

Lead Project Scientist

Storm or Project Earl

Experiment name TDR / Ocean Winds

Flight ID 100902I1

Mission ID WX07A Earl11

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

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Flight ID 00902I1 Mission ID WX07A Earl11

A. Participants:

HRD		AOC	
Function	Participant	Function	Participant
Lead Project Scientist	<u>Rogers</u>	Flight Director	<u>Flaherty</u>
Radar/Workstation		Pilots	<u>Nelson, Halverson, Kib</u>
	<u>Murillo/Leighton</u>	Navigator	<u>Sloan</u>
Cloud Physics		Systems Engineer	
Photographer/Observer		Data Technician	
/Guests			
Dropwindsonde	<u>Leighton</u>	Electronics Technician	
AXBT/AXCP		Other	

B. Take-off and Landing Times and Locations:

Take-Off: _____ UTC Location: MacDill

Landing: _____ UTC Location: Richmond, VA

Number of Eye Penetrations: _____

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind

D. Mission Briefing: Conduct TDR WEX mission into Hurricane Earl, located off to northern FL coast as a Category 3 hurricane. Fly rotated figure-4, 105 nm legs. IP on the SW side. Fly first fig. -4 at 12,000 ft, then descend before second figure-4 to 7000 ft for WRAF measurements. End up on N side of storm. If there's time, fly a few legs into and out of eyewall. Return to Richmond, VA.

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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 9/2/10 Flight ID 100902H LPS Rogers

1955 drop 1
08 32 02
75 06

75
drop 2
hr 3

Time (UTC)	Event	Position	Comments
2006	takeoff	MacDill	tho
2136	pattern	at 1P, 105 nm SW	drop 1
2151	obs	43 nm SW	approaching SW eyewall, eyewall on LF continuous to show up pretty clearly, broad spiral ref. feature, looks like a skewed "6"
2155	drop 2 drop 2	SW eyewall	max Fz 90, SF 85 kt
2203	drop 3	eye	948 mb
2211	drop 4	NE eyewall	FL 90, SF 75, targeted outer eyewall on LF
2214	obs	NE eyewall	max Fz 110 kt, SF 75, wind field pretty broad
2223	obs	95 nm NE outer	broad precip. shield
2226	obs	105 nm, near turn point	outside of rain, just cirrus anvil above & stratocumulus deck below
2237	obs	on downwind leg, 400 nm N of center	flying in broad shield of strat. w/ embedded convection on N side, 40-50 kt at eye here
2240	obs, wind	on downwind leg	SF/Fz ratio different w/ SW + NE sides; ratio ok
2257	pattern	105 nm NW	80% on SW, 65% on NE turning to track 135, SF 35 kt here
2258	drop 5	NW turn point	FL 50, SF 35 kt

Lead Project Scientist Event Log

Date 9/2/10 Flight ID 100902I LPS Rogers

Drop 6

Time	Event	Position	Comments
2309	obs	near NW eyewall	SF same mag. as FL here, at about 55 kt
2315	obs, drop 6	NW eyewall	FL 50, SF 70 kt, totally diff. relationship SF & FL from previous legs
2328		SE eyewall	SF 70 kt for much of near eyewall
		SF winds	<< FL winds on this side, ~60 kt
2335	obs	~50 nm SE center	strongest SF winds so far on SW side of storm, strongest FL on SE-NE side
0007	pattern	~105 nm E center	turning to track 270, next inbound leg, descended to 7000 ft
0016	obs	near E eyewall	SF/FL wind ratio at ~50%
0022	drop 9	E eyewall	FL 115, SF 75
0026	obs	in eye	really large eye now, diameter about 60-70 nm
0051	obs	outside W eyewall	SE/FL near 100% on this side
0056	turn	105 nm W eye	turning to downwind leg, SF still at 40-50 kt
0142	obs	S eyewall	peak FL 100 kt, SF 60 kt, very broad SF wind peak
0202	obs	55 nm N eye	broad rain shield to N center, all stratiform, & fairly warm cloud tops

Mission Summary

Storm name

YYMMDDA# Aircraft 43_RF

Scientific Crew (4/RF)

Lead Project Scientist Rogers

Radar Scientist Worillo

Cloud Physics Scientist —

Dropwindsonde Scientist Leighton

Boundary-Layer Scientist —

Workstation Scientist Leighton

Observers —

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

See previous 5

Mission Synopsis: (include plot of actual flight track)

Evaluation: (did the experiment meet the proposed objectives?) Yes, mission collected upper data in a weakening hurricane possibly beginning its ET. Wind field highly asymmetric, with strongest sfc winds on SW side & strongest FC winds on E side. Eye became quite large (ie, >60 km diameter) as remnants of inner eyewall collapsed. Broad shield of stratiform precip on N side of storm.

Problems: (list all problems) There were no major problems. Radar worked fine, dropsondes worked fine.

Expendables used in mission:

GPS sondes: —

AXBTs: —

Sonobuoys: —

NOAA HURRICANE HUNTERS
CADRG JNC 1:2 M - Lambert Conformal Conic

