

## Lead Project Scientist

Storm or Project Hurricane Bill Experiment name TDP/RapX  
Flight ID 090819II Mission ID WX03A Bill3

### 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 Hur. Bill Experiment name TOP/PopX  
 Flight ID 090819.I1 Mission ID WX03A Bill3

**A. Participants:**

HRD		AOC	
Function	Participant	Function	Participant
Lead Project Scientist	<u>Rogers</u>	Flight Director	<u>Daniano</u>
Radar/Workstation	<u>Murillo</u>	Pilots	<u>Newman, Girouard, Far</u>
Cloud Physics	<u>—</u>	Navigator	<u>Bishop</u>
Photographer/Observer /Guests	<u>—</u>	Systems Engineer	<u>Lynch</u>
Dropwindsonde	<u>Sellwood</u>	Data Technician	<u>Smith</u>
AXBT/AXCP	<u>—</u>	Electronics Technician	<u>Peck</u>
		Other	

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

Take-Off: 0739 UTC Location: TBPB  
 Landing: 1517 UTC Location: TBPB  
 Number of Eye Penetrations: 4

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

	Date/Time	Latitude	Longitude	MSLP	Maximum Wind
0	<u>19/03Z</u>	<u>17.2</u>	<u>53.31</u>		<u>110</u>
12	<u>19/12Z</u>	<u>18.4</u>	<u>55.4</u>		<u>120</u>
24	<u>20/00Z</u>	<u>20.0</u>	<u>58.0</u>		<u>125</u>
36	<u>20/12Z</u>	<u>21.8</u>	<u>60.5</u>		<u>125</u>
48	<u>21/00Z</u>	<u>23.8</u>	<u>62.9</u>		<u>120</u>

**D. Mission Briefing:**

Conduct a TOP/PopX mission into Hurricane Bill, which was a 110-kt hurricane at 03 UTC according to NHC. Bill has intensified, perhaps not rapidly, to 140 kts from 85 kt yesterday. Eye has cleared out, but storm struggling to fly rotated Fig. 4 pattern, IP 150 nm from center on SW side. Remaining legs are 100 nm. Finish pattern on N of storm, RTB. On ferry loop, fly successive legs at 500, 5000, 10,000, 14,500, then 20,000 ft. for measurements in situ using cloud aerosol spectrometer. If arc clouds seen, drop sondes across boundary. ~~Drop~~ Drop sondes at endpoints, 2 center drops, and at 150, 100, 50 nm on SW inbound leg. Drop sondes at all max wind points.

Storm or Project B11 Experiment name TOR

Flight ID 090819II Mission ID W403A-B113

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 8/19/09 Flight ID 090819 I1 LPS Rogers

Time	Event	Position	Comments
0739	t/o	Barbados	takeoff
0742	1000ft leg	13.14 59.31	begin 10-min leg at 1000ft
0756	5000ft leg	13.52 58.82	climb to 5000 ft, begin 10-min leg
0803	on 5000 ft leg		getting readings on aerosol histograms
0806	10,000 ft leg	14.2 58.23	climb to 10,000 ft
0814	start 10kft leg	14.61 57.97	begin 10kft leg
0824	end leg		end 10kft leg
0832	start 14.5 kft leg		begin leg
0838	on 14.5kft leg, 16 nm from IP		seeing many readings on CAS at this altitude
0839	obs	160 nm SW storm	eye visible at 300 km, scattered convective eyes 150 nm from center
0842	end leg	4 min IP	end 14.5kft leg
0843	drop 1	at IP, 150 nm SW center, 16.2 56.78	drop 1, descend to 10kft, moist while any down
0846	Radar, obs	135 nm from center	isolated, but strong convective cores on SW side of storm
0855	drop 2	100 nm from ctr.	FL 30 kt SF 28
0901	obs	75 nm from ctr.	flying over convection below us, still isolated but bumpy, FL, SF winds 240 kt eye open on SW side

IP  
16° 12'  
56° 55'

### Lead Project Scientist Event Log

Date 8/19/09 Flight ID 090819DI LPS Rogers

Time	Event	Position	Comments
0909	drop 3	45 nm SW center	FL 55, SF 45 kt
0917	drop 4	SW eyewall	FL 80, SF 70 kt; 50 kt
0919	center, drop 5	17.94 55.05	eye is clear out right side of plane
0926	drop 6	NE eyewall	peak FL 130 kt, SF 90 kt; a little bumpy on NE side, but not too bad; 138 kt at 200 m altitude, 117 kt at splash (from ASPEN)
0944	turn	100 nm NE eye	turn to track 200; wind field very broad here
0945	obs	100 nm NE eye	discrepancies SW drops & SFMR; 20 kt low bias for sand, 20 kt high bias for sand on NE side
0948	drop 7	100 nm NE eye	FL 80, SF 45
1014	turn	100 nm NW eye	begin next radar leg at inbound leg
1017	drop 8	100 nm NW	FL 60, SF 40 kt
1020	obs	50 nm NW outer	vigorous cells on vis. imag on NW side, LF shows this too
1036	instru.	near NW eyewall	LF flaked out again, left radar up through for TA
1038	drop 9	NW eyewall	peak FL 100, SF 90 kt, winds failed in the drop at 3000 ft
1042	obs	eye	eye has cleared out from before, showing better organ. but open on S side

from before, showing better organ.  
but open on S side

### Lead Project Scientist Event Log

Date 8/19/09 Flight ID 090819I LPS Rogers

Time	Event	Position	Comments
1045	drop 10	SE eyewall	FL 100, SF 70-75; ratio L/W FL/SF high on NW side, low on S E side, suggesting shear possibly from SW
1109	turn	100 nm SE eye	end of leg, turning to 90 inbound leg, hitting good drop + bumps a while ago
1107	drop 11	100 nm SE eye	FL 63 SF 45 kt
1119	turn	100 nm E eye	turn to track 270, begin radar leg
1121	drop 12	100 nm E eye	FL 90, SF 50 kt
1134	obs. instru.	outside E eyewall	LF keeps locking up, but ok
1136	drop 13	E eyewall	FL peak 125, SF 90
1141 21	center drop 14	eye	
1146	drop 15	W eyewall	FL peak 80, SF 80
1209	drop 16	100 nm W of eye	FL 45, SF 30 kt
	drop 17	100 nm S of eye	
	drop 18	S eyewall	peak FL 105, SF 70
	drop 19	N eyewall	peak FL 125, SF 110
1330	drop 20	100 nm N of eye	
1335	pattern		RTB

# Mission Summary

## Storm name

YYMMDDA# Aircraft 43 RF

### Scientific Crew (4 RF)

Lead Project Scientist Regeis  
Radar Scientist Munillo  
Cloud Physics Scientist \_\_\_\_\_  
Dropwindsonde Scientist Sellwood  
Boundary-Layer Scientist \_\_\_\_\_  
Workstation Scientist Sellwood, Munillo  
Observers \_\_\_\_\_

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

See previous

*Mission Synopsis: (include plot of actual flight track)*

flew pattern as planned, storm was fairly intense, with clearing eye ~~that~~ very asymmetric, though. Eyewall precip. was maximized on N side. Evidence that W or SW shear impacting storm, SFWL max of 110 kt on N side, FL max of 130 kt on NE side of storm. CDO somewhat restricted on W side on vis. images, though inner core surrounded by cloud. On ferry to IP flew low-level stair-step patterns to test OAS probe. Seemed to get

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

mission was generally successful. Sampled a ~~strong~~ storm that was continuing to slowly intensify while at same time showing many asymmetries especially in wind and precip. field. Were able to get some radar analyses done, but radar data system kept freezing, limiting the

some readings, though don't know how reasonable they were. IP was 150 nm out, did not see evidence of dry air out there.

*Problems: (list all problems)*

only significant problem was radar data system locking up frequently, limiting the amount of data available for real-time analyses. Presumably these data can be

amount of data collected. Four analyses were created, and superobs generated and transmitted.

recovered in research mode.

*Expendables used in mission:*

GPS sondes: 20

AXBTs: \_\_\_\_\_

Sonobuoys: \_\_\_\_\_