National Aeronautics and Space Administration

ORNL DAAC Distributed Active Archive Center for
Biogeochemical Dynamics

SUMMER 2011

The ORNL Distributed Active Archive Center (DAAC) is a NASA-sponsored source for biogeochemical and ecological data and services useful in environmental research. The ORNL DAAC currently archives and distributes greater than 900 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*.
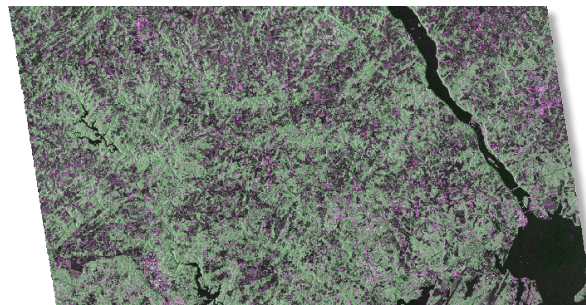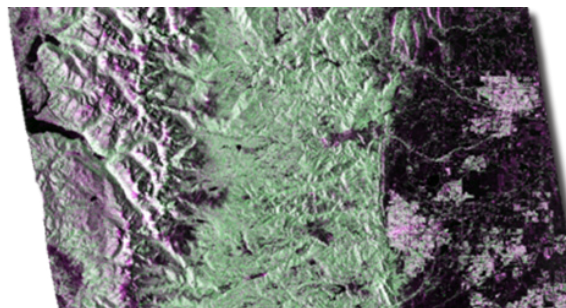
http://www.nasa.gov

ORNL DAAC News

Synthetic Aperture Radar (SAR) subsets

The ORNL DAAC is pleased to announce the release of a new compilation of Synthetic Aperture Radar (SAR) subsets for selected field sites:

SAR SUBSETS FOR SELECTED FIELD SITES, 2007-2010. This data set provides Synthetic Aperture Radar (SAR) images for 42 selected sites from various terrestrial ecology and meteorological monitoring networks including FLUXNET, Ameriflux, Long Term Ecological Research (LTER), and the Greenland Climate Network (GC-Net). There is at least one image for all 42 sites, and six sites have multiple images. The subsets are provided in collaboration with Alaska Satellite Facility (ASF) and National Snow and Ice Data Center (NSIDC).

This data set is viewable and downloadable in the Spatial Data Access Tool.

The source of the data is the PALSAR (Phased Array type L-band Synthetic Aperture Radar) sensor flying on the Advanced Land Observing Satellite (ALOS). The PALSAR data are in dual polarization, HH+HV, mode. Bands HH (red and blue) and Band-HV (green) can be used to visualize land use patterns. The resulting images show vegetation in shades of green and barren land in shades of pink or purple.

The images are subset scenes of approximately 60 km x 70 km that include an established site in one of the monitoring networks. For additional information, and a tutorial on these subsets, please visit: *http://daac.ornl.gov//LAND_VAL/sar.shtml*.

SAR Image: Baltimore Ecosystem study (BES1), 2009-07-28

SAR Image: Niwot Ridge (Long term Ecological Research Site in Colorado), 2010-12-14

Eleven LBA Data Sets Published

Eleven data sets were recently published associated with the LBA-ECO component of the Large Scale Biosphere-Atmosphere Experiment in Amazonia (LBA), an international research initiative under the leadership of Brazil.

Seven data sets from the Carbon Dynamics (CD-02, CD-08, and CD-10) teams collected data on leaf area index, gas flux, and oxygen and carbon isotope ratios, from plants in pastures and forests in Para, Brazil, from the troposphere over Amazonia, radiocarbon dating of tree age and growth rates from sites in Amazonas, Acre, and Para, Brazil, and meteorological data from the Maxaranguape Atmospheric Observatory in Rio Grande Do Norte, Brazil.
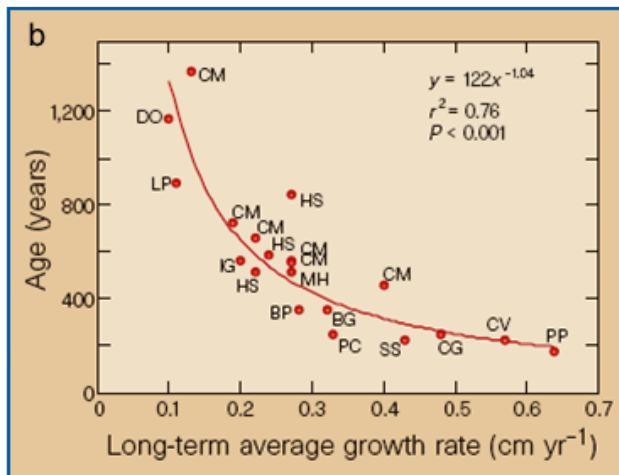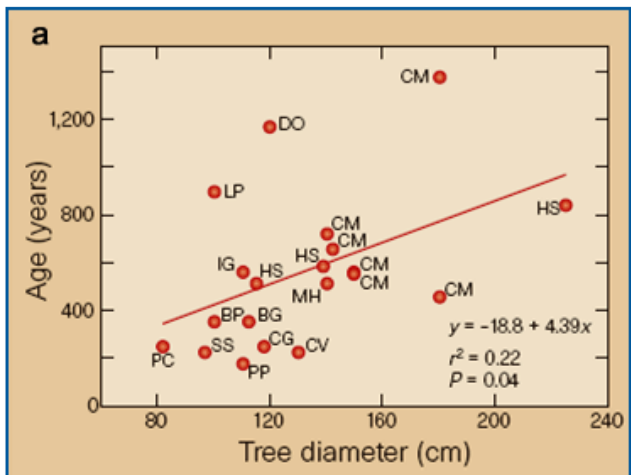

Radiocarbon dates for 20 central Amazon trees. Species are: BG, Bagassa guianansis; BP, Brosimum parinarioides; CM, Cariniana micrantha; CG, Caryocar glabrum; CV, Caryocar villosum; DO, Dipteryx odorata; HS, Hymenolobium spp.; IG, Iryanthera grandis; LP, Lecythis poiteaui; MH, Manilkara huberi; PP, Parkia pendula; PC, Peltogyne catingae; SS, Sclerolobium spp. From Chambers et al., 1998.

Two data sets were published from the Trace Gases (TG-09 and TG-07) teams. The TG-09 data set provides data on soil properties, soil water and soil gas isotopic analysis from samples collected at the km 83 Logged Forest Tower Site and the km 67 Seca-Floresta Site. Samples were taken from specially constructed pits. The TG-07 data set provides data on the characterization of fallen and standing necromass from the Tapajos National Forest, and Cauaxi Forest, Para, Brazil, and Juruena Forest, Mato Grosso, Brazil study sites.
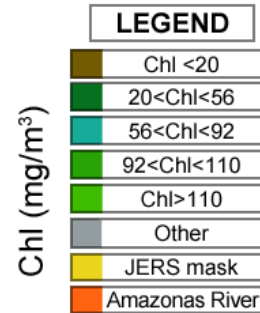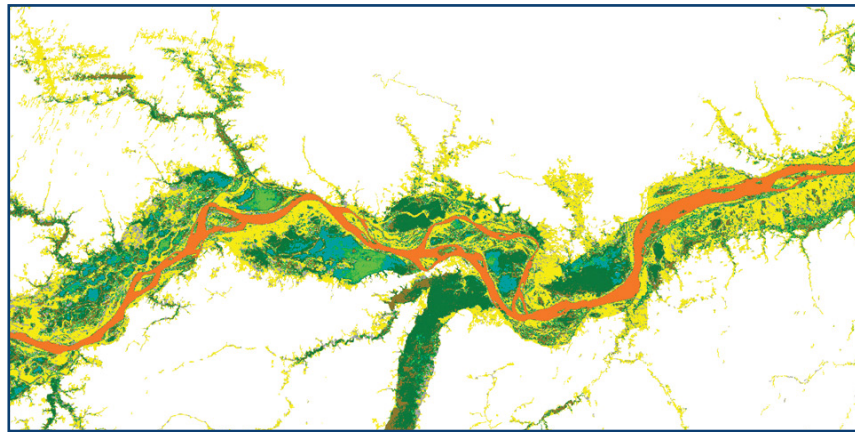
The last two data sets from the Land Use and land Change team (LC-07) provide a bathymetry survey and a mapping of the chlorophyll concentration of the Amazon floodplain lake, Lago Curuai, Para, Brazil. The bathymetry data represent a continuous surface from inter-polated transect measurements of depth values of Lago Curuai. The chlorophyll fraction maps were derived from the Moderate Resolution Imaging Spectroradiom-eter (MODIS) surface reflectance product (MOD09).
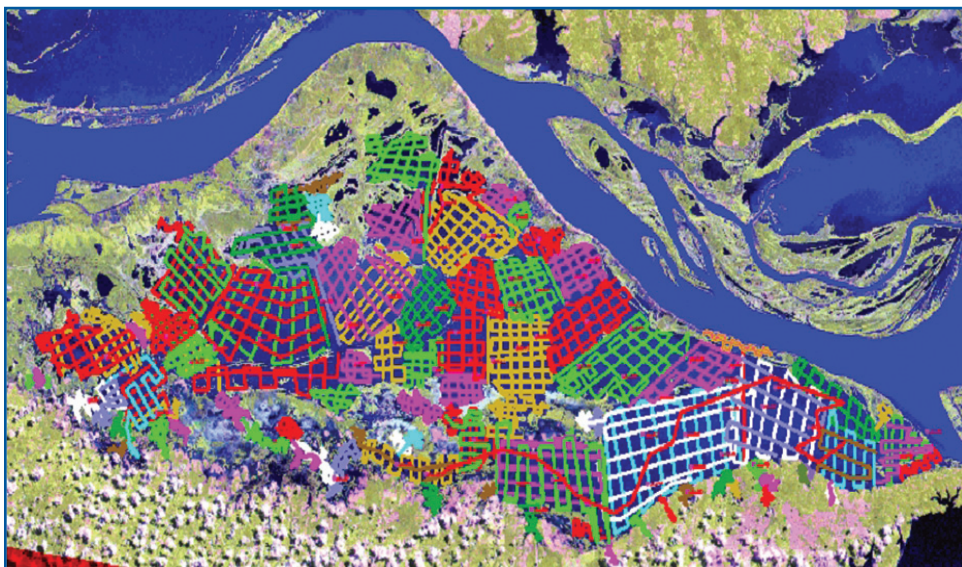
High resolution bathymetric data was acquired with a sonar device, the Lowrance-480M ecosounder, deployed from a boat over 4600 km of transects.

Eleven LBA Data Sets Published   (continued)

LEGEND
Chl (mg/m³)
	Chl <20
	20<Chl<56
	56<Chl<92
	92<Chl<110
	Chl>110
	Other
	JERS mask
	Amazonas River

Chlorophyll concentrations in the floodplain region of Lake Curuai, April 2003. Chlorophyll maps were derived and used to compute the weighted average of chlorophyll concentration from MODIS reflectance values.

ISLSCP II Data sets Released

The ORNL DAAC also released eleven data sets associated with the International Satellite Land-Surface Climatology Project (ISLSCP) Initiative II.

Nine data sets are from the Hydrology, Soils, and Topography category and provide data on global precipitation, water balance runoff model estimates, soil characteristics, total plant available soil water storage capacity, modeling of the global river network, and modeling of elevation-based parameters.

Two data sets are from the Near-Surface Meteorology collection. One data set provides a mean monthly climatology for eleven climate variables averaged over the period 1961-1990. The second data set provides climate time series data for six climate variables for the period 1985-1995. The data for both data sets were originally developed by the Climate Research Unit (CRU), University of East Anglia.

ESA Workshops

Workshops on Ecological Data Acquisition, Use, and Management and MODIS and SAR Remote Sensing Tools for Ecology Research

ORNL DAAC staff will be conducting four workshops at the 96th Ecological Society of America (ESA) Annual Meeting, August 7-12, 2011 in Austin, TX, please join us:

- MODIS and SAR Remote-Sensing Data Acquisition and Analysis Tools for Ecology Research (*http://eco.confex.com/eco/2011/web program/Session6975.html*) organized by Tammy Walker, ORNL DAAC Deputy Manager and co-organized by Suresh Santhana Vannan, ORNL DAAC Lead Developer, and Vicky Wolf, ASF User Services Supervisor.

- Finding, Accessing and Using NASA Data and Tools for Ecology Research (*http://*

eco.confex.com/eco/2011/webprogram/ Session6974.html) organized by Jennifer Brennan, and co-organized by Tammy Walker, ORNL DAAC Deputy Manager.

- How to Manage Ecological Data for Effective Use and Re-use: A Workshop for Early Career Scientists (*http://eco.confex.com/eco/2011/webprogram/Session6886.html*) organized by Carley Strasser, National Center for Ecological Analysis and Synthesis, DataONE, and co-organized by Bob Cook, ORNL DAAC Scientist.

ESA Workshops (continued)

- Creating Effective Data Management Plans for Ecological Research (*http://eco.confex.com/eco/2011/webprogram/Session6904.html*) organized by Bill Michener, University of New Mexico, and co-organized by Bob Cook, ORNL DAAC Scientist.

FLUXNET Information Update

The FLUXNET team is in the final stages of a campaign to update site information for the more than 500 tower sites in FLUXNET. FLUXNET is a global network of micrometeorological tower sites that use eddy covariance methods to measure the exchanges of carbon dioxide, water vapor, and energy between terrestrial ecosystems and the atmosphere. The campaign included contacting each non-U.S. site PI and asking them to review and update the basic tower site characteristics and publications. The campaign had a greater than 50% response rate for tower sites outside of the Ameriflux network. Updates to tower information are also welcome at any time.

For more information about FLUXNET see http://daac.ornl.gov/FLUXNET/fluxnet.shtml

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