Title: DELTA 2024 UAH MAPNet RaDAPS Surface Dataset

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1.0 Dataset Overview

The UAH Mobile Atmospheric Profiling Network (MAPNet) Rapidly Deployable Atmospheric Profiling Systems (RaDAPS). Data is collected via a 6-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. This data has undergone preliminary quality control and should be considered final.

IOP 1
Time Period: 2024/02/27 2335 to 2024/02/28 0812Z
Location: 38.038133, -88.084000elevation: 119 m Heading: 179 deg

2.0 Instrument Description:

The Rapidly Deployable Atmospheric Profiling System (RaDAPS) facility is a converted medium duty ambulance that is designed to provide high resolution boundary layer (BL) kinematics, thermodynamics, and retrieve aerosol and cloud characteristics. The configuration includes a Radiometrics 915 MHz Radar Wind Profiler (RWP), a Vaisala CL51 lidar ceilometer, Radiometrics 35-channel Microwave Profiling Radiometer (MPR), OTT Hydromet Parsivel disdrometer, Metek Micro Rain Radar, and a telescoping 6-meter surface measurements tower with a Vaisala WXT 520 mounted to it (temperature/RH, pressure, wind, pressure, and precipitation). The tower is outfitted with a Vaisala WXT520 Weather Transmitter. This sensor provides:

- Temperature
- Relative Humidity
- Pressure
- 2-D sonic wind
- Precipitation type/rate

A Texas Electronics TE-525 was also added to the top of the truck for additional rainfall measurements.

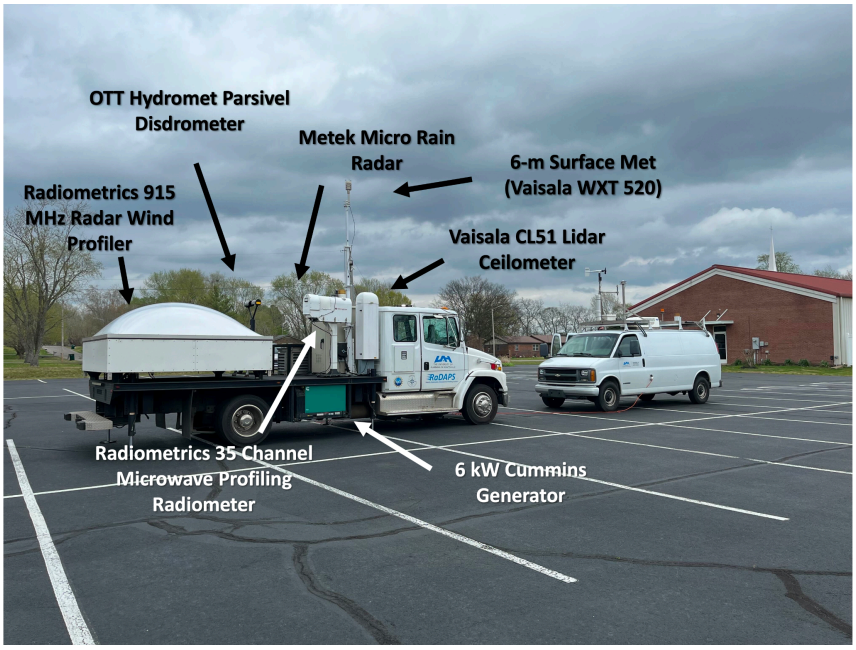

Fig 1. The RaDAPS Platform

3.0 Data Collection and Processing

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

4.0 Data Format

1 data file per day is available.

The data files arenamed radaps_YYYYMMDD_sfc.dat, where:

YYYY -> year
MM -> month
DD -> day

The data file records, column by column, are:

COLUMN VARIABLE
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0 -> Program Constant
1 -> Year
2 -> Julian Day
3-4 -> Hour & minute, Seconds(UTC)
5 -> wind direction (deg)
6 -> wind speed (m/s)
7 -> temperature (F)

8 -> Relative Humidity (%)
9 -> Pressure (hPa)
10 -> Precipitation Total (mm)
11 -> Precipitation rate (mm/hr)
12 -> Tipping Bucket rain rate (mm/sec)