

**Title:** VORTEX-SE 2017 UAH MoDLS Microwave Profile Radiometer Dataset

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## 1.0 Dataset Overview

The UAH Mobile Operated Doppler Lidar System (MoDLS) is housed within a trailer that also contains a Microwave Profile Radiometer. The lidar and MPR were operated each IOP often co-located with a sounding system.

## 2.0 Instrument Description

UAH MoDLS utilizes a Radiometrics 12-channel Microwave Profile Radiometer.

## 3.0 Data Collection and Processing

Data was collected for each IOP at 1 minute intervals. No data processing was completed.

## 4.0 Data Format

There is 1 MPR data file for each day. The filename format is YYYY-MM-DD\_HH-mm-SS\_v2.csv where:

YYYY -> 4-digit year  
MM -> Month  
DD -> Day  
HH -> Hour  
mm -> Minute  
SS -> Seconds  
lv2 -> MPR Code  
csv -> file extension

An example is given below:

```
Record,Date/Time,10,Tamb(K),Rh(%),Pres(mb),Tir(K),Rain,Vint(cm),Lqint(mm), 0.00, 0.10,
0.20, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90, 1.00, 1.25, 1.50, 1.75, 2.00, 2.25, 2.50, 2.75, 3.00,
3.25, 3.50, 3.75, 4.00, 4.25, 4.50, 4.75, 5.00, 5.25, 5.50, 5.75, 6.00, 6.25, 6.50, 6.75, 7.00, 7.25,
7.50, 7.75, 8.00, 8.25, 8.50, 8.75, 9.00, 9.25, 9.50, 9.75,10.00
1,03/13/06 00:02:20,11,302.3, 13.3, 802.9,223.2,N, 0.89,
0.04,302.3,298.7,299.2,299.0,298.0,297.2,296.4,295.5,294.5,294.1,293.5,291.9,289.8,286.7,28
2.7,277.9,272.0,267.0,264.9,263.7,262.8,261.8,259.4,258.8,258.3,257.3,256.4,254.6,253.3,252.
```

0,249.9,247.9,246.0,244.1,242.6,241.9,240.4,238.1,236.2,234.3,232.4,230.7,228.2,226.0,223.5,  
220.8,218.6  
2,03/13/06 00:02:20,12,302.3, 13.3, 802.9,223.2,N, 0.89, 0.04, 3.74, 0.45, 0.37, 0.30,  
0.25, 0.21, 0.18, 0.16, 0.15, 0.14, 0.16, 0.17, 0.38, 0.92, 1.65,  
3.92,12.67,24.60,32.22,42.66,46.71,48.58,49.31,46.09,46.34,48.43,48.61,48.47,47.04,45.50,44.  
27,40.11,35.63,15.16, 2.46, 0.63, 0.23, 0.07, 0.02, 0.01, 0.03, 0.02, 0.01, 0.01, 0.00, 0.02, 0.02

The data, column by column, is as follows:

#### Column

- 0 -> identifies the record number
- 1 -> measurement date and time (UTC)
- 2 -> identifies profile as profile as
  - temperature (T) -> 11
  - water vapor (V) -> 12
  - relative humidity (R) -> 13
  - cloud liquid water (L) -> 14
- 3-5 -> surface conditions as measured at/by the MPR (temperature, relative humidity and pressure).
- 6 -> Tir: Infrared thermometer temperature (cloud base temp) (K)
- 7 -> the presence or absence of rain: reported as Y (yes) or N (no)
- 8 -> Vint: integrated vapor (cm)
- 9 -> Lqint: integrated liquid (mm)
- 10-56 -> profile data at each height (km): 100m spacing to 1 km, 250m spacing above, to 10 km.