GOES-16 Geostationary Lightning Mapper Lightning Cluster-Filter Algorithm Data

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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 PERiLS_2022 campaign.

Data Version: 1.0
Release Date: 01 June 2022
Data Status: Final
Time period: March and April 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
LFCA: 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.