

The ORNL Distributed Active Archive Center (DAAC) is a NASA-sponsored source for biogeochemical data and services useful in environmental research. The ORNL DAAC currently archives and distributes more than 1,000 products categorized as Field Campaign, Land Validation, Regional and Global, or Model Archive.

Please visit us online at <http://daac.ornl.gov> for a comprehensive description of data, and tools available from the ORNL DAAC. Archived news can be found at <http://daac.ornl.gov/news.shtml>.

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<http://www.nasa.gov>

# ORNL DAAC News

## Tools Issue

### Spatial Data Access Tool (SDAT)

The Spatial Data Access Tool (SDAT) developed at the Oak Ridge National Laboratory Distributed Active Archive Center (ORNL DAAC) and the Modeling and Synthesis Thematic Data Center (MAST-DC), provides visualization and access to a variety of biophysical, vegetation, elevation, ecosystem, climate, soil, and model data sets.

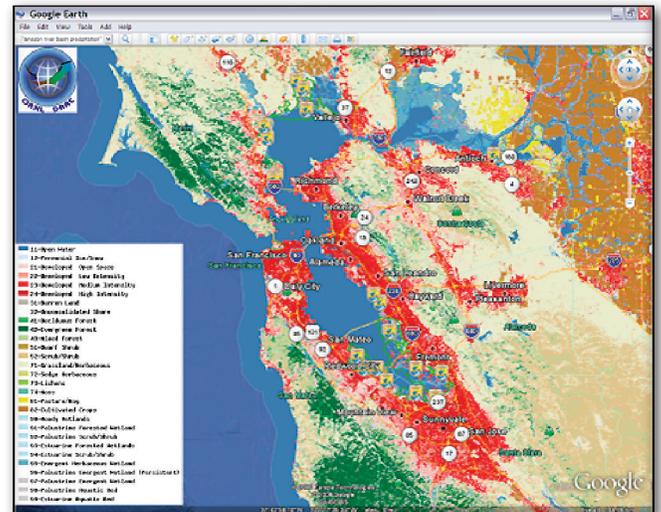
Using Open Geospatial Consortium (OGC) services and open source software, this web-based tool offers users several methods for exploring biogeochemical data.

With SDAT, users can visualize data sets in Google Earth, explore metadata, or customize and download data by specifying projection, resolution, format, spatial extent, time period, band(s), or interpolation method.

The ORNL DAAC offers numerous data sets including land cover, biophysical parameters, elevation, and selected ORNL DAAC archived data through SDAT. KMZ files are also provided for data visualization in Google Earth.

SDAT's web-based user interface includes three categories of web pages. A Main Page, which provides a list of all the available data sets with preview images, a keyword search, and links to metadata and KMZ files. A Data Set Page listing available data granules contained in a data set, and brief spatial and temporal metadata. And a Data Granule Page with rich file-level metadata information, an Open Layers-based interactive map widget, and WCS-based options for on-demand data access.

For more on SDAT, please visit our page at [http://daac.ornl.gov/spatial\\_data\\_access.shtml](http://daac.ornl.gov/spatial_data_access.shtml).



The ORNL DAAC's SDAT offers KMZ files for each data set giving users rich and valuable background maps (high resolution satellite images, roads, landmarks, etc.)

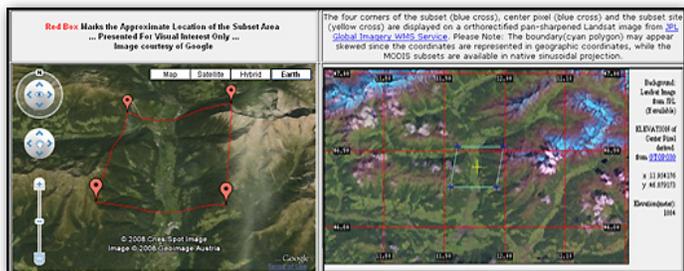


# MODIS Land Product Subsets for Globe

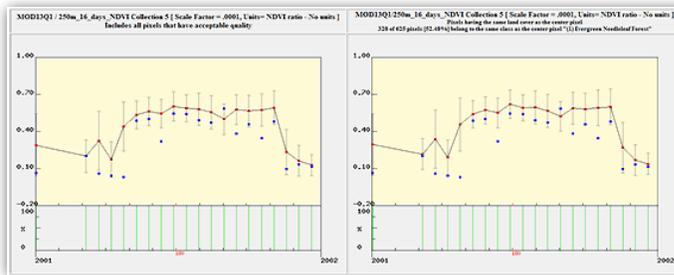
Web Site: <http://daac.ornl.gov/modisglobal>

This web-based interface facilitates the creation of subsets 1 x 1 km up to 201 x 201 km of MODIS Land Products for user-selected areas worldwide and for user-selected time periods during the MODIS record. Many visualization and download options are also provided.

- User selects MODIS Land Product, center coordinates or site, areal extent, and period of interest
- Processing of request takes 10–60 minutes for most products
- User receives an email with URL to download data files and view graphics.



The tool provides time series plots, color coded image display for individual composite periods, ASCII files of the pixel values along with quality information, average and standard deviations of the pixels for the area selected, and a GeoTIFF file that can be imported directly into GIS software. The tool provides MODIS Land cover data for the subset region. Hyperlinks to maps and documentation are provided.

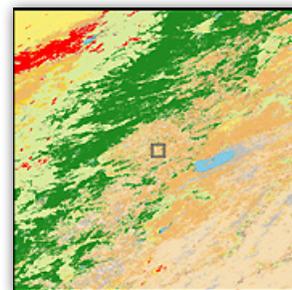


MODIS Vegetation Index for area in Yosemite National Park, CA.

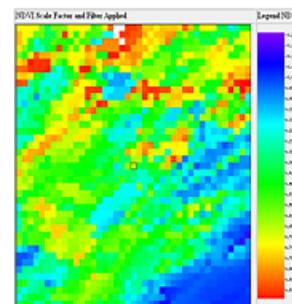
The tool provides MODIS land cover subsets for the area requested by the user.

### Data Download Options

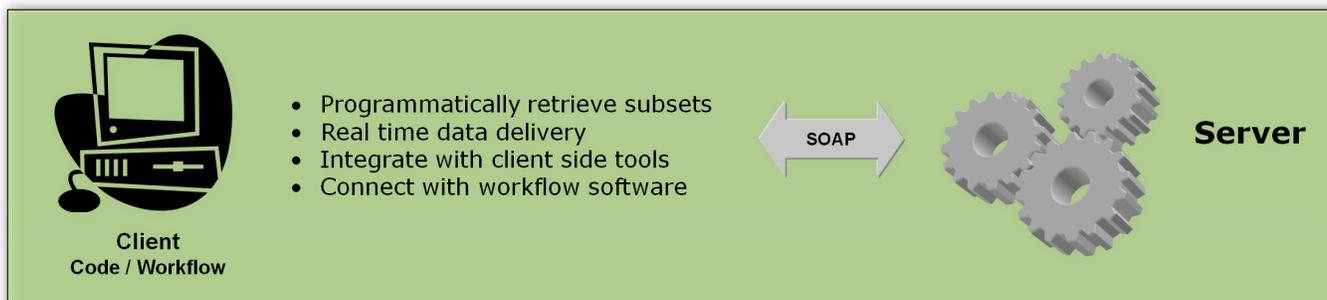
- Comma Separated Value (CSV) ASCII file
- QC filtered ASCII file
- GeoTIFF GIS image file with reprojection capability
- Statistical data of the subset



Vegetation Index, Visualization of individual composite period. The tool provides a color coded grid display of the subset region.



MODIS Web Service: <http://daac.ornl.gov/modiswebservice>



# ORNL DAAC WebGIS

The ORNL DAAC WebGIS is a tool that allows users to browse, query, and display spatial data in a standard web browser.

Based on ESRI ArcIMS and Open Source Mapserver technology, the tool enables users to view various biogeochemical related map layers, zoom in on areas of interest, and query multiple sites.

The ORNL DAAC WebGIS offers a number of land cover, biophysical, elevation, geopolitical layers, field sites (MODIS, FLUXNET, NPP) and OGC data sets from USGS and Microsoft. Users can interrogate map features and extract and download selected map features including shape files.



For more on this tool, please visit <http://daac.ornl.gov/mapserver.shtml>.

## 27 Data Sets Published

In Autumn of this year, the ORNL DAAC archived and published 27 data sets.

4 of these data sets were added to our archive of Regional and Global Data. Regional and global biogeochemical dynamics data can be used to improve our understanding of the structure and function of various ecosystems; to enable prediction across spatial and temporal scales, and to parameterize and validate terrestrial ecosystem models.

- 2 data sets were added to The International Satellite Land-Surface Climatology Project (ISLSCP):
  - ISLSCP II GlobalView: Atmospheric CO<sub>2</sub> Concentrations
  - ISLSCP II GlobalView: Atmospheric Methane Concentrations
- 1 data set was added to our Hydroclimatology Collection:
  - Water Quality and Spectral Reflectance, Peace-Athabasca Delta, Canada, 2010 - 2011
- And 1 data set was added to Vegetation Collections:
  - A Global Database of Carbon and Nutrient Concentrations of Green and Senesced Leaves

23 of our recent data sets came from The Large-Scale Biosphere-Atmosphere Experiment in Amazonia (LBA). An international research initiative conducted from 1995-2005 and led by Brazil, the LBA Project encompasses several scientific disciplines, or components, including Carbon Dynamics, Nutrient Dynamics and Surface Water Chemistry, Trace Gas and Aerosol Fluxes, and Land Cover and Land Use Change.

- Seven Carbon Dynamics data sets:
  - LBA-ECO CD-02 C and N Isotopes in Leaves and Atmospheric CO<sub>2</sub>, Amazonas, Brazil
  - LBA-ECO CD-02 Leaf Water Potential, Forest and Pasture Sites, Para, Brazil: 2000-2001
  - LBA-ECO CD-04 LAI Estimated from Photos, km 83 Tower Site, Tapajos National Forest
  - LBA-ECO CD06 Carbon Sources and Respiration Rates in Rivers in Amazonas and Acre: 2005-2006.

- LBA-ECO CD-06 Isotopic Composition of Carbon Fractions, Amazon Basin River Water.
- LBA-ECO CD-06 Water Balance of the Ji-Parana River Basin, Brazil: 1995-1996.
- LBA-ECO CD-09 Soil and Vegetation Characteristics, Tapajos National Forest, Brazil
- Five Land Cover / Land Use data sets:
  - LBA-ECO LC-07 Aquatic Macrophyte Biomass, Monte Alegre Lake, Para, Brazil: 2003-2004.
  - LBA-ECO LC-07 Water Quality, CO<sub>2</sub>, Chlorophyll, Lago Curuai, Para, Brazil: 2003-2004
  - LBA-ECO LC-08 Ecosystem Demography Model Estimated C, NPP, and Biomass for Amazonia
  - LBA-ECO LC-09 Land Cover Transitions Maps for Study Sites in Para, Brazil: 1970-2001
  - LBA-ECO LC-22 Post-deforestation Land Use, Mato Grosso, Brazil: 2001-2005
- Six Nutrient Dynamics data sets:
  - LBA-ECO ND-01 Forest and Pasture Soil and Grass Analyses, Rondonia, Brazil: 2003-2004.
  - LBA-ECO ND-06 Land Use Effects on Soil Nutrients: A Review of Studies 1950-2001.
  - LBA-ECO ND-07 Carbon and Nitrogen in Cerrado Plants and Soils, Brasilia: 1999-2000.
  - LBA-ECO ND-07 Nitric Oxide Flux from Cerrado Soils, Brasilia, Brazil: 2004.
  - LBA-ECO ND-30 Nutrient Analysis and Gas Fluxes, Forest Chronosequences, Para, Brazil: 2000-2005.
  - LBA-ECO ND-30 Water Chemistry, Rainfall Exclusion, km 67, Tapajos National Forest.
- Five Trace Gases data sets:
  - LBA-ECO TG-03 AERONET Aerosol Optical Thickness Measurements, Brazil: 1993-2005.
  - LBA-ECO TG-07 Long-Term Soil Gas Flux and Root Mortality, Tapajos National Forest.
  - LBA-ECO TG-07 Seasonal Trace Gas Profiles In Brazilian Amazon Forests: 2004-2005
  - LBA-ECO TG-08 Soil Gas Flux after Forest and Pasture Fertilization, Rondonia, Brazil
  - LBA-ECO TG-08 Trace Gas Fluxes from Wetted Forest and Pasture Soils, Rondonia, Brazil

For more on data holdings at the ORNL DAAC visit us at <http://daac.ornl.gov>.



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Oak Ridge, TN 37831-6407



The Data Observation Network for Earth (DataONE) is supported by the National Science

Foundation and was created in an effort to organize and provide access to vast amounts of environmental science data from around the world. Consisting of a collaboration of ten institutions, Oak Ridge National Laboratory (ORNL) is a partner in this effort.

The ORNL DAAC is one of the initial six Member Nodes whose data resources are indexed and made available by DataONE. Other Member Nodes include the U.S. Geological Survey, the Ecological Society of America, the National Science Foundation's Long Term Ecological Research Network, South Africa National Parks, the Knowledge Network for Biocomplexity, and the Partnership for Interdisciplinary Studies of Coastal Oceans.

Access to the data resources from all these Member Nodes is available via ONEMercury, <http://www.dataone.org/find-data>, a search tool based in part on Mercury, developed at ORNL.

The ORNL DAAC's Robert Cook, Giri Palinasamy, Yaxing Wei, and Ranjeet Devarakonda are members of the DataONE team.

Visit the DataONE web site, <http://www.dataone.org>, for more information about community activities and tools and services.

## ACCESSING ORNL DAAC DATA

Web-based interface:

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

Advanced data search:

<http://mercury.ornl.gov/ornldaac/>

Anonymous FTP browsing:

<ftp://daac.ornl.gov/data/>

DAAC WebGIS:

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

LBA Project:

<http://daac.ornl.gov/LBA/lba.shtml>

DAAC FLUXNET Project:

<http://daac.ornl.gov/FLUXNET/fluxnet.shtml>

DAAC SDAT:

<http://webmap.ornl.gov/wcsdown>

All data from the DAAC are free and are available electronically.

National Aeronautics and Space Administration:

<http://www.nasa.gov>