

TORUS_2022: MRMS Merged Base Reflectivity QC Data

Author:

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1.0 Data Set Description

Continental United States (CONUS) Multi-Radar, Multi-Sensor (MRMS) merged base reflectivity data from the NEXRAD radar network for the TORUS_2022 campaign.

Data Version: 1.0

Release Date: 13 July 2022

Data Status: Final

Time period: 15 May to 15 June 2022

Location: Contiguous United States

Data Frequency: 2 minute

Data source: NOAA/NSSL

Data set restrictions: None

2.0 Instrument Description

Data are based on the WSR-88D radar network over the contiguous United States.

3.0 Data Collection and Processing

Data were collected via the NOAA/NSSL MRMS web site.

The product is generated via a 2D mosaicking of one tilt (the lowest) of base reflectivity from all radars.

The spatial resolution is 0.01° Latitude (~1.11 km) x 0.01° Longitude (~1.01 km at 25°N and 0.73 km at 49°N)

4.0 Data Format

The data are in hourly tar files with the file naming convention:

MRMS_MergedBaseReflectivityQC_YYYYMMDDHH.tar

The tar files contain GRIB2 data files every two minutes with names like:

MRMS_MergedBaseReflectivityQC_00.50_YYYYMMDD-HHmmSS.grib2.gz

where:

MRMS_MergedBaseReflectivityQC_00.50: the dataset
YYYYMMDD - is the UTC year, month, day of month
HHmmSS - is the UTC time
grib2.gz: is the data format, gzip compressed GRIB2 data

GRIB (General Regularly-distributed Information in Binary form) is the name of a data representation form for general regularly-distributed information in binary. Data encoded in GRIB consists of a continuous bit-stream made of a sequence of octets (1 octet = 8 bits). There are a number of utilities that can decode or display GRIB2 data. GRIB is described fully in the WMO Manual on Codes International Codes Volume 1.2 which at the time of this document (13 July 2022) was available from the WMO here:

https://library.wmo.int/?lvl=notice_display&id=10684#.Ys8Ts3bMJJaQ

5.0 Data Remarks

Strengths

Like all MRMS products, the use of multiple radars is more robust than single-site radar alone. It provides faster updates and helps the forecaster integrate data from multiple radars. It also compensates for cone-of-silence, beam broadening at far ranges, and terrain blockage.

Limitations

Bright band contamination is not removed.

Spatial resolution of 1 km x 1 km is not as good as super-resolution data from nearby single-site radar.

Quality Control

Quality controlled to remove non-meteorological echoes.

6.0 References

None.