

# **TORUS\_2022: GOES-16 Geostationary Lightning Mapper Lightning Cluster-Filter Algorithm Data**

## **Author:**

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## **1.0 Data Set Description**

Lightning Cluster-Filter Algorithm (LCFA) data from the Geostationary Lightning Mapper (GLM) that is onboard the GOES-16 satellite 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: 20 second

Data source: NCAR/EOL

Data set restrictions: None

## **2.0 Instrument Description**

The Geostationary Lightning Mapper is a single-channel, near-infrared optical transient detector that can detect the momentary changes in an optical scene, indicating the presence of lightning. GLM measures total lightning (in-cloud, cloud-to-cloud and cloud-to-ground) activity continuously over the Americas and adjacent ocean regions with near-uniform spatial resolution of approximately 10 km.

## **3.0 Data Collection and Processing**

Data were collected via the NCAR GOES satellite dish. No additional processing was performed. Additional information on GOES-16 data can be found in the “GOES R SERIES PRODUCT DEFINITION AND USERS’ GUIDE” that is included with this dataset. Information on the LCFA can be found in the “GLM Lightning Cluster-Filter Algorithm” document that is included with this dataset.

## **4.0 Data Format**

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

OR\_GLM-L2\_g16\_LCFA\_YYYYMMDD.tar.gz

The tar files contain NetCDF data files for every 20 seconds using the file naming convention:

OR\_GLM-L2-LCFA\_G16\_s20220012350200\_e20220012350400\_c20220012350426.nc

where:

OR: Operational system real-time data

GLM: is GLM Sensor

L2: is processing level, L2 data

LCFA: is the LCFA data.

G16: is satellite id for GOES-16

s20220012350200: is start of scan time

4 digit year

3 digit day of year

2 digit hour

2 digit minute

2 digit second

1 digit tenth of second

e20220012350400: is end of scan time

c20220012350426: is netCDF4 file creation time

.nc is netCDF file extension

NetCDF (Network Common Data Form) is a set of software libraries and machine-independent data formats that support the creation, access, and sharing of array-oriented scientific data.

There are a large number of commercial and open source software packages that can be used to manipulate and display NetCDF files including some summarized here:

<https://www.unidata.ucar.edu/software/netcdf/software.html>

## **5.0 Data Remarks**

These are the real time data from the GOES satellite retrieved by the NCAR GOES satellite receiver and no additional quality control has been performed beyond that done by NOAA.

## **6.0 References**

None.