

Title: PERiLS 2023 UAH MAPNet MIPS Surface Dataset

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1.0 Dataset Overview

The UAH Mobile Atmospheric Profiling Network (MAPNet) Mobile Integrated Profiling System (MIPS) was deployed for all 5 PERiLS deployments. Surface data is collected via a 10-meter, retractable meteorological tower. When high winds or lightning is in the vicinity, the tower is often lowered. Logbooks have been provided to help the user determine if/when the tower was lowered among other references. MIPS was located on the campus of UAH and the SWIRLL facility for IOP 4. Surface measurements were not collected from MIPS as the SWIRLL surface data is readily available via weblink for this time period

(<https://www.nsstc.uah.edu/data/mips/data/current/surface/data/>).

IOP 1

Time Period: 2023/02/16 1430Z to 2023/02/17 0118Z

Location: 32.9137, -87.8689 elevation: 67 m

IOP 2

Time Period: 2022/03/03 0015Z to 2022/03/03 11Z

Location: 34.6038, -91.1962 elevation: 56 m

IOP 3

Time Period: 2022/03/24 1627Z to 2022/03/25 0208Z

Location: 33.123954, -91.381511 elevation: 33 m

IOP 4

Time Period: 2022/03/31 15Z to 2022/04/01 0800Z

Location: 34.724, -86.6463 elevation: 207 m

IOP 5

Time Period: 2022/04/05 1115Z to 2022/04/05 1830Z

Location: 35.799629, -91.140336 elevation: 75 m

2.0 Instrument Description

The UAH MIPS has a 10 meter tower with 4 instruments mounted to it and stored using a Campbell Scientific data logger:

- RM Young 05103 wind monitor
- Campbell Scientific 107 thermistor temperature probe
- CS106 Vaisala Barometer
- Texas Electronics TE-525 tipping bucket rain gauge.

More information regarding the MIPS surface station and the MIPS platform can be found here:
<https://www.nsstc.uah.edu/mapnet/facilities/mips.php>

3.0 Data Collection and Processing

Data are collected at 1 second intervals. Data have been quality controlled to remove erroneous data. Orientation corrections of the anemometer were also applied when necessary.

4.0 Data Format

The UAH MIPS surface station data files are standard CSV files and follow the naming convention: mips_YYYYMMDD_sfc.dat, where:

YYYY -> year
MM -> month
DD -> day
sfc.dat -> sfc station data

Column Header data is provided below:

COLUMN VARIABLE

0 -> Program Constant
1 -> Year
2 -> Julian Day
3-4 -> Hour & minute, Seconds(UTC)
5 -> battery voltage (V)
6 -> wind speed (m/s)
7 -> wind direction (deg)
8 -> temperature (C)
9 -> pressure (hPa)
10 -> tipping bucket rain rate (mm/sec)

5.0 Data Remarks

The North Alabama domain was used for IOP4. As a result, MIPS was stationed at SWIRLL for this IOP. SWIRLL features real-time, near continuous surface in-situ measurements via numerous in-situ sensors. Surface measurements were not collected from MIPS as the SWIRLL surface data is readily available via weblink for this time period (<https://www.nsstc.uah.edu/data/mips/data/current/surface/data/>).