

**Title:** VORTEX-SE 2020 UAH MoDLS LiDAR 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. It is important to note that the MPR was not operational for this season.

The Lidar was located at the Courtland Airport in Courtland AL for all deployments with the exception of 16 December 2019. When at Courtland, the lidar heading was ~ 90 deg.

**2.0 Instrument Description**

The UAH MoDLS utilizes a Halo Photonics Stream Line Scanning Doppler Lidar. The instrument is mounted on a retractable rack inside a trailer that extends upward, allowing the lidar lens to be located outside.

**3.0 Data Collection and Processing**

No Processing has been completed.

**4.0 Data Format**

Each dataset contains multiple file types and a corresponding netCDF File. The netCDF file compiles all data files of each type for each day. Data contain in the netCDF file includes:

Identifier	Units	Description
decimalTime	UTC Hours	UTC Time in Decimal Hours from 0000 UTC
height	meters	Height AGL
elevation	Deg	Elevation angle above horizon
azimuth	degrees	Azimuth angle
velocity	m/s	Vertical velocity
intensity	unitless	Intensity as computed as SNR+1
backscatter	'm <sup>(-1)</sup> sr <sup>(-1)</sup>	Attenuated Backscatter

NetCDF file naming convention is as follows:

MoDLS\_DWL\_User-YYYYMMDD-HHmm\_Gates.nc where:

MoDLS\_DWL -> Platform

User -> Filetype (User = User defined profile, Wind = Wind Profile, Stare = Vertical Stare)

YYYY -> Year

MM -> Month

DD -> Day

HHmm -> Hours and minutes

Gates -> Number of Gates

The raw data file naming convention is as follows:

- Processed\_Wind\_Profile\_58\_YYYYMMDD\_HHmmSS.hpl
- Stare\_58\_YYYYMMDD\_HH.hpl
- User2\_58\_YYYYMMDD\_HHmmSS.hpl
- VAD\_58\_YYYYMMDD\_HHmmSS.hpl
- Wind\_Profile\_58\_YYYYMMDD\_HHmmSS.hpl
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Where:

Processed -> Halo processed data file

Stare -> Vertical Stare file

User2 -> User defined file settings

VAD -> Vertical Azimuth Display Profile

Wind\_Profile -> Raw Wind Profile file

YYYY -> year

MM -> Month

DD -> Day

HH -> Hour

mm -> Minutes

SS -> seconds

.hpl -> Halo Photonics Lidar file

## 5.0 Data Remarks

NetCDF files combine all files of the same type for each day regardless of difference in azimuth.