

**Title:** Delta 2024 UAH MAX Mobile Radar Data

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### 1.0 Dataset Overview

The UAH Mobile Atmospheric Profiling Network (MAPNet) Mobile Alabama X-Band radar (MAX) is a mobile X-Band radar. Data from MAX was collected during IOP 1 only as location as follows. Numerous issues delayed the MAX operations and are described in section 5.

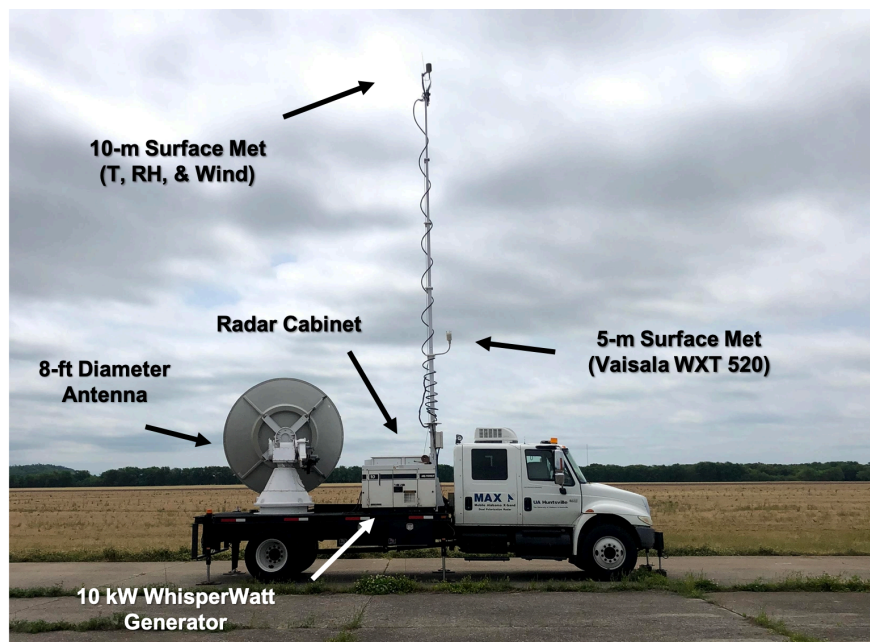
IOP 1

Time Period: 2024/02/28 0507 to 2024/02/28 0803Z

Location: 38.1264, -88.0967 elevation: 119 m Heading: 51 deg

### 2.0 Instrument Description:

Mounted to the back of an International 4300, MAX is a dual polarization mobile X-band radar. MAX has a set of leveling jacks that allows the truck to be leveled prior to operations and is verified by the operator. Radar specifications are shown in the table below.



**Fig 1.** The MAX platform

<b>Frequency</b>	<b>X-Band (9.45 GHz)</b>
<b>Transmitter</b>	<b>Magnetron</b>
<b>Polarization</b>	<b>Dual</b>
<b>Peak Transmit Power</b>	<b>200 kW</b>
<b>Beamwidth</b>	<b>0.95°</b>
<b>Antenna Size</b>	<b>8 ft</b>
<b>Variables</b>	<b>Z, V, W, ZDR, fDP, KDP, rhv, LDR</b>
<b>Receiver</b>	<b>RVP8</b>

**Table 1.** Specifications of MAX

### **3.0 Data Collection and Processing:**

The strategies are defined below:

Shallow Scan: 0.8, 1.5, 2.3, 3.3, 4.4, 6.0

Deep: 0.8, 1.5, 2.3, 3.3, 5, 10

Sequence: Shallow, Deep, Shallow Deep, repeated sequence every ~5 minutes

### **4.0 Data Format**

Data is provided as netCDF files following the CFRadial file format. Each file contains the entire volume. The file naming convention follows:

RAW\_NA\_000\_xxx\_YYYYmmddHHMMSS.nc where:

xxx -> scan type (100 - PPI; 125 - RHI; 050 - Bird Bath)

### **5.0 Data Remarks:**

Upon arrival, numerous issues caused operations to be delayed. After troubleshooting with the radar and software, MAX operations began at ~0300Z. However during post-processing, it was noted that all dual-pol products were not recorded for an unknown reason. Users should be aware of these issues when utilizing the dataset.

### **6.0 References:**

Helmus, J.J. & Collis, S.M., (2016). The Python ARM Radar Toolkit (Py-ART), a Library for Working with Weather Radar Data in the Python Programming Language. Journal of Open Research Software. 4(1), p.e25. DOI: <http://doi.org/10.5334/jors.119>