Carbon Cycle Science Data and Services
at the Goddard Earth Sciences Data Information and Services Center (GES DISC)

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Summary
The Goddard Earth Sciences Data Information and Services Center (GES DISC) archives and distributes a number of observational and model carbon cycle science data sets. We also provide services that facilitate data discovery, intercomparison, and visualization of these heterogeneous datasets for both research and applications users, such as subsetting, format conversion, How-To documentation, and the Help Desk.

Carbon Monitoring System (CMS) Data at the GES DISC
https://disc.gsfc.nasa.gov

Additional Missions with Carbon Cycle Science Data
In addition to CMS, the GES DISC hosts carbon cycle science data from the following missions:
- Atmospheric CO2 Observations from Space (ACOS) data derived from the GOSAT-TANSO instrument
- Orbiting Carbon Observatory (OCO-2)
- Atmospheric Infrared Sounder (AIRS)
- Microwave Limb Sounder (MLS)
- Upper Atmosphere Research Satellite (UARS)
- TROPOspheric Monitoring Instrument (TROPOMI)
- Cross Track Infrared Sounder (CrIS)
- Modern-Era Retrospective analysis for Research and Applications version 2 (MERRA-2)

Future Datasets
- Geostationary Carbon Observatory (GeoCarb)
- OCO-3 mission
- Additional CMS datasets

Help and Social Media
- Help Desk
- Twitter
- YouTube
- Earthdata Forum

The Earthdata Search Client
https://search.earthdata.nasa.gov/
The Earthdata Search Client enables searches for NASA Earth science data from all data centers.

Searching for Data at the GES DISC

Dataset Landing Pages
The dataset landing page for each dataset has information about the data product, instructions on how to cite the data, links to related documentation, software, and data access.

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Services
Some data sets have additional services such as format conversion, spatial, temporal, or variable subsetting, and visualization. We also have a library of How-To documents, and we record distribution metrics.

Giovanni
Plots of Methane and Carbon Dioxide data from AIRS created with Giovanni.

Subsetting and “How-To” Documentation
Above: The left panel shows xCO2 for two OCO-2 orbits that passed within a 100 km of the Carr Fire (outlined in red). The right panel shows a plot of the “PointRadius” variable that is added to files that are subsetted within a user defined radius around a user specified location. How to create similar subsets, as well as other data operations, are described in GES DISC How-To documents.

Level 2 Subsetter Metrics
This figure shows that subsetting level 2 data enables much smaller Downloads (IN51A-03).

Data Distribution Metrics
We collect metrics on the number of user downloads for all data sets archived at the GES DISC. The figure at right shows the domain of unique users of the CMS data products archived at the GES DISC.