

Title:

Windsound measurements collected by the Center for Multiscale Applied Sensing (CMAS) during the ESCAPE and TRACER field campaigns in Houston, TX in 2022

Author(s)

Zackary Mages (zackary.mages@stonybrook.edu)

Katherine McKeown (kem6245@psu.edu)

Zeen Zhu (zzhu1@bnl.gov)

Katia Lamer (klamer@bnl.gov)

Award ID(s)/Grant ID(s)

National Science Foundation grant AGS-2019932

Brookhaven National Laboratory's Program Development Program grant PD21-025

1.0 Data Set Description

- Introduction or abstract

Data from 164 Sparv Windsounds launched from the Center for Multiscale Applied Sensing mobile observatory at variable location within a 50-km radius domain around Houston, TX between 29 May 2022 to 27 June 2022.

- Data version number and date

Version 1

- Data Status (Preliminary or Final)

Final version.

- Time period covered by the data

29 May 2022 to 27 June 2022

- Physical location (including lat/lon/elev) of the measurement or platform

All Windsounds were launched within a 50-km radius domain around Houston, TX. The exact latitude and longitude of each radiosonde is given in each file.

- Data Frequency - Frequency of data collection (e.g., 5 minute, hourly, continuous, etc.).

Variable.

- Data set restrictions (i.e., indicate if data set needs to be restricted, requires password protection, contains personal info, description of any licensing, etc.)

No restriction.

2.0 Instrument Description

Dataset collected using Sparv WindSonds launched according to vendor instructions.

3.0 Data Collection and Processing

- Description of data collection

Raw data collected by Sparv WindSond launched from the Center for Multiscale Applied

Sensing mobile observatory truck (Lamer, K. et al. Going mobile to address emerging climate equity needs in the heterogeneous urban environment. Bulletin of the American Meteorological Society 103, E2069-E2080 (2022).)

- Description of derived parameters and processing techniques used
Data is raw and unprocessed.

- Description of quality assurance and control procedures
No quality assurance and control procedures applied.

4.0 Data Format

- Data file structure and file naming conventions
Each Windsong profile is provided in a csv file.

File name YYYY-MM-DD_HHMM.raw_flight_history.csv

YYYY stands for the year of the data collection

MM stand for the month of data collection

DD stands for the day of data collection

HH stands for the hour of the Windsong initialization in UTC

MM stands for stands for the minute of Windsong initialization in UTC

SS stands for the second of Windsong initialization in UTC

*Note that initialization time does always match launch time.

- List of parameters with units, sampling intervals, frequency, range
UTC time
Altitude (m MSL),
Altitude (m AGL),
Pressure(Pa),
Speed(m/s),
Heading(deg from North. Indicates the direction where the wind is heading.),
Temperature(degC),
Relative humidity(%),
Internal temperature(degC)
Latitude(deg),
Longitude (deg),
Rise speed(m/s)

5.0 Data Remarks

Speed is noisy, especially in comparison to measurements collected by traditional radiosondes. Unlike traditional radiosondes, wind direction is reported using “Heading” which is the direction where the wind is heading and not where the wind is originating.

6.0 References

None