

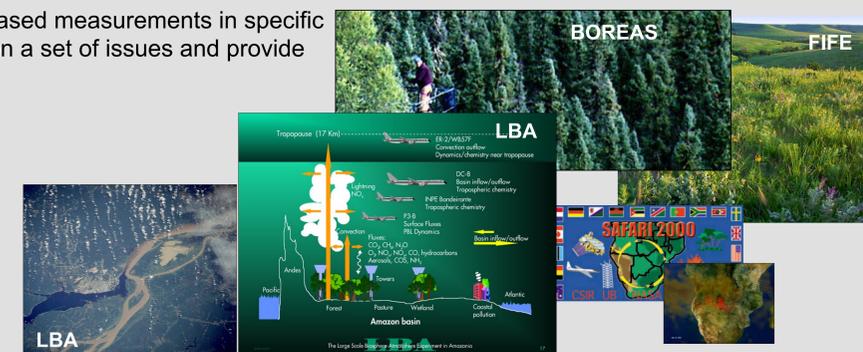
Introduction

The NASA-funded Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC)¹ archives and distributes terrestrial biogeochemical dynamics data collected as part of the NASA's Earth Observing System (EOS) Program. The ORNL DAAC data are a fairly comprehensive archive of terrestrial biogeochemistry and ecological dynamics observations and models; this archive is designed to facilitate research, education, and decision-making in support of NASA's Earth science. The DAAC's >1,100 data sets are primarily from ground-based field investigations and augmented by data collected through remote-sensing techniques. The ORNL DAAC also provides several tools and services for accessing its data. <http://daac.ornl.gov>

Field Campaigns

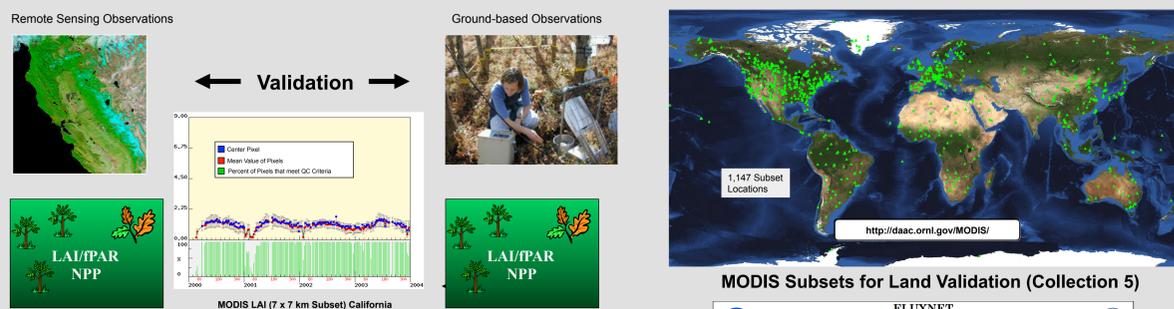
Field campaigns combine ground-, aircraft-, and satellite-based measurements in specific ecosystems over multi-year periods. These studies focus on a set of issues and provide an integrated understanding of biogeochemical dynamics.

- BOREAS (301 data sets)
- Carbon Monitoring Systems (3 data sets)
- LBA (261 data sets)
- SAFARI 2000 (109 data sets)
- OTTER (14 data sets)
- FIFE (114 data sets)
- Superior National Forest (37 data sets)
- North American Carbon Program (24 data sets)



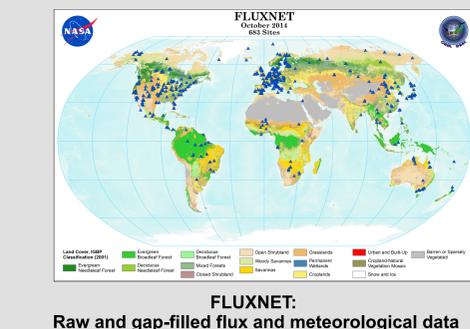
Land Validation

The ORNL DAAC supports the validation of remotely-sensed measurements by compiling ground-based observations, such as Leaf Area Index (LAI), vegetation indices, albedo, and Net Primary Productivity (NPP) for comparison with satellite-derived products.



Evaluate Uncertainties of Remote Sensing Products

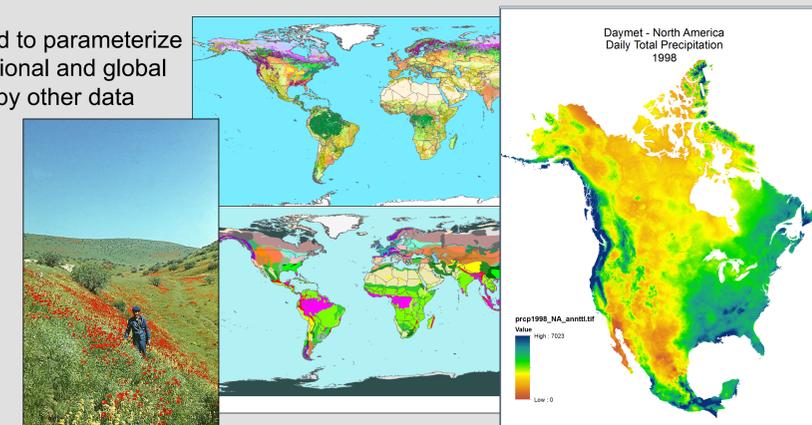
- BigFoot Project (6 data sets)
- EOS Land Validation (4 data sets)
- FLUXNET (>650 flux towers, >1,000 site-years of data)
- MODIS Land Product Subsets (17 MODIS products for >1,100 field sites)
- Global Tool for MODIS Subsets (user selected areas and time periods for 21 land products)



Regional and Global Data

Regional and global biogeochemical dynamics data can be used to parameterize and validate terrestrial ecosystem models. The DAAC's 267 regional and global data sets are supplemented with more than 560 data sets held by other data centers that are discoverable from the ORNL DAAC.

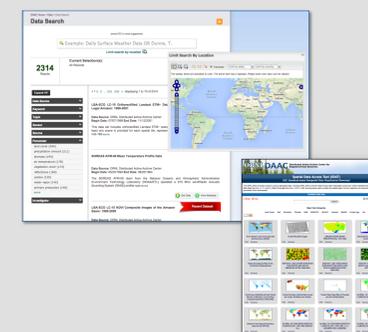
- Vegetation, Land Use, Land Cover Change
- Net Primary Production
- Climate
- Hydrology
- Soil
- Daymet
- ISLSCP II, VEMAP and MstMIP Model Inputs and Outputs



Data Access

The ORNL DAAC provides several tools and services for data access, analysis, and visualization.

- Customized Data Subsetting and Visualization
MODIS Land Product Subsets
- Spatial Data Access Tool (SDAT) – Data Visualization and Download
OGC-based Spatial Data Access and Visualization
- THREDDS (Thematic Real-time Environmental Distributed Data Services)
Automated data discovery and download
- Advanced Search – Mercury Metadata Search Tool
Search ORNL DAAC and related data



Tool Name	Data	Search	Visualization	Subsetting	Analysis	Services
Mercury Metadata Search	Metadata	✓				✓
MODIS Field Site	Gridded	✓	✓	✓		
MODIS Global	Point		✓	✓		
MODIS Web Service	Point			✓		✓
Spatial Data Access	Gridded		✓			✓
WebGIS	Point		✓		✓	
THREDDS	Point	✓		✓		

<http://daac.ornl.gov/tools.shtml>

Access to ORNL DAAC data through network partners

NASA EOSDIS EarthData discovery tool
<https://search.earthdata.nasa.gov/>

DataONE Search Interface
An NSF-funded distributed search framework
<https://cn.dataone.org/one/mercury/>



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Model Products

The ORNL DAAC archives numerical models, including source code, inputs, and outputs. These archived models provide the methodological detail of published modeling results, enable the synthesis of results across modeling studies, and allow the investigation of new hypotheses. The following models have been archived (15 products total):

- Ecosystem Demography Model
- IBIS
- BIOME-BGC
- LSM
- PNeT
- Century
- MAPSS

