

Rogers
050909Z1

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

Storm or Project T.S. Ophelia Experiment name NHC task / Freq. Mon. / RAINEX
 Date 9/9/05 Aircraft N43RF Flight ID 050909II

A. Participants:

HRD		AOC	
Function	Participant	Function	Participant
Lead Project Scientist	<u>Rogers</u>	Flight Director	<u>Mayeaux</u>
Radar	<u>Small / Dodge</u>	Pilots	<u>Tebeest, Silah, Choy</u>
Workstation	<u>Abersson / Dodge</u>	Navigator	<u>Seigel</u>
Cloud Physics	<u> </u>	Systems Engineer	<u>Lynch</u>
Photographer/Observer	<u>ABC media</u>	Data Technician	<u>San Souci, Tong</u>
/Guests	<u>Abersson</u>	Electronics Technician	<u>San Souci</u>
Dropwindsonde	<u>Walsh-SRA</u>	Other	
AXBT/AXCP			

B. Take-off and Landing Times and Locations:

Take-Off: 1043 UTC Location: Mac Dill

Landing: 1912 UTC Location: Mac Dill

Number of Eye Penetrations:

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind

D. Mission Briefing:

Fly NHC tasked mission into newly downgraded Tropical Storm Ophelia. Fly single figure-4 pattern at 5000 ft, repeating legs. Fix times are 12, 15, 18 UTC. Drop sondes for NHC at center and RMW, drop RAINEX sondes at turn points. Hand off fix responsibility, climb to 10,000 ft, and begin coordinated pattern with NRL P-3 for a RAINEX module. Possible band to target around north and east side of storm. Initial plan calls for NOAA P-3 to be set up on inside of band, NRL on outside. Leg for fix pattern is 105 nm SW of storm. Leg lengths are 105 nm. This will also serve as the final mission of 12-h frequent monitoring. There have been 6 missions over a 3-day time period.

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	↑	↑	↑	
Data System	↑	↑	↑	
GPS sondes	↑	↑	↑	
AXBT/AXCP	↑	↑	↑	
Ozone instrument	—	—	—	
Workstation	↑	↑	↑	
Videography	O	O	O	

REMARKS:

2 of 4 BT's failed, sondes worked well.

Lead Project Scientist Event Log

Date 9/1/05 Flight 050909T LPS Rogers

	Time	Event	Position	Comments
	1043	Takeoff	MacDill AFB	Takeoff from MacDill AFB
	1112	pattern	95 nm SW of ctr	at 1P, at 5000 ft
R	1113	drop 1	at 1P 95 nm SW of ctr	FL 20 kt
	1125	obs	50 nm SW eye	FL 36 kt, SF 20-25 kt, no
				eches, upper-level stratiform deck
	1127	pattern	36 nm SW	turn to track 30, 5 from/bt
				further north
N	1136	drop 2, BT combo	SW RMW	FL 55 kt, SF 42 kt, SST 27.5
	1138	winds	in center	peak FL 55, SF 42 on SW side
	1139	obs	center	cloud filled center
	1140	obs	center	inner ray in wind field;
				peak of 60 kt, peak SF 48 kt,
				extrap SCP 983 mb
N	1142	fix, drop 3	29°16' 29°6'	extrap SCP 983 mb; GPS 985 mb
	1156	radar	30 nm NE of center	2 bands on N side, one at 50 nm
				from ctr, one spiralling out at
				90 nm from center
N	1159	drop 4, BT combo	35 nm NE of center	FL 35 kt, SF 30 kt, SST <u>no SST</u>
	1209	winds	80 nm NE of center	peak FL 50 kt, SF 52 kt on NE side
	1212	radar	85 nm NE of center	inner band at 50 nm more cellular,
				3-D; outer band at 90-100 nm
				more solid, continuous.
	1215	obs	100 nm NE	going thru outer band, through gap
R	1217	drop 5	105 nm NE	FL 34 kt, SF 15 kt
	1221	pattern	on downwind leg NE of ctr	flying parallel to band, within
				15 km, about 8-10 km dep
				eches

30 30
77 40

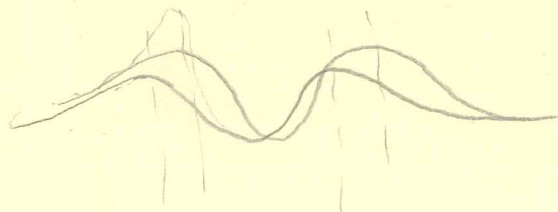
30 31
80 32

Lead Project Scientist Event Log

Date 9/9/05 Flight 050909 II LPS Rogers

Time	Event	Position	Comments
1234	radar	100 nm N of eye	more convection to North of this band on the W side, inner band
			W side looks pretty solid.
1237	drop 6	100 nm NW of eye	FL 35, SF 35 kt
1244	radar	105 nm NW of eye	wide spread strat for a precip.
1253	radar	105 nm NW of eye	hook-shaped feature on SW side of overall eyewall on LT
1256	turn	105 nm NW	turn to track 135
1258	drop 7	103 nm NW	FL 33 kt, SF 20 kt
1306	turn	70 nm NW	turn to track 110
1318	drop 8	32 nm NW	FL 48, SF 60 kt, SST 28 C
1323	obs	in center	center is a bit clearer now
1324	wind	in center	peak FL 45 kt, peak SF 60 kt, 3 maxima on NW side, inner-most not associated with rainfall
1326	fix drop 9	29°21' 78°53'	extrap SLP 983, GPS 984
1328	drop 10	SE eyewall	FL 58, SF 56 kt, SST 28 29 C
1333	winds	31 nm SE of eye	max FL now 65 kt, double peak on this side
1350	obs	95 nm SE of center	clear on SE side of storm
1353	turn	105 nm SE of center	turn to track 0
1354	drop 11	105 nm SE of ctr	FL 40, SF 25 kt
1410	turn	105 nm E of ctr	turn to track 370
1412	drop 12	FL 45, SF 30 kt	
1421	drop 13	35 nm E of eye	FL 55, SF 50 kt
1429	drop 14, fix	29°28' 78°43'	extrap SLP 983, GPS 985
1439	pattern	70 nm NW of ctr	going to target a band that is

oriented N-S on the W side of storm, multiple bands here



Lead Project Scientist Event Log

Date 9/9/05

Flight 050909Z

LPS Reyers

	Time	Event	Position	Comments
R	1449	turn 4	begin coord. leg w/NRL	turn to track 225
		drop 15		FL 35, SF 45kt
	1453	turn	on coord. leg	track 130 to get closer to band
	1454	turn		track 227, within 15 km of band
R	1458	drop 16		FL 38kt
	1503	turn	"	track 180, went around portion of band that was sticking out
R	1505	drop 17	"	FL 55kt
	1505	turn		track 150
	1506	turn		track 130 following band
	1511	turn	end of ^{RAINEX} downwind coord.	ended downwind leg, turning upwind to repeat
R	1513	drop 18	start of RAINEX upwind	FL 50kt
	1515	radar	in RAIN. leg	TA down temporarily, up after 2 min.
	1518	obs	on RAINEX upwind	storm motion 050 at 10-11kt from 1st 7 fixes
	1521	radar	"	radars down again, rebooting
	1526	pattern	"	keeping within 10 km of band on our right
	1534	obs	near end of upwind leg	withing some jets on outer edge of band on right
	1536	turn	end of RAINEX upwind	turning 90-270, repeating repeating downwind leg
R	1541	drop 19	beginning of 2nd RAINEX downwind leg	FL 39kt
R	1547	drop 20	in 2nd downwind leg	FL 48kt
R	1552	drop 21	" "	FL 55kt

Lead Project Scientist Event Log

Date 9/9/05 Flight 05090971 LPS Rigars

Time	Event	Position	Comments
1557	end of leg	end of RAINEX downwind leg	90-270 turn to start final RAINEX upwind leg
R 1600	drop 22	turn point to start upwind	FL 48 kt
1606	radar	in upwind leg	outer rain band that we've seen flying has dissipated markedly, inner band is much stronger now
1609	satellite	upwind leg	IR image shows outflow being established in all quadrants, shear relaxing
1623	pattern	NW of center	finished RAINEX upwind leg, going to point N of storm to set up for new fix 4
1630	pattern	90 nm NNW of center	descend to 500 ft to prepare for next fix
1639	turn	105 nm NW of center	turn to track 135
R 1641	drop 23	105 nm NW of center	FL 41, SF 30 kt
1657	winds	50 nm from center	chaotic FL wind field
N 1659	drop 24	45 nm N of center	FL 55 SF 50, triple max profile, peak winds 60 kt @ FL, SF 60 kt
N 1701	fix, drop 25	29° 42' 78" 36'	retrop SLP 982 mb, GPS 983 mb
1710	obs	eye	tracked into hook-like feature on Lt on southern edge of eyewall
R 1716	drop 26	3 eyewall	max FL 60 kt, SF 50 kt
R 1721	drop 27	S of eye	F
R 1729	drop 28	pt. 2 of pattern	FL 57 kt
1733	pattern	blw pts. 2 + 3	following just outside eyewall, PRB structure
R 1739	drop 29		FL 55 kt
R 1749	drop 30	end of upwind leg	FL 50 kt
R 1754	drop 31	start of downwind leg	FL 50 kt

1756

pattern

on inner edge of PRB on downwind leg

want to fly along inner edge of PRB, down to where it intersects w/ eyewall, but FD did not want to, so turned around & aborted pattern

1912

landing

MacN 4 PB

3059
80.01

Mission Summary

Storm name

YYMMDDA# Aircraft 43RF

Scientific Crew (43RF)

Lead Project Scientist Rogers
Radar Scientist Small, Dodge
Cloud Physics Scientist _____
Dropwindsonde Scientist Abernethy
Boundary-Layer Scientist Walsh - SRA
Workstation Scientist Abernethy
Observers _____

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

perform NHC-tasked mission, in between fixes
well coordinated passes w/ NHC. Fly task portion at 5000ft, 105 nm legs
for a fig. 4. Fly RAINEX portion at 10,000ft. Drop sondes at turn points, fly wind
center on NHC portion, evenly spaced along leg for RAINEX.

Mission Synopsis: (include plot of actual flight track)

Flew pattern as planned. Did Figure 4's
along 45 degree off-cardinal directions. System was experiencing shear, pressure
was lower than before, but winds were not higher. In b/w 2nd & 3rd fix, flew along
rainband on NE and NW side of storm. Did 2 downwind & 2 upwind legs, we were outside
band and NHC was inside band. After 3rd fix set up for upwind leg along RRB on W side.
Planned to come back on inner edge to follow down to its intersection w/ eyewall, but

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

FD did not allow it.
Mission was very good. Accomplished tasking objectives, found storm pressure
had dropped, but wind still r.s. strength. Had good coordination w/ NHC, flew on
opposite sides of 2 RB features at different times, had RRB on 1st pass w/ in 10km for
most of leg. Would have been great to get final downwind leg along inner edge of RRB to
pt. of intersection w/ eyewall, but wasn't able to. Sondes all worked
well, 2 of 4 BT's failed. Great final mission for frequent monitoring.
no major problems. Sondes had very high success rate. 2 of 4 BT's failed.

Expendables used in mission:

GPS sondes: 31 (10 NHC, 20 RAINEX, 1 AOC)

AXBTs: 4

Sonobuoys: 0

