Modeling and Synthesis Thematic Data Center (MAST-DC)
Support for North American Carbon Program Synthesis Activities

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Introduction

The North American Carbon Program (NACP) is designed to quantify and understand spatial and temporal distributions of carbon sources, sinks, and inventories from 2000 - 2007 by synthesizing NACP data and models, from sites to regional / continental scales.

Synthesis Questions
1. What are the magnitudes, spatial distribution, and interannual variability of continental carbon sources and sinks during the period 2000 - 2007?
2. What are the components of carbon fluxes and pools that contribute to this variability?
3. How do carbon sources and sinks and our understanding of the underlying processes vary across sites (sites - region - region - continent)?

MAST-DC is working with the Synthesis Task Force to quantify and understand interannual variations of the continental carbon budget of North America since 2000 by synthesizing and intercomparing NACP observations and models. Based on NACP requirements, MAST-DC provides data products and services in a central location, in consistent and uniform grids, with common and co-registered spatial projection, in easily convertible formats.

NACP Interim Synthesis: Model-Data Comparison

MAST-DC is conducting a Model-Data Intercomparison Activity to quantify and understand spatial and temporal distributions of carbon sources, sinks, and inventories from 2000 - 2007 by synthesizing NACP data and models, from sites to regional / continental scales.

Support for NACP: MAST-DC Products and Services

MAST-DC has compiled information, data products, and data services that facilitate modeling and synthesis activities:
1. Detailed description of 22 terrestrial biogeochemistry models (e.g., how they parameterize photosynthesis, respiration, and water balance)
2. Acquire, process, reproject, and standardize output from inverse and terrestrial biogeochemistry models
3. Acquire, process, and standardize observations from flux towers, agricultural statistics, and forest inventories
4. Document processes
5. Place information on project Wiki and FTP area for distribution to participants

Site-Based Interim Synthesis: Peter Thornton, Kevin Schaeffer, Dan Ricciuto, and Ken Davis, leads

The objective of this activity is to establish a quantitative framework that allows NACP investigators to answer the question:
- Are the various measurement and modeling estimates of carbon fluxes at individual sites consistent with each other - and if not, why?
- To answer this question, this activity aims to:
  1. Improve quantification of uncertainty for forward models and site-based measurements
  2. Identify strengths and weaknesses in models and measurements
  3. Migrate new knowledge up-scale in coordination with regional and continental-scale efforts.

MAST-DC Support to other NACP Synthesis Activities

MAST-DC provides data management support to several other NACP synthesis activities:
1. NACP Multi-scale Synthesis and Terrestrial Model Intercomparison
2. Non-CO2 Greenhouse Gas Synthesis
3. Gap-Filled Meteorological Data
4. Gap-Filled Flux Tower Data

For more information:
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