

Title: PERiLS 2022 UAH MAPNet Micro Rain Radar (MRR) Dataset

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1.0 Dataset Overview

The UAH Mobile Atmospheric Profiling Network (MAPNet) Micro Rain Radar (MRR) was deployed with RaDAPS for 3 of the 4 PERiLS deployments. The MRR was deployed with the UAH MoDLS for IOP 1 and paired with a parsivel disdrometer.

IOP 1: Located with MoDLS

Time Period: 2022/03/22 1350Z to 2022/03/22 2200Z

Location: 32.799110,-88.162043

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

UAH Utilizes the Metek Micro Rain Radar. The radar can be removed and added to other platforms depending on the needs and configuration.

More information regarding the MRR and RaDAPS system can be found here:

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

3.0 Data Collection and Processing

Data is collected and averaged over 30 seconds. No processing has been completed. Raw spectral moments are recorded by the radar. These files can be provided upon request.

4.0 Data Format

The UAH MRR records both averaged profiles and raw radar spectra. Spectra data are provided in raw file format when available. Averaged data are provided in netCDF format. Filename convention is MRR_YYYYMMDD.nc where:

YYYY -> year

MM -> month

DD -> day

The file header information is provided below:

Identifier	Meaning	Unit
MRR\ rangegate	height	m
MRR\ spectralclass	Bin # (63 bins total)	none
MRR_H	height	m
MRR_TF	Transfer Function	none
MRR_F	Spectral Reflectivity	dB
MRR_D	Drop Densities	$m^{-3}mm^{-1}$
MRR_N	Number	#
MRR_K	Unused	NA
MRR_Capital_Z	Radar Reflectivity	dBZ
MRR_Small_Z	Attenuated Radar Reflectivity	dBZ
MRR_PIA	Path Integrated Attenuation	dB
MRR_RR	Rain Rate	mm/h
MRR_LWC	Liquid Water Content	gm^{-3}
MRR_W	Fall Velocity	m/s
AVE	Averaging time if applicable	Seconds
STP	Height resolution	meters
ASL	Height of ground level above sea level	meters

