
NACP Modeling and Synthesis Thematic Data Center (MAST-DC):

Update for MCI (August 7, 2007)

A project funded by
NASA 2005 Research Announcement for the North American Carbon Program
Period: 2006-2009

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Goals Of MAST-DC

- ❑ Support NACP by providing data management services to NACP investigators and agencies performing modeling and synthesis activities
- ❑ Based on NACP requirements established, MAST-DC will provide data products and services in a central location, in consistent and uniform grids, with common and co-registered spatial projection, in easily converted formats
- ❑ Free modelers and those doing the synthesis and integration from having to perform data management functions

MAST-DC Services

<http://nacp.ornl.gov/mast-dc/>

- ❑ Data products
- ❑ MCI Web page
- ❑ WebGIS
- ❑ Data Clearinghouse: Mercury
 - Thematic Data Centers
- ❑ Data Server (netCDF / THREDDS)

Mid-Continent Intensive: Selected Data

Please send links to additional data sources for MCI

<http://nacp.ornl.gov/mast-dc/mci.shtml>

- ❑ Boundary for Mid-Continent Intensive

- ❑ WebGIS for North America

- ❑ Flux Tower Data
 - AmeriFlux
 - Flux Tower Site Characterization Map Layers – from AmeriFlux
 - FLUXNET

- ❑ Carbon Dioxide Measurements
 - NOAA ESRL GMD Tall Tower and Aircraft Network - Data
 - "Ring 2": High-precision, high-accuracy CO₂ mixing ratio measurements in support of the North American Carbon Program Mid Continent Intensive
 - Total Carbon Column Observing Network

- ❑ ChEAS: Chequamegon Ecosystem Atmosphere Study

North America WebGIS Features

http://webmap.ornl.gov/Website/daac_NM_beta1/viewer.htm?INSTANCE=MCI

- ❑ Users can interrogate map features and extract and download selected map features, including map layers (shape files)

Technical specs:

- ❑ North America WebGIS supports Web Map Service (WMS) and Web Coverage Service (WCS) OpenGIS protocols
 - Includes land cover, biophysical, elevation, and geopolitical layers
 - Provides access to other Open Geospatial Consortium (OGC) layers

WebGIS for North America

NASA North American Carbon Program
MODELING AND SYNTHESIS THEMATIC DATA CENTER

Current tool mode is set to **Zoom In**. Click, or click and drag to create a rectangle on the map to zoom in.

Longitude, Latitude: -157.36, 56.01 Scale Factor: 0.10679

Navigation tools: Navigate, Query, View, Select, Measure, Print, Download, About

Map showing North America with a dashed black rectangle indicating a zoomed-in area.

Layer List:

- LAYERS
 - Sites
 - Mid-Continent Intensive (MCI) Layers
 - MCI Boundary
 - MCI AmeriFlux Sites
 - MCI Alternate Tall Towers
 - MCI Planned Tall Towers
 - MCI USDA Flux Sites
 - MCI PSU Ring2 Sites
 - SRTM Water Bodies (MCI)
 - Geopolitical Layers
 - Elevation
 - Land Water Layers (in Development)
 - Land Cover
 - Ecoregions
 - Soils
 - Open Geospatial Consortium WMS Layers
 - USGS National Elevation Dataset
 - Terraserver-USGS topographic map
 - Terraserver Digital Ortho-Quadrangle
 - JPL Landsat Global Mosaic
 - Terraserver Urban Areas
 - National Wetlands Inventory

Click the  or  icon next to a layer to display the labels or legend for the layer.

Highlighting indicates Active Vector Layer

OpenGIS WMS Capabilities document:

MCI Information on WebGIS

NASA North American Carbon Program
MODELING AND SYNTHESIS THEMATIC DATA CENTER

Current tool mode is set to **Zoom In**. Click, or click and drag to create a rectangle on the map to zoom in.

Navigation: Navigate Query View Select Measure Print Download About Longitude, Latitude: -82.07, 50.9 Scale Factor: 0.01984

Layer List

- LAYERS
 - Sites
 - Mid-Continent Intensive (MCI) Layers
 - MCI Boundary
 - MCI AmeriFlux Sites
 - MCI Alternate Tall Towers
 - MCI Planned Tall Towers
 - MCI USDA Flux Sites
 - MCI PSU Ring2 Sites
 - SRTM Water Bodies (MCI)
 - Geopolitical Layers
 - Elevation
 - Elevation (GTOPO30)
 - Elevation (SRTM30)
 - Land Water Layers (in Development)
 - Land Cover
 - MODIS Landcover (IGBP)
 - MODIS Landcover (UMd)
 - MODIS Landcover (LAI/fPAR)
 - AVHRR Landcover
 - MODIS Vegetation Continuous Fra
 - Matthews Landcover
 - FIA-Forest Type Groups
 - Olson Vegetation
 - Ecoregions
 - Soils
 - Open Geospatial Consortium WMS Lay
 - USGS National Elevation Dataset
 - Terraserver-USGS topographic map
 - Terraserver Digital Ortho-Quadranl
 - JPL Landsat Global Mosaic
 - Terraserver Urban Areas

MAST-DC Data Activities

- ❑ DAYMET (NCAR) (continental focus)
 - Currently have daily, 1-km data from 1980 to 2004, with annual updates
 - Working with Canada and Mexico to extend DAYMET to North America
- ❑ Digital Elevation based on Shuttle Radar Topographic Mission
- ❑ Land-Water Analysis at sub 1-km pixel

Data Server and Subsetting Tool

- ❑ MAST-DC is in the process of developing an Data Server with some services

<http://daacdap-dev/thredds/catalog/ameriflux/catalog.html>

- Files are in netCDF, being served by THREDDS OPeNDAP server
- Subsetting: selecting parts of the data files (in ASCII format) based on parameters entered
- Test mode, in development (URL available on August 13)

MAST-DC Search (based on Mercury)

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



Simple Keywords **Spatial** Temporal Sources Browse

Hold down the shift or control key to select multiple indexes.

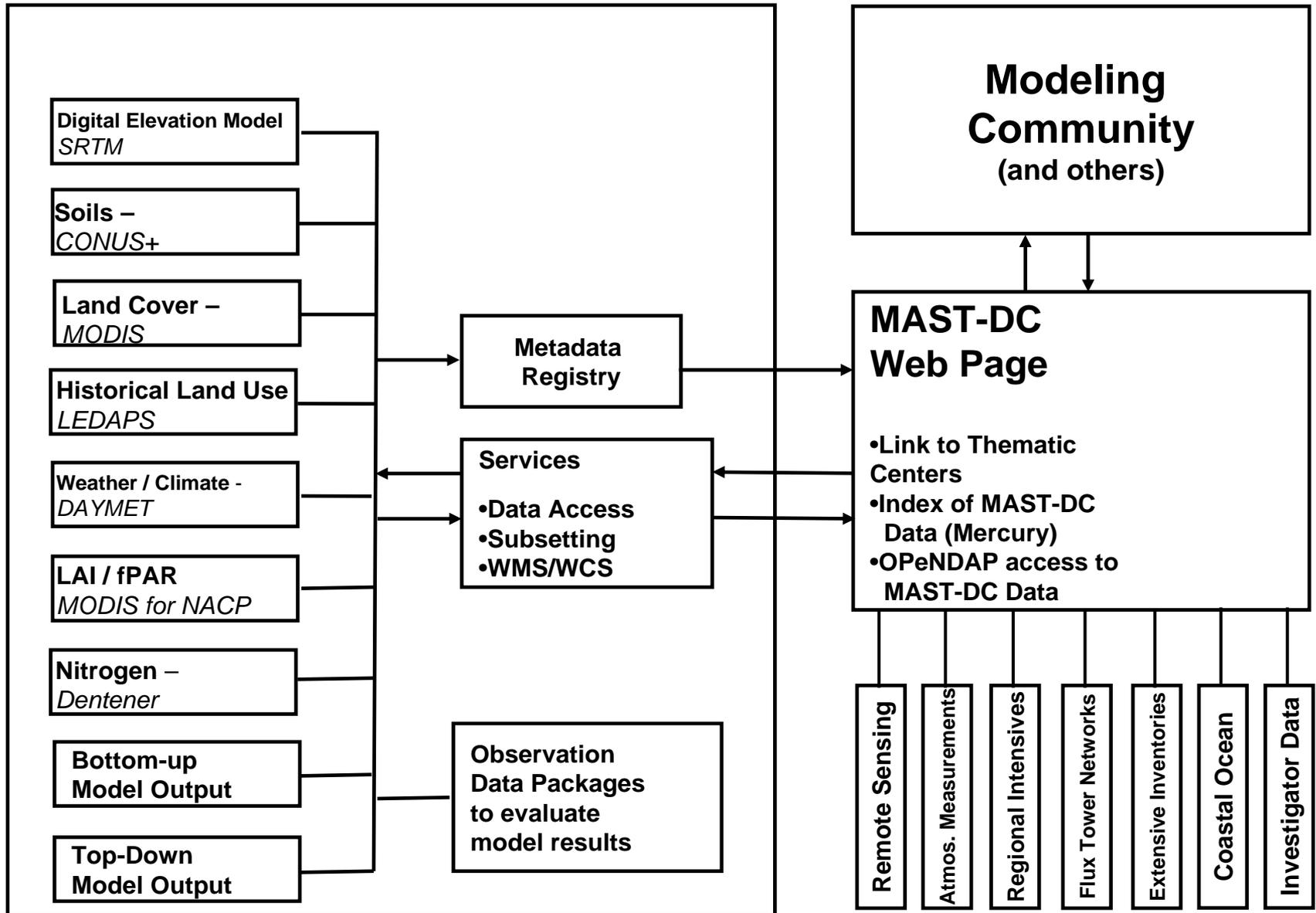
- All
- 1) Thematic Data Centers: Resources for NACP
- 2) North American Data (Background)

Query being built:
Not Editable

Results/Page 10 Search Help Clear Page Clear All

Spatial data for North America

Framework for MAST-DC



Other Thematic Data Centers

Key NACP Data Dependencies (U.S. Agencies)



USDA

- Forest & soil inventories
- Agricultural, forest and range management
- Carbon sequestration



NOAA

- Meteorological observations
- Ocean surface temperature and land cover observations
- Atm. CO₂ flask/tall tower network
- Weather models (NCEP)
- Air-Sea CO₂ exchange studies
- Integrated carbon modeling
- Ship-based ocean CO₂ surveys



DOE

- Fossil fuel emissions
- AmeriFlux
- FACE and other CO₂ expts.
- Carbon databases (CDIAC)
- C modeling & C sequestration
- ARM Project



USGS

- Landsat data & data products
- Topography & land cover maps
- Stream gauge network
- Hydrography



NASA

- Remote sensing: satellite time series (Landsat, SeaWiFS, and EOS); airborne sensors
- Remote sensing research
- Field campaigns— BOREAS
- Ocean, land, atmosphere and coupled carbon-climate modeling
- ESTO & DIS



NSF

- Earth science research
- Ocean campaigns
- Process studies
- NCAR, NCEAS, LTER
- CyberInfrastructure Initiative

Thematic Data Centers

- ❑ Thematic data centers are national or agency archives that have existing data products relevant to NACP
- ❑ Data collected as part of agency's mission or activities
 - Link to NACP may be indirect (NACP investigators are just another set of users)
 - Some are more tightly linked to NACP (AmeriFlux)
- ❑ Establish coordination / cooperation agreements to ensure that agency and national data resources are available to NACP researchers

Thematic Data Centers: Resources for NACP

http://nacp.ornl.gov/mast-dc/thematic_data_centers.shtml

<u>Digital Elevation</u>	<u>Wetlands</u>
<u>Remote Sensing: Land Cover / Land Cover Change</u>	<u>Remote Sensing: Biophysical Data</u>
<u>Remote Sensing: Radiation Data</u>	<u>Biomass</u>
<u>Crop Inventory</u>	<u>Fire Data</u>
<u>Flux tower</u>	<u>Aircraft Flux</u>
<u>Emissions</u>	<u>Soils</u>
<u>Permafrost / Freeze Thaw</u>	<u>Atmospheric Carbon Dioxide</u>
<u>Atmospheric Transport</u>	<u>Weather</u>
<u>Climate Scenarios</u>	<u>Hydrology</u>
<u>Intensive Field Activities</u>	<u>OCCC</u>
<u>Modeling and Synthesis Thematic Data Center</u>	<u>IPCC Model Output</u>

NACP Office Activities

http://www.nacarbon.org/cgi-nacp/web/investigations/search_data_products.pl

- NACP office has solicited information on data products on behalf of MCI
 - What data products will be produced?
 - What data products will be required from others?
 - Information:
 - When?, What?, Who will produce / use? URLs?
 - Participation has been modest
 - Please contribute information about the data products you will contribute or need for your project(s)