



# GRIP Archive Data Set Status



**Michael Goodman**

**GRIP Science Team Meeting**

**9 May 2012**



# GHRC Team Members

- Helen Conover – Project Manager
- Marilyn Drewry – Dbase Manager
- Will Ellett – System Administrator
- Michelle Garret – System Administrator
- Danny Hardin – Web Manager
- John Hall – RTMM Developer
- Sherry Harrison – User Services
- Lamar Hawkins – Operations
- Matt He – System Developer
- Ajinkya Kulkarni – System Developer
- Mary Nair – Dbase Developer
- Tammy Smith – Web Designer



# GRIP Data Access

<http://grip.nsstc.nasa.gov>

+ Home

## Genesis and Rapid Intensification Processes

Mission Calendar

Data

Reports

Science

Instruments

Flight Tracks

Participants

Tools

Related Links

Image Gallery

GRIP News



### Genesis and Rapid Intensification Processes (GRIP)

The Genesis and Rapid Intensification Processes (GRIP) experiment was a NASA Earth science field experiment in 2010 that was conducted to better understand how tropical storms form and develop into major hurricanes. NASA used the DC-8 aircraft, the WB-57 aircraft, and the Global Hawk Unmanned Airborne System (UAS) configured with a suite of *in situ* and remote sensing instruments used to observe and characterize the lifecycle of hurricanes.

The GRIP deployment was 15 August – 30 September 2010 with bases in Ft. Lauderdale, FL for the DC-8, at Houston, TX for the WB-57, and at NASA Dryden Flight Research Facility, CA for the Global Hawk. This campaign capitalized on a number of ground networks, airborne science platforms (both manned and unmanned), and space-based assets. The field campaign was executed according to a prioritized set of scientific objectives. In two separate science solicitations, NASA selected a team of investigators to [collect NASA satellite and aircraft field campaign data](#) with the goal of [conducting basic research](#) on problems related to the formation and intensification of hurricanes.

The spaceborne and airborne observational capabilities of NASA put it in a unique position to assist the hurricane research community in addressing shortcomings in the current state of the science. The relatively recent launch of several new satellites, the prospect of using a high-altitude UAS for hurricane surveillance, and the emergence of new remote sensing technologies offered new research tools that needed to be explored and validated. Of great importance were new remote sensing instruments for wind and temperature that can lead to improved characterization of storm structure and environment.



Real Time Mission Monitor was used to track flights live during GRIP



# GRIP Data Calendar Access

< August		September 2010					Please read note at bottom
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
DC 8 Flight			1 	2 	3 	4 	
Global Hawk Flight							
WB 57 Flight							
Reports & Data							
5 	6 	7 	8 	9 	10 		
12 	13 	14 	15 	16 	17 		
19 	20 	21 	22 	23 	24 	25 	

## Reports for Thursday, September 2, 2010

Aircraft Image	Aircraft Name	Report Title	Report Type
	APR-2	APR2 Status for Sep 2 Post Flight	Instrument Scientist Report
	CAPS/CSI/PIP	Flight Report Sep 2, 2010	Instrument Scientist Report
	DC-8	DC-8 N817NA Flight #100613	Mission Manager Report
	DC-8	2 Sep 2010 DC-8 Platform Scientist Report (Earl) - Ed Zipser	Platform Scientist Report
	HAMSR	HAMSR over Earl	Instrument Scientist Report
	LASE	Flt 14 LASE FLL to STX Transit #2	Instrument Scientist Report
	GH	02 Sep 2010 Global Hawk Platform Scientist Report (Earl) - Gerry Heymsfield & Michael Black	Platform Scientist Report



# Three Ways to Get GRIP Data

+ Home

## Genesis and Rapid Intensification Processes

### How To Access GRIP Data

There are three ways to access data from GRIP

1. GHRC Data Search and Order System - HyDRO
2. GRIP FTP Server
3. GRIP Mission Calendar (Password Protected)



Dataset Collections

## HyDRO

Datasets are grouped by collection. Some datasets may appear in more than one collection.

Click a dataset name for a list of the files in that collection.

You searched for "grip" in any field.

- GRIP Products (21 datasets)
  - GRIP Airborne Second Generation Precipitation Radar (APR-2) \* i ↓ ↻
  - GRIP Barbados/Cape Verde Radiosonde \* i ↓ ↻
  - GRIP Campaign Reports \* i ↓
  - GRIP Cloud Microphysics \* i ↓ ↻
  - GRIP DC-8 Dropsonde \* i ↓ ↻
  - GRIP DC-8 Meteorological Measurement System (MMS) \* i ↓
  - GRIP DC-8 Navigation and Housekeeping Data \* i ↓ ↻
  - GRIP Doppler Aerosol Wind Lidar (DAWN) \* i ↓ ↻
  - GRIP GOES 11 Visible and Infrared Images \* i ↓
  - GRIP GOES 13 Overshooting Top \* i ↓
  - GRIP GOES 13 Visible and Infrared Images \* i ↓
  - GRIP Global Hawk Navigation and Housekeeping Data \* i ↓
  - GRIP High Altitude Imaging Wind and Rain Airborne Profiler (HIWRAP) \* i ↓ ↻
  - GRIP High-Altitude MMIC Sounding Radiometer (HAMSR) \* i ↓
  - GRIP Hurricane Imaging Radiometer (HIRAD) i
  - GRIP Langley Aerosol Research Group Experiment (LARGE) \* i ↓
  - GRIP Lidar Atmospheric Sensing Experiment (LASE) \* i ↓ ↻
  - GRIP Lightning Instrument Package (LIP) \* i ↓
  - GRIP Meteosat Second Generation (MSG) Image Data \* i ↓ ↻
  - GRIP NOAA Global Hawk In-flight Turbulence Sensor (GHIS) \* i ↓
  - GRIP WB-57 Navigation and Housekeeping Data \* i ↓
- Lightning Products (1 dataset)
  - GRIP Lightning Instrument Package (LIP) \* i ↓

## FTP

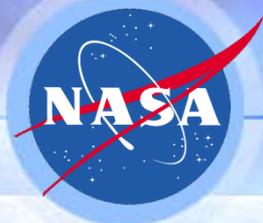
Index of <ftp://airbornescience.nsstc.nasa.gov/grip/>

Up to higher level directory

Name	Size	Last Modified
APR2		8/1/11 12:
CAPS_PIP_CDP		6/6/11 12:
DAWN		4/26/12 4:1
Dropsonde_DC8		6/6/11 12:
Flighttracks		5/7/12 2:3
GHIS		8/22/11 12:
GOES_OT		6/2/11 12:
GOES_images		6/2/11 12:
HAMSR		6/2/11 12:
HIRAD		9/15/11 12:
HIWRAP		4/25/12 7:5
LARGE		6/27/11 12:
LASE		6/2/11 12:
LIP		10/12/11 12:
MMS		6/2/11 12:
MSG		6/2/11 12:
NAV_DC8		6/2/11 12:
NAV_GH		6/2/11 12:
NAV_WB57		6/2/11 12:
Radiosonde		6/2/11 12:
Reports		6/2/11 12:
doc		5/4/12 7:1

## Calendar

< August		September 2010					Please read note at bottom
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
	DC 8 Flight						
	Global Hawk Flight						
	WB 57 Flight						
	Reports & Data						
5	6	7	8	9	10	11	
12	13	14	15	16	17	18	
19	20	21	22	23	24	25	



# HyDRO

## Hydrologic Data search Retrieval & Ord



### Dataset Collections

Datasets are grouped by collection. Some datasets may appear in more than one collection.

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#### GRIP Products (21 datasets)

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- GRIP Barbados/Cape Verde Radiosonde \* i ↓ 🔍
- GRIP Campaign Reports \* i ↓
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- GRIP DC-8 Navigation and Housekeeping Data \* i ↓ 🔍
- GRIP Doppler Aerosol WInD lidar (DAWN) \* i ↓ 🔍
- GRIP GOES 11 Visible and Infrared Images \* i ↓
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- GRIP Global Hawk Navigation and Housekeeping Data \* i ↓
- GRIP High Altitude Imaging Wind and Rain Airborne Profiler (HIWRAP) \* i ↓ 🔍
- GRIP High-Altitude MMIC Sounding Radiometer (HAMSR) \* i ↓
- GRIP Hurricane Imaging Radiometer (HIRAD) i
- GRIP Langley Aerosol Research Group Experiment (LARGE) \* i ↓
- GRIP Lidar Atmospheric Sensing Experiment (LASE) \* i ↓ 🔍
- GRIP Lightning Instrument Package (LIP) \* i ↓
- GRIP Meteosat Second Generation (MSG) Image Data \* i ↓ 🔍
- GRIP NOAA Global Hawk In-flight Turbulence Sensor (GHIS) \* i ↓
- GRIP WB-57 Navigation and Housekeeping Data \* i ↓

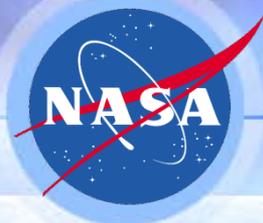
#### Lightning Products (1 dataset)

- GRIP Lightning Instrument Package (LIP) \* i ↓

#### GRIP Products (21 datasets)

- GRIP Airborne Second Generation Precipitation Radar (APR-2) \* i ↓ 🔍

Register  
Info  
Download  
Browse



# GRIP Data FTP Access

<ftp://grip.nsstc.nasa.gov/grip>

Up to higher level direct Up to higher level directory

## Name

- APR2
- CAPS\_PIP\_CDP
- DAWN
- Dropsonde\_DC8
- Flighttracks
- GHIS
- GOES\_OT
- GOES\_images
- HAMSR
- HIRAD
- HIWRAP
- LARGE
- LASE
- LIP
- MMS
- MSG
- NAV\_DC8
- NAV\_GH
- NAV\_WB57
- Radiosonde
- Reports
- doc

## Name

- browse
- data
- doc

Up to higher level directory

## Name

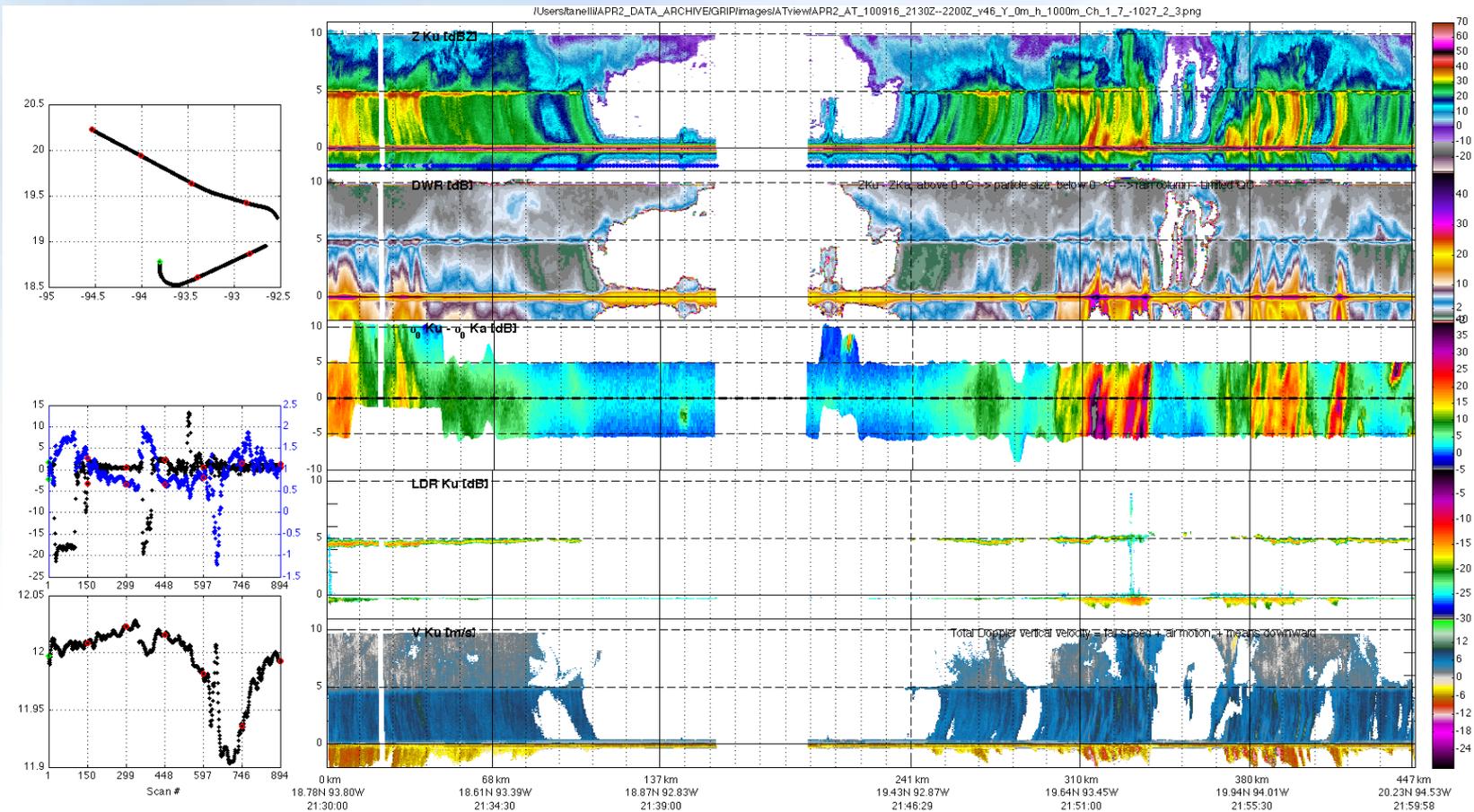
- Z\_vert\_hor
- basic
- experimental
- multiparametric

- APR2\_AT\_100916\_2030Z--2100Z\_v46\_Y\_0m\_h\_1000m\_Ch\_1\_7\_-1027\_2\_3.png
- APR2\_AT\_100916\_2100Z--2130Z\_v46\_Y\_0m\_h\_1000m\_Ch\_1\_7\_-1027\_2\_3.png
- APR2\_AT\_100916\_2130Z--2200Z\_v46\_Y\_0m\_h\_1000m\_Ch\_1\_7\_-1027\_2\_3.png



# APR-2 Multiparametric Browse

## 16 Sep 2010 2030 – 2100 UTC





# Submission Requirements and Status

Dataset	PI Survey information	Data / Browse Received	Final PI Readme / Document	Refereed Publication	Staged on FTP Server	Publicly Available in Search Engines
APR-2	2/18/2010	5/18/2011	5/26/2011	Yes	5/23/2011	6/2/2011
Dropsonde DC-8	n/a	6/4/2011	6/4/2011	Yes	6/6/2011	6/7/2011
CAPS/PIP/CDP	2/19/2010	5/27/2011 4/30/2012	5/27/2011		6/6/2011	6/7/2011
DAWN	3/17/2010	4/16/2012	5/4/2012	Yes	4/30/2012	5/4/2012
GHIS	n/a	During Mission	8/30/2011		8/22/2011	8/25/2011
GOES	n/a	During mission	2/15/2011	Yes	2/9/2011	4/7/2011
GOES-Overshoot Top	n/a	During mission	6/27/2011	tbd	2/11/2011	4/7/2011
HAMSR	2/26/2010	5/6/2011	5/13/2011	Yes	5/12/2011	6/2/2011
HIRAD	3/09/2010	9/15/2011	9/29/2011	Yes		9/28/2011
HIWRAP	3/10/2010	4/22/2012	4/22/2012		4/26/2012	5/3/2012
LARGE	2/21/2010	6/6/2011	8/1/2011	Yes	6/6/2011	6/17/2011



# Submission Requirements and Status

Dataset	PI Survey information	Data/Browse Received	Final PI Readme / Document	Refereed Publication	Staged on FTP Server	Publicly Available in Search Engines
LASE	3/09/2011	5/23/2011	5/26/2011	Yes	5/23/2011	6/220/11
LIP	6/07/2010	9/27/2011	10/18/2011	Yes	10/12/2011	10/13/2011
MMS	3/09/2010	4/1/2011	10/10/2011	Yes	4/1/2011	5/1020/11
Meteosat 2 <sup>nd</sup> Gen	n/a	During Mission	10/10/2011		3/14/2011	6/21/2011
NAV-DC8	n/a	During mission	10/10/2011	n/a	12/14/2010	3/15/2011
NAV-Flight Tracks	n/a	During Mission	In Progress	n/a	5/7/2012	5/9/2012
NAV-GH	n/a	During mission	10/10/2011	n/a	2/2/2011	3/1520/11
NAV-WB57	n/a	During mission	tbd	n/a	2/17/2011	4/20/2011
Radiosonde	In Progress	10/20/2010	3/20/2011		12/20/2011	4/7/2011
Reports	n/a	3/1/2011	10/10/2011	n/a	3/1/2011	4/7/2011



# Flight Tracks and Animations

## Animations

## Flight Tracks

**Genesis and Rapid Intensification Processes**

Mission Calendar

Data

Reports

Science

Instruments

Flight Tracks

Participants

Tools

Related Links

Image Gallery

GRIP News

**RTMM Play Back Movie**

	2010-08-24_GRIP-DC8.avi	248M
	2010-08-28_GRIP.avi	230M
	2010-08-29_GRIP-DC8.avi	273M
	2010-08-30_GRIP.avi	362M
	2010-08-30_GRIP_with_NOAA49-GV.avi	265M
	2010-09-01_GRIP_EARL.avi	370M
	2010-09-01_GRIP_EARL_WB57_3-panel.avi	348M
	2010-09-01_GRIP_EARL_WB57_TRANSIT.avi	89M
	2010-09-02_GRIP_EARL.mov	119M
	2010-09-02_GRIP_EARL_lightning_only.avi (No Aircraft)	268M
	2010-09-03_GRIP-WB57.avi	89M
	2010-09-05_GRIP-DC8.avi	107M
	2010-09-06_GRIP-DC8.avi	224M
	2010-09-07_GRIP-DC8.avi	216M
	2010-09-12_GRIP_KARL.avi	414M
	2010-09-12_GRIP_KARL_NOAA.avi	573M
	2010-09-13_GRIP_KARL_NOAA.avi	340M
	2010-09-14_GRIP_KARL.avi	290M
	2010-09-16_GRIP_KARL.avi	565M
	2010-09-16_GRIP_KARL_wi.avi	606M
	2010-09-17_GRIP_KARL.avi	290M
	2010-09-20_GRIP-DC8.avi	91M
	2010-09-21_GRIP-DC8.avi	256M
	2010-09-22_GRIP-DC8.avi	279M
	2010-09-23_GRIP-GH.avi	246M

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[NASA Hurricane Facebook page](#)

[GRIP Fans on Facebook](#)

### Flight Navigation Data

Please visit [HyDRO](#) or [GRIP FTP site](#) for Navigation data.

### Flight Tracks KML

DC8	GLOBALHAWK	WB57	NOAA42/P3	NOAA43/P3	NOAA49/G-IV	G-V
13-Aug	15-Aug	1-Sep	27-Aug	27-Aug	28-Aug	18-Aug
17-Aug	24-Aug	3-Sep	29-Aug	28-Aug	29-Aug	21-Aug
24-Aug	28-Aug	14-Sep	30-Aug	29-Aug	30-Aug	23-Aug
28-Aug	2-Sep	16-Sep	1-Sep	1-Sep	31-Aug	29-Aug
29-Aug	12-Sep		2-Sep	2-Sep	1-Sep	30-Aug
30-Aug	16-Sep		3-Sep	3-Sep	3-Sep	31-Aug
1-Sep	23-Sep		9-sep	4-Sep	12-Sep	1-Sep
2-Sep			13-Sep	5-Sep	13-Sep	2-Sep
5-Sep				12-Sep	14-Sep	3-Sep
6-Sep				13-Sep	23-Sep	5-Sep
7-Sep						6-Sep
13-Sep						7-Sep
14-Sep						8-Sep
16-Sep						11-Sep
17-Sep						12-Sep
20-Sep						13-Sep
21-Sep						14-Sep
22-Sep						20-Sep
25-Sep						21-Sep
						22-Sep
						24-Sep





# DC-8

## Hurricane Earl – 30 Aug 2010

GRIP Mission  
DC-8 science flight through the eye of Hurricane Earl

August 30, 2010

Video provided by National Suborbital Education and Research Center

Contact: Jane Peterson  
[j.peterson@nserc.und.edu](mailto:j.peterson@nserc.und.edu)  
701-777-4932



# All NASA, NOAA and AF Aircraft Hurricane Karl – 16 Sep 2010

RTMM

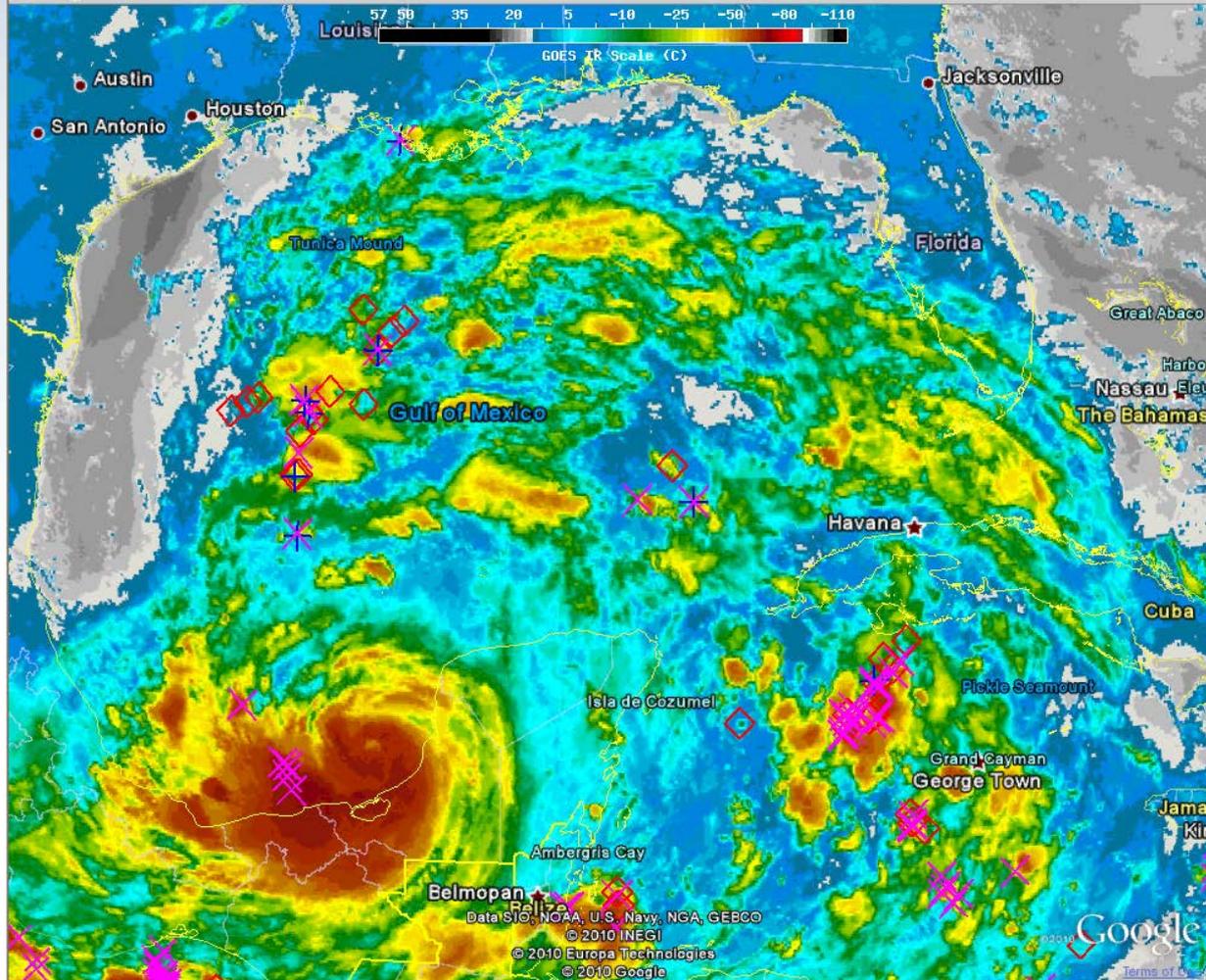
Real Time Mission Monitor



GRIP

Genesis and Rapid Intensification Processes

Google Earth ("RTMM")



**Start:**  
**16 Sep 2010**  
**0840 UTC**

**End:**  
**17 Sep 2010**  
**1420 UTC**





# Bureaucratic Minutiae

NASA regulations and guidelines (NPG 2200.2) for documentation, approval and dissemination require that a *NASA Form 1676 Scientific and Technical Document Availability and Authorization* be filed and approved prior to public disclosure.

Form 1676 applies to documents published with a NASA civil servant as an author.

Ask that NASA civil servants verify (via an email) that a Form 1676 has been filed with your organization.



Finally: As you update your data versions, please keep in close contact with the GRIP Archive.

Michael Goodman ([michael.goodman@nasa.gov](mailto:michael.goodman@nasa.gov))

Danny Hardin ([dhardin@itsc.uah.edu](mailto:dhardin@itsc.uah.edu))

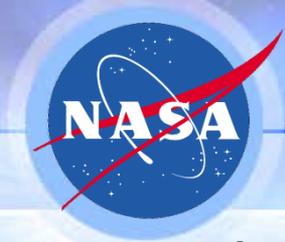
Marilyn Drewry ([mdrewry@itsc.uah.edu](mailto:mdrewry@itsc.uah.edu))

Thank you.

Questions?

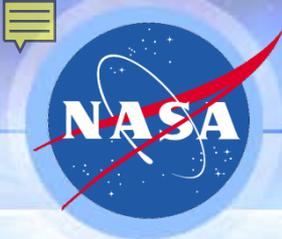


# Backup Charts



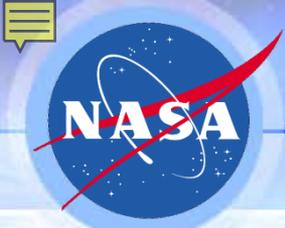
# GRIP Data System

- **Objectives:** operate a suite of information technologies for GRIP, utilizing web map-based and virtual globe applications on a common data management framework for remote presence, data visualization, access, and dissemination of GRIP-specific tropical cyclone information and relevant project information throughout the lifecycle of the GRIP field experiment.
  - **Active Data Stewardship** for GRIP at the Global Hydrology Resource Center and JPL providing for science data collection, archival, dissemination and user assistance.
  - **Collaboration Portal** for mission planning and coordination
  - **Remote Presence** to enable interactive coordination across multiple sites (GRIP-Ft. Lauderdale, GRIP-DFRC, PREDICT, IFEX, PI institutions)
  - **Decision Support** for aircraft and experiment asset situational awareness via the Real Time Mission Monitor, the Waypoint Planning Tool and the GRIP-specific near real time satellite data.



# GHRC Procedures to Publish a Dataset

1. Receive data from PI. Review filename, format and aggregation changes as required (e.g., preferred date format: yyyyymmdd)
2. Archive data and create long listing of filenames
3. Stage data to public GRIP FTP site (i.e., publicly available but URL is not advertised)
4. Submit the dataset filenames and metadata into the GHRC catalog and reconcile with GCMD
5. Write dataset guide - this includes the PI documentation which is copied to GHRC server (avoids broken links in future)
6. Upon completion of #1-5, dataset is now ready to publish to the world. This means that the dataset will be found in the following search engines once metadata submission is made:
  - GHRC search engine HyDRO: <http://ghrc.nsstc.nasa.gov/hydro/>
  - Reverb: [http://www.echo.nasa.gov/reverb/about\\_reverb.htm](http://www.echo.nasa.gov/reverb/about_reverb.htm)
  - Listed in the Global Change Master Directory (GCMD):  
<http://gcmd.nasa.gov/>



# GRIP Dataset/Instrument Fact Sheet

*Following information will facilitate the inclusion of datasets into the GRIP Field Catalog and Archive*

- 1. Dataset/Instrument (i.e., full name and acronym)**
- 2. Principal Investigator w/ Institution**
- 3. Co-Investigator(s) w/ Institution**
- 4. Instrument Type (e.g., radiometer, Doppler radar, lidar, radiosonde)**
- 5. Platform during GRIP (e.g., DC-8, Global Hawk, WB-57, satellite, surface)**
- 6. Brief description of Instrument and Function**
- 7. Temporal Resolution (if applicable)**
- 8. Spatial Resolution (if applicable)**
- 9. Direct Parameters measured (e.g., radiances, atmospheric state variables, aerosol scattering, particle size distribution)**
- 10. Derived Products (e.g., temperature, water vapor, aerosol backscatter coeff)**
- 11. Number of datasets and format to be archived and/or for distribution**
- 12. Website for additional information/documentation**
- 13. Refereed publication reference or other reference**
- 14. Miscellaneous information or comment**