

# Data Management/Archival for HIPPO

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# CDIAC's Plans To Support HIPPO

- What is HIPPO?
- Structure/flow of HIPPO data
- CDIAC's planned involvement
  - Background: 2008 User Group Meeting encouraged engagement

# What is HIPPO?

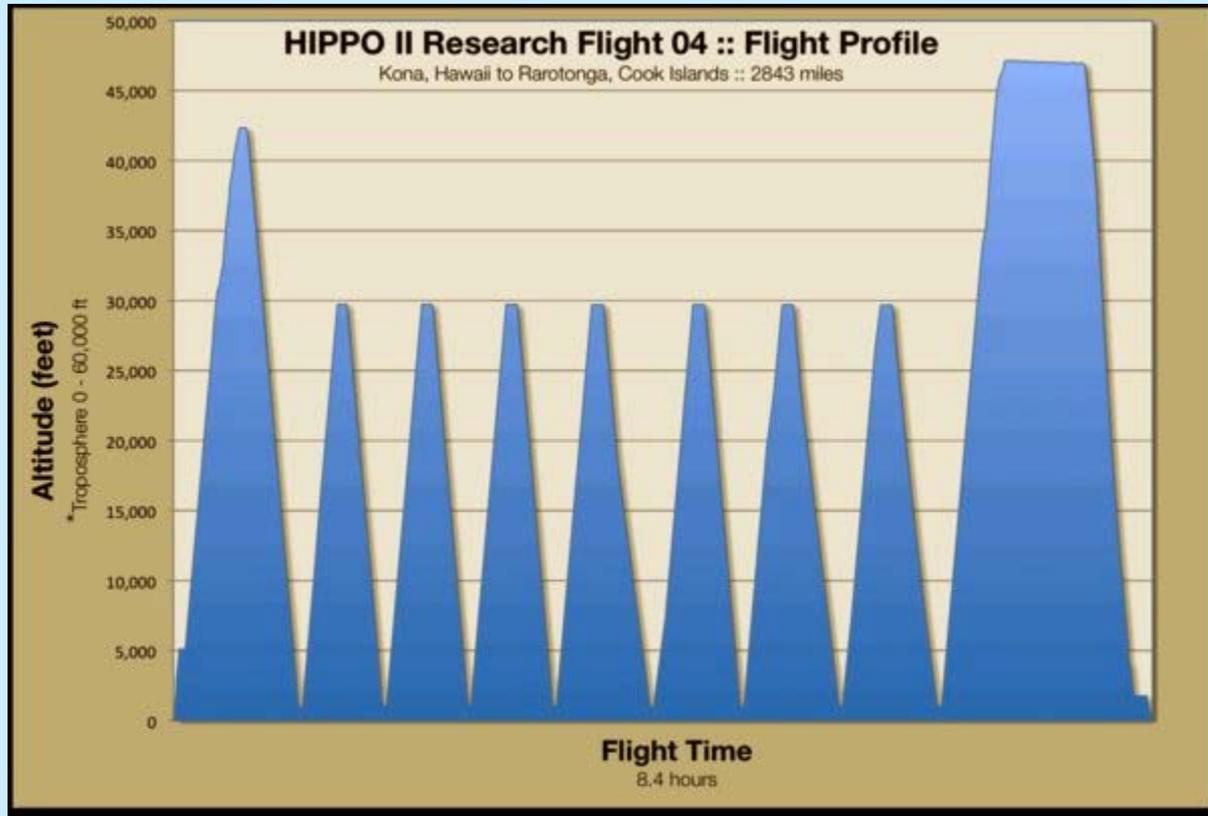
## HIPPO: HIAPER Pole-to-Pole Observations

- HIAPER: High-Performance Instrumented Aircraft Platform for Environmental Research
  - HIPPO funded by NSF and NOAA
- Measurements of greenhouse gas key species and tracers
- Needed by global climate models
- Five missions, each 20-23 days, at different times of year, over three year period
  - I, II, III completed; IV June 2011
- Each mission: Pacific, nearly pole-to-pole, multi-flight
- Cross-sections (sawtooth patterns) from surface to tropopause (150 m to 13.7 km)

# NCAR G-5 High-Performance Research Aircraft Holds Multiple Instruments



2010/09/25



A typical flight profile of the NSF/NCAR Gulfstream-V (G-V) during the HIPPO campaign. The G-V flies repeatedly from about 1,000' to 45,000' during each flight, sampling the air at many altitudes. The instruments and researchers on board the G-V collect data sets of many greenhouse gases at all altitudes during the flight.

# More about HIPPO: Some Links

- Facebook

<http://www.facebook.com/pages/HIAPER-Pole-to-Pole-Observations-HIPPO/142314054309>

- Can follow missions/flights as they happen

- HIPPO-3 flight plan

- [http://hippo.ucar.edu/itinerary/hippo\\_iii\\_flight\\_plan](http://hippo.ucar.edu/itinerary/hippo_iii_flight_plan)

- Main HIPPO page - <http://hippo.ucar.edu/>

- Links to HIPPO field catalogs

- <http://www.eol.ucar.edu/about/our-organization/fps/field-catalogs-1995-present>

- HIPPO-1: <http://catalog.eol.ucar.edu/hippo/>

- Field deployment Web page (HIPPO-1)

[http://www.eol.ucar.edu/deployment/field-deployments/field-projects/hippo\\_global\\_1](http://www.eol.ucar.edu/deployment/field-deployments/field-projects/hippo_global_1)

- Data sets list (HIPPO-1)

- [http://data.eol.ucar.edu/master\\_list/?project=HIPPO-1](http://data.eol.ucar.edu/master_list/?project=HIPPO-1)

# Data are of Several Types

- Field Catalogs
  - Maintained and served by UCAR
- Aircraft data
  - Maintained and served by UCAR
- Investigator data
  - Developed, maintained by PIs
  - Served by CDIAC
- Merged data (investigator and aircraft)
  - Developed by Lead PI
  - Served by CDIAC
- Model output
  - Served by CDIAC

# Investigator Data Products are Both Separate and Integrated

- Dozens of distinct investigator products are expected per mission (from about one dozen instruments)
- One or more merged product packages are expected
  - Being assembled by Steve Wofsy



# HIPPO Data Flow: Overview

Draft. Compiled by CDIAC. 2010/08/03

## Science Plan Data Policy Mission

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### Science Team Research Products

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

### Data Product Packages

### CDIAC Data Archive

#### >> Product Staging and Science Team Access

- Access mode ?
- Processing ?

#### >> Public Data Access

- Anon FTP
- Searchable metadata database to discover data
- RDB?

### Merged Data Product Packages

Links to existing sites.

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

[http://www.eol.ucar.edu/deployment/field-deployments/field-projects/hippo\\_global\\_1](http://www.eol.ucar.edu/deployment/field-deployments/field-projects/hippo_global_1)

The collage includes several web pages:
 

- HIPPO Global Phase I:** A page from the EOL (Earth Observing Laboratory) website providing information about the mission.
- HIPPO-1 Data Sets:** A table listing data products with columns for 'parentheses)', 'Date Posted', and 'Info'. It shows a 'New' entry from 2010-07-20.
- HIPPO Deployment 1 Field Catalog:** A detailed page with a 'Current Loop' map and various data links.
- HIAPER Pole-to-Pole Observations:** A page celebrating the HIPPO III team's successful campaign.

# CDIAC to House Investigator Data

- Provide website
- Acquire metadata
- Archive investigator data for public/science use
- Create database
- Maintain investigator data

# CDIAC is Creating a Website

- <http://hippo.ornl.gov/>
  - Drupal
- Content will be added as we receive data and metadata
- Links to Field Catalogs and Aircraft Data
- Prototype design...



# HIAPER Pole-to-Pole Observations

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## HIPPO-CDIAC Schematic Summary

- [Create content](#)
- [My account](#)
- [Log out](#)



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# Metadata: Template will Guide Metadata Acquisition

- Metadata template was requested by PI
- Provided in August 2010
- Interactions are anticipated
  - What PIs need to provide when they submit data products
  - Metadata template, documentation, ...

# Archive: Data will be Made Available as Received

- Example data have been requested
- Production data sets will be provided on ftp server as received
  - Linked from Web site
- Metadata will enable search/discovery interface
- QA is PI responsibility
  - We hope not to need to adopt/adapt/create a checking tool to check format and some content
- Documentation

# Database is Planned

- CDIAC plans to develop this
- After several missions' data are acquired
- Will allow subsetting by variables, locations, altitudes, times, ...
- Precedent: CDIAC ocean data
  - MySQL database
  - <http://cdiac3.ornl.gov/waves/discrete/>

# Scope of Maintenance TBD

- Traditional maintenance
  - Replace files/data sets with provided replacements
  - Update metadata
- The PI anticipates need for reprocessing
- Should CDIAC take this on?
  - Will we have raw data?
  - How much subject-matter expertise needed?
  - Who will perform independent review?
  - Are resources available?

# CDIAC Plans To Support HIPPO Data Management

- HIPPO data support climate modeling
- Primary data assembly is by PIs and Lead PI
- CDIAC plans to
  - Provide website
  - Acquire metadata
  - Archive for public/science use
  - Create database
  - Maintain; perhaps reprocess