POST DATA MANAGEMENT PLANNING

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NCAR Earth Observing Laboratory

Boulder, Colorado

POST Science Team Meeting

Marina, CA

12-13 June 2008

EOL Data Management Philosophy

- Early involvement in project planning
- Involvement with PIs to develop data management strategy (e.g., plan, policy, format, special collection and processing, data integration)
- Consistent implementation of strategy for lifetime of project and beyond (stewardship – data access and publications!)
- Reliable and efficient archive and distribution system
- Easy and efficient access to datasets and products by the broader community including stakeholders, educators and students

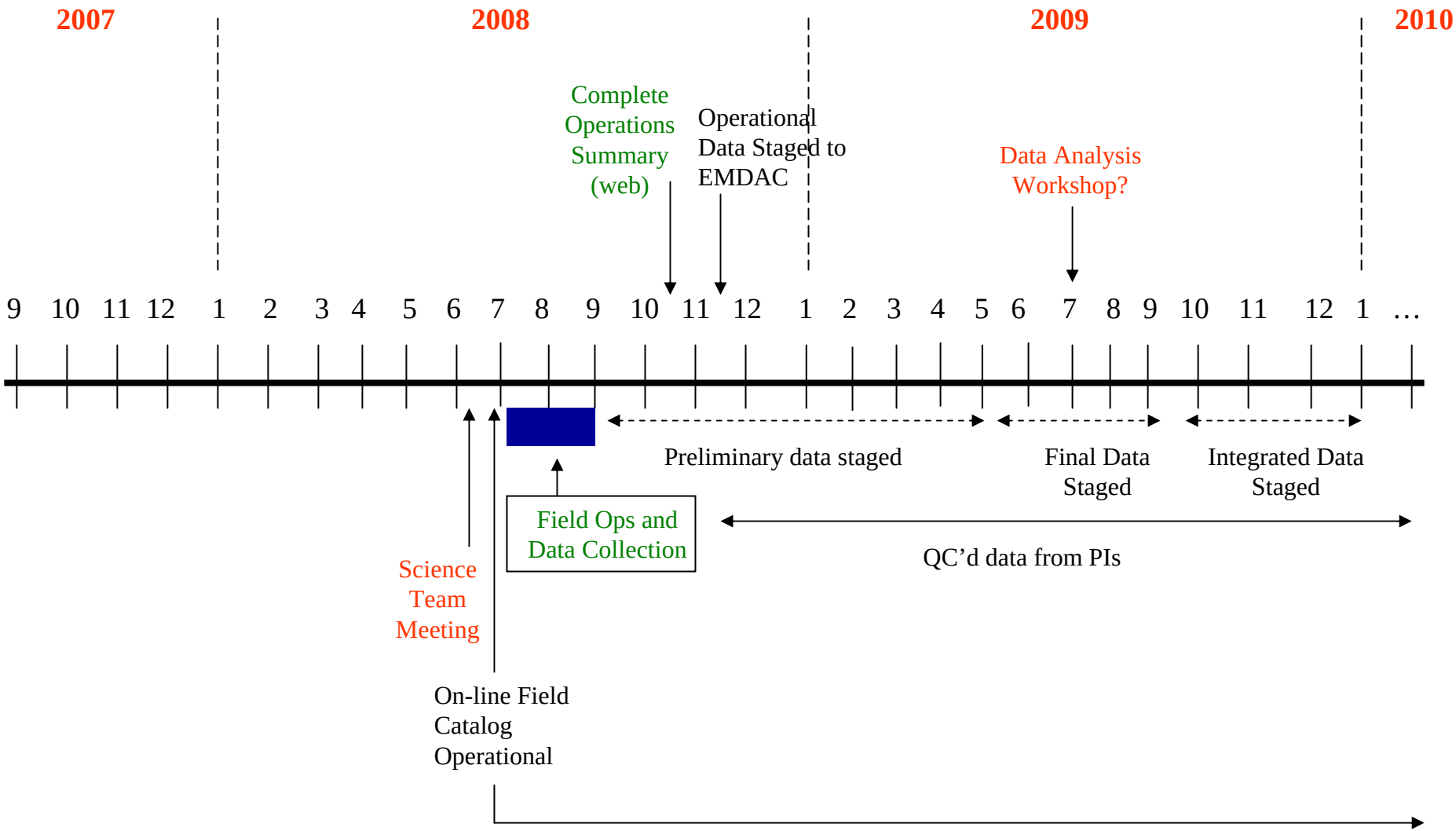
NCAR Earth Observing Laboratory

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

NCAR Earth Observing Laboratory

POST Data Management Timeline



Proposed POST Data Policy

ACCESS TO DATA

- All quality controlled data to be submitted to the POST data archive as soon as possible – 6 month maximum from the end of the Field Phase.
- For one year following the six month submission deadline, POST PIs will have exclusive access to this data. All PIs have equal access to all data.
- After one year, all research data will become publicly available. Operational data available after 3 months.
- Data should normally be in ASCII or NetCDF format. If in a special format, software (and documentation) for reading the data must be submitted to the archive along with the data set.
- Data and software to be well documented (metadata).

RICO DATASET METADATA

TITLE: This should match the data set name AUTHOR(S):
Name(s) of PI and all co-PIs
Complete mailing address, telephone/facsimile Nos.,
E-mail address of PIs, and WWW 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 World Wide Web address references (i.e. additional documentation such as Project WWW 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 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

Proposed POST Data Policy

PI RESPONSIBILITIES

- To carefully quality control their data to ensure maximum possible data integrity and value.
- To thoroughly document their data, including:
  - Instrument specifications;
  - Errors;
  - Problems with data (gaps and other problems);
  - Limitations.
- To provide full contact details.
- To make the data available for inclusion in the POST archive within 6 months of the field phase.

Proposed POST Data Policy

USE OF DATA

- The PIs who gathered the data should be informed of the intent to use the data and approve (if necessary).
- It is strongly encouraged that PIs responsible for acquisition of data be invited to become collaborators and co-authors on any projects/publications/presentations. If the contribution of the data product is significant to the publication, the PIs responsible for generating a measurement or a data product should be offered the right of co-authorship.
- In all circumstances, the PIs responsible for acquisition of data should be acknowledged appropriately.

Proposed POST Data Policy

USE OF DATA

- *Suggested acknowledgement*: The xxxx data was gathered as part of the The Physics Of Stratocumulus Tops (POST). The primary sponsor of POST was the US National Science Foundation. The acquisition of the xxxx data was carried out by Dr. Yyyyy using the zzzz instrument and was funded by ????
- Acknowledge that data was obtained from the POST Data Archive at NCAR/EOL.

NCAR Earth Observing Laboratory

EOL DATA MANAGEMENT TOOLS

EOL Field Catalog

In-field tool to ingest and display operational and preliminary research data and project documentation for making real-time decisions and evaluating project progress

Features:

- **Daily Mission Reports**
- **Operations Summary**
- **Facility Status Reports**
- **Data Analysis Products**
- **Authoring Tools**
- **Web-based access**

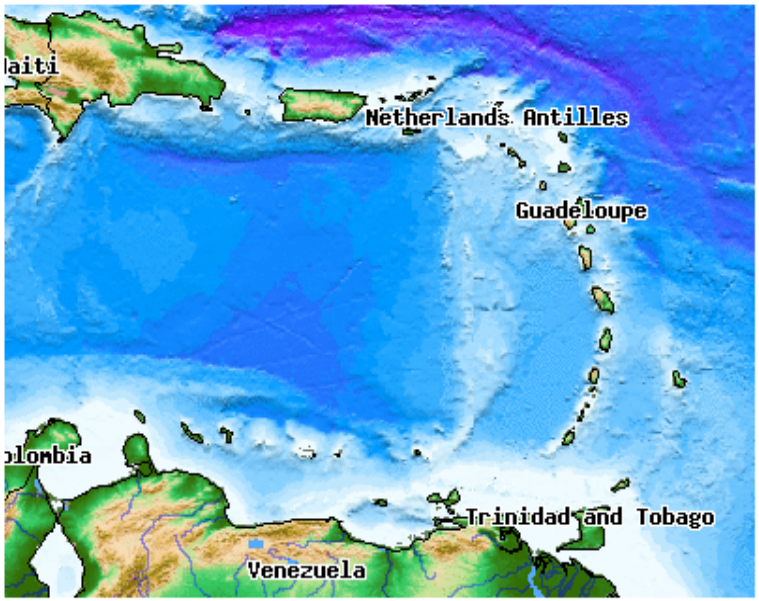
EOL Data System (EMDAC)

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**

RICO Field Catalog

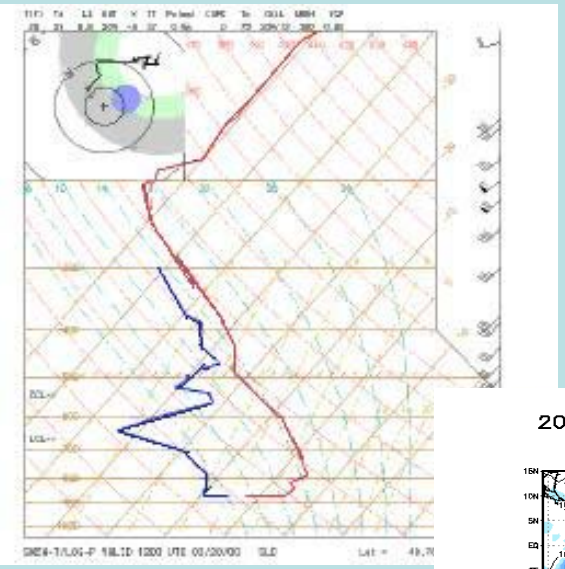


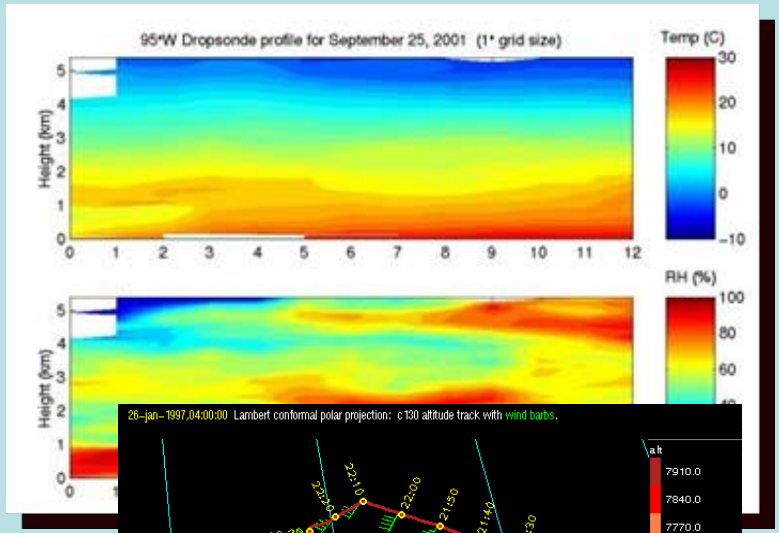
Project Location: Antigua and Barbuda

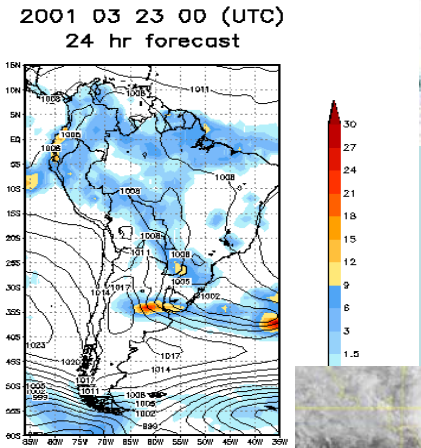
Project Dates: 17 November 2004 through 24 January 2005

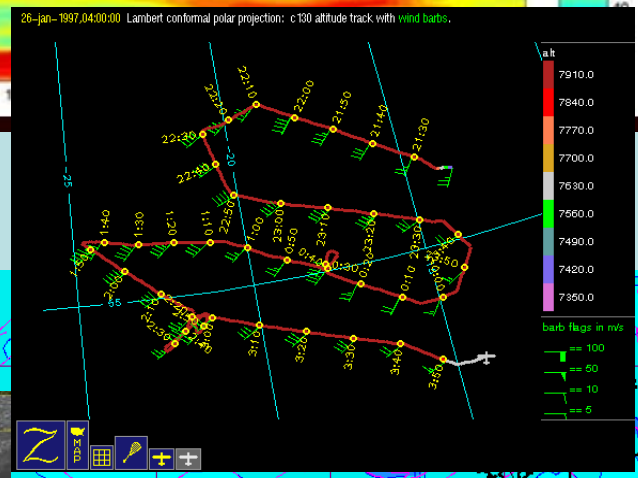
University Corporation for Atmospheric Research
PO Box 3000 Boulder CO 80307 USA

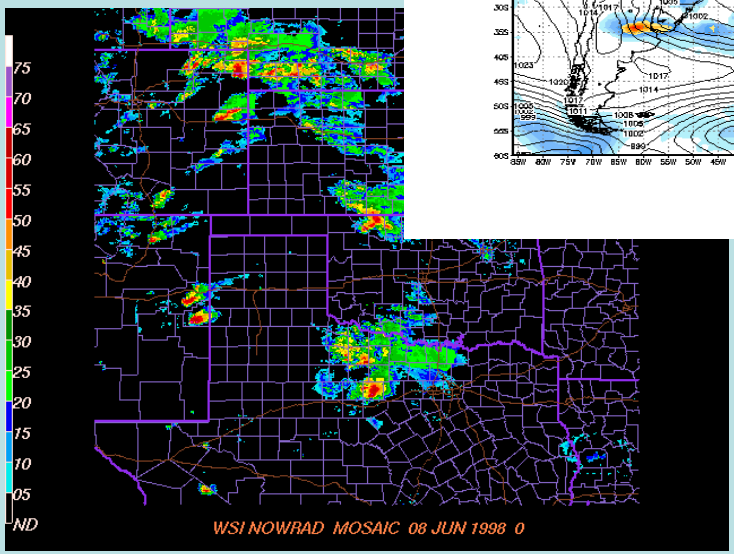
FIELD CATALOG SAMPLE PRODUCTS

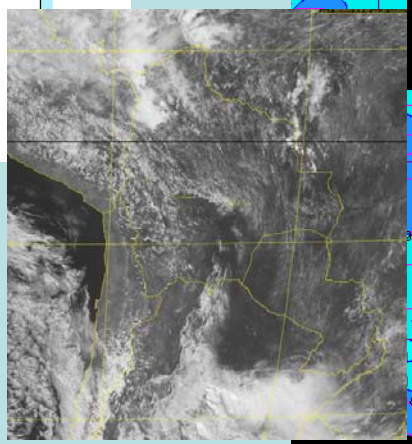


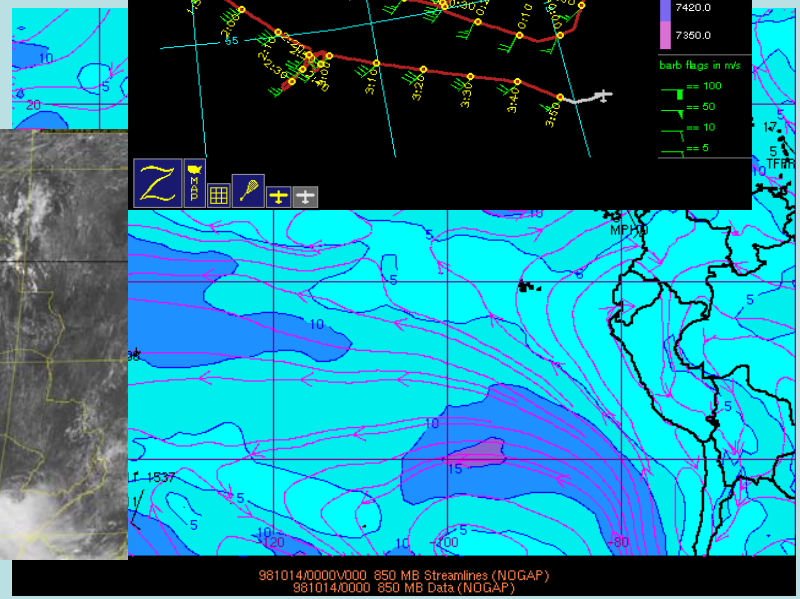








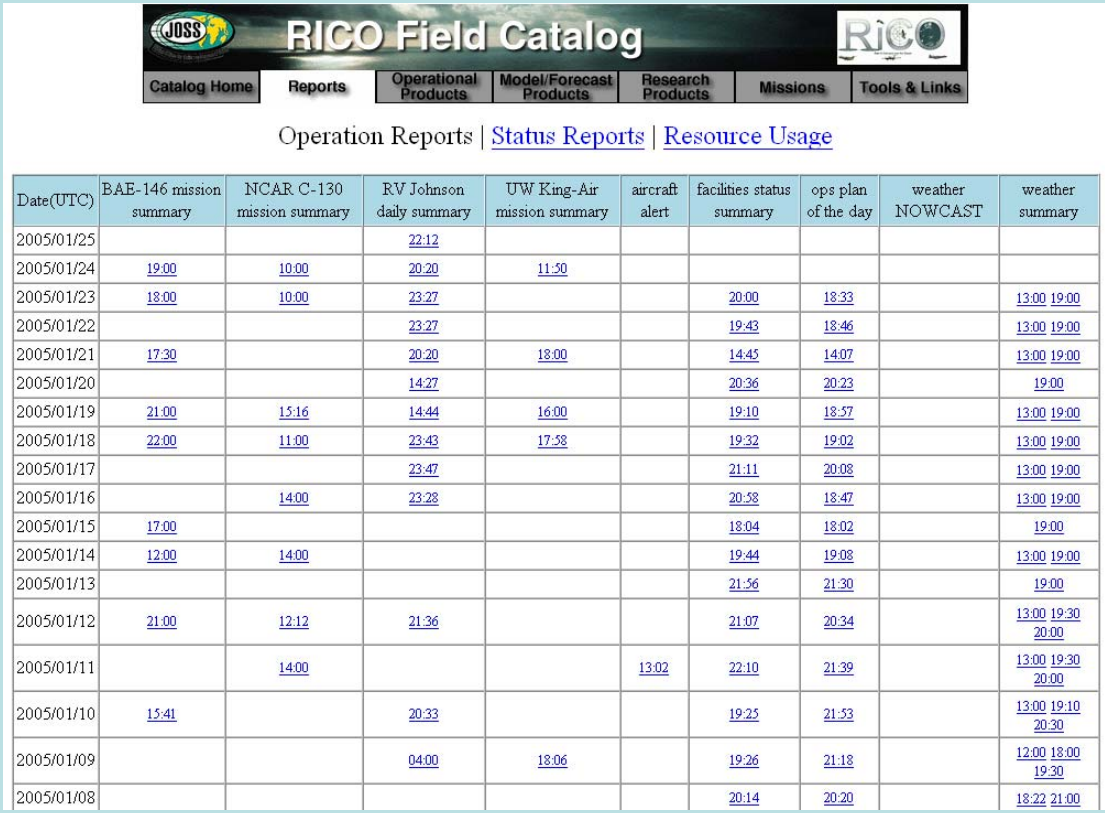




RICO Field Catalog

Field Documentation

- ***Operations Summary***
- ***Instrument / Facility Status***
- ***Forecast Briefing***
- ***Mission Summary***
- ***Scientist Summary***



Date(UTC)	BAE-146 mission summary	NCAR C-130 mission summary	RV Johnson daily summary	UW King-Air mission summary	aircraft alert	facilities status summary	ops plan of the day	weather NOWCAST	weather summary
2005/01/25			22:12						
2005/01/24	19:00	10:00	20:20	11:50					
2005/01/23	18:00	10:00	23:27			20:00	18:33		13:00 19:00
2005/01/22			23:27			19:43	18:46		13:00 19:00
2005/01/21	17:30		20:20	18:00		14:45	14:07		13:00 19:00
2005/01/20			14:27			20:36	20:23		19:00
2005/01/19	21:00	15:16	14:44	16:00		19:10	18:57		13:00 19:00
2005/01/18	22:00	11:00	23:43	17:58		19:32	19:02		13:00 19:00
2005/01/17			23:47			21:11	20:08		13:00 19:00
2005/01/16		14:00	23:28			20:58	18:47		13:00 19:00
2005/01/15	17:00					18:04	18:02		19:00
2005/01/14	12:00	14:00				19:44	19:08		13:00 19:00
2005/01/13						21:56	21:30		19:00
2005/01/12	21:00	12:12	21:36			21:07	20:34		13:00 19:30 20:00
2005/01/11		14:00			13:02	22:10	21:39		13:00 19:30 20:00
2005/01/10	15:41		20:33			19:25	21:53		13:00 19:10 20:30
2005/01/09			04:00	18:06		19:26	21:18		12:00 18:00 19:30
2005/01/08						20:14	20:20		18:22 21:00

RICO Facilities Status Summary Report

Date of report(UTC): 2005/01/15 18:04
Author of report: Greg Stossmeister
Submitted at(UTC): 2005/01/15 18:08

OVERVIEW:

Land radars operational
Barbuda soundings taken 4/day
BAE-146 and UW King-Air flying today. Hard-down day for the NCAR C-130.

R/V Johnson on port call in Antigua today.
Antigua air sampling site fully operational.

FACILITY/PROJECT STATUS

= up; = provisional; = down ; = no report

1.	**NCAR C-130**	**Comment:** See also detailed instrument status report
a.	**Air Chemistry**	**Comment:**
b.	**Microphysics**	**Comment:**
c.	**SABL**	**Comment:** replacement parts shipped
d.	**Dropsondes**	**Comment:**
e.	**Navigation, State Parameters**	**Comment:** Lyman alpha performing better
f.	**Data System**	**Comment:**
g.	**Sat. Communications**	**Comment:**
2.	**UW King Air**	**Comment:**
a.	**Air Chemistry**	**Comment:**
b.	**Microphysics**	**Comment:**
c.	**Cloud Radar**	**Comment:** New parts due in next week

Mission Scientist Report, RICO, RF15 January 16th, 2005

C130Q Flight Scientist/Observer: Stevens/Ochs

Figure 1: Images showing cloud field during flight.

General cloud characteristics: The clouds sampled during the line segment of the flight were initially thought to be in the outflow of a region of more organized, deeper convection. Our targets consisted of several convective cells which grew substantially during the period of flight operations, eventually reaching depths of 15000'. Based on the radar imagery (Fig. 3), the "line" might be better interpreted as the stronger, eastern, flank of meso-cell of approximately 60 km in diameter. Later we sampled another ring, or rings of growing convection with tops nearer 6000 ft, sampling many rainshafts, and convective cells at a variety of levels, these were more apparently annular while flying. Both the deeper cells sampled early and the later cells sampled late were not unlike other forms of convection encountered during RICO. Cloud droplet concentrations during the flight were low, typically around 100 cm^{-3} or a bit less. The latter cells provided many opportunities to work rainshafts near the radar, thus providing calibration for $Z - R$ relationships during RICO.

RICO Operations Plan of the Day Form

For use by authorized users only please.

Date of report(UTC): year: 2005 month: 02 day: 05 hour: 22 min: 03

Author of report: Jim Moore **Password:**

Preserve the format of the text being entered below?: no

OPERATIONS SUMMARY:

SCIENTIFIC OBJECTIVE(S):

MISSION PLANS:

PRIMARY MISSION:

RICO Field Catalog

Browse by Date:

UTC ST

October 2004

Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

November 2004

Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

December 2004

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

January 2005

Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Browse by Operational Products:

Satellite Products

DMSP	OLF_vis	Latest	Start Date	End Date	Get Data
GOES	winds_IR	Latest	Start Date	End Date	Get Data
goes-12	1km_ch1_vis	Use Start/End Dates ->	2005/01/10	2005/01/11	Get Data
MODIS	Aqua_650_ch1	Latest	Start Date	End Date	Get Data
POES	sst	Latest	Start Date	End Date	Get Data
QUIKSCAT	ANTIGUA_winds_ascending	Latest	Start Date	End Date	Get Data
SEAWIFS	atlantic	Latest	Start Date	End Date	Get Data

RICO Field Catalog

Operational Products Display

- Satellite
- Surface
- Model Analysis
- Upper-Air Soundings
- Buoy Data
- Marine Products

QUIKSCAT																								
ANTIGUA_winds_ascending																		1700						
ANTIGUA_winds_descending						0500																		
EAST_winds_ascending																1500								
EAST_winds_descending				0300																				
goes-12 (NESDIS GOES Soundings)																								
1km_ch1_vis										1045	1115 1145	1215 1245	1315 1345	1415 1445	1515 1525 1545 1555	1615 1625 1645 1655	1715 1725 1742 1745	1815 1825 1845 1855	1915 1925 1945 1955	2015 2025 2045	2115			
4km_ch1_vis										1045	1115 1145	1215 1245	1315 1345	1415 1445	1515 1545	1615 1645	1715 1745	1815 1845	1915 1945	2015 2045	2115			
4km_ch2-ch4	0015 0045	0115 0145	0215 0245	0315 0345	0415 0445	0515 0545	0615 0645	0715 0745	0815 0845	0915 0945	1015 1045	1115 1145	1215 1245	1315 1345	1415 1445	1515 1545	1615 1645	1715 1745	1815 1845	1915 1945	2015 2045	2115 2145	2215 2245	2315 2345
4km_ch3_water_vapor	0015 0045	0115 0145	0215 0245	0315 0345	0415 0445	0515 0545	0615 0645	0715 0745	0815 0845	0915 0945	1015 1045	1115 1145	1215 1245	1315 1345	1415 1445	1515 1545	1615 1645	1715 1745	1815 1845	1915 1945	2015 2045	2115 2145	2215 2245	2315 2345
4km_ch4_thermal-IR	0015 0045	0115 0145	0215 0245	0315 0345	0415 0445	0515 0545	0615 0645	0715 0745	0815 0845	0915 0945	1015 1045	1115 1145	1215 1245	1315 1345	1415 1445	1515 1545	1615 1645	1715 1745	1815 1845	1915 1945	2015 2045	2115 2145	2215 2245	2315 2345
8km_ch1_vis										1045	1115 1145			1415	1515 1545	1615 1645	1715	1815 1845	1915 1945	2015	2115 2145	2215		
8km_ch3_water_vapor	0015 0045	0115 0145	0215 0245	0315 0345	0415 0445	0515 0545	0615 0645	0715 0745	0815 0845	0915 0945	1015 1045	1115 1145			1415 1445	1515 1545	1615 1645	1715 1745	1815 1845	1915 1945	2015 2045	2115 2145	2215 2245	2315 2345
8km_ch4_thermal-IR	0015 0045	0115 0145	0215 0245	0315 0345	0415 0445	0515 0545	0615 0645	0715 0745	0815 0845	0915 0945	1015 1045	1115 1145			1415 1445	1515 1545	1615 1645	1715 1745	1815 1845	1915 1945	2015 2045	2115 2145	2215 2245	2315 2345
Product Times(UTC)	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	10 Jan 2005																							

Surface Products

Product Times(UTC)	10 Jan 2005																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
GTS_Station_Plot																								
Caribbean	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
Regional	0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
NTAS_Buoy																								
time_series_rad_rh	0000						0600						1200						1800					
time_series_temp_wind	0000						0600						1200						1800					
TPC_Surface_Analysis																								
atlantic	0000						0600						1200						1800					

RICO Field Catalog

RAMS Forecast Products

Forecast Times(UTC)	10 Jan 2005						11 Jan 2005												12 Jan 2005							
	12	14	16	18	20	22	00	02	04	06	08	10	12	14	16	18	20	22	00	02	04	06	08	10	12	
RAMS_grid3 - Analysis and Forecast from 2005/01/10 12:00 UTC (RAMS RICO FORECASTS)																										
300mb_RH	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
300mb_speed	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
300mb_temp	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
500mb_RH	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
500mb_speed	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
500mb_temp	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
700mb_RH	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
700mb_speed	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
700mb_temp	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
850mb_RH	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
850mb_speed	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
850mb_temp	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
acc_tot_precip	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
mixed_layer_height	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
precip_rate	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
sea_level_press	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
sfc_dew	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
sfc_temp	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
sfc_wind	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
vert_integ_condensate	00hr	02hr	04hr	06hr	08hr	10hr	12hr	14hr	16hr	18hr	20hr	22hr	24hr	26hr	28hr	30hr	32hr	34hr	36hr	38hr	40hr	42hr	44hr	46hr	48hr	
Forecast Times(UTC)	12	14	16	18	20	22	00	02	04	06	08	10	12	14	16	18	20	22	00	02	04	06	08	10	12	
	10 Jan 2005						11 Jan 2005												12 Jan 2005							

RICO Field Catalog

Browse by Research Products:

Aircraft Products

NCAR_C-130	Dropsonde	Latest	Start Date	End Date	Get Data
sabl	gdb	Latest	Start Date	End Date	Get Data
UW_King-Air	WCR_H1_up_side	Latest	Start Date	End Date	Get Data

Radar Products

S-Pol	dbz	Latest	Start Date	End Date	Get Data

Surface Products

Antigua_Sampling_Site	Humidity	Latest	Start Date	End Date	Get Data
ISFF	Met	Latest	Start Date	End Date	Get Data

Upper Air Products

GAUS_sounding	spanish_point	Latest	Start Date	End Date	Get Data
Seward_Johnson	skewt	Latest	Start Date	End Date	Get Data

Other Products

HYSPLIT	back_trajectories	Latest	Start Date	End Date	Get Data
NAAPS	caribbean_aerosol	Latest	Start Date	End Date	Get Data

RICO Mission Table

Note: FF and RF refer to NCAR C-130 datafile name. B refers to BAE-146 data, and MMDD (2-digit month, 2-digit day) refer to Wyoming datafile name with a and b used when multiple flights occur in a given day.

Number	Date	Mission	Begin (UTC)	End (UTC)	Location/Mission Map	Catalog Products	Facilities	Notes
17 RF-12 UW-20050111	11 Jan	Trade Cumulus Study C-130 Summary	1400	2200	NE of Barbuda in S- and k- band radar coverage, near the ship, and SE of S-Polka.	Operational Research Model	UW King-Air NCAR C-130 R/V Seward Johnson S-Polka Barbuda Ground Site Antigua Air sampling site GOES super-rapid scan	Excellent case study of small and vigorous trade cumulus. King-Air and C-130 flew in different radar sectors to study clouds near the ship and SE of the radar. Excellent intercomparison with the ship by the C-130.
18 RF-13 B073 UW-20050112	12 Jan	Trade Cumulus Clusters with Towers C-130 Summary BAE-146 Summary	1400	2200	NE of Barbuda in S- and k- band radar coverage, generally E and SE of the ship.	Operational Research Model	UW King-Air BAE-146 NCAR C-130 R/V Seward Johnson S-Polka Barbuda Ground Site Antigua Air sampling site GOES super-rapid scan	Coordinated 3 aircraft study of cumulus clusters with towers. BAE-146 overflight of ship.
19 RF-14 B074 UW-20050114	14 Jan	Trade Cumulus Study C-130 Summary BAE-146 Summary	1500	2300	NE of Barbuda in S- and k- band radar coverage, near the ship.	Operational Research Model	UW King-Air BAE-146 NCAR C-130 R/V Seward Johnson S-Polka Barbuda Ground Site Antigua Air sampling site GOES super-rapid scan	Three aircraft coordinated measurements of widespread shallow cumulus.

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