

Flux Tower data measured at 20Hz and 1Hz provided by the University of Utah from the ES4 tower located on the East Slope of Granite

ES5

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1.0 Data Set Overview

1.1 Time period covered by the data

Approximately September - October 2012 and May 2013. For specific times please refer to individual file names.

1.2 Physical location (latitude, longitude, elevation)

40.09652, -113.25861, 1432.52269

1.3 Instrument type

Flux Tower

1.4 Data provider

University of Utah

1.5 Web address references

<http://www3.nd.edu/~dynamics/materhorn/>

https://www.eol.ucar.edu/field_projects/materhorn-x

2.0 Instrument Description

Surface tower including five levels of Campbell Scientific CSATA ultrasonic anemometers mounted at 0.5m, 2m, 5m, 10m, 20m above ground level. Also included are Temperature Relative Humidity Measurements, Barometric Pressure, and Fine-wire Thermocouples, KH20 at 2 meters (Spring).



2.1 Instrument website

<http://www.alumatower.com/>, (Aluminum Tower)

<https://www.campbellsci.com/cr3000>, (CR3000 Datalogger)

<https://s.campbellsci.com/documents/us/manuals/loggernet.pdf>

TOA5 file format description (Appendix B, pages: B-4, B-3)

<https://www.campbellsci.com/hmp45c-1>, (Temperature / Relative Humidity Probe)

<https://www.campbellsci.com/cs106>, (Barometer)

<https://www.campbellsci.com/kh20>, (KH20 Krypton Hygrometer)

<https://www.campbellsci.com/csat3>, (CSAT3 - Spring 2013)

<https://www.campbellsci.com/fw3>, (Fine-Wire Thermocouple)

2.2 Table of specifications

Accuracy	Range	Frequency	Resolution
See individual instrument websites	See individual instrument websites	See individual instrument websites	See individual instrument websites

3.0 Data Collection and Processing

3.1 Description of data collection

3.2 Description of derived parameters and processing techniques used

Original data files are provided.

3.3 Description of quality assurance and control procedures

This dataset was not subject to any quality control or processing it has been provided in its original form.

3.4 Data intercomparisons

4.0 Data Format

4.1 Data file structure

TOA5, (ASCII csv with header)

4.2 File naming convention

dataProvider_instrument[_identifier]_tableNumber_rate_instrumentType_startDateAndTime_endDateAndTime.extension

4.3 Data format

comma delimited ASCII

4.4 Data layout

Each file has four header lines. First header line contains information on the logger and the consecutive three lines provides the column headers (variables, units and measurement types) for all subsequent rows of data contained within the file.

4.5 List of parameters with units, sampling intervals, frequency, range

Variable names usually contain the variable type and the height of the measurement in meters. 05 refers to a measurement taken at 0.5m. As an example u16 means "u" wind component measured at 16 m.

4.6 Data version number and date

raw, v1.0, October 2016

4.7 Description of flags, codes used in the data, and definitions

4.8 Data sample

The data sample is provided in the Filtered_Headers.txt. Please look for the file name in the Filtered_Headers.txt for the corresponding data sample.

5.0 Data Remarks

5.1 PI's assessment of the data

- 1) 2 meter sonic showed frequent problems in the x and y directions (extreme values rather than NaNs). z and sonic temperature were mostly unaffected.
- 2) The September 28, October 7 and October 21 folders seem to contain almost unaffected data

5.2 Missing data periods

5.3 Software compatibility

6.0 References

- [1] Fernando, H. J. S., E. R. Pardyjak, S. Di Sabatino, F. K. Chow, S. F. J. DeWekker, S. W. Hoch, J. Hacker, J. C. Pace, T. Pratt, Z. Pu, J. W. Steenburgh, C. D. Whiteman, Y. Wang, D. Zajic, B. Balsley, R. Dimitrova, G. D. Emmitt, C. W. Higgins, J. C. R. Hunt, J. G. Kniewel, D. Lawrence, Y. Liu, D. F. Nadeau, E. Kit, B. W. Blomquist, P. Conry, R. S. Coppersmith, E. Creegan, M. Felton, A. Grachev, N. Gunawardena, C. Hang, C. M. Hocut, G. Huynh, M. E. Jeglum, D. Jensen, V. Kulandaivelu, M. Lehner, L. S. Leo, D. Liberzon, J. D. Massey, K. McEnerney, S. Pal, T. Price, M. Sghiatti, Z. Silver, M. Thompson, H. Zhang, T. Zsedrovits, 2015: The MATERHORN – Unraveling the Intricacies of Mountain Weather, BAMS, doi: <http://dx.doi.org/10.1175/BAMS-D-13-00131.1>.