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Global Forest Ecosystem Structure and Function Data for Carbon Balance Research

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Revision Date: September 23, 2014

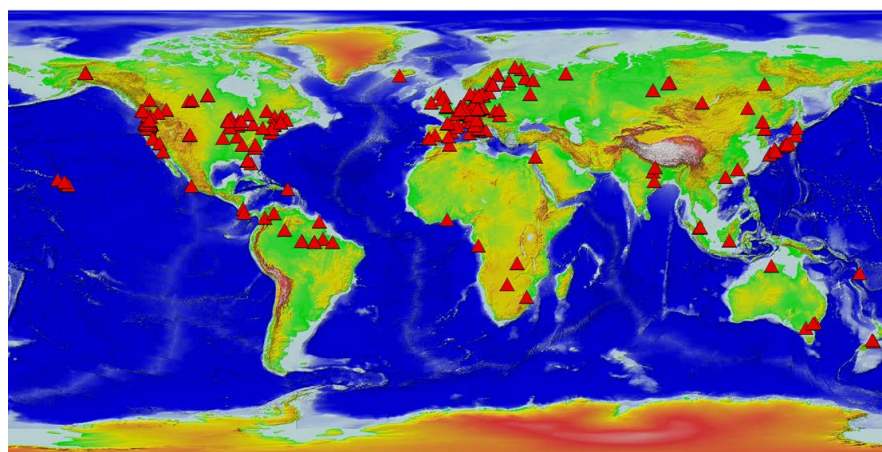
Summary:

A comprehensive global database of forest ecosystem carbon budget variables (fluxes and stocks), ecosystem traits (standing biomass, leaf area index, age), and ancillary information (management regime, climate, soil characteristics) has been compiled for 528 sites. The data set includes: a Microsoft Office Access Database (Version 2003); data files for all tables in the database in *.csv format; and query outputs from the database in *.csv format.

This database facilitates the quantification of CO₂ fluxes and pathways across different levels of integration (from photosynthesis to net ecosystem production) in forest ecosystems. The database fills an important gap for model calibration, model validation, and hypothesis testing at global and regional scales (Luyssaert et al. 2007).

This database is structured by site (i.e., a forest or stand of known geographical location, biome, species composition, and management regime). It contains carbon budget variables (fluxes and stocks), ecosystem traits (standing biomass, leaf area index, age), and ancillary information (management regime, climate, soil characteristics) for 528 sites from eight forest biomes. Data entries originated from peer-reviewed literature and personal communications with researchers involved in [FLUXNET](#). Flux estimates were included in the database when they were based on direct measurements (e.g., tower-based eddy covariance system measurements), derived from single or multiple direct measurements, or modeled. Stand description was based on observed values, and climatic description was based on the East Anglia Climate Research Unit (CRU) data set and ORCHIDEE model output. Uncertainty for each carbon balance component in the database was estimated in a uniform way by expert judgment. Robustness of CO₂ balances was tested. Unmeasured components of the carbon balance were calculated by difference to close the budgets. These closure terms provide an estimate of data quality and flux uncertainty.

Additional information about the database, methodologies used to construct it, and exported data files is found in the companion file: [CO₂_balances_readme.pdf](#).



Geographic distribution of the sites contained in the database.

Data Citation:

Cite this data set as follows:

Luyssaert, S., I. Inglima and M. Jung. 2009. Global Forest Ecosystem Structure and Function Data for Carbon Balance Research. Data set. Available on-line [<http://daac.ornl.gov/>] from Oak Ridge National Laboratory Distributed Active Archive Center, Oak Ridge, Tennessee, U.S.A. doi:10.3334/ORNLDAAC/949

If you use this data set, please also cite:

Luyssaert S, I. Inglima, M. Jung et al. 2007. The CO₂-balance of boreal, temperate and tropical forests derived from a global database. *Global Change Biology*, 13: 2509-2537.

Data Description:

The database archive includes three *.zip files which when expanded produce (1) a Microsoft Office Access Database (Version 2003); (2) exported files for all data tables in the database in *.csv format; and (3) exported view data (queries) from the database, in *.csv format.

Additional information about the database, methodologies used to construct it, and exported data files is found in the companion files: [CO₂_balances_readme.pdf](#) and [Documentation_literature_compilation_v3.1.pdf](#).

Data Access:

This data set is available through the Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC).

Data Archive:

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

Contact for Data Center Access Information:

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Telephone: +1 (865) 241-3952

References:

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