

## RAOB CSV data format & example.

```
RAOB/CSV, Example CSV Data Sounding Title
LAT, 25.12, N
LON, 123.45, W
ELEV, 50, M
WMO, 12345
TEMPERATURE, C
MOISTURE, TD
WIND, kts
GPM, MSL
MISSING, -999
SORT, YES
OZONE, mPa
OMEGA, microbars/second
CFRL, % cloud coverage
RAOB/DATA
PRES, TEMP, TD, WIND, SPEED, GPM, OZONE, OMEGA, CFRL, VapDen, LiqWat, WSPEED
1000, 20, 10, 270, 10, 50, 3.21, -0.3, 0, 3.660, 0.000, 1
850, 15, 0, 290, 20, 1400, 3.31, -0.6, 10, 3.580, 0.000, 3
-999, -999, -999, 330, 5, 2500, 2.25, -0.3, -999, -999, -999, 2
700, 10, -5, 90, 10, -999, 6.90, 0.0, 5, 3.331, 0.000, -1
500, -999, -999, 240, 25, -999, 10.11, 0.4, -999, -999, -999, -2
```

### Format description . . .

- 1 Mandatory.** "RAOB/CSV" is a required header.  
Next data field is a general purpose sounding title.
- LAT is optional, but required for cross-sections. Latitude is in "decimal degrees".  
Next data field is "N" or "S" hemisphere.
- LON is optional, but required for cross-sections. Longitude is in "decimal degrees".  
Next data field is "E" or "W" hemisphere.
- ELEV is optional, but highly recommended. Elevation is always meters.
- WMO (5-digit identifier number) is optional. When used, and if this WMO number is listed in the RAOB.STN locator file, then the Lat/Lon & Elev data will automatically be accessed. If this number is listed in the RAOB.MTN file, the associated mountain data will be accessed.
- TEMPERATURE. Optional Kelvin (K) units. Default is Celcius ( C ).
- MOISTURE. Optional dewpoint (TD) or humidity (RH) input. Default is TD
- WIND. Optional wind speed units, "kts" or "m/s". Default is kts  
Note: Add "U/V" after the wind Units to flag data as having U/V wind components.  
When using U/V component winds, change the data header from  
WIND to UU and SPEED to VV as shown below...

```
RAOB/DATA
PRES, TEMP, TD, UU, VV, GPM, OZONE, OMEGA, CFRL, VapDen, LiqWat, WSPEED
1000, 20, 10, 10, 15, 50, 3.21, -0.3, 0, 3.660, 0.000, 1
850, 15, 0, 15, 20, 1400, 3.31, -0.6, 10, 3.580, 0.000, 3
```

When using U/V wind components, RAOB 6.0 (and greater) expects the U component to represent wind from west to east and the V component to represent wind from the south to

north. Note also that prior program versions (RAOB 5.9 and earlier) use reverse sign notation for the U/V components.

- 8 GPM. Optional wind height type, "MSL" or "AGL". Default is MSL (meters)
- 9 MISSING. Optional missing data value. Default is -999
- 10 SORT. Optional data sorting option. Default is YES
- 11 OZONE. Flags the use of this optional data column. Units: nbar or mPa
- 12 OMEGA. Flags the use of this optional data column. Units are always microbars/second.
- 13 CFRL. Flags the use of this optional data column. Units are percentage (%) of cloud cover.
- 14 VapDen. Indicates Vapor Density (radiometric) data. Inclusion is not required.  
Units are always g/m<sup>3</sup>.
- 15 LiqWat. Indicates Liquid Water (radiometric) data. Inclusion is not required.  
Units are always g/m<sup>3</sup>.
- 16 WSPEED. Vertical wind speed (W). Units are the same as Wind Speed units. Upward motion is positive, while downward motion is negative.
- 17 **Mandatory.** "RAOB/DATA" is a required header.
- 18 **Mandatory.** Data column headers are required. The first 6 data columns (PRES, TEMP, TD, WIND, SPEED, GPM) must be present in this exact sequence for each data file. The remaining 5 data items (OZONE, OMEGA, CFRL, VapDen, LiqWat, WSPEED) are optional and can be listed in any sequence or grouping. For example, after the required GPM column header, CFRL and OZONE can be listed if needed.
- 19 **Mandatory.** Data lines. There can be 6 to 12 columns of data (which must correspond to the above header data) . . .

Pressure (mb or hPa). Precision: tenths.  
Temperature (°C). Precision: tenths.  
Moisture. Precision: tenths. TD (°C) or RH (%).  
Wind direction (degrees). Precision: whole degrees.  
Wind speed (kts or m/s). Precision: tenths.  
GPM Wind height (meters, MSL or AGL).  
OZONE (nbar or mPa). Precision: hundredths.  
OMEGA (microbars/second). Precision: tenths.  
CFRL (percentage of cloud cover). Precision: tenths.  
VapDen (g/m<sup>3</sup>). Precision: thousandths.  
LiqWat (g/m<sup>3</sup>). Precision: thousandths.  
Vertical Wind (W) speed (kts or m/s). Precision: tenths.

NOTE: Maximum data levels are currently 10,000.