**Title**: PERiLS 2022 UAH MAPNet RaDAPS Ceilometer Dataset

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## 1.0 Dataset Overview

The UAH Mobile Atmospheric Profiling Network (MAPNet) Rapidly Deployable Profiling System (RaDAPS) ceilometer was deployed for all 4 PERiLS deployments.

> IOP 1
> Time Period: 2022/03/22 1430Z to 2022/03/22 2230Z
> Location: 33.233778, -88.643729 elevation: 90 m
>
> IOP 2
> Time Period: 2022/03/30 1430Z to 2022/03/31 0215Z
> Location: 33.595558, -88.987904 elevation: 87 m
>
> IOP 3
> Time Period: 2022/04/05 1023Z to 2022/04/05 1747Z
> Location: 32.1659, -86.9086 elevation: 126 m
>
> IOP 4
> Time Period: 2022/04/13 1445Z to 2022/04/13 2145Z
> Location: 36.40374,-90.1161 elevation: 86 m

## 2.0 Instrument Description

RaDAPS utilizes Vaisala CL51. The ceilometer is a pulsed laser that operates at 0.905 µm. The beamwidth is 1.06 mrad. The range is from 0 to 15 km, vertical resolution is 10 m and time resolution is 15 s.

More information regarding the RaDAPS ceilometer and the RaDAPS system can be found here: https://www.nsstc.uah.edu/mapnet/facilities/radaps.php

## 3.0 Data Collection and Processing

Data is averaged every 15 seconds in tabular format. No processing has been completed.

**4.0 Data Format**

Data is converted to netCDF format. One file is created for each day operated. The file naming convention is as follows:

clo      -> indicates ceilometer data
YYYY  -> year
MM     -> month
DD      -> day
.nc      -> file extension

The netCDF files include the following data:

| Identifier | Units | Description |
|---|---|---|
| epochTime | seconds | Seconds Since 00 UTC 1970 01 01 |
| height | meters | Height above ground level |
| backscatter | $1*e^5$ srad/km | sensitivity-normalized backscatter |
| CB1 | ft | 1st cloud base height detected |
| CB2 | ft | 2nd cloud base height detected |
| CB3 | ft | 3rd cloud base height detected |
| status | unitless | Status of detection (0-3: # of cloudbases; 4: full obscuration - no base detected; 5: partial obstruction; 6: indeterminate or missing) |
| Status | unitless | Status of detection (0: ok; 1: warning; 2: alarm) |
| scale | unitless | Scaling factor applied to backscatter |
| resolution | meter | Height resolution of backscatter data |
| tilt | degrees | Ceilometer tilt off zenith |
| background | mV | Background light |