TORUS_2022: GOES-16 Advanced Baseline Imager (ABI) Mesoscale Sector Data

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1.0 Data Set Description

Mesoscale Domain Sector (MDS) data from the Advanced Baseline Imager (ABI) data 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: 1 minute
Data source: NCAR/EOL
Data set restrictions: None

2.0 Instrument Description

Data are from the Advanced Baseline Imager (ABI) which is onboard the GOES-16 geostationary satellite. The ABI is the primary instrument on the GOES-R Series for imaging Earth's weather, oceans and environment. ABI views the Earth with 16 different spectral bands, including two visible channels, four near-infrared channels, and ten infrared channels.

ABI Band	Central Wavelength (μm)	Type	Nickname	Best Spatial Resolution (km)
1	0.47	Visible	Blue	1
2	0.64	Visible	Red	0.5
3	0.86	Near-Infrared	Veggie	1
4	1.37	Near-Infrared	Cirrus	2
5	1.6	Near-Infrared	Snow/Ice	1
6	2.2	Near-Infrared	Cloud particle size	2
7	3.9	Infrared	Shortwave window	2

8	6.2	Infrared	Upper-level water vapor	2
9	6.9	Infrared	Midlevel water vapor	2
10	7.3	Infrared	Lower-level water vapor	2
11	8.4	Infrared	Cloud-top phase	2
12	9.6	Infrared	Ozone	2
13	10.3	Infrared	"Clean" longwave window	2
14	11.2	Infrared	Longwave window	2
15	12.3	Infrared	"Dirty" longwave window	2
16	13.3	Infrared	CO_2 longwave	2

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.

4.0 Data Format

The data are in hourly tar files with the file naming convention:
OR_ABI-L1b_g16_meso_YYYYMMDD_HH.tar.gz

The tar files contain NetCDF data files for each of the GOES-16 channels every 5 minutes using the file naming convention:
OR_ABI-L1b-RadM2-M6C16_G16_s20220010043551_e20220010044020_c20220010044065.nc

where:
OR: Operational system real-time data
ABI: is ABI Sensor
L1b: is processing level, L1b data
Rad: is radiances.
M2 is M1 and M2 is Mesoscale region 1 and region 2 (usually every minute each)
M6: is operational scan mode 6 (the 10-minute flex mode)
C16: is channel or band 16, There are sixteen bands, 01-16

G16: is satellite id for GOES-16
s20220010043551: 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
e20220010044020: is end of scan time
c20220010044065: 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.