The University of Alabama In Huntsville (UAH) RaDAPS Microwave Profile Radiometer (MPR) Documentation for VORTEX-SE 2018

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1.0 Dataset Overview

Rapidly Deployable Atmospheric Profiling System (RaDAPS) is a mobile atmospheric profiling system that contains a 915 MHz wind profiler, a Microwave Profile Radiometer, a ceilometer, Micro Rain Radar, and a mounted surface station.

IOP 1
Time Period: 2018/03/19 1537Z to 2018/03/20 0044Z
Location: 34.547, -85.934

IOP 2A
Time Period: 2018/03/28 0000Z to 2018/03/29 0000Z
Location: Location: 34.725, -86.647 (UAH)

IOP 2B - 2018/03/29 0000Z to 2018/03/30 0000Z
Location: 34.725, -86.647 (UAH)

IOP 3
Time Period: 2018/04/03 2221Z to 2018/04/04 0243Z
Location: 34.655, -87.348

IOP 4 - Did not deploy

UFO 1 - Did not deploy

IOP 5
Time Period: 2018/04/14 1715Z to 2018/04/14 2354Z
Location: 34.725, -86.657 (UAH)

2.0 Instrument Description

RaDAPS utilizes a Radiometrics MP-3000A microwave profiling radiometer which has 35 brightness temperature channels.

3.0 Data Collection and Processing
Data is collected every 1 minute. No data processing has been performed.

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 of file creation
mm   -> Minute of file creation
SS   -> Seconds of file creation
lv2 -> MPR Code
csv -> file extension

The 35-Channel MPR logs data differently than the UAH MoDLS 12-channel MPR. So, please keep this in mind when working with the data. Data files begin with a header that describes each column of data. It then provides units for each variable and procedure file. Grid spacing is 50 m and observations extend to 10 km.

Each line of data is referenced by a certain record type. Record types define what type of data is logged. Refer to table 1 for description of record types. Record types are found in the 3rd column. Radiometrics recommends sorting data by record type to have logical blocks of data.

Sample data is provided below:

 3870,03/19/18 15:37:09,31,03/19/2018 15:37:07, 3443.4657, -8638.7828,   3.4000,Good Fix,2,11, 213.2,1
  3871,03/19/18 15:37:10,201, 288.5300, 91.0400, 981.6800, 288.8700,0,1
  3872,03/19/18 15:37:39,401,Zenith,288.530,288.024,287.635,287.354,287.227,287.142,287.135,286.955,286.935,286.713,286.474,286.265,286.055,285.769,285.541,285.021,284.330,283.805,282.950,282.506,281.950,281.250,280.688,280.019,279.302,278.677,276.913,275.302,273.543,272.015,269.970,267.965,266.230,264.791,263.264,261.904,260.321,258.789,256.881,254.901,252.980,251.503,250.167,248.286,246.618,244.809,243.191,241.568,239.880,238.032,236.188,234.330,232.795,231.193,229.542,228.061,226.406,224.591,1
  3873,03/19/18 15:37:39,402,Zenith, 11.936, 11.976, 12.330, 12.369, 12.201, 12.091, 12.095, 12.245, 12.063, 11.716, 11.460, 11.008, 10.644, 10.404, 9.976, 9.427, 9.196, 8.548, 7.909, 7.231, 6.667, 6.624, 6.535, 6.514, 6.112, 5.738, 4.741, 4.153, 3.556, 2.999, 2.597, 2.279, 1.930, 1.602, 1.263, 0.953, 0.750, 0.655, 0.542, 0.433, 0.339, 0.266, 0.228,

0.157, 0.134, 0.106, 0.090, 0.080, 0.068, 0.055, 0.045, 0.037, 0.032, 0.035, 0.030, 0.012, 0.008, 0.003,1

3874,03/19/18 15:37:39,403,Zenith, 0.019, 0.031, 0.043, 0.042, 0.040, 0.037, 0.035, 0.031, 0.027, 0.023, 0.023, 0.020, 0.022, 0.018, 0.014, 0.014, 0.018, 0.016, 0.012, 0.013, 0.015, 0.017, 0.014, 0.016, 0.015, 0.014, 0.020, 0.020, 0.018, 0.022, 0.017, 0.016, 0.013, 0.014, 0.014, 0.011, 0.011, 0.015, 0.007, 0.005, 0.001, 0.001, 0.000, 0.001, 0.001, 0.009, 0.007, 0.009, 0.009, 0.002, 0.002, 0.005, 0.002, 0.000, 0.001, 0.001, 0.004, 0.000,1

3875,03/19/18 15:37:39,404,Zenith, 91.040, 90.736, 94.008, 95.705, 96.471, 95.759, 95.460, 96.167, 96.366, 96.244, 96.731, 96.213, 96.960, 98.665, 96.626, 96.369, 95.890, 94.485, 93.560, 90.666, 90.133, 89.635, 89.389, 89.537, 89.805, 90.010, 90.425, 95.998, 89.682, 80.493, 72.867, 65.417, 57.095, 50.169, 45.567, 37.541, 32.983, 30.822, 31.034, 26.247, 27.156, 24.543, 24.252, 23.092, 27.418, 24.756, 23.794, 25.067, 25.717, 24.906, 22.982, 20.057, 17.340, 16.464, 14.426, 13.424, 12.323, 11.128,1

3876,03/19/18 15:37:39,301, 2.647, 0.000, 0.000,1

Column

0 -> Record

1 -> Date/Time

2 -> Record Type

Record Type	Description
31	GPS time/date/position Data
201	Surface: Tamb, RH, pressure, Tir, and rain sensor
401	Temperature vector retrieval data record (profile)
402	Vapor Density vector retrieval data record (profile)
403	Liquid Density vector retrieval data record (profile)
404	Relative Humidity vector retrieval data record (profile)

Table 1. Record Type Description

5.0 Data Remarks

Record numbers may skip numbers within the data files. This is because occasionally, data files would be created prior to arriving on site. If this happened, data while the vehicle was in motion was omitted from the file. Therefore, data files only include data when vehicle was completely deployed on site.

At some point before the first IOP, the GPS failed on RaDAPS and was not replaced. Therefore, GPS data within the file cannot be used. Please refer to section 1 for vehicle locations.