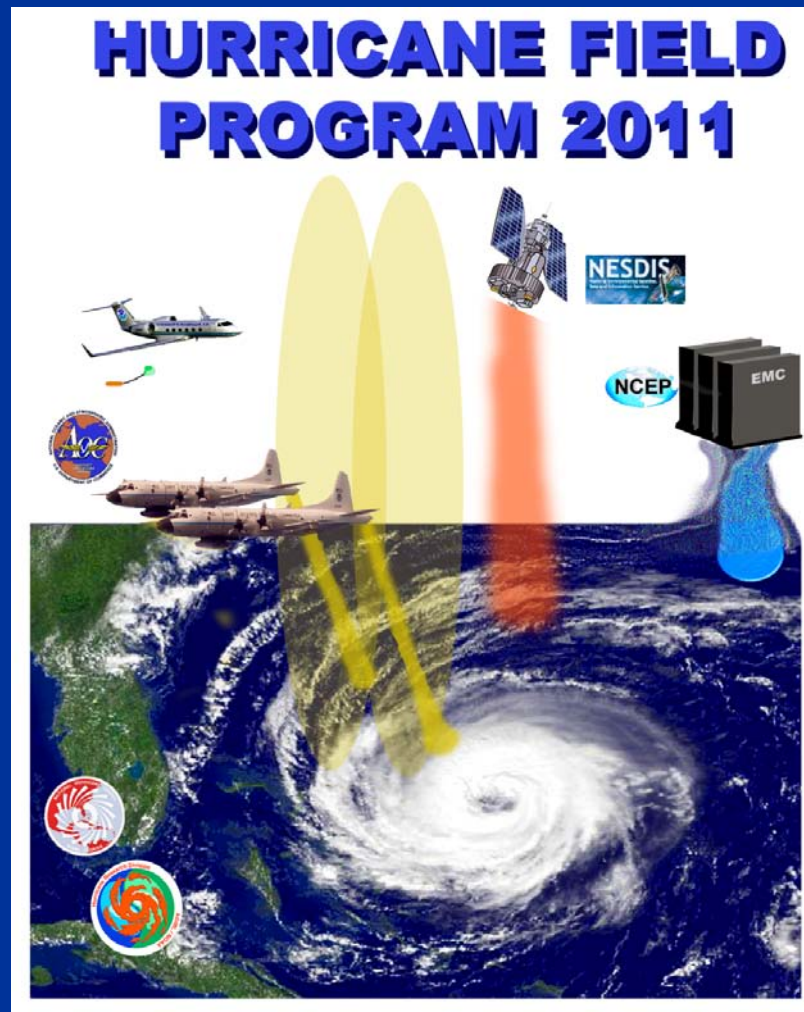


Summary of NOAA's 2011 Hurricane Field Program (IFEX)

Shirley Murillo – 2011 HFP Field Program Director
NOAA/AOML/Hurricane Research Division



Focus areas for 2011

IFEX goal 1: Collecting observations for model initialization/evaluation

- 3-D Doppler Winds Mission (Tail Doppler Radar) TDR

IFEX goal 2: Developing and refining measurement technologies

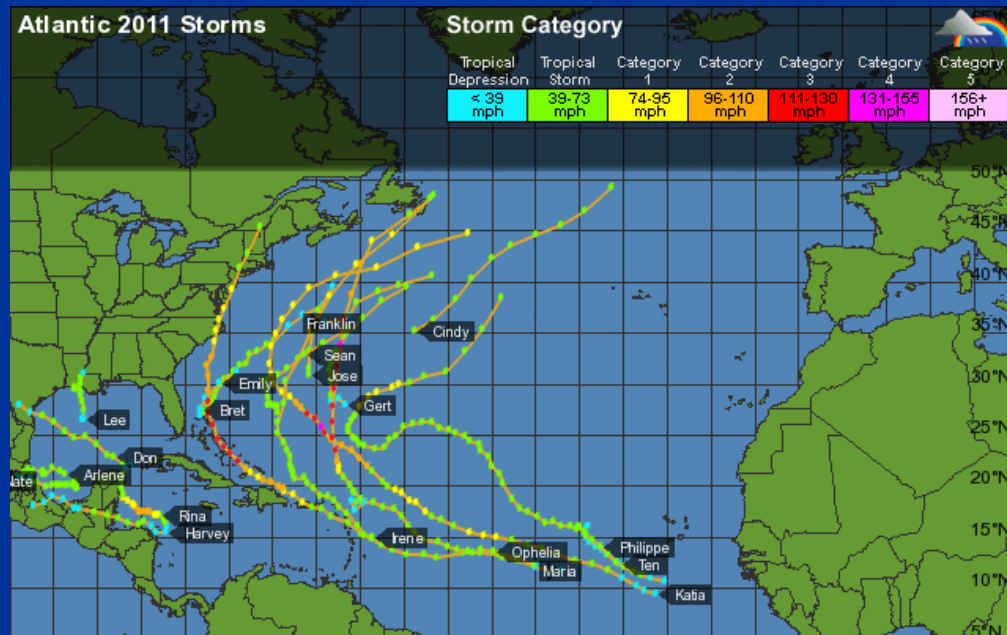
- NESDIS Ocean Winds and Rain Experiment (P. Chang)
- UAS GALE Module (Cione)
- TC-Ocean Interaction Experiment (N. Shay, Uhlhorn)
- Doppler Wind Lidar Module (Dunion, Lorsolo, J. Zhang, Atlas)

IFEX goal 3: Improving understanding

- E. Pacific Decay Experiment (E. Rappaport, Uhlhorn)
- Dry Air Intrusion/Saharan Air Layer Experiment (Dunion)
- Extra-tropical Transition Experiment (Aberson)
- Genesis Experiment (Rogers, Reasor, Hogsett)
 - -convective burst module
- Rapid Intensity Change Experiment (Kaplan, Rogers)
- TC/AEW Arc Cloud Module (Dunion)
- Landfall and Inland Decay Experiment (Dodge, Kaplan)
- TC Eye Mixing Module (Aberson)
- Eyewall Sampling and Intensity Change Module (J. Zhang and G. Barnes)
- Air-Sea Surface Flux Module (M. Bell, M. Montgomery, R. Rogers)
- Hurricane PBL Entrainment Flux Module (J. Zhang)
- Aerosol/Cloud Droplet Measurement module (R. Black)

Intensity Forecast Experiment (IFEX 2011)

- Summary:
 - ✓ NOAA aircraft flew ~342 h (31 P-3 and 18 G-IV missions)
 - ✓ Highlights include Dora (E. Pacific), Irene, Katia, and Rina

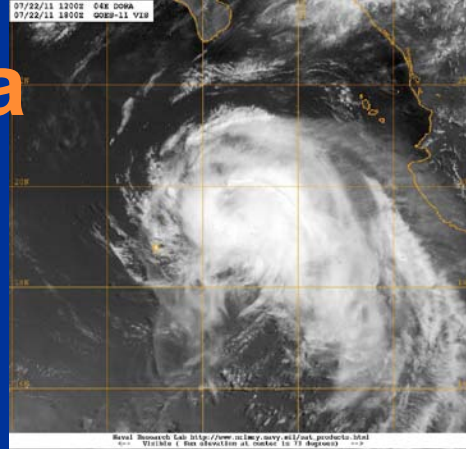


Courtesy wunderground.com

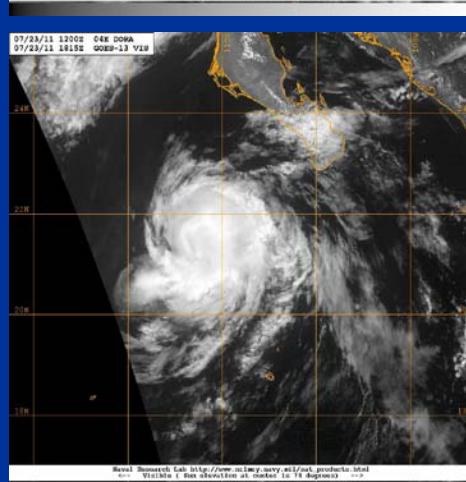
For details see: <http://noaahrd.wordpress.com/category/ifex-discussion>

Hurricane Dora

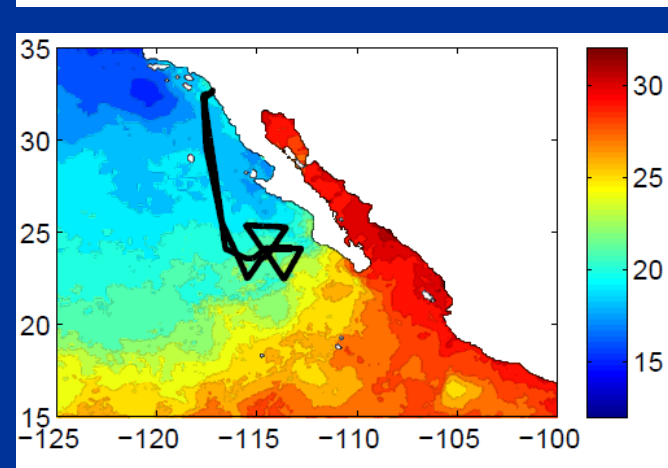
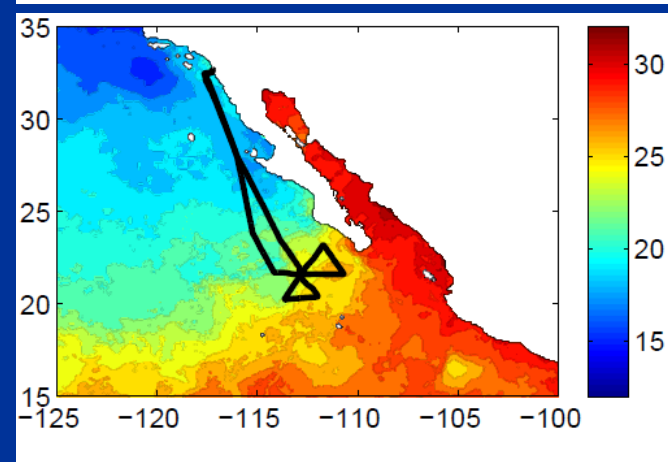
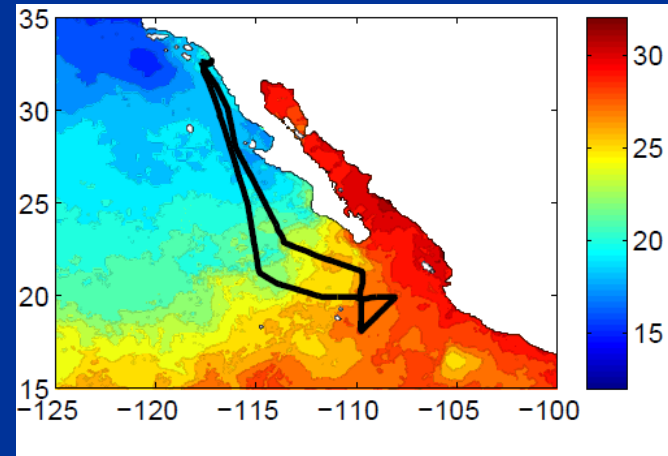
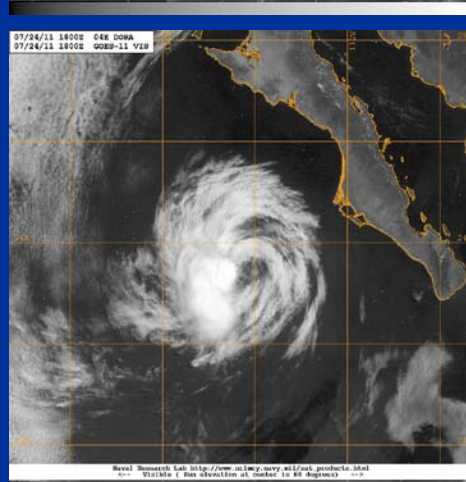
07-22



07-23



07-24



Hurricane Irene P3 coverage (Aug. 23-27, 2011)

Average Flight Level Wind Over 30 Seconds (knots)

0 5 10 15 20 25 30 35 40 45 50 55 60+

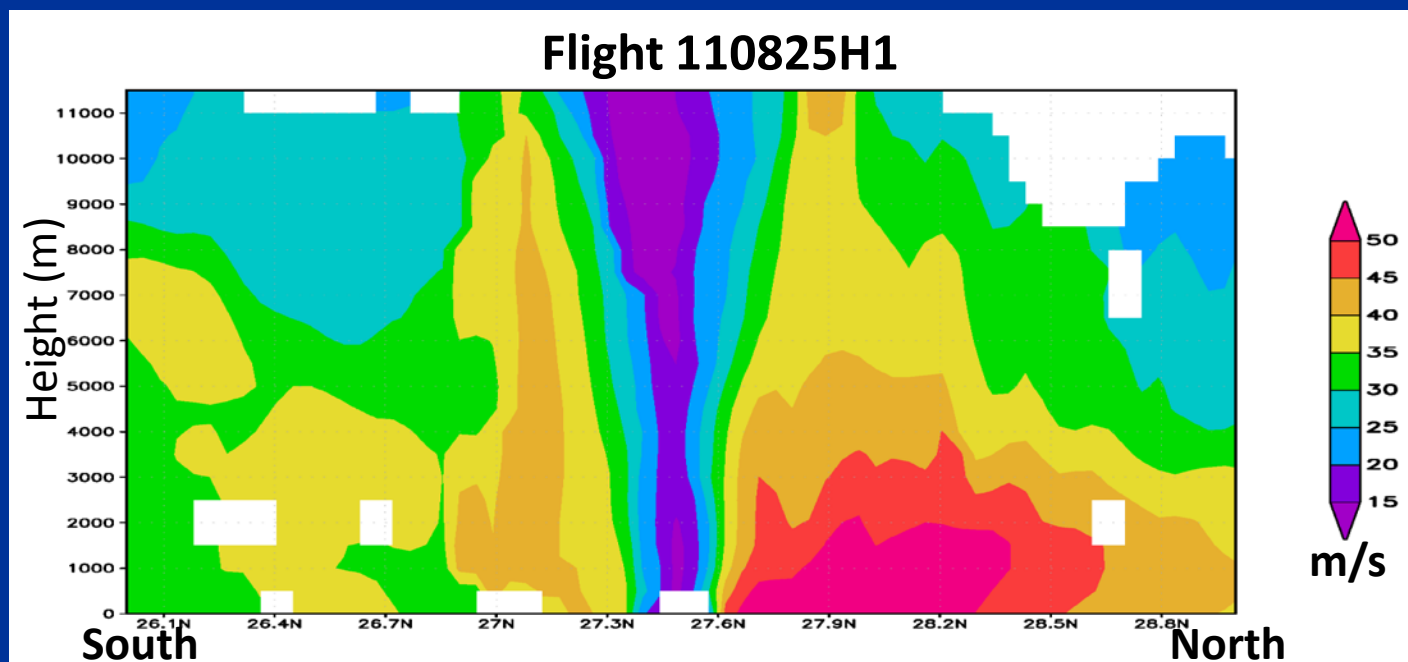
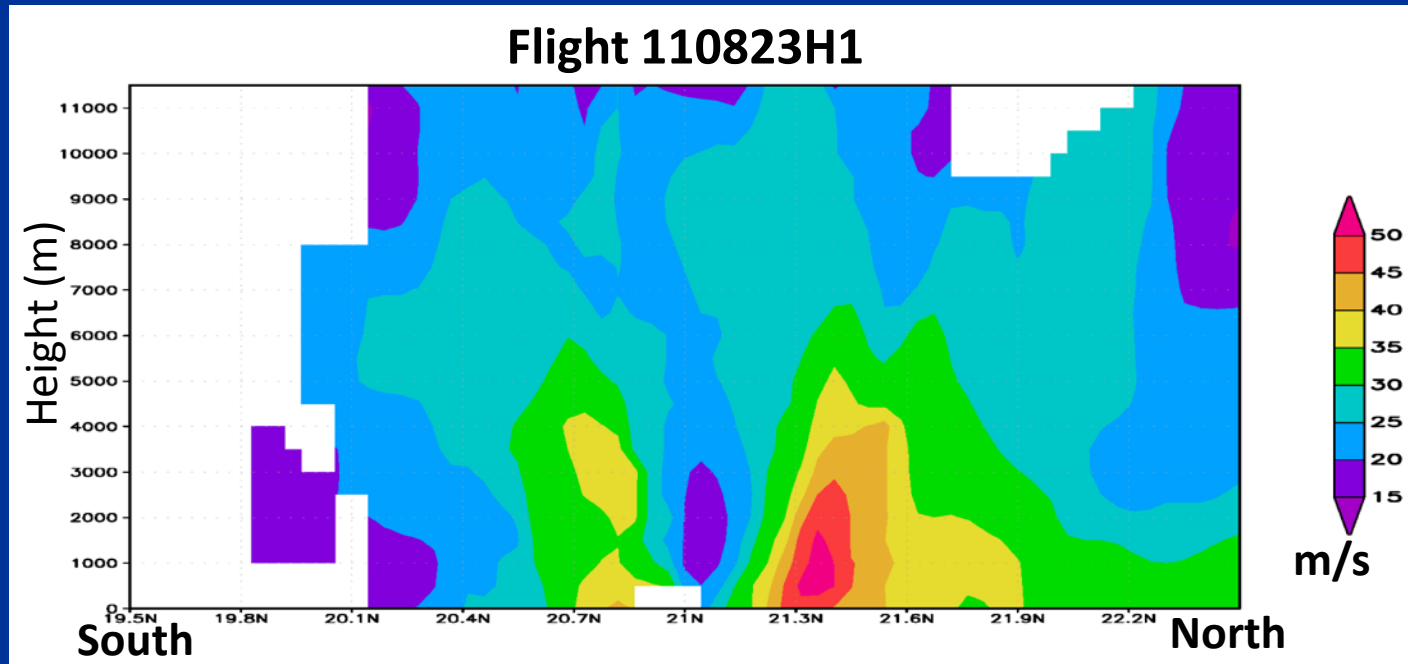
- Seven TDR flights
- ~12 hr sampling cycle
- Operated out of MacDill AFB
- Sampled Irene as a major hurricane (Cat 3) through landfall (Cat 1)

Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Image USDA Farm Service Agency
Image courtesy of tropicalatlantic.com

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South-north vertical cross section of wind speed (shaded, m/s)



Percentage (%) of on-station aircraft flight hours

	Pre- IFEX 1956-2004	IFEX 2005-2011
Pre-TD	4.3	9.9
TD	7.2	5.5
TS	26.8	37.1
Cat 1-2	31.6	24.8
Cat 3-5	30.0	22.7

Pre-IFEX: 8020 total hours flown

IFEX: 2526 total hours flown

Notable storms (2006-2011) flown by NOAA aircraft

Storm	Dates of NOAA missions	NOAA Aircraft	Dropsondes	Operational Radar analyses	Comments
TS Debby	Aug 24-26 2006	N49 (2)	59	0	SAL
TS Helene	Sept 14-20 2006	N42 (4), N49 (4)	209	2	SAL
Hurr Felix	Aug 31 - Sept 3 2007	N42 (2), N43 (2)	46	5	RI, major hurricane
TS Ingrid	Sept 12-18 2007	N42 (3), N43 (3)	66	13	Sheared system
TS Karen	Sept 25-28 2007	N42 (1), N43 (1)	5	7	Sheared system
TS Fay	Aug 14-19 2008	N42 (3), N43 (3), N49 (4)	212	19	Genesis, landfall
Hurr Gustav	Aug 28 - Sept 3 2008	N42 (3), N43 (4), N49 (4)	253	18	Lifecycle; first realtime transmission of superobs
Hurr Ike	Sept 5-15 2008	N42 (6), N43 (3), N49 (8)	419	16	Lifecycle; first realtime use of superobs in DA
Hurr Kyle	Sept 23-27 2008	N42 (4), N43 (4)	59	22	Genesis
Irene	Nov 7-8 2008	N43 (3), N49 (2)	59	13	RI
Irene	Aug 18-21 2009	N43 (5), N49 (6)	288	13	Lifecycle; SAL
TD #2	July 6-8 2010	N42 (3), N49 (2)	121	19	Genesis
Hurr Earl	Aug 28 - Sept 3 2010	N42 (5), N43 (6), N49 (7)	393	35	RI and mature phase; with NASA GRIP DC-8 and Global Hawk
Hurr Karl	Sept 12-16 2010	N42 (2), N43 (2), N49 (4)	175	11	Genesis, RI; with NASA GRIP DC-8 and Global Hawk and NSF PREDICT G-V
Hurr Tomas	Nov 3-6 2010	N42 (3), N43 (2), N49 (1)	81	17	Sheared system
Earl	Aug 22-27 2011	N42 (4), N43 (3), N49 (9)	494	25	Lifecycle monitoring
Earl	Oct 25-27 2011	N42 (4), N49 (2)	129	8	Sheared system

Table 1. List of notable systems flown by NOAA aircraft between 2006 and 2011. Included are the system name, dates of NOAA missions, numbers of missions flown by NOAA aircraft (N42 and N43 are the P-3's, N49 is the G-IV), total number of dropsondes released, total number of operational radar analyses produced, and comments on each system.

Communicating in the field

- **Blog**

<http://noaahrd.wordpress.com>

- **HRD Web page**

<http://www.aoml.noaa.gov/hrd>

- **Facebook**

<http://www.facebook.com/noaahrd>

- **Twitter**

http://twitter.com/#!/HRD_AOML_NOAA



Tweets from the eye



HRD visiting sci. prog



IFEX plans for 2012 Hurricane Season

- Continue addressing IFEX/HFIP goals
- Sustain our partnerships with EMC and NHC
- G-IV and One P-3 available
- Encourage greater awareness in broader TC community
- Interact with NASA during their HS3 field campaign

