



The ORNL DAAC: A Source for Biogeochemical Data and Models¹



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Introduction

The Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC) archives and distributes terrestrial biogeochemical dynamics data collected as part of the NASA's Earth Observing System (EOS) Program. The DAAC's ~800 data sets are primarily from ground-based field investigations and augmented by data collected through remote-sensing techniques. The types of data held by the DAAC are Field Campaign, Land Validation, Regional and Global Data, and Model Products.

These data are used primarily for:

- Conducting regional and global ecosystem assessments
- Understanding terrestrial biogeochemical processes
- Developing and validating processed-based biogeochemical models
- Integrating process understanding with remote sensing observations
- Validating remote sensing products and ecosystem models

Field Campaigns

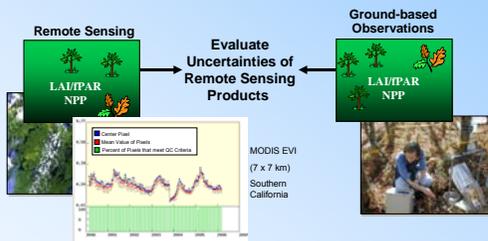
Field campaigns combine ground-, aircraft-, and satellite-based measurements of biogeochemical features in specific ecosystems over multi-year periods. These studies focus on a particular issue or set of issues and are crucial to providing an integrated understanding of biogeochemical dynamics that can be extended across spatial and temporal scales.

- BOREAS (309 data sets)
- LBA (26 data sets archived to date)
- SAFARI 2000 (109 data sets)
- OTTER (15 data sets)
- FIFE (115 data sets)
- SNF (37 data sets)
- North American Carbon Program (underway)



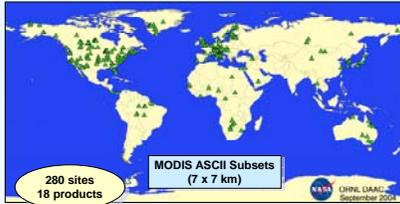
Land Validation

The ORNL DAAC supports the validation of remotely-sensed measurements by compiling data, such as leaf area index (LAI), vegetation indices, albedo, and net primary productivity (NPP), from global test sites for comparison with satellite-derived products.

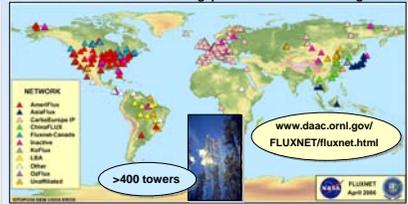


- BigFoot Project (4 data sets)
- Land Validation (62 data sets registered in Mercury)
- FLUXNET (>400 flux towers, >500 site-years of data)
- MODIS ASCII Subsets (18 MODIS products for 280 field sites)
- MODIS Subsets for North America (user selected areas and time periods for 18 land products)

Land Validation



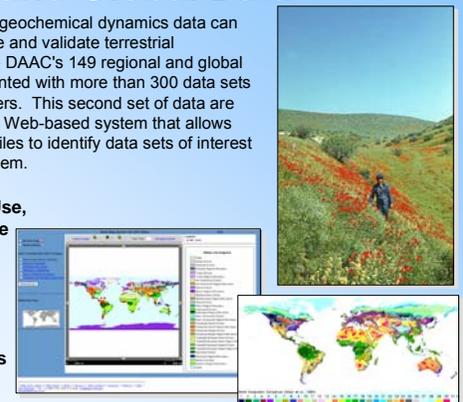
FLUXNET Sites: Raw and gap-filled flux and meteorological data



Regional and Global Data

Regional and global biogeochemical dynamics data can be used to parameterize and validate terrestrial ecosystem models. The DAAC's 149 regional and global data sets are supplemented with more than 300 data sets held by other data centers. This second set of data are registered in Mercury, a Web-based system that allows searching of metadata files to identify data sets of interest and direct the user to them.

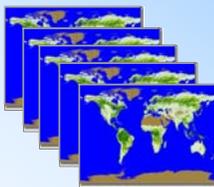
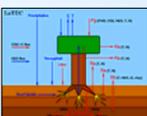
- Vegetation, Land Use, Land Cover Change
- Climate
- Hydrology
- Soil
- Gas Exchange
- Networks
- Human Dimensions
- Models



Model Products

The ORNL DAAC archives numerical models, including source code, inputs, and outputs. Archived model products provide the methodological detail of numerical modeling studies to recreate published modeling results, enabling the synthesis of results across modeling studies and the investigation of new hypotheses. The following models have been archived:

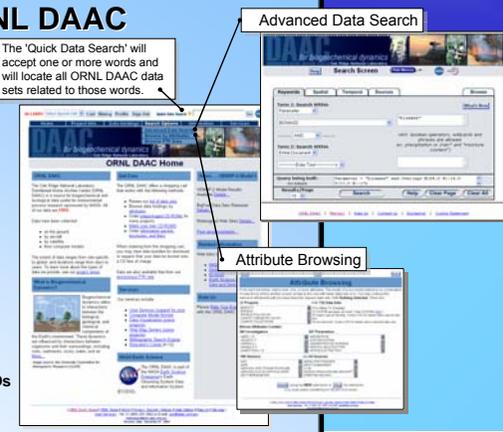
- IBIS
- BIOME-BGC
- LSM
- PNeT
- Century



Accessing Data at the ORNL DAAC

- Web-based interface (<http://www.daac.ornl.gov>)
 - Quick Data Search
 - Advanced Data Search: fielded keywords, spatial, temporal, several metadata sources
 - Browse by Attributes: parameters, sensors, sources, investigators, keywords
 - Browse by Project
- Web Map Servers
- Anonymous FTP
- EOSDIS Data Gateway for simultaneous searching all DAACs (<http://eos.nasa.gov/fmswelcome>)
- User Services Office (865-241-3952; ornldaac@ornl.gov)
 - Multiple distribution media, including custom CDs
 - Outreach and advertisement

The 'Quick Data Search' will accept one or more words and will locate all ORNL DAAC data sets related to those words.



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Learn more about the ORNL DAAC at <http://www.daac.ornl.gov>

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