National Aeronautics and Space Administration

ORNL DAAC Distributed Active Archive Center for Biogeochemical Dynamics

Winter 2015

ORNL DAAC News

ORNL DAAC to archive data from two Earth Venture Sub-Orbital Investigations (EVS-1)

The ORNL DAAC is excited to announce that NASA has selected our data center to archive airborne remote sensing observations from two Pathfinder Missions. The two missions are CARVE: Carbon in Arctic Reservoirs Vulnerability Experiment and AirMOSS: Airborne Microwave Observatory of Subcanopy and Subsurface. At the end of the 5-year missions (2015-2016) the data products will be archived and distributed by the ORNL DAAC.

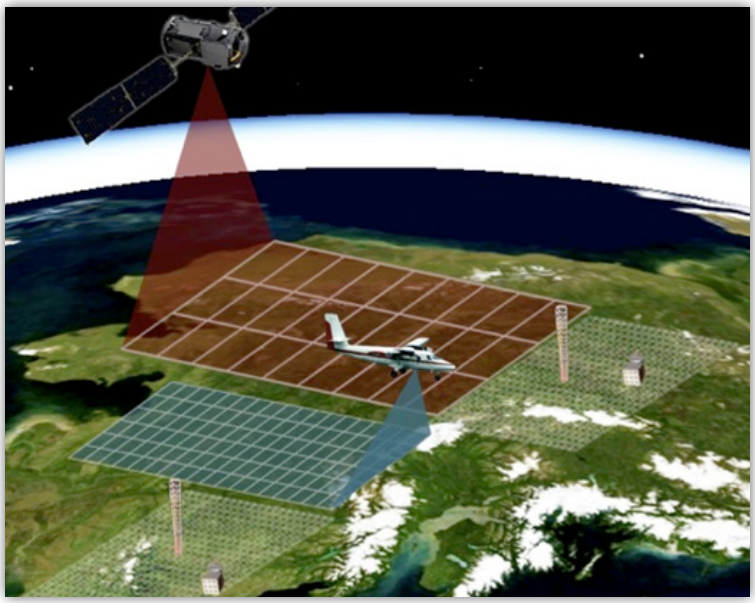


Figure 1. CARVE airborne observations connecting satellite and ground-based measurements with vastly different spatial and temporal characters.

CARVE: Carbon in Arctic Reservoirs Vulnerability Experiment: Using RADAR equipment, a spectrometer, and gas analyzers attached to a C-23 Sherpa aircraft that goes to 20,000 feet, CARVE is taking the pulse of carbon cycling in Alaska's Arctic territory. The DAAC is building the infrastructure to take that data from the sky to the web, archiving and creating visualizations that will allow researchers to find and analyze information related to greenhouse gas concentrations, carbon emissions, soil moisture, surface temperatures, and more from CARVE flights from 2011 through 2015.

AirMOSS: Airborne Microwave Observatory of Subcanopy and Subsurface: Sometimes you don't have to dig to understand what's going on below-ground. In AirMOSS, researchers are using microwaves emitted from a NASA aircraft to map the landscape of 10 study sites in North and Central America, from boreal forests to tropical savannas. The energy that reflects back to the aircraft in the form of microwaves provides scientists with data to estimate soil moisture—an important ingredient in photosynthesis and carbon cycling that will help researchers understand where and

(continued on p. 2)

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 1,100 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, services, and tools available from the ORNL DAAC. Current and past news can be found at *http://daac.ornl.gov/news.shtml*.

Contents:

ORNL DAAC to archive data from two Earth Venture Sub-Orbital Investigations (EVS-1) (continued)

how climate change is happening. For our part, the DAAC will be making the AirMOSS radar maps and derived scientific data products available to scientists and climate modelers through a searchable web interface.

The ORNL DAAC expects to release the EVS-1 data products in early 2016.

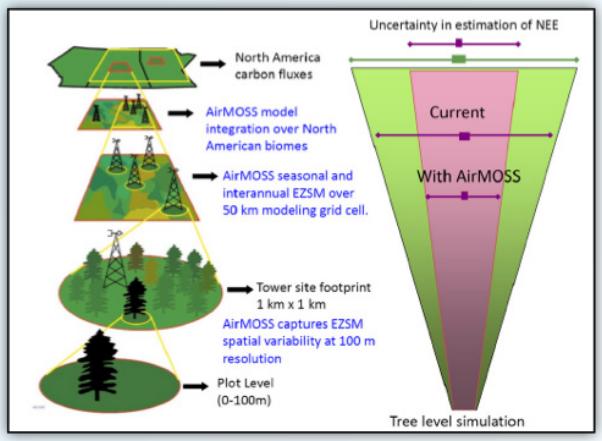


Figure 2. AirMOSS spatial scaling.

2015 Updates to Tools and Services

- **MODIS:** The MODIS Global Subsetting Tool will soon provide MODIS Collection 6 products, and provide many new features. The new tool offers an improved web interface to users. The subset visualization and download page will be enhanced with improved layout (tabbed view, slider bar, interactive plots etc.) and more informative graphics and composite grid plots for land cover masked data. A new series of data visualizations, and customizable plotting scripts in the R language, will be provided. The tool will be released in two phases. Phase 1 will support the expansion of the subset size to 501 x 501 km and Phase 2 will allow larger subsets of sizes up to 1,001 x 1,001 km.
- **THREDDS:** The ORNL DAAC has released a new THREDDS Data Server (TDS) (http://thredds.daac.ornl.gov/thredds/catalogs/ornldaac/ornldaac.html) that provides on-demand visualization and access to data holdings that are standardized into Climate & Forecast (CF) compliant netCDF Version 4 format. The ORNL DAAC TDS provides an improved Web interface for data browsing, visualization, and download through various services and interactive tools
- **Advanced Data Search Interface:** The new data search interface includes facets, search widgets, and single page browseable search results. Search results are designed to improve the user search experience and the new interface will enable you to find and download ORNL DAAC data particular to your research needs.

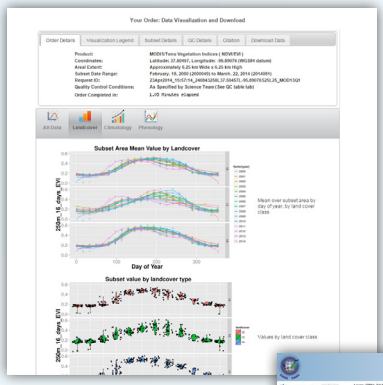


Figure 3. R software based MODIS subset visualization.

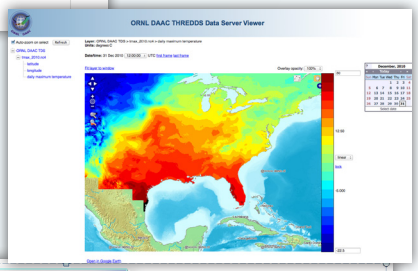
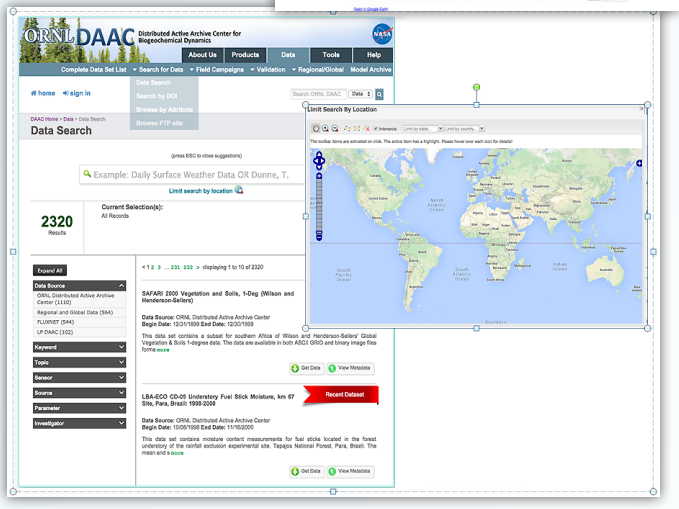


Figure 4. ORNL DAAC data set visualized using THREDDS Godiva2 data viewer.

Figure 5. ORNL DAAC Advanced Data Search with spatial widget overlaid.



ORNL DAAC's Social Media Presence

In an effort to reach new users and to take advantage of social media, the ORNL DAAC created a Twitter account (https://twitter.com/ORNLDAAC) in April of 2014. The goal of this effort is to increase public awareness of our DAAC, increase our reputation as a leading terrestrial ecology data repository, and increase usage and downloads of data sets in our archive. We also use this platform to call attention to related data, tools, and information to serve our user community. As of January 31, 2015, we have sent out 192 tweets and have 125 followers. From October 2014 to January 2015, our tweets have been viewed over 34,000 times, with more than 75 re-tweets and 58 favorites. The Twitter effort has resulted in approximately 175 clicks on the links in tweets, which direct users back to the datasets on our website. We encourage all of our users who use Twitter to follow our account for updates.

The ORNL DAAC also has a Facebook page (https://www.facebook.com/OakRidgeDAAC) where we post similar "status updates." Users are encouraged to "Like" our page and send friend requests to get more information about our data holdings through Facebook.

Recent Additions to the ORNL DAAC Data Archives

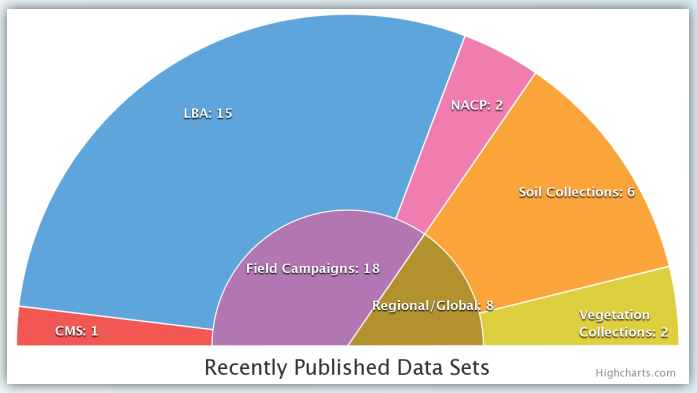
Since the publication of the summer newsletter, 18 new data sets were added to Field Campaigns

- 1 Carbon Monitoring System (CMS)
- 15 The Large Scale Biosphere-Atmosphere Experiment in Amazonia (LBA)
- 2 The North American Carbon Program (NACP)

8 data sets added to Regional/Global Collections

- 6 Soil Collections
- 2 Vegetation Collections

Figure 6. Data sets published in the past six months.



New User Registration System Coming

In 2015, the ORNL DAAC will be upgrading its user login to implement EOSDIS' new Earthdata login.

This new system will provide a centralized and simplified mechanism for user registration, account management, and authentication services to EOSDIS' data centers and partner applications. The system also provides single sign-on capability, allowing registered users to access multiple EOSDIS-integrated applications without having to log in repeatedly with the same credentials. User registration also permits communication with users concerning updates or issues with data sets they have downloaded.

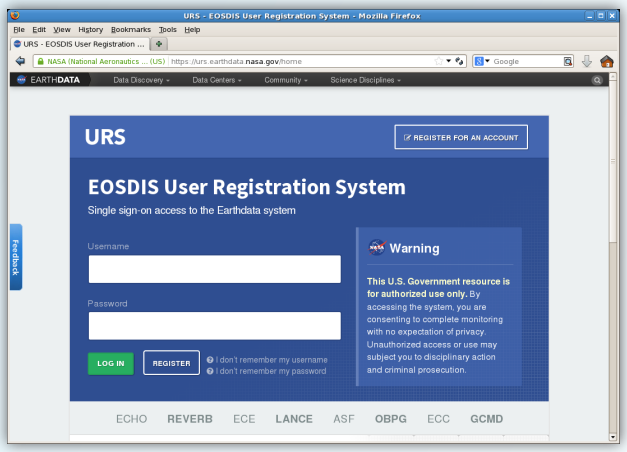
(continued on p. 4)

New User Registration System Coming (continued)

The system also provides a user registration service allowing users to self-register, free of charge. Users will need to set up a profile that includes a user ID, password, and provide a small amount of additional information, including affiliation, country, and a valid e-mail address.

Existing ORNL DAAC users will be notified via email before implementation of the new system, which is planned for 2015.

Figure 7.



2014 Customer Satisfaction Survey Results

During mid-August and early September of 2014, ORNL DAAC users received an email invitation to participate in a web-based survey measuring the quality and utility of our products and services.This was the 9th year of this NASA sponsored survey and the results are in.

The ORNL DAAC received a composite customer satisfaction score of 79, which included high scores in the areas of Product Search (81), Product Selection & Order (83), Customer Support (89), and Product Documentation (79).

We are currently reviewing the comments and suggestions that were provided and examining the detailed performance analysis.

Feedback from the survey affects our future performance and helps us to identify science needs and areas for improvement.Your participation in this annual survey is greatly appreciated and helps us grow with the needs of our user community.

ACCESSING ORNL DAAC DATA

Web-based interface:
http://daac.ornl.gov/

NASA's Earth Observing System Data and Information System (EOSDIS):
https://earthdata.nasa.gov/

Advanced data search:
http://mercury.ornl.gov/ornldaac/

MODIS Land Products Subsets:
http://daac.ornl.gov/MODIS/modis.shtml

FLUXNET Project:
http://daac.ornl.gov/FLUXNET/fluxnet.shtml

Spatial Data Access Tool:
http://webmap.ornl.gov/wcsdown

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

OAK RIDGE National Laboratory