Lead Project Scientist

Storm or Project H. Irene **Experiment name** TDR

Flight ID 110825H1 **Mission ID** _____

Preflight

- ✓ 1. Participate in general mission briefing.
- ✓ 2. Determine specific mission and flight requirements for assigned aircraft.
- ✓ 3. Determine from AOC flight director/meteorologist whether aircraft has operational fix responsibility and the mission designation.
- ✓ 4. Contact HRD members of crew to:
  a. Assure availability for mission.
  b. Review field program safety checklist
  c. Arrange ground transportation schedule when deployed.
  d. Determine equipment status.
- ✓ 5. Meet with AOC flight director and navigator at least 3 hours before take-off for initial briefing.
- ✓ 6. Meet with AOC flight crew at least 2 hours before take-off for crew briefing. Provide copies of flight requirements and provide a formal briefing for the flight director, navigator, and pilots.
- ✓ 7. Report status of aircraft, systems, necessary on-board supplies and crews to MGOC in Miami.
- ✓ 8. Before take-off, brief the on-board GPS dropsonde operator on times and positions of drop times.
- ✓ 9. Make sure each HRD flight crew member has a life vest.
- ✓ 10. Perform a headset operation check with all HRD flight crew members. Make sure everyone can hear and speak using the headset.

In-Flight

- ✓ 1. Confirm from AOC flight director that satellite data link is operative (information).
- ✓ 2. Confirm camera mode of operation.
- ✓ 3. Confirm data recording rate.
- ✓ 4. Complete Lead Project Scientist Form.
- ✓ 5. Check in with the flight director to make sure the mission is going as planned (i.e. turns are made when they are supposed to be made).

Post flight

- ✓ 1. Debrief scientific crew.
- ✓ 2. Gather completed forms for mission and turn in to data manager at HRD.
- ✓ 3. Obtain a copy of the 10-s flight listing from the AOC flight director. Turn in with completed forms.
- ✓ 4. Obtain a copy of the radar DAT tapes. Turn in with completed forms.
- ✓ 5. Obtain a copy of serial flight data on thumb drive. Turn in with completed forms.

[**Note**: all data removed from the aircraft by HRD personnel should be cleared with the AOC flight director.]

- ✓ 6. Report landing time, aircraft, crew, and mission status along with supplies (tapes, *etc.*) remaining aboard the aircraft to MGOC.
- ✓ 7. Determine next mission status, if any, and brief crews as necessary.
- ✓ 8. Notify MGOC as to where you can be contacted and arrange for any further coordination required.
- ✓ 9. Prepare written mission summary using **Mission Summary** form.

Lead Project Scientist Check List

Storm or Project H Irene Experiment name TDR

Flight ID 110825H1 Mission ID _____

A. Participants:

HRD		AOC	
Function	**Participant**	**Function**	**Participant**
Lead Project Scientist	Rogers	Flight Director	Sears
Radar/Workstation		Pilots	Newman/Sweeney
	Larsolo/Klotz	Navigator	Brakob
Cloud Physics		Systems Engineer	Bosko
Photographer/Observer /Guests		Data Technician	
Dropwindsonde	Klotz	Electronics Technician	Olvey
AXBT/AXCP		Other	

B. Take-off and Landing Times and Locations:

Take-Off: 1949 UTC Location: KMCF

Landing: 0325 UTC Location: _____

Number of Eye Penetrations: _____

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind

D. Mission Briefing: Fly TDR mission into Hurricane Irene. Rotating figure-4 at 8 kft, with IP 105nm SW of center. End up on E side of storm, so perform rotation of 45° to do final pass from NE-SW before RTB. Drop sondes at turn and midpoints, raw, and first and last center passes. Also try to do high-rain/light-wind, if possible, drops. Storm is struggling to maintain intensity, possible ERC's occurring, no eye discernible in satellite nor in recent AF fixes.

Storm or Project_____ **Experiment name**_____

Flight ID _____ **Mission ID**_____

E. —Equipment Status (Up ↑, Down ↓, Not Available **N/A**, Not Used **O**)

Equipment	**Pre-Flight**	**In-Flight**	**Post-Flight**	**# DATs / CDs /Expendables/ Printouts**
Radar/LF	✓			
Doppler Radar/TA	✓			
Cloud Physics	✓			
Data System	✓			
GPS sondes	✓			
AXBT/AXCP	—			
Ozone instrument	—			
Workstation	✓			
Cameras				

REMARKS:

Lead Project Scientist Event Log

Date 8/25/11 Flight ID 110825H1 LPS Rogers

Time	Event	Position	Comments
1949	T/O	KMCF	
2038	obs	~40 nm from IP	passed through bands of
		on SW side	showers off FL coast, in
		all	anvil now, no precip
2046	pattern	at IP	track 045
2048	drop 1	100 nm SW eye	
2059	drop 2	85 nm SW eye	mdpt drop, in a rainband,
		spike in	FL sfc wind to 80 kt FL
2106	obs	~ 30 nm SW eye	LF image shows eye
			largely filled, open on SW side,
			almost all anvil on SW side except for
			a band or two at large radius
2112	drop 3		
2114	center, drop 4	27°08' 77°10'	extrap slp 947, little
			further in eye to NE of extrap
			slp still 948 but ~45 kt FL,
			suggesting tilt?; ctr press 947 mb w/ 7
2117	drop 5	NE eyewall	FL ~ 75, SF ~ 75 kt
2120	drop 6	NE eyewall 2	FL ~ 95 kt, SF ~ 90 kt
2128	obs	~50 nm NE	stratiform precip, broad
			FL wind field, all ~100 kt, through SF
			winds dropping; strong SW/NE
			asymmetry
2129	drop 7	55 nm NE	mid pt; FL ~ 100, SF
			~ 65 kt
2136	obs	~ 80 nm NE eye	all anvil here, no convect,
			no stratiform

Lead Project Scientist Event Log

Date 8/25/11 **Flight ID** _____ **LPS** - Rogers

	Time	Event	Position	Comments
	2137	pattern	105 nm NE	turn, end 1st pass
	2138	ob	105 nm NE	line of convection about
				130 nm NE of center,
				otherwise mostly anvil & some
				stratiform between ctr & turn
				point
	2200	drop 8	105 nm N eye	FL 75, SF 55 kt here
9	2210	drop 9	~55 nm from ctr	in stratiform rain, FL
			~95	kt, SF 60 kt, fast fall
10	2211	drop 9a	~50 nm	
	2213	ob	~30 nm from ctr	peak FL winds ~ 100 kt so
				far, strongest part so far seems to
			be on N side; wonder if this is early	
			stage of ET as wind field asymmetry	
			rotates around to N + NW side	
	2223	obs	eye	some clearing, a eye, completely open to S & E
11	2229	drop 10	S eyewall	missed N eyewall drop
	2247	ob	~80 nm S of eye	some stratiform precip here,
				but mostly nothing
12	2255	drop 11	S turn point, 105	missed S wall pt b/c of LAN
			nm S of storm (at turn pt.	FL 60, SF 45 kt
	2305	ob	on downwind leg	wind field from first pass
			btw S & SE pt	showed very asymmetric
				field; winds peaked below 4 km,
			extending	very broad, very shallow
13	2310	drop 12	SE 105 nm, begin	FL 70 kt, SF ~ 40 kt
			inbound leg	

Lead Project Scientist Event Log

Date 8/25/11 **Flight ID** 110825H1 **LPS** Rogers

	Time	Event	Position	Comments
14	2322	drop 13	mid pt	
15	2325	drop 13b	mid pt backup	FL ~ 85 kt ; SF ~ 60-65 kt
16	2334	drop 14	SE eyewall	peak FL ~ 94; at 50 nm
	2338	obs		extrap SLP 946
17	2342	drop 15	NW eyewall	FL ~ 75, SF ~ 65-70 kt
18	2351	drop 16	mid pt on NW side	FL 80, SF 60-65 kt
	2352	obs	outbound on NW,	broad wind field; multiple
			~ 70 nm	maxima on this side, has
				been near 75 kt (oscillating
				around this) for 50 nm or so
19	0004	drop 17	at 105 nm NW	fast fall, FL 55, SF 50
20	0005	drop 17b	" "	FL 55, SF 50
21	0018	drop 18		FL 65, SF 50 kt
22		drop 19		
23		drop 20		
24	0054	drop 21	mid pt on E side	
	0055	obs	~ 60 nm E of eye	peak FL ~ 100, SF ~ 80 kt
				on E side
	0100	obs	~ 90 nm E of eye	wind field asymm. from
				NW to E. FL/SF ratio different on
				W vs. E. SF ≠ FL on W, SFC < FL
				on east, suggesting tilt toward
				E or NE in/above sfc ≠ FL
25	0111	drop 22		FL 80 SF ~ 50-55 kt
	0114	pattern	on final downwind leg	tracking outward a bit to get
		closer to band of	strong convection ~ 130	nm out
	0132	patter	105 nm NE	final pass, FL 80 SF 50 kt
26	0133	drop 23		
27	0146	drop 24	85 nm NE	SF ~ 60-70% of FL, ~ 65, FL
	0152	ob	~ 30 nm NE	pshd outer eyewall on NE side ~ 85-9
28	0155	drop 25	NE eyewall	
29	0159	drop 26	center	ex drop 937 mb

Mission Summary
Storm name
YYMMDDA# Aircraft 42 RF

Scientific Crew (4 RF)

Lead Project Scientist Rogers
Radar Scientist Lorsolo
Cloud Physics Scientist —
Dropwindsonde Scientist Klotz
Boundary-Layer Scientist
Workstation Scientist
Observers

Mission Briefing: (include sketch of proposed flight track or page #)

See previous

Mission Synopsis: (include plot of actual flight track) flew pattern as planned. On final downwind leg on NE side, extended distance from storm to travel parallel to line of heavy showers about 130 nm from center. Storm is very asymmetric in its wind field. Peak winds on NE and N side, shallow, broad region of strong winds there. Very large wind field. Pressure dropped ~5 mb during flight, but winds did not, just broadened. Shear appears to be important factor, both from FL/SF ratio variation + Doppler analyses.

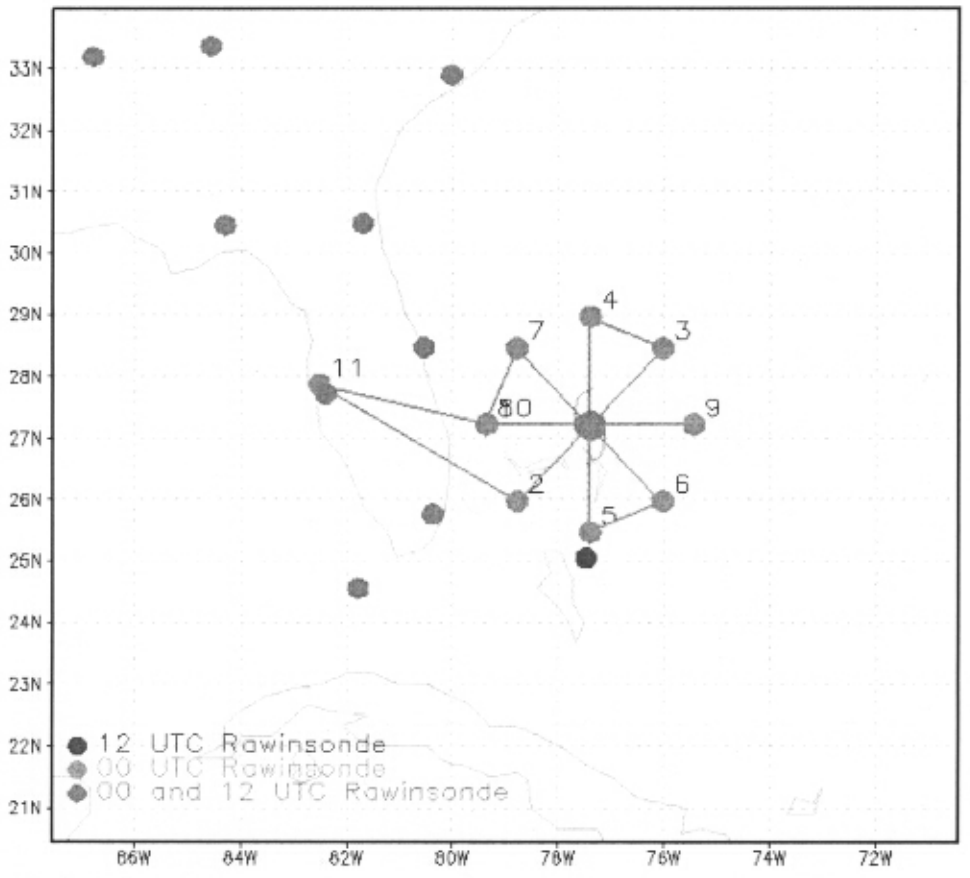
Evaluation: (did the experiment meet the proposed objectives?) Experiment did meet objectives. Radar analyses were completed and transmitted, 29 drops released. Really interesting structure measured, will be curious to see if winds increase as pressure has fallen, or will wind field just broaden?

Problems:(list all problems) No major problems, except for a few fast fall sondes that eventually were OK. Laptops were flaky for much of flight

Expendables used in mission:

GPS sondes : 32
AXBTs : —
Sonobuoys: —

30	0200	drop 27	SW eyewall	peak FL 90, SF 70 kt
31	0213	drop 28	mid pt. SW	FL 70, SF 60 kt
32	0227	drop 29	105 nm SW	FL 50, SF 40 kt
	0325	landed		



GrADS: COLA/IGES

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