

HIPPO and Its Archive at CDIAC

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HIPPO Workshop

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HIPPO Project Data in CDIAC

- Overview

- About CDIAC

- What we are doing to document, serve, and preserve HIPPO data

- Point you to useful resources

HIPPO Data Fit Well into CDIAC's Climate Change Collections

- **Carbon Dioxide Information Analysis Center (<http://cdiac.ornl.gov/>)**
- **Provides comprehensive data, information, and research support to national and international modeling efforts, researchers and societal interests**
- **Serves 300 databases including multi-disciplinary, multi-agency, multi-national data and information**
 - **Carbon cycle (GHG emissions, land-use change, terrestrial fluxes)**
 - **Trace gases (atmospheric and oceanic)**
 - **Climatic data**
 - **Project databases**
 - **Experimental projects (FACE, SPRUCE, Ngee)**
 - **And now, HIPPO**
- **Satisfies ~350,000 requests for data worldwide annually**
- **Supported by USDOE's Climate Change Research Division of the Office of Biological and Environmental Research**

HIPPO Data Flow to the CDIAAC Archive for User Access

Data Access

Data Sources

Measurement Data

- Merged Instrument Sources
- Individual Instrument Sources

Modeling Products (TBD)

Data Products

Data Packages

- User's Guide
- Readme Files
- Metadata Record
- Data Files

Supporting Documentation

- Data Policy
- Data Dictionary
- Instrument Descriptions

CDIAAC Data Archive

- Public Data Access via Anonymous FTP
- Searchable Metadata Database for Discovery
- Permanent DOI citation
- Query and Subset with Relational Database (TBD)

UCAR and EOL

The image shows three overlapping screenshots from the UCAR and EOL websites. The top screenshot is the 'EOL Home Page' with a 'HIPPO Global Phase I' banner. The middle screenshot is the 'HIPPO-1 Data Sets' page, featuring a table with columns for 'Data Set Name (Responsible Group/Pis shown in parentheses)', 'Date Posted', and 'Info'. The bottom screenshot is the 'HIPPO Deployment 1 Field Catalog' page, displaying a grid of data for various dates and locations.

Links to existing sites and data sources.

HIPPO web site – ORNL
(<http://hippo.ornl.gov/>)

facebook

The image is a screenshot of the 'HIAPER Pole-to-Pole Observations' website. It features a navigation bar with 'SOURCE' and 'MISSION' tabs. Below the navigation, there are three columns: 'EOL' (Earth Observing Laboratory Deployment Field Catalogs), 'EOL' (Earth Observing Laboratory Mission Reports and Data), and 'CDIAAC' (Data Archive). A large graphic shows a globe with flight paths and the text 'MISSION HIPPO'. At the bottom, there is a call to action: 'Click on [arrow] to get data.'

HIPPO Web Site at ORNL (<http://hippo.ornl.gov/>) – Links to HIPPO/EOL Resources and HIPPO Public Data

The screenshot shows the HIPPO website header with the logo and navigation menu. Below the header is a welcome message and a navigation prompt. The main content area features three columns representing different data sources: EOL Deployment Field Catalogs, EOL Mission Reports and Data, and CDIAAC Data Archive. A 'SOURCE' arrow points to the left. A 'MISSION HIPPO' logo is on the left. A 'Click on a [plane icon] to get data.' prompt is at the bottom. Three callout boxes point to the EOL columns: 'HIPPO 1 Field Catalogs at EOL', 'HIPPO 1 Resources at EOL', and 'HIPPO 1 Data and Documentation Access at CDIAAC'. The footer contains logos for CDIAAC, ORNL, and the U.S. Department of Energy Office of Science.



Data Archive Adapts and Develops Documentation for Nonspecialist Scientists and Public

- **User's Guide for Data Set**

- User's Guide Contents:

- [Summary](#)
- [Data and Documentation Access](#)
- [Data Set Citation](#)
- [Data Set Contents](#)
- [HIPPO Data Fair Use Policy](#)
- [Data Description](#)
- [Data Dictionary](#)
- [References](#)
- [Data Center Information](#)

- **Data Dictionary**

- **Compiled Instrument Descriptions**

Data Archive Documentation Development (continued): Some User Guide Features

- Assign Descriptive Data Set Titles:
 - HIPPO-1 Merged 1- and 10-second Meteorology, Atmospheric Chemistry, and Aerosol Data
- Create the Permanent Citation with DOI:
 - Wofsy, S.C. and HIPPO Team. 2010. HIPPO-1 Merged 1- and 10-second Meteorology, Atmospheric Chemistry, and Aerosol Data. Available on-line [<http://cdiac.ornl.gov/>] from Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, Oak Ridge, Tennessee, U.S.A. DOI: 10.3334/CDIAC/hippo.001
- Provide Revision History:

Data Product	File Name w/Version	Date Published	Date Superseded	Change Description
10-second merged data	HIPPO_1_Merged_10_s_Data_HV01.tbl	2010/12/10	2011/01/13	First archived version
	HIPPO_1_Merged_10_s_Data_HV02.tbl	2011/01/14		PANTHER (*_PM) and CO_UGC data added. 1-sec to 10-sec averaging method changed. Small changes to previous 10-sec average values

Metadata Enable Clearinghouses to Provide Links to HIPPO Data

Metadata Search Tools Improve Data Visibility

For example, CDIAC Mercury Search

Metadata Report

Search Criteria: (text : hippo) AND (datasource :(cdiaac))

[Back](#) [Modify search](#)

Project Number: HIPPO-001

Product Title: HIPPO-1 Merged 1- and 10-second Meteorology, Atmospheric Chemistry, and Aerosol Data

Author(s): Steve C. Wofsy - Harvard University - HIPPO Study
HIPPO Team - .

CDIAC Contact(s): Les Hook

Data Set Location: <ftp://cdiac.ornl.gov/pub/HIPPO/>

Data Center URL: <http://cdiac.esd.ornl.gov/>

Thematic Area: Climate Change
carbon dioxide

Wofsy, S.C. and HIPPO Team. 2010. HIPPO-1 Merged 1- and 10-second Meteorology, Atmospheric Chemistry, and Aerosol Data. Available on-line [<http://cdiac.ornl.gov/>] from Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, U.S.A. DOI: 10.3334/CDIAC/hippo.001 The HIAPER Pole-to-Pole Observations (HIPPO) over a 27-day period, traveling over 30,000 miles, sampling atmospheric gases from sea level up to 10 km.

Keywords: ORNL
climate change
Carbon Cycle
CO2
HCFCs

Abstract: HIPPO-1 Merged 1- and 10-second Meteorology, Atmospheric Chemistry, and Aerosol Data

Site Location:

North	West	South	East
61.16927	-179.99396	-66.90502	-84.0157

[Locate](#)



Site Information: HIPPO Mission 1

Variable: See Data Dictionary

Descriptive File: [HIPPO 1 Merged Data User's Guide](#)
[Data Dictionary](#)
[Instrument Descriptions](#)
[HIPPO 1 Data Quality Report](#)

Content Time Range: Begin: 20090108 - End: 20090130

CDIAC
Carbon Dioxide Information Analysis Center • <http://cdiac.ornl.gov>

Metadata Search System

[Simple Search](#) [Advanced Search](#) [Browse](#)

Search by Keywords

Entire Document

**Hint: wildcards and phrases are allowed. Ex: "%" or BIGFOOT;BOREAS*

[Help](#) | [clear](#)

Search by Date Range

during thru

mm/dd/yyyy mm/dd/yyyy

[Help](#) | [clear](#)

Search by Spatial-Coordinate

List Areas in:
 USA WORLD

Select from list

Search Area:
 overlaps encloses

North

[Help](#) | [clear](#)

Search from Data Sources

Carbon Dioxide Information Analysis Center [\(i\)](#)

Land Validation Data (LandVal) [\(i\)](#)

Regional and Global Data (RGD) [\(i\)](#)

NARSTO Data [\(i\)](#)

OCEAN Discrete [\(i\)](#)

Ocean Underway [\(i\)](#)

Query being built:

fullText = HIPPO and from sources: Carbon Dioxide Information Analysis Center

Hot Editable

Results/Page:

[SEARCH](#) [CLEAR QUERY](#) [HELP](#)

HIPPO Data Sets Archived at CDIAC

- HIPPO-1 Merged 1- and 10-second Meteorology, Atmospheric Chemistry, and Aerosol Data
- HIPPO-1 Microwave Temperature Profiler (MTP) Measurements and Atmospheric Structure
- HIPPO-1 MAGICC Trace Gas Concentrations with Merged 10-second Data
- HIPPO-1 MEDUSA Trace Gas with Merged 1-second Data

In progress:

- HIPPO-1 Source Measurements for Merged 1-second Data and Derived Products
- HIPPO-1 Whole Air Sampler Trace Gas with Merged 1-second Data

We invite your help with a few things

- **Invite completion of/corrections for our "draft" data dictionary.**
- **We want your comments on User's Guide for products for which you are Team member.**
- **We want your citations!**
- **If modeling work is to be archived, let's talk (plan ahead).**
- **Identify additional data products for archiving. Any new value-added products?**

References and Resources

- **Want to improve the usability of your data?**
 - The ORNL DAAC offers the Best Practices for Preparing Environmental Data Sets to Share and Archive at <http://daac.ornl.gov/PI/BestPractices-2010.pdf>.
- **Considering archiving a model used for HIPPO analyses?**
 - Ensure the reproducibility of your results. Archive the source code, input data, and output results of (1) benchmark model versions and (2) specific model implementations for published research results. See Thornton et al 2005 at http://daac.ornl.gov/MODELS/EOS_Model_Archiving_Thornton.pdf.
- **Would a data interface like this be useful if adapted to HIPPO data?**
 - Try this interface to the AmeriFlux Site and Data Exploration System. This interface will query and subset a relational database of AmeriFlux Network meteorological and biological data (<http://ameriflux.ornl.gov/>).

CDIAC will Document, Serve, and Preserve HIPPO Data

- **HIPPO data fit well into CDIAC's climate change collections**
- **Web site links to various info/data sources**
- **We adapt and develop documentation for public (nonspecialist scientist, informed layperson)**
- **Structured metadata records will make HIPPO data more visible via other data clearinghouses**
- **Permanent repository for final investigator data**
- **Permanent registered DOI citation**
- **Modeling efforts should coordinate with us early**

Extra slides beyond this point

Slide 1. Screen shot of example interface to query and subset a relational database of AmeriFlux Network meteorological and biological data. Useful for HIPPO data?

Slide 2. Does your data documentation pass the “20-year test”?

Slide 3. More information about the Carbon Dioxide Information Analysis Center (CDIAC)

Example of an interface to query and subset a relational database. Useful for HIPPO data? This is the AmeriFlux Site and Data Exploration System: Interface to query and subset a relational database of AmeriFlux Network meteorological and biological data (<http://ameriflux.ornl.gov/>).

AmeriFlux Site and Data Exploration System

Primary Site Information

Site name:

Primary Investigator(s):

Country: **State/Province:**

Measurement status:

Data availability status:

Types of available data products:
 L2 L2st L3 L4 Bio data

Date available (mm/dd/yyyy):
 From To

Vegetation (IGBP):

Elevation (m):
 From To

Longitude (+/-, E/W):
 From To

Latitude (+/-, N/S):
 From To

Instruments

Instrumentation

Brand

Model

Meteorological variables	Biological variables		
<input type="checkbox"/> AdvtFC*	<input type="checkbox"/> APAR	<input type="checkbox"/> APARpct	<input type="checkbox"/> CO*
<input type="checkbox"/> CO2	<input type="checkbox"/> CO2den*	<input type="checkbox"/> DryAirDen*	<input type="checkbox"/> DVO3*
<input type="checkbox"/> FC	<input type="checkbox"/> FG	<input type="checkbox"/> FH2O*	<input type="checkbox"/> FNOy*
<input type="checkbox"/> FO3*	<input type="checkbox"/> GC*	<input type="checkbox"/> GEP	<input type="checkbox"/> GPP*
<input type="checkbox"/> H	<input type="checkbox"/> H2O	<input type="checkbox"/> H2Oden*	<input type="checkbox"/> L*
<input type="checkbox"/> LE	<input type="checkbox"/> Leafwetness*	<input type="checkbox"/> NEE	<input type="checkbox"/> NDy*
<input type="checkbox"/> O3*	<input type="checkbox"/> PAR	<input type="checkbox"/> PARdif	<input type="checkbox"/> PARdir*
<input type="checkbox"/> PARout	<input type="checkbox"/> PREC	<input type="checkbox"/> PRECum*	<input type="checkbox"/> PRESS
<input type="checkbox"/> RE	<input type="checkbox"/> Rg	<input type="checkbox"/> Rgdif	<input type="checkbox"/> Rgdir*
<input type="checkbox"/> Rgl	<input type="checkbox"/> RglOut	<input type="checkbox"/> RgNIR*	<input type="checkbox"/> RgNIROut*
<input type="checkbox"/> RgOut	<input type="checkbox"/> RgRed*	<input type="checkbox"/> RgRedOut*	<input type="checkbox"/> RH
<input type="checkbox"/> Rn	<input type="checkbox"/> RS*	<input type="checkbox"/> SFC	<input type="checkbox"/> SFG*
<input type="checkbox"/> SFH2O*	<input type="checkbox"/> SH	<input type="checkbox"/> SHbio*	<input type="checkbox"/> SHbole*
<input type="checkbox"/> SHleaf*	<input type="checkbox"/> SLE	<input type="checkbox"/> SNOWdepth*	<input type="checkbox"/> SVP*
<input type="checkbox"/> SWC	<input type="checkbox"/> SWCdepth*	<input type="checkbox"/> SWP*	<input type="checkbox"/> TA
<input type="checkbox"/> TAdb*	<input type="checkbox"/> TAmx*	<input type="checkbox"/> TAmin*	<input type="checkbox"/> TAU*
<input type="checkbox"/> TAwb*	<input type="checkbox"/> Tbole*	<input type="checkbox"/> Tdew*	<input type="checkbox"/> Tleaf*
<input type="checkbox"/> TS	<input type="checkbox"/> TSdepth*	<input type="checkbox"/> Tskin*	<input type="checkbox"/> Tsky*
<input type="checkbox"/> Tsnow*	<input type="checkbox"/> Tsonic*	<input type="checkbox"/> Ubar*	<input type="checkbox"/> UST
<input type="checkbox"/> VPD	<input type="checkbox"/> WATERdepth*	<input type="checkbox"/> WD	<input type="checkbox"/> WetAirDen*
<input type="checkbox"/> WS	<input type="checkbox"/> ZEC*	<input type="checkbox"/> ZL	

*not available in L2st, L3 and L4 files

Data Products

Full datasets for selected site(s) are available at:
[All sites data products](#)

Drag Zoom

POWERED BY Google
 Imagery ©2011, Map data ©2011 - Terms of Use

click on marker to see full information about a site

Does your data documentation pass the “20-year test”?

- Good data documentation will ensure that your data can be identified, found, accessed, and used properly by others in the future.
- Data Managers work with investigators and the information they provide to document their data at a level sufficient to satisfy the “20-year test”. That is, someone 20 years from now, not familiar with the data or how they were obtained, should be able to find data of interest and then fully understand and use the data solely with the aid of the documentation archived with the data.
 - National Research Council, Committee on Geophysical Data, Solving the Global Change Puzzle, A U.S. Strategy for Managing Data and Information, National Academy Press, Washington, D.C., 1991.
 - Best Practices: The ORNL DAAC offers the Best Practices for Preparing Environmental Data Sets to Share and Archive at <http://daac.ornl.gov/PI/BestPractices-2010.pdf>.

Carbon Dioxide Information Analysis Center (CDIAC)

- CDIAC is the primary climate-change data and information analysis center of the U.S. Department of Energy (DOE). CDIAC is located at DOE's Oak Ridge National Laboratory (ORNL) and includes the World Data Center for Atmospheric Trace Gases.
- CDIAC's data holdings include records of the atmospheric concentrations of carbon dioxide and other radiatively active gases; the role of the terrestrial biosphere and the oceans in the biogeochemical cycles of greenhouse gases; emissions of carbon dioxide from fossil-fuel consumption and land-use changes; long-term climate trends; the effects of elevated carbon dioxide on vegetation; and the vulnerability of coastal areas to rising sea level.
- CDIAC provides data management and archiving support for major projects, including:
 - **AmeriFlux Network**, continuous observations of ecosystem level exchanges of CO₂, water, energy and momentum at different time scales for sites in the Americas; the
 - **Ocean CO₂ Data Program** of CO₂ measurements taken aboard ocean research vessels;
 - **DOE-supported FACE experiments**, which evaluate plant and ecosystem response to elevated CO₂ concentrations;
 - **SPRUCE**, an experiment to assess the response of northern peatland ecosystems (Minnesota) to increases in temperature and exposures to elevated atmospheric CO₂ concentrations;
 - **Next-Generation Ecosystem Experiments (NGEE)** project will use experiments, observations, and process models to quantify the response of physical, ecological, and biogeochemical processes to atmospheric and climatic change across molecular to landscape scales in the Arctic (Alaska));
 - and now **HIPPO**.
- CDIAC is supported by DOE's Climate Change Research Division of the Office of Biological and Environmental Research.