux tower data |
| Update Frequency | Monthly |
| Abstract | LI-COR LI 7500 measures CO2 and water vapor concentration at 10Hz time resolution. Campbell Scientific CSAT3 gives 3D wind speed and air temperature at 10Hz rate. CO2, sensible heat, latent heat fluxes were calculated every 30min based on the above measurements (time stamp shows the end of the 30min window). |
| InvestigatorContact Info | Dr. Kenneth J. Davis, Professor of Meteorology, The Pennsylvania State University, 512 Walker Building, University Park, PA 16802, (814) 863-8601davis@meteo.psu.edu. |
| Data Value Descriptions | * COL1: label=Decimal day and local time of day, UTCOffset=-4, Time Zone=UTC.
* COL2: label=Friction velocity, Units=m/s, TimeSupport=30 min, DataType=Average.
* COL3: label=Temperature, Units=C, TimeSupport=30 min, DataType=Average.
* COL4: label=Wind Direction, Units=deg, TimeSupport=30 min, DataType=Average.
* COL5: label=Horizontal wind speed, Units=m/s, TimeSupport=30min, DataType=Average.
* COL6: label=Vertical wind speed, Units=m/s, TimeSupport=30 min, DataType=Average.
* COL7: label=CO2 flux, Units=umol/m2/s, TimeSupport=30 min, DataType=Average.
* COL8: label=Sensible heat flux, Units=W/m2, TimeSupport=30 min, DataType=Average.
* COL9: label=Latent heat flux, Units=W/m2, TimeSupport=30 min, DataType=Average.
* COL10: label=CO2 concentration, Units=mg/m3, TimeSupport=30 min, DataType=Average.
* COL11: label=Water vapor concentration, Units=g/m3, TimeSupport=30 min, DataType=Average.
 |
| Keywords | CO2 flux, sensible heat flux, latent heat flux, boundary layer meteorology |
| Methods | * Wind speed and air temperature measured with a Campbell Scientific CSAT3 Three Dimensional Sonic Anemometer, <http://www.campbellsci.com>.
* CO2 and water vapor concentration measured with a LI-COR LI-7500 CO2/H2O Analyzer, <http://www.licor.com>.
* **IMPORTANT**: LI-COR LI-7500 infrared gas analyzer failed in October, 2010, resulting in no source data for calculation of CO2 flux or latent heat flux. This failure also resulted in loss of atmospheric surface pressure data used for calibration/correction, so sensible heat flux and other data may contain large errors. Use of this data is at own risk. The analyzer was replaced in April 2014, so data for May 2014 and later should be usable. IRGA sensor was broken again during Feb. 21 2015 - May 7 2015, no data was available during this period of time. Data loss during August 13 to 17, 2016 was due to power loss caused by a direct hit by lightning.
 |
| Maintenance | July 11, 2023: Replaced licor equipment |
| Citation | The following acknowledgment should accompany any publication or citation of these data: Logistical support and/or data were provided by the NSF-supported Shale Hills Susquehanna Critical Zone Observatory. |
| Publications | none |
| Data Use Notes | The user of Shale Hills Susquehanna 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 Shale Hills Susquehanna CZO investigators) of published material that makes use of previously unpublished Shale Hills Susquehanna CZO data agree to provide the Shale Hills Susquehanna CZO data manager with four (4) copies (preferably reprints) of that material for binding as soon as it becomes available. The user of Shale Hills Susquehanna 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. |