Title: 2024 DELTA UAH MAPNet Sounding Dataset

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1.0 Overview

The UAH Mobile Atmospheric Profiling Network (MAPNet) used one mobile radiosonde system that was co-located with the UAH MAPNet RaDAPS. Release times and location is listed below. The InterMet sounding system was used. The data from the iMet systems are unchanged other than quality controlling for invalid surface data, inconsistent heights and bad wind data. This process is outlined in section 3. UAH only deployed for IOP 1 of DELTA.

IOP 1 Release Times:

RaDAPS (38.038133, -88.084000): 2024/02/28 0000Z, 0100Z, 0200Z, 0300Z, 0400Z, 0530Z

2.0 Instrumentation Description

UAH used InterMet's (iMet) iMet-4 radiosondes. The manufacturer's specifications for the radiosonde is below. The software used with the iMet system was the iMet-3050 Portable Sounding system with iMet-OSII.

iMet-4 Sonde Specifications

Temperature Resolution	<0.01 Deg C
Temperature Accuracy	0.3 Deg C
Humidity Resolution	0.1% RH
Humidity Accuracy	5% RH
Pressure Resolution	0.01 hPa
Pressure Accuracy	1.5 - 2.0hPa
Wind Accuracy	0.5 m/s
GPS Position Accuracy	0.1 m
Altitude Accuracy	15 m

3.0 Data Collection and Processing

The data from the iMet systems were automatically quality controlled by the iMet software. The data was then run through computer code that checked for inconsistent heights or wind data and then rearranged into a consistent format using python code. If the data showed the balloon

was descending, it was omitted. If wind data was erroneous (exceeded 350 knots, it was replaced with -9999.0.

4.0 Data Format

The filename format is as follows:

upperair.UAH_Sonde.YYYYMMDDHHMM.City_State.txt

Where:

YYYYmmDDHHMM -> release date (4-digit year, 2-digit month, 2-digit day, 4-digit UTC time)
City/State -> nearest city/town name and State balloon was released in

The header information provided contains several characteristics about the sounding. The headers are the first three lines of the file and are as follows:

Line 1: Data Type
Line 2: Release date, time, and location. The date and time are in UTC time.
Line 3: Variables and units

Field	Parameter	Units	Missing Value
1	Latitude	Degrees	-9999.0
2	Longitude	Degrees	-9999.0
3	Time	UTC Time	-9999.0
4	Height	Meters (AGL)	-9999.0
5	Pressure	mb	-9999.0
6	Temperature	Celsius	-9999.0
7	Relative Humidity	Percent	-9999.0
8	Dew Point	Celsius	-9999.0
9	Wind Speed	Knots	-9999.0
10	Wind Direction	Degrees	-9999.0

Each data file is one individual sounding launched.

5.0 Data Remarks

Surface Data – Surface measurements for the iMet sondes were collected via the co-located platform's surface tower (typically a 10-m AGL tower). WIndsonde surface measurements were obtained from the sonde itself typically held at 2-m AGL. Verification of surface data was often completed using surface stations on the co-located mobile instrument platforms. Surface data were verified using the co-located platform's surface measurements in post-processing and were corrected if necessary.