DEEPWAVE DATA MANAGEMENT

Steve Williams

NCAR Earth Observing Laboratory (EOL)

Computing, Data, and Software Facility (CDS)

DEEPWAVE Planning Workshop

Christchurch, NZ

21-22 January 2014

CDS

EOL DEEPWAVE support sponsored by NSF

NCAR

EOL DATA SERVICES

- Data Questionnaire
- Data Management Plan Documents (e.g. policy/protocol)
- Real-time Data Ingest/Display (e.g. Ops Center)
- Field Operations Catalog and GIS (e.g. Mapserver, GE)
- Data Tracking, Processing, and Quality Assurance
- Interactive Data Archive and Distribution (EMDAC)
- Web Services
- Special Media Products/Services (including Mail lists)
- Long-term Archive and Data Stewardship

CDS

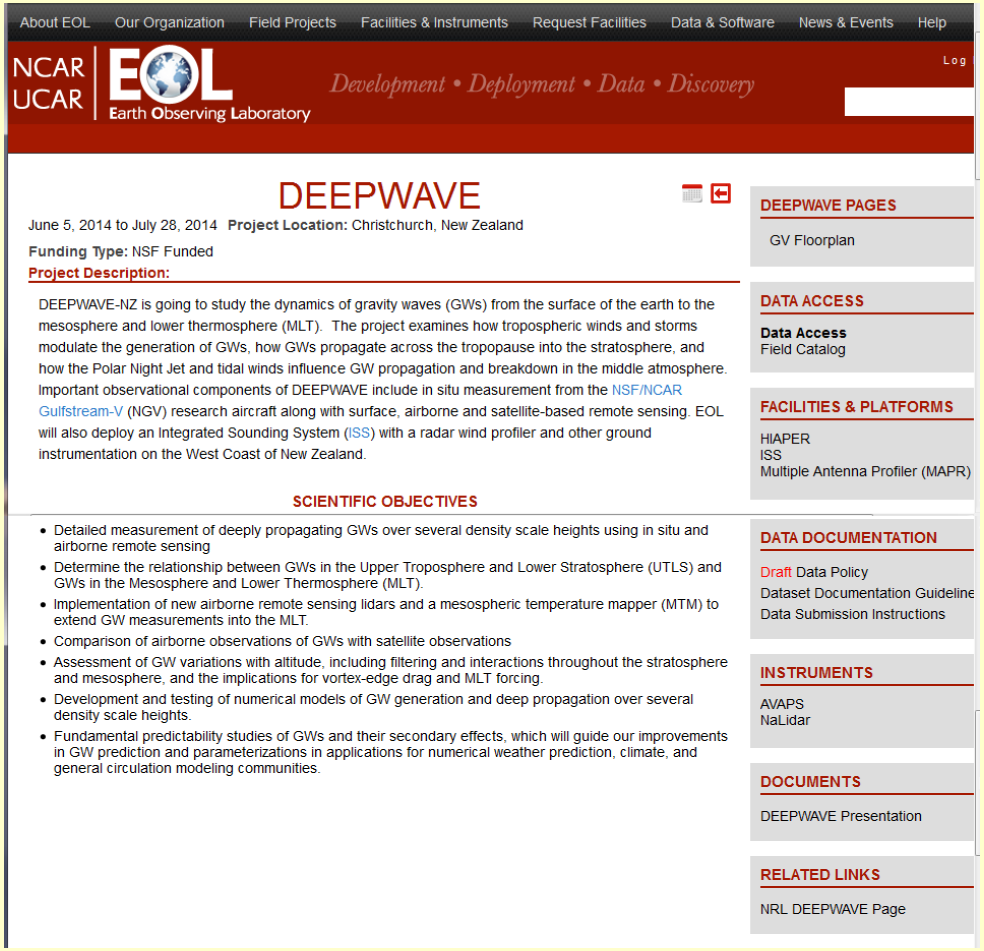
EARTH OBSERVING LABORATORY

Development Deployment Data Services Discovery

Project Data Management Considerations

- Develop Data Management Plan
- Data Types
- Data Formats and Documentation
- Data Collection
- Real-time Data Requirements
- Data Quality Control
- Data Archival
- Data Distribution
- Coordination with other Programs

DEEPWAVE Web Site at NCAR/EOL



About EOL | Our Organization | Field Projects | Facilities & Instruments | Request Facilities | Data & Software | News & Events | Help

NCAR UCAR | EOL Earth Observing Laboratory — *Development • Deployment • Data • Discovery*

Log

DEEPWAVE

June 5, 2014 to July 28, 2014 **Project Location:** Christchurch, New Zealand

Funding Type: NSF Funded

Project Description:

DEEPWAVE-NZ is going to study the dynamics of gravity waves (GWs) from the surface of the earth to the mesosphere and lower thermosphere (MLT). The project examines how tropospheric winds and storms modulate the generation of GWs, how GWs propagate across the tropopause into the stratosphere, and how the Polar Night Jet and tidal winds influence GW propagation and breakdown in the middle atmosphere. Important observational components of DEEPWAVE include in situ measurement from the NSF/NCAR Gulfstream-V (NGV) research aircraft along with surface, airborne and satellite-based remote sensing. EOL will also deploy an Integrated Sounding System (ISS) with a radar wind profiler and other ground instrumentation on the West Coast of New Zealand.

SCIENTIFIC OBJECTIVES

- Detailed measurement of deeply propagating GWs over several density scale heights using in situ and airborne remote sensing
- Determine the relationship between GWs in the Upper Troposphere and Lower Stratosphere (UTLS) and GWs in the Mesosphere and Lower Thermosphere (MLT).
- Implementation of new airborne remote sensing lidars and a mesospheric temperature mapper (MTM) to extend GW measurements into the MLT.
- Comparison of airborne observations of GWs with satellite observations
- Assessment of GW variations with altitude, including filtering and interactions throughout the stratosphere and mesosphere, and the implications for vortex-edge drag and MLT forcing.
- Development and testing of numerical models of GW generation and deep propagation over several density scale heights.
- Fundamental predictability studies of GWs and their secondary effects, which will guide our improvements in GW prediction and parameterizations in applications for numerical weather prediction, climate, and general circulation modeling communities.

DEEPWAVE PAGES

GV Floorplan

DATA ACCESS

Data Access
Field Catalog

FACILITIES & PLATFORMS

HIAPER
ISS
Multiple Antenna Profiler (MAPR)

DATA DOCUMENTATION

Draft Data Policy
Dataset Documentation Guideline
Data Submission Instructions

INSTRUMENTS

AVAPS
NaLidar

DOCUMENTS

DEEPWAVE Presentation

RELATED LINKS

NRL DEEPWAVE Page

- **Project Description**
- **Data Access & Field Catalog**
- **Publications**
- **Documentation**
- **Meetings and Presentations**
- **Mailing Lists**
- **Education and Outreach**
- **Related Web Pages**
- **PI and Contact Information**

https://www.eol.ucar.edu/field_projects/deepwave

DEEPWAVE DATA POLICY SUMMARY (*Proposed*)

- **All investigators must agree to promptly submit their processed "preliminary" data to the DEEPWAVE archive no later than 29 January 2015**
- **All "preliminary" data shall be provided to other DEEPWAVE Investigators upon request (restricted as appropriate)**
- **During the initial 1-year data analysis period, data may be provided to a third party only with the permission of the investigator(s) who collected the data**
- **All data will be considered public domain not more than one year following the end of the DEEPWAVE preliminary data submission deadline (01 February 2016)**
- **Any use of the data will, at a minimum, include acknowledgment. Co-authorship TBD with the investigator(s) who collected the data**

DRAFT DEEPWAVE DATA MANAGEMENT MILESTONES

Event	Deadline
End of Field Campaign	28 July 2014
Preliminary Data Submission	29 January 2015
Final Data Submission	29 July 2015
Initial Data Analysis Period (DEEPWAVE Science Team members have exclusive access to the data during this period.)	29 January 2015 to 29 January 2016
Data becomes Public Domain	1 February 2016

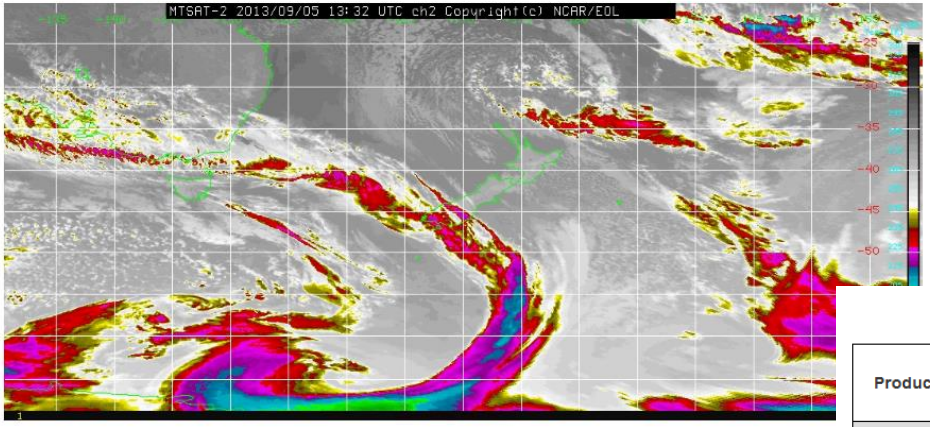
DEEPWAVE Field Catalog

Home | Reports | Ops Products | Model Products | Research Products | Tools & Links | Help

DEEPWAVE_2013 Field Catalog

DEEPWAVE 2013 Dry Run

MTSAT-2 IR Imagery



Current Reports

Chief Scientist Summary
Weather Discussion
Predictability and Targeting Discussion

Tools

Catalog Maps (GIS Tool)
Way Point Calculator

Chatrooms

IRC Chat Access
Help Documentation
Get a Password:

Project Time

UTC	Mon, Jan 20, 17:05 Z	Boulder, CO	Mon, Jan 20, 11
Hobart, TAS	Tues, Jan 21, 3:05 AM	Christchurch, NZ	Tues, Jan 21, 5
Oberpfaffenhofen, DLR	Mon, Jan 20, 7:05 PM	Honolulu, HI	Mon, Jan 20, 7

EARTH OBSERVING LABORATORY

Phone Numbers
Operations Center: XXX-XXX-XXXX
Operations Status Message: XXX-XXX-XXXX
Teleconference: X-XXX-XXX-XXXX
Teleconference: XXX-XXX-XXXX (Denver Local)
Access Code: XXXXXXX

External Webpages
EOL
EOL/CDS
EOL/FPS

- Daily Reports
- Operational Products
- Model Products
- Research Products
- Mission Summary Table
- Catalog Earth GIS Tool

US Navy COAMPS 15km Forecast

Product Times (UTC)	2013-08-21				2013-08-22				2013-08-23				2013-08-24			
	0	6	12	18	0	6	12	18	0	6	12	18	0	6		
US Navy COAMPS 15 km Res Forecast Products from 2013-08-21 00:00:00 UTC																
0002hPa Height Divergence	000hr	006hr	012hr	018hr	024hr	030hr	036hr	042hr	048hr	054hr	060hr					0002hPa Height Divergence
0002hPa Height Vorticity	000hr	006hr	012hr	018hr	024hr	030hr	036hr	042hr	048hr	054hr	060hr					0002hPa Height Vorticity
0002hPa Winds	000hr	006hr	012hr	018hr	024hr	030hr	036hr	042hr	048hr	054hr	060hr					0002hPa Winds
0010hPa Height Divergence	000hr	006hr	012hr	018hr	024hr	030hr	036hr	042hr	048hr	054hr	060hr					0010hPa Height Divergence
0010hPa Height Vorticity	000hr	006hr	012hr	018hr	024hr	030hr	036hr	042hr	048hr	054hr	060hr					0010hPa Height Vorticity
0010hPa Winds	000hr	006hr	012hr	018hr	024hr	030hr	036hr	042hr	048hr	054hr	060hr					0010hPa Winds
0050hPa Height Divergence	000hr	006hr	012hr	018hr	024hr	030hr	036hr	042hr	048hr	054hr	060hr					0050hPa Height Divergence
0050hPa Height Vorticity	000hr	006hr	012hr	018hr	024hr	030hr	036hr	042hr	048hr	054hr	060hr					0050hPa Height Vorticity
0050hPa Winds	000hr	006hr	012hr	018hr	024hr	030hr	036hr	042hr	048hr	054hr	060hr					0050hPa Winds
0100hPa Height Divergence	000hr	006hr	012hr	018hr	024hr	030hr	036hr	042hr	048hr	054hr	060hr					0100hPa Height Divergence
0100hPa Height Vorticity	000hr	006hr	012hr	018hr	024hr	030hr	036hr	042hr	048hr	054hr	060hr					0100hPa Height Vorticity
0100hPa Winds	000hr	006hr	012hr	018hr	024hr	030hr	036hr	042hr	048hr	054hr	060hr					0100hPa Winds
0200hPa Height Divergence	000hr	006hr	012hr	018hr	024hr	030hr	036hr	042hr	048hr	054hr	060hr					0200hPa Height Divergence
0200hPa Height Vorticity	000hr	006hr	012hr	018hr	024hr	030hr	036hr	042hr	048hr	054hr	060hr					0200hPa Height Vorticity

http://catalog.eol.ucar.edu/deepwave_2013

DC3 Field Catalog Statistics

- Reports/Summaries (Status, Mission, and Operations)

  1,032 documents and 2,571 image files (3.8 GB)

- Research Platform Products (Aircraft, Surface, Lidar, Upper Air)

  4,029,382 product files (180 .0 GB)

- Operational Products (Satellite, Surface, Radar, Upper Air)

  2,007,315 product files (491.0 GB)

- Model Output Imagery (Analysis and Forecast Fields)

  2,344,857 product files (271.0 GB)

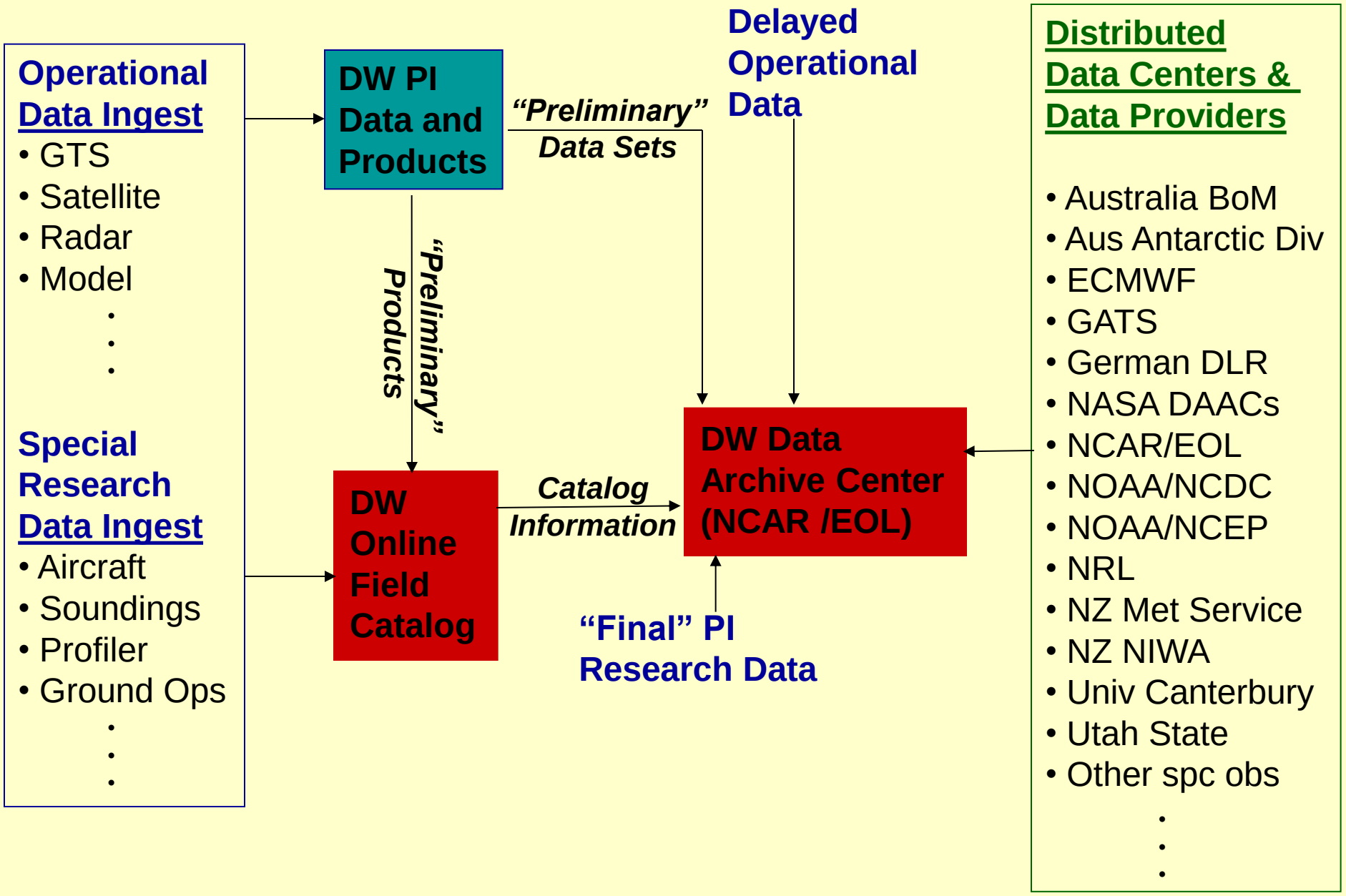
- Google Earth and Map Products

  146,100 product files (132.9 GB)

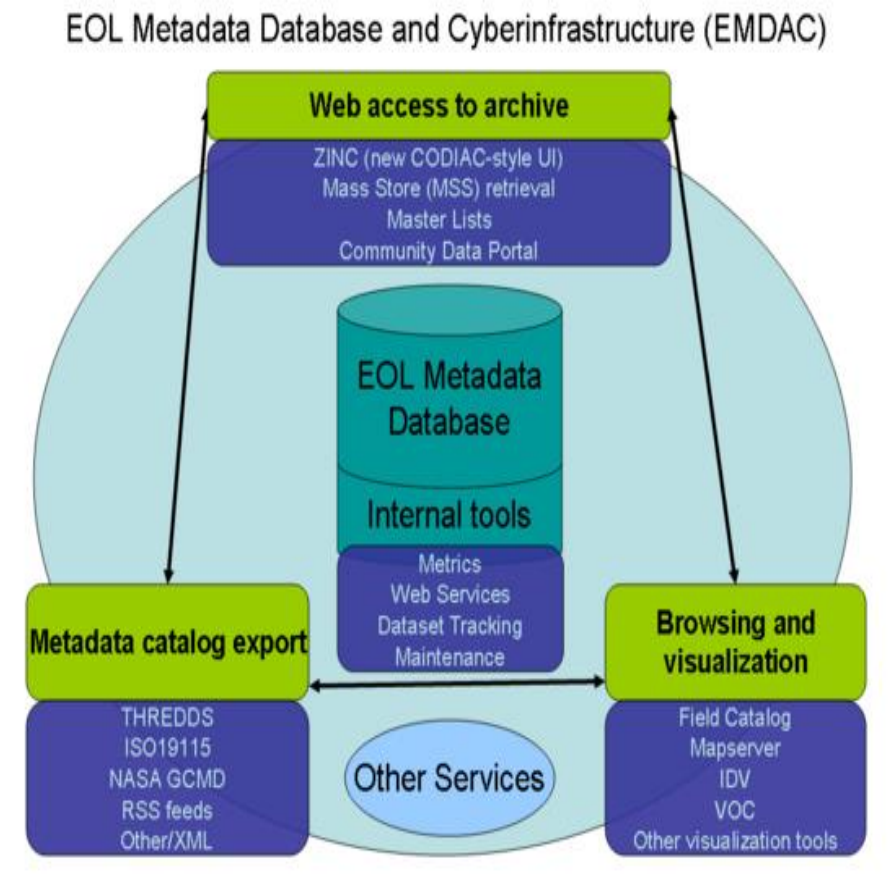
- TOTALS: 8,528,686 Files (1,078.7 GB)

http://catalog.eol.ucar.edu/dc3/

Expected DEEPWAVE (DW) Data Flow



EOL DATA MANAGEMENT



EOL Data System (EMDAC)

Primary means for all project scientists and researchers to browse and retrieve data from any EOL-supported projects

Features:

- **Long-term field project data archival and distribution**
- **Interactive data browsing, subsetting, and format translation**
- **Web-based access**
- **Value-added datasets**
- **Data documentation**

DC3 Data Archive (Master List)

DATA BY CATEGORY

- Accompanying Archives
- Aircraft
- Ancillary
- Hydrology
- Land Based
- Lightning
- Model
- Photography
- Radar
- Satellite
- Upper Air

DATA BY SITE

- Alabama Region
- Colorado Region
- Oklahoma Region

Back to DC3

Email comments & questions

DC3 Data Sets

Data Set Name (Responsible Group/PIs shown in parentheses)	Date Posted	Info
Accompanying Archives		
NASA Langley DC3 Merged Aircraft Dataset Archive [Chen, Gao (NASA-LaRC)]	2012-08-02	README
Aircraft		
Aircraft Meteorological Data Reports (AMDAR) and Aircraft Communications Addressing and Reporting System (ACARS) Data [(ESRL-GSD)]	2012-07-24	README
Aviation Weather Center Convective, Icing, and Turbulence SIGMET Imagery [(NCAR-EOL)]	New 2013-01-07	
Aviation Weather Center Pilot Reports of Icing and Turbulence (PIREPs) Imagery [(NCAR-EOL)]	New 2013-01-07	
DC3 Field Catalog Earth Tool (Replay) [(NCAR-EOL)]	New 2013-01-07	
NASA Langley DC3 Merged Aircraft Dataset Archive [Chen, Gao (NASA-LaRC)]	2012-08-02	README
NOAA NWS Aviation Weather Center Aviation Digital Data Service (ADDS) [(NOAA-NWS-ADDS)]	New 2013-01-17	README
Aircraft: DLR Falcon		
DC3 Mission Summaries [(NCAR-EOL)]	2012-10-23	

http://data.eol.ucar.edu/master_list/?project=DC3

DC3 ARCHIVE DATA DOCUMENTATION

Data Set Documentation ("Readme") Guidelines

The documentation (i.e., the "Readme" file) that accompanies each project data set is as important as the data itself. This information permits collaborators and other analysts to understand any limitations or special characteristics of the data that may impact its use. Data set documentation should accompany all data set submissions, including both preliminary and final. The following outline and content is recommended and should be adhered to as closely as possible to make the documentation consistent across all data sets.

Data set Documentation/Readme Outline:

Title: This should match the data set name

Author(s):

Name(s) of PI and all co-PIs
Complete mailing address, telephone/facsimile numbers,
E-mail address of PIs, and web address (if applicable)
Similar contact information for data questions (if different than above)

1.0 Data Set Overview:

Introduction or abstract
Time period covered by the data
Physical location (including lat/lon/elev) of the measurement or platform
Data source if applicable (e.g., for operational data include agency)
Any web address references (i.e., additional documentation such as Project web site)

2.0 Instrument Description:

Brief text (i.e., 1-2 paragraphs) describing the instrument with references
Figures (or links), if applicable
Table of specifications (i.e., accuracy, precision, frequency, resolution, etc.)

3.0 Data Collection and Processing:

Description of data collection
Description of derived parameters and processing techniques used
Description of quality assurance and control procedures
Data intercomparisons, if applicable

4.0 Data Format:

Data file structure and file naming conventions (e.g., column delimited ASCII, NetCDF, GIF, JPEG, etc.)
Data format and layout (i.e., description of header/data records, sample records)
List of parameters with units, sampling intervals, frequency, range
Data version number and date
Description of flags, codes used in the data, and definitions (i.e., good, questionable, missing, estimated, etc.)

5.0 Data Remarks:

PI's assessment of the data (i.e., disclaimers, instrument problems, quality issues, etc.)
Missing data periods
Software compatibility (i.e., list of existing software to view/manipulate the data)

6.0 References:

List of documents cited in this data set description. Please provide links for any publications, if available

DC3 DATA SUBMISSION

DC3 Data Submission Instructions

The DC3 Data Archive contains a master list of all DC3 international data sets (with links) and has been compiled to provide easy access to all DC3 data sets (both operational and research). Data sets are grouped by platform and sorted by data type (*i.e.,* aerosol, cloud properties, radar, satellite, *etc.*). This list will be updated frequently and is linked in the Data Access section of the **DC3 Project Page**. It is available directly at **DC3 Data Archive**. Please e-mail all corrections, additions, or deletions to the DC3 Data Archive list directly to **Steve Williams**.

If you already have your data sets available on-line, please provide the web link or FTP access information to NCAR Earth Observing Laboratory (EOL). Once your data set (with metadata) is available, a link will be provided from the DC3 Data Archive along with a submission date to track future data set upgrades or revisions (if needed).

Please submit both your data set(s) and accompanying metadata or documentation files to the DC3 Data Archive. Data set documentation guidelines are available by direct link **here**. NCAR EOL has established an anonymous FTP to accept your DC3 data set(s). **To FTP data to the NCAR EOL DC3 anonymous FTP, please use the following instructions:**

FTP: ftp.eol.ucar.edu
Login: anonymous *(No password required.)*
cd /pub/data/incoming/dc3

Once you have FTPed your data set to NCAR EOL, **it is very important to send an e-mail to sfw at ucar.edu** indicating that the data file(s) have been FTPed, along with the file(s) names, data contact information, any data restrictions, and appropriate file documentation (*i.e.,* data formats, descriptions, acknowledgments, and metadata). Documentation files may be e-mailed to sfw at ucar.edu directly if preferred. **If password protection is required for these data, please indicate this at the time of submission.** You will receive a unique "user ID" and "password" that can be changed at any time upon request. For users without direct Internet access, or if your data set(s) are too large to FTP, you may send digital file(s) on magnetic or optical media (with documentation) by conventional mail to the EOL shipping address below.

Thank you very much for your assistance in providing final data to the DC3 archive. Feel free to contact us should you encounter any problems or have any questions.

Steve Williams
DC3 Data Manager

DC3 PROJECT PUBLICATIONS LIBRARY

DC3 Publications

How to Submit Publication References to this List

Publications | Conferences | Reports | Theses | Other Citation Links

Publications

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Conference Proceedings

A-D | E-H | I-L | M-P | Q-T | U-Z | *Back to Top*

- Arkinson, Heather, T. Hanisco, M. Cazorla, A. Fried, J. Walega, 2012: In Situ Airborne Measurement of Formaldehyde with a New Laser Induced Fluorescence Instrument. Poster. AGU 2012 Meeting, San Francisco, California, U.S.A., A21H-0154.
- Barth, Mary C., M. Bela, K. Cummings, K. Pickering, T. Lyons, M. Weisman, K. Manning, G. Romine, W. Wang, F. Flocke, A. Weinheimer, T. Campos, T. Ryerson, G. Diskin, G. Sachse, 2012: Tracer and Chemistry Modeling of Thunderstorms for the DC3 Field Experiment. Poster. AGU 2012 Meeting, San Francisco, California, U.S.A., A21H-0152.
- Brock, Charles A., B. Anderson, L. Ziemba, K. Thornhill, R. Moore, A. Beyersdorf, E. Winstead, S. Crumeyrolle, N. Wagner, J. Langridge, M. Richardson, D. Lack, D. Law, T. Shingler, A. Sorooshian, 2012: Continuous Measurement of Particle Hygroscopicity as a Function of Diameter. Poster. AGU 2012 Meeting, San Francisco, California, U.S.A., A11A-0016.
- Bruning, Eric, R. Thomas (2012), Fractal-based lightning channel length estimation from convex hulls of VHF sources, Abstract AE12A-03 presented at 2012 Fall Meeting, AGU, San Francisco, Calif., 3-7 Dec.
- Campuzano Jost, Pedro, D. Day, B. Palm, A. Ortega, P. Hayes, J. Jimenez, 2012: Submicron Aerosol Transport and Aging by Convective Storms During the DC3 Campaign. Poster. AGU 2012 Meeting, San Francisco, California, U.S.A., A21H-0155.
- DiGangi, Joshua, A. O'Brien, M. Diao, C. Hamm, Q. Zhang, S. Beaton, M. Zondlo, 2012: Calibration and Field Deployment of the NSF G-V VCSEL Hygrometer. Poster. AGU 2012 Meeting, San Francisco, California, U.S.A., A31E-0078.
- Hall, Samuel, K. Ullmann, S. Schmidt, B. Kindel, J. Hair, 2012: Actinic flux measurements and photolysis frequencies enhancements near clouds during DC3 and TORERO. Poster. AGU 2012 Meeting, San Francisco, California, U.S.A., A51E-0116.

DC3 and SEAC4RS Joint Science Teams Meeting

February 21-23, 2012
Center Green Auditorium, NCAR, Boulder, Colorado

List of Attendees (Updated 17 Feb 2012)

Tuesday, February 21, 2012

7:30	**Registration begins**
	Introduction (Main Auditorium) **ReadyTalk 4978380**
8:30	Welcome (M. Barth, W. Randel, A. Pszenny, H. Maring)
9:00	Overview of the DC3 Science Plan & Experimental Design (M. Barth)
9:40	Forecasting Plans [PPS] [Movie A] [Movie B] (M. Weisman)

10:00 Break

Ground Facilities (Main Auditorium) ReadyTalk 4978380

10:30	Colorado (S. Rutledge)
10:45	Alabama [PPS] (L. Carey)
11:00	Oklahoma (D. MacGorman)

Aircraft Facilities (Main Auditorium) ReadyTalk 4978380

11:15	GV payload and flight patterns (C. Cantrell)
11:30	DC-8 payload and flight patterns (W. Brune)
11:45	Falcon payload and flight patterns (H. Huntrieser)

12:00 Lunch

General Operations (Main Auditorium) ReadyTalk 4978380

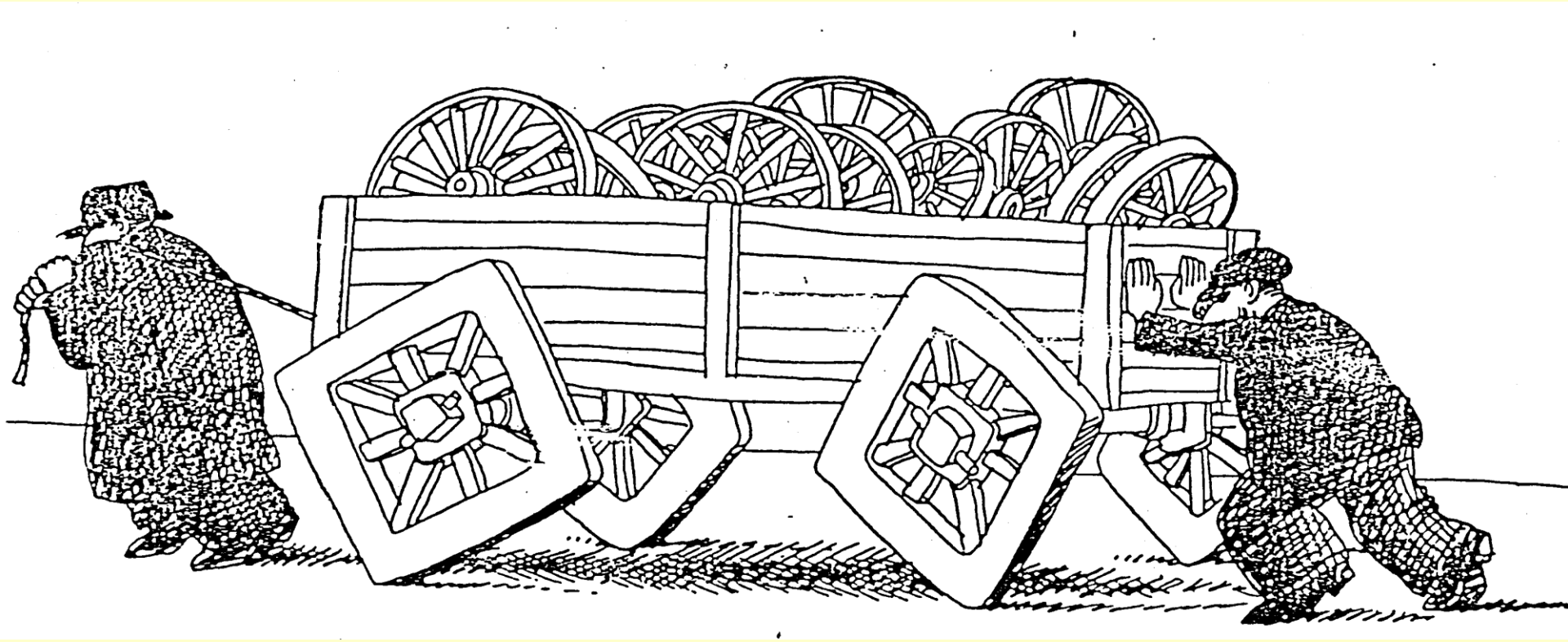
13:00	Operations Base (J. Moore)
13:30	Communications among Facilities (V. Salazar)

…. Finally, please provide a copy of your PPT presentation for Workshop Documentation.

A PDF copy of your presentation (not the PPT file) will be posted on the DEEPWAVE web site

EARTH OBSERVING LABORATORY
Development Deployment Data Services Discovery

RESULTS OF BAD OR NO DATA MANAGEMENT PLANNING



THANK YOU! **ANY QUESTIONS?**

Steve Williams (sfw@ucar.edu)