

080722H2
Rogers

E.2 Lead Project Scientist (On-Board)

E.2.1 Preflight

- ☒ 1. Participate in general mission briefing.
- ☒ 2. Determine specific mission and flight requirements for assigned aircraft.
- ☒ 3. Determine from CARCAH or field program director whether aircraft has operational fix responsibility and discuss with AOC flight director/meteorologist and CARCAH unless briefed otherwise by field program director.
- ☒ 4. Contact HRD members of crew to:
 - a. Assure availability for mission.
 - b. Arrange ground transportation schedule when deployed.
 - c. Determine equipment status.
- ☒ 5. Meet with AOC flight crew at least 90 minutes before takeoff, 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 or FGOC at remote recovery location).



E.2.2 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 Form E-2.

E.2.3 Postflight

- ☒ 1. Debrief scientific crew.
- ☒ 2. Report landing time, aircraft, crew, and mission status along with supplies (tapes, etc.) remaining aboard the aircraft to the appropriate HRD operations center (MGOC or FGOC).
- ☒ 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. Determine next mission status, if any, and brief crews as necessary.
- ☒ 6. Notify the appropriate operations center (FGOC or MGOC) as to where you can be contacted and arrange for any further coordination required.
- ☒ 7. Prepare written mission summary.

On-Board Lead Project Scientist Check List

Date 7/22/08 Aircraft N42RF Flight ID 080722H2

A. Participants:

HRD		AOC	
Function	Participant	Function	Participant
Lead Project Scientist	<u>Rogers</u>	Flight Director	<u>Parrish</u>
Cloud Physics	<u>—</u>	Pilots	<u>Nelson, Newman</u>
Radar	<u>Ganache</u>	Navigator	<u>Bishop</u>
Workstation	<u>Ganache</u>	Systems Engineer	<u>Lynch</u>
Photographer	<u>—</u>	Data Technician	<u>Ed Smith</u>
Omegasonde	<u>Sellwood</u>	Electronics Technician	<u>Sam Souci</u>
AXB/T/AXCP	<u>Rogers</u>	Other	<u>—</u>

Take-Off: 2037 Location: KUCF Landing: 0955 Location: KUCF

B. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind
<u>22/21 Z</u>	<u>24.6</u>	<u>95.3</u>		<u>65</u>
<u>23/06 Z</u>	<u>25.3</u>	<u>96.4</u>		<u>70</u>
<u>23/18 Z</u>	<u>26.0</u>	<u>97.5</u>		<u>80</u>

C. Mission Briefing:

Conduct FMC 3-D Doppler winds mission, butterfly pattern w/ 100nm legs. Set up on NE side, track 240 to SW, downwind to S, track 0 to N. From there fly ~~para~~ straight to coast, drop 4 sondes across bathymetry gradient in onshore flow, fly along coast, drop 2 sondes, once reach offshore flow fly perpendicular out from coast, dropping 4 more sondes, return to point NW, finish butterfly pattern. In pattern, drop combo drops at turnpoints, midpoints on radials, and on 1st and 3rd passes through center. If possible, drop BT at coincident points from previous flight.

D. Equipment Status

Equipment	Pre-Flight	In-Flight	Post-Flight
Aircraft	✓		
Radar/LF	✓		
Radar/TA (Doppler)	✓		
Cloud Physics	—		
Data System	✓		
Omegasondes	✓		
AXBT/AXCP	✓		
Workstation	✓		
Photography	—		

REMARKS:

E. (I) Proposed Flight Pattern (sketch or designate by number)

(See attached diagrams)

E. (II) Actual Flight Pattern

Mission generally flew planned pattern. Completed butterfly pattern with 100 nm legs except for point 5, which had to be shortened because it was over land. Got good Poppler coverage on all legs. All drops worked, all BT's worked. Did not get good measurements for SPMR onshore/offshore module, because storm was too far offshore still. Did get a string of 3 drops in the onshore leg, but winds were only 20-30 kts at surface.

Mission was successful in general. Storm is strengthening, though slowly. MSRP was 982 mb, peak winds at surface were 70 kt on NW side. Storm showed asymmetry, with eyewall convection on NW side. Coupled with sat. image, indicated shear was SW. Wind field was asymmetric too, ~~indicated~~ with peak winds on N and NW side. SST & MLD were high (28°C and 40 m). Lack of symmetric convection in eyewall and size of eye (30-40 nm diameter) likely reason for lack of RSI. Convection in NW eyewall extended to 18 km, so there was deep convection.

Lead Project Scientist Event Log

Date 7/22

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Time	Event	Position	Comments
2037	takeoff	KaCF	Ho from MacDill
2155	obs	26°53' 88°53', 300 nm from IP	encountered line of deep convective cells, updraft ~ 8 m/s
2229	obs	176 nm from IP	another line of intense convection here on NE side
2246	SFMR	26°11' 92°41', 72 nm from IP	2 smallest frogs out on SFMR
2249	obs	70 nm from IP	another band of intense convective cells on NE side
2303	obs	8 nm from IP, 108 nm from eye	SF 30-35 kt, FL 45 kt
2305 17	GPS 1, BT 1	at IP, 25°42' 94°03'	SF 35, FL 45 kt, SST 28.7, ML 20 sec
2309	obs	80 nm NE eye, 25°32' 94°21'	eye visible ^{an LF} about 60 nm diameter, looks open on S side; strat. band outside eye in NE side
2316	GPS 2 BT 2	50 nm NE eye, 25°17' 94°46'	SF 35 kt, FL 55 kt, SST 27.7, ML 30 sec
2327	obs	inside NE eyewall	peak SF 50 kt, FL 65 kt in NE eyewall; eyewall open here, strong convection on NW side; mammatus overhang in eye

25°40'
94°07'

24°15'
94°55'

24°50'
95°43'

227 Ar E

24°44'
95°24'
984 mb

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Lead Project Scientist Event Log

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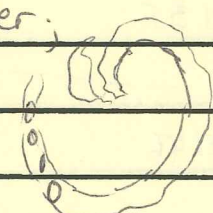
Time	Event	Position	Comments
2330	GPS 3, BT 3	at 8000ft center; 24°49'95"39"	SST 28, ML 30.5
2334	obs	SW eyewall, 16nm from center	peak SF 60kt; FL 70kt
2337	obs	20 nm SW center	asym. in SF to FL wind speed ratio; SF much less than FL on NE, not so much on SW, at least near eyewall; IR sat & LF image suggest SW shear; variable ratio in SF/FL wind indicates tilted eyewall toward NE (also consistent w/ SW shear); FL center vs. SF center, however, indicates FL center displaced W to SW of SF center
2342	GPS 4, BT 4	50 nm SW; 24°24'46"26"	FL 45; SF 25; SST 28.1, ML 40 sec
2350	obs	80 nm SW ctr	center drop skewed light W winds during descent suggesting upper-level ctr was displaced S of SF center
2354	GPS 5, BT 5	100 nm SW ctr	SF 15; FL 35kt; SST 27.9 ML 20 sec
2355	turn	100 nm SW ctr	turn to track 110
0015	GPS 6, BT 6	100 nm S ctr	SF 25, FL 25 SST 28.1; ML 30 sec

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Time	Event	Position	Comments
001244	obs	80 nm S eye	convective band
		23°40' 95°46'	here; intense eyewall
			convection holes more on W side
			now, NE side looks to have filled in
B 002709	GPS 7 BT 7	50 nm S eye	SF 30; FL 45
		24°10' 95°43'	SST 28.1; ML 30 sec
003137	obs	30 nm S eye	CF pattern spiraling, no closed center;
			classic conv. to-strat. transition along band on W side, S side
			
0035	obs	in eye	peak SF 53 kt, FL 60 kt on S side
A 003748	GPS 8; center	24°54' 95°41'	eye still closed-filled alt
004538	obs	30 nm N eye;	peak SF 65 kt; FL 70 kt
		25°24' 95°41'	in N eyewall
E 005040	GPS 9; BT 8	50 nm N eye;	FL 70, SF 60 kt;
		25°43' 95°41'	SST 28.5; ML 30 sec
H 0102	GPS 10; BT 9	100 nm N eye;	SF 35; FL 30 kt
		26°29' 95°41'	SST 28.4; ML 90 sec

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	Time	Event	Position	Comments
	010532	SFMR drop 1	26° 36' 96° 01'	
H	011100	SFMR drop 1 (11)	26° 35' 96° 23'	SF winds 33 kt; FL direction 60 deg
H	011500	SFMR drop 2 (12)	26° 35' 96° 44'	SF 26 kt; FL 60°
H	011910	SFMR drop 3 (13)	26° 35' 97° 04'	SF 20 kt; FL 60°
	012130	turn	26° 39' 97° 10'	turn to parallel coast
H	0127	SFMR drop 4 (14)	26° 16' 96° 59'	SF < 20 kt; FL 45°
H	0131	SFMR drop 5 (15)	25° 59' 97° 01'	SF 20 kt; FL 40°
E	0135	GPS 16, BT 10	80 nm NW; 25° 38' 97° 07'	SF 25 FL 45 SST 26.1; just offshore
E	0146	GPS 17, BT 11	50 nm NW; 25° 19' 96° 28'	SF 42; FL 50; SST 28.5; ML 30 sec
	0153	obs	in eye	peak SF 74 kt; FL 72 kt on NW side
E	015540	GPS 18, BT 12	25° 00' 95° 51'	center drop; extrop ~ 980 mb SST 27.8; ML 30 sec
	0202	obs	35 nm SE	peak SF 50 kt, FL 60 kt SE of ctr
	0208	GPS 19, BT 13	50 nm SE; 24° 31' 94° 59'	FL 40; SF 35 SST 27.3; ML 15 sec
E	021400	GPS 20, BT 14	100 nm SE; 24° 11' 94° 17'	FL 32; SF 37; SST 27.8; ML 15 sec

0455

RTB

KMcF

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