

NOAA 30409 A Ivan
040907I

Lead Project Scientist

Preflight

- ☒ 1. Participate in general mission briefing.
- ☒ 2. Determine specific mission and flight requirements for assigned aircraft.
- ☒ 3. Determine from field program director whether aircraft has operational fix responsibility and discuss with AOC flight director/meteorologist unless briefed otherwise by field program director.
- ☒ 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.
- ☒ 5. 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.
- ☒ 6. Report status of aircraft, systems, necessary on-board supplies and crews to appropriate HRD operations center (MGOC in Miami).
- ☒ 7. Before take-off, brief the on-board GPS dropsonde operator on times and positions of drop times.
- ☒ 7. Make sure each HRD flight crew members have life vests
- ☒ 7. Perform a headset operation check with all HRD flight crew members. Make sure everyone can hear and speak using the headset.
- ☒ 8. Collect "mess" fee (\$2.00) from all on-board HRD flight crew members.

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. Report landing time, aircraft, crew, and mission status along with supplies (tapes, etc.) remaining aboard the aircraft to MGOC.
- ☒ 3. Gather completed forms for mission and turn in at the appropriate operations center. [Note: all data removed from the aircraft by HRD personnel should be cleared with the AOC flight director.]
- ☒ 4. Obtain a copy of the 10-s flight listing from the AOC flight director. Turn in with completed forms.
- ☒ 5. Obtain a copy of the radar DAT tapes. Turn in with completed forms.
- ☒ 6. Obtain a copy of the all VHS videos from aircraft cameras (3-4 approx.). Turn in with completed forms.
- ☒ 7. Obtain a copy of CD with all flight data. Turn in with completed forms.
- ☒ 8. Determine next mission status, if any, and brief crews as necessary.
- ☒ 9. Notify MGOC as to where you can be contacted and arrange for any further coordination required.
- ☒ 10. Prepare written mission summary using Mission Summary form (due to Field Program Director a week after the flight).

Lead Project Scientist Check List

Date 9/7/04 Aircraft N43RF Flight ID 040907I

A. Participants:

HRD		AOC	
Function	Participant	Function	Participant
Lead Project Scientist	<u>Rogers</u>	Flight Director	<u>Shepherd</u>
Radar	<u>Leighton, Rogers</u>	Pilots	<u>Telbest, Silah</u>
Workstation	<u>Leighton</u>	Navigator	<u>Siegel</u>
Cloud Physics	<u> </u>	Systems Engineer	<u> </u>
Photographer/Observer	<u> </u>	Data Technician	<u>Lynch, Smith</u>
/Guests	<u> </u>	Electronics Technician	<u> </u>
Dropwindsonde	<u>Leighton</u>	Other	<u> </u>
AXBT/AXCP	<u>Vulhorn-SFMR</u>		

B. Take-off and Landing Locations:

Take-Off: 135325 Location: St. Croix

Landing: 212400 Location: St. Croix

Number of Eye Penetrations: 4

12° 29' > IP
63° 05'
11° 48' > eye
60° 36'

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind
7/09	11.4	58.5		95
7/18	12.0	61.2		105
8/06	13.0	64.5		110
8/18	14.2	67.6		115
9/06	15.5	70.5		120

D. Mission Briefing:

NHC tasked ^{SFMR} mission into Ivan. Takeoff from St. Croix at 14 VTC, track 160 to storm. IP 150 nm WNW of storm, begin rotating Fig-4 pattern. Drop sondes at 34-, 64-km radii, eye wall in each quadrant of storm. Turn once past 34-km radius on each leg. Return to St. Croix.

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

Equipment	Pre-Flight	In-Flight	Post-Flight	# DATs / Cds /Expendables/ Printouts
Radar/LF	✓	✓	✓	
Doppler Radar/TA	✓	✓	✓	
Cloud Physics	O	O	O	
Data System	✓	✓	✓	
GPS sondes	✓	✓	✓	
AXBT/AXCP	O	O	O	
Workstation	✓	✓	✓	
Videography	✓	✓	✓	

REMARKS:

Lead Project Scientist Event Log

Date 9/7/04

Flight 040907 I

LPS Rogers

Time	Event	Position	Comments
135325	takeoff	St. Croix	take off from St. Croix,
142942	flight	15°35' 63°41'	track 170 to storm
			IP at 12°27'63°05'
			eye at 11°48' 60°36'
150533	radar	12°44' 63°08'	line of strong convection
			~ 187 nm WNW of eye
			isolated cells
150957	flight	12°28' 63°01'	navigating thru cells
151137	SF wind	12°23' 62°56'	170 nm to eye, WNW of
			eye, crossed 34 kt wind
			radius
151338	flight	12°19' 62°48'	at IP, 165 nm from eye
			track 105, 8000 ft
151737	SF wind	12°15' 62°37'	surface winds have dropped
			back down below 35 kt, inside
			of front rain band, about
			145 nm from eye
152340	SF wind	12°09' 62°15'	flat wind profile, at about 25-30 kt
152651	pattern	12°06' 62°04'	left to 100
153113	SF wind	12°03' 61°45'	hit 35-40 kt on Q-SFMR
153430	pattern	12°01' 61°36'	right to 105
154304	radar	11°53' 61°7'	elliptical eyewall, about
			20 nm major, 15 nm minor
1545	SF wind	11°52' 61°00'	hit 50 kt about 60 nm from eye
			hit 64 kt about 48 nm from eye
			on WNW side of storm
154818	radar	11°48' 60°47'	notch on outer edge of eyewall,

think it's a band, FL 110 kt
SF 80 kt

Lead Project Scientist Event Log

Date 9/7/04

Flight 040207T

LPS Rogers

Time	Event	Position	Comments
1551	winds	11°45' 60°38'	max FL 117 kt, SF
			105 kt on WNW side
1552	fix	11°44' 60°36'	959 press
1554	radar	11°43' 60°32'	open on east, southeast
1556 03	obs	11°42' 60°27'	max FL 102 kt, SF
			90 kt on ESE side
1600	SF wind	11°38' 60°12'	61-kt radius about 52
			nm from eye
1603	radar	11°34' 60°00'	multiple bands on east side, looks like eastern eye walls closing up
1610 17	SF wind	11°28' 59°36'	50-kt rad. about 67 nm out
1614 10	radar	11°23' 59°23'	brod band 125 nm S of center
1619 27	turn	11°20' 59°04'	turn left to 60, truncating outboard leg to minimize time in eye, save time, SF winds 40, 95 nm out
1623 16	turn	11°28' 58°49'	track 90
1631 54	turn	11°44' 58°24'	turn to 330; SF about 38 kt
			127 nm E of storm
1651	SF winds	13°8' 59°13'	SF about 40 kt, visual about 40 kt
1659 55	SF winds	13°43' 59°33'	at edge of 34-kt winds, 136 nm NE of turn

Lead Project Scientist Event Log

Date 9/7/04

Flight 040907E

LPS Rogers

Time	Event	Position	Comments
170117	turn	13°48'59"37'	turn to 270, heading to ^{inbound leg}
170618	turn	13°49'60"00'	turn to 085 track, ^{inbound leg}
			SF 35, FL 48 kt, 128 nm NNE
171000	turn	13°34'60"07'	turn to 205 track
1719	SF winds	13°00'60"24'	SF 50 kt, 77 nm NNE
172730	SF winds	12°28'60"34'	SF 64 kt 46 nm NNE
173320	radar	12°07'60"52'	going turn band on N side, spirals
1737	obs	11°51'61"00'	Max FL 110 kt, SF 102 kt ^{around}
			midlevel clouds, in eye, not very clear
1739	fix	11°46'61"04'	956 mb
1741	obs	SW eyewall	Max FL 86 kt, SF 88 kt
1743	SF winds	11°29'61"12'	84-kt radius 70 nm SSW
1747	SF winds	11°15'61"18'	50-kt radius 50 nm SSW
175109	SF winds	10°59'61"25'	34-kt 65 nm SSW
180135	drop 1	10°54'60"55'	drop, SF wind ~ 36 kt, ~ 45 miles SSE
180209	drop 2	11°2'60"56'	backup drop, SF ~ 40 kt
180652	drop 3	11°21'61"06'	drop, 25 nm from eye
181249	drop 4	11°47'61"07'	drop in eyewall
1813	obs	11°48'61"08'	Max FL 90, SF 100 SSE eyewall
1817	drop 5	12°00'61"16'	max FL 120, SF 100 NNW
182304	drop 6	12°23'61"22'	41 nm from eye, 64 kt wind

AFFIX
NW 45, 085
11°47'61"04'

AP launch
detected

no LD

NCD

Lead Project Scientist Event Log

Date 9/7/09

Flight 040907 I

LPS R. J. G. S.

Time	Event	Position	Comments
182640	radar	12°36'61°26'	50 ktiform shield w/ storm
18	SF winds	12°46'61°29'	50 kt radius, 65 nm NNW
183534	drop 7	13°13'61°36'	34 kt rad., 94 nm NNW
183733	turn	13°21'61°39'	turn to 220 track, final downwind leg
185734	turn	12°01'62°33'	turn to track 180, intersecting original leg
190745	turn	11°14'62°39'	turn to track 065, final leg
191101	drop 8	11°17'62°26'	34 kt radius 80 nm WSW
191800	SF wind	11°29'62°02'	50 kt rad. 55 nm WSW
192606	drop 9	11°48'61°37'	64 kt wind 25 nm WSW
192722	drop 10	11°51'61°32'	WSW eyewall drop
192918	obs	11°56'61°26'	max SF 90 kts WSW eyewall, FL 190 kt
193016	drop 11	11°59'61°23'	ENE eyewall
193120	obs	12°02'61°20'	max SF 100 kts ENE, FL 130 kt
	fix		
193605	drop 12	12°14'61°05'	64 kt rad. 27 nm ENE
1945	SF winds	12°35'60°40'	50 kt rad. 50 nm ENE
1938	radar	12°17'61°01'	strong band, 50 dB Z
195245	drop 13	12°54'60°16'	34 kt rad. 80 nm ENE
2002	SF winds	13°18'59°48'	actual 34 kt rad, 120 nm ENE
200255	turn	13 21 59 49	ATB
212400	landix SF critx	SF Critx	

Mission Summary
Storm name
YYMMDDA# Aircraft 43RF

Scientific Crew (43RF)

Lead Project Scientist Rogers
Radar Scientist Leighton
Cloud Physics Scientist —
Dropwindsonde Scientist Leighton
Boundary-Layer Scientist Leighton - SFMR
Workstation Scientist Leighton
Observers —

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

see section D & Fig. 1

Mission Synopsis: (include plot of actual flight track)

Mission was to map out the wind field using SFMR's and dropsondes (launched at 34, 64, 104 wind radii and eye wall). Mission was accomplished, though there were several sonde failures at the beginning (no launch detectors). The SFMR's did occasionally have some differences too, but in the higher winds they were in good agreement. Eye was elliptical, and contracted from ~20 mi to 15 mi during flight. Wind field was broadest on N side (L of track), storm force winds only 45 mi on left rear quad.

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

The mission did meet the objectives of the tasking.

Surface winds were mapped out using SFMR measurements, showing marked asymmetries in the wind field structure as a function of quadrant. Some legs were cut short when storm-force radii were reached, thereby conserving time and resources.

Problems: (list all problems)

- Some sondes had launch detect failures (15 of 4)
- some discrepancies b/w HFD & AIX SFMR's at low wind speeds (25-40 kts).

Expendables used in mission:

GPS sondes: 9/13 worked

AXBTs: —

Sonobuoys: —

IVAN OFI

9 1552 compl 1540 - 1600

9 1739 comp2 1727 - 1747 Seamer

&

9 1933 comp3 1920 - 1940

