

## Lead Project Scientist

Storm or Project Earl

Experiment name TDR / Ocean Winds

Flight ID 100903 I 1

Mission ID WX07A Earl14

### 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 Earl Experiment name FDR-10 Ocean Winds

Flight ID 100903 I Mission ID WX07A Earl 14

**A. Participants:**

HRD		AOC	
Function	Participant	Function	Participant
Lead Project Scientist	<u>Murillo, Regas</u>	Flight Director	<u>Plaherty</u>
Radar/Workstation		Pilots	<u>Nelson, Halverson, Kilday</u>
	<u>Murillo</u>	Navigator	<u>Stean</u>
Cloud Physics	<u>—</u>	Systems Engineer	<u>Naher</u>
Photographer/Observer	<u>—</u>	Data Technician	<u>Sam Sauci</u>
/Guests	<u>—</u>	Electronics Technician	<u>Peck</u>
Dropwindsonde	<u>Leighton</u>	Other	
AXBT/AXCP	<u>—</u>		

**B. Take-off and Landing Times and Locations:**

Take-Off: 2000 UTC Location: Richmond

Landing: 032904 UTC Location: Richmond

Number of Eye Penetrations: 4

**C. Past and Forecast Storm Locations:**

Date/Time	Latitude	Longitude	MSLP	Maximum Wind

**D. Mission Briefing:**

Fly rotated figure-4 mission into Hurricane Earl for EMC-tasked mission. Legs are set for 105 nm, start on SE side, end up on W side. Possibility of shortening legs on S and SE side. Storm is deteriorating quickly in presence of increasing shear and cooler waters. Highly asymmetric in cloud pattern, main cloud shield on W side of storm. At end of pattern, perform a few repeated penetrations for Ocean Winds.

Storm or Project Earl Experiment name TDR1 Ocean Winds

Flight ID 100903I Mission ID WX07A Earl14

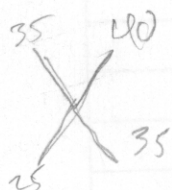
E. — Equipment Status (Up ↑, Down ↓, Not Available N/A, Not Used O)

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 9/3/10 Flight ID 100903 I LPS Murillo, Rogers



	Time	Event	Position	Comments
	2000	t/o	Richmond	
	2107	obs	on S side of storm	no scatterers around, layer of stratus below, mostly clear above
1	2113	drop 1	at IP, 60 nm SE	FL 75, SF 50
			ctr	
	2121	obs	40 nm SE	some more widespread cirrus shield, but no real scatterers still
2	2127	drop 2	SE eyewall	no turbulence, no precip. completely open, FL 50, SF 35
3	2130	drop 3	center	extrap. SLP 955
4	2135	drop 4	NW eyewall	FL 30, SF 35 kt
	2136	obs	<del>50</del> outside eyewall	SF winds climbing, at 50 kt, while FL winds at 30 kt
5	2138	drop 5	outside NW eyewall	FL 40, SF 45 kt
6	2156	drop 6	10 nm NW	at turn, FL 40, SF 40 kt
	2204	obs	~100 nm W of ctr	good bit of precip. on this side, mostly stratiform but pretty choppy
	2220	obs	approaching SW side of storm, about 100 nm SW	precip. ended, broke out into clear on SW side of storm
			37.6 72.8	
	2225	drop 7	105 nm SW Earl	FL 70, SF 40 kt
	2245	drop 8	in SW eyewall	FL 30, SF 25, but likely missed SF wind max. which was 45 kt

# Lead Project Scientist Event Log



Date 1/3/10 Flight ID 100903I LPS Murillo/Rogers

Time	Event	Position	Comments
2249	obs	in "eye"	SF winds went up to 40 kt, FC at 10, very tilted vortex
2252	obs	near NE eyewall	no ref. on NE side, all on NW
2253	drop 9	NE eyewall	FL 40, SF 40
2253	obs	outside NE eyewall	SF/FL ~ 50% on SW side, 100% on NE side
2322	obs	105 nm N, heading toward turn pt. north of ctr.	FL 50, SF 35 kt
2327	pattern	105 nm N of ctr	turning to track 180, FC 40, SF 25, at 7000 ft.
2328	drop 11	105 nm N of ctr	
2344	drop 12	NE eyewall	FL 50, SF 40 kt
2350	obs	near N eyewall	wind field flat here, stronger winds have been ~ 80 nm SW of center, inner core completely collapsed
0001	drop 13	near S eyewall	FL 70, peak SF 35 kt
0008	turn	60 nm S of ctr	turn to downwind leg, setting up E-W leg
0009	drop 14	turn pt. S of ctr	FL 75, SF 40 kt
0046	obs	about 60 nm E of ctr	on E-W leg, winds are completely flat, FC 70, SF 45 kt
0058	drop	E "eyewall"	FL 55, SF 40
0102	drop	center	extrap 958
0109	drop	W eyewall	FL 50, SF 45, very slowly-increasing wind field, no core

slowly-increasing wind field, no core



## Mission Summary

### Storm name

YYMMDDA# Aircraft 43RF

10090311

### Scientific Crew (4RF)

Lead Project Scientist Murillo, Rogers

Radar Scientist Murillo

Cloud Physics Scientist Murillo (CCN counter)

Dropwindsonde Scientist Leighton

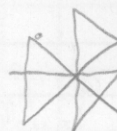
Boundary-Layer Scientist \_\_\_\_\_

Workstation Scientist Leighton

Observers \_\_\_\_\_

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

See previous



Mission Synopsis: (include plot of actual flight track)

Plan mission as planned. System is decaying rapidly, possibly beginning ET. Inner core wind field has collapsed. Peak SF winds found at the fun points, rather than in eye wall. Almost all scatterers confined to NW quad. Did not get legs short on S and on W side.

Evaluation: (did the experiment meet the proposed objectives?)

Anticipate that the experiment did accomplish objectives. Distribution of scatterers likely will limit effectiveness of radar analyses, but FL, SF, and drops will help to provide depiction of storm. These sets of flights have sampled nearly entire lifecycle of a long-lived TC, from TS, to RI, to major steady-state, to weakening and pre-ET. This is a historic dataset!!

Problems: (list all problems)

No problems

Expendables used in mission:

GPS sondes: ~20

AXBTs: —

Sonobuoys: —

Suggestion: There should be a way to add a new airport location to Tmap. The flight track was generated for a take off/landing for Andrews AFB and not Richmond, VA.