

Title: PERiLS 2022 UAH MAPNet MIPS Ceilometer Dataset

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1.0 Dataset Overview

The UAH Mobile Atmospheric Profiling Network (MAPNet) Mobile Integrated Profiling System (MIPS) ceilometer was deployed for all 4 PERiLS deployments.

IOP 1

Time Period: 2022/03/22 1400Z to 2022/03/22 2300Z

Location: 32.82905, -88.48475 elevation: 65 m

IOP 2

Time Period: 2022/03/30 1730Z to 2022/03/31 0132Z

Location: 34.0079941, -88.47614 elevation: 44 m

IOP 3

Time Period: 2022/04/05 0130Z to 2022/04/05 1940Z

Location: 32.498719, -86.424616 elevation: 151 m

IOP 4

Time Period: 2022/04/13 1430Z to 2022/04/13 2208Z

Location: 36.53955, -89.7034077 elevation: 85 m

2.0 Instrument Description

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

More information regarding the MIPS ceilometer and the MIPS system can be found here:

<https://www.nsstc.uah.edu/mapnet/facilities/mips.php>

3.0 Data Collection and Processing

Data is averaged 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	$1 \cdot 10^5$ 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