Lead Project Scientist

Storm or Project Hur. Bill **Experiment name** TDR
Flight ID 090820I1 **Mission ID** WX03A Bill5

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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A. Participants:

HRD		AOC	
Function	**Participant**	**Function**	**Participant**
Lead Project Scientist	Rogers	Flight Director	Damiano, Sears
Radar/Workstation		Pilots	Newman, Giammotte, Eanhart
	Murillo	Navigator	Bishop
Cloud Physics	—	Systems Engineer	Lynch
Photographer/Observer /Guests	—	Data Technician	Smith
Dropwindsonde	Sellwood	Electronics Technician	Lynch
AXBT/AXCP	—	Other	

B. Take-off and Landing Times and Locations:

Take-Off: 541 UTC Location: TBPB

Landing: 1447 UTC Location: TBPB

Number of Eye Penetrations: 3

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind
20/03	20.7	58.9		115
20/12	22.1	60.9		120
21/00	24.1	63.4		125
21/12	26.6	65.6		120
22/00	29.4	67.5		120

D. Mission Briefing: Fly TDR mission into Hurricane Bill which remains Cat 4 as per NHC, despite showing significant azim. asymmetries. Fly butterfly pattern, 120 nm leg lengths, IP on S side, end up on SW side. Drop sondes at end points, mid points, and at RMW for each leg, plus 1st and last center pass. Possible arc cloud drops on NW leg if it shows up on visible imagery. Fly pattern at 12,000 ft.

Storm or Project Bill nope! **Experiment name** TDR

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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	O			
Ozone instrument	O			
Workstation	↑			
Cameras	↑			

REMARKS:

Lead Project Scientist Event Log

Date 8/20/09 **Flight ID** 090820I1 **LPS** Rogers

new IP

19°40', 60°15'

21°41', 63°07' ctr

22°44', 062°39'

Time	Event	Position	Comments
741	takeoff	TBPB	t/o
0909	IP	120 nm S	at IP, beg. in radar leg
0910	drop 1	120 nm S	FL 40, SF 35
0915	obs	90 nm S	eye open on S, growing convective cores in band at 90 nm
0932	drop 2	S eyewall	FL 90 SF 65
0935	obs	in eye	eye more cloud-filled today
0937	drop 3	center	952 hPa
0942	drop 4	N eyewall	FL 120 SF 95
0948	obs	50 nm N of center	primarily strat. N of center
1004	turn	120 nm N of center 23°39' 60°55'	completed radar leg, turn to track 240
1006	drop 5	120 nm N of center	drop at turn point, FL 70 SF 50
1023	obs	22.93 62.26, ~120 nm NW of ctr	no precip. out here, along middle of "moat" region seen in IR
1030	drop 6	120 nm NW ctr	drop in clear air, FL 50, SF 35 kt
1051	turn	120 nm NW ctr.	begin radar leg
1047	obs	60 nm NW ctr	precip-free, high-level anvil; drop at N turn point skewed near-saturation above 900 mb, drying below that looked like subsidence; on NW side obs saturated down to 900 mb, that same kind of drying below

Lead Project Scientist Event Log

Date 9/20/09 **Flight ID** 09082011 **LPS** Rogers

Time	Event	Position	Comments
105320	drop 7	35 nm NW	NLD, FL 85, SF 80kt
1104	drop 8	SE eyewall	FL 110 SF 70 kt,
			+100 kt above 1000 ft., below
			that dropped to 70 kt
1122	obs	90 nm SE ctr	encountered some bands on SE side
1126	turn	120 nm SE ctr	end radar leg 2, turn to track
1128	drop 9	120 nm SE ctr	FL 60, SF 40 kt
1133	obs	100 nm E of ctr,	last pass from NW-SE
		going to final	showed variable FL/SF
		inbound leg	reduction factor. Nearly
			1 on NW side, <<1 on SE
			side, indicating shear
1150	turn, radar leg	120 nm NE ctr	turn to track 240, begin
			3rd radar leg
1151	drop 10	120 nm NE ctr	FL 75 SF 45
1202	obs	65 nm NE ctr	
1209	drop 11	NE eyewall	dropped too soon
1213	drop 12	NE eyewall #2	peak FL 120 SF 90
121855	drop 13	center drop	951 from edit sonde
1224	drop 14	SW eyewall	FL 80 SF 75
1228	obs	40 nm SW center	ratio of SF/FL winds
			very high compared w/
			NE side
1241	obs	95 nm SW center	aircraft shield aloft,
			no precip at all on
			this side
124730	drop 15	120 nm SW center	FL 30 SF 30

center
21° 56'
60° 53'
1056
302/16-17 kt

Lead Project Scientist Event Log

Date 9/20/09 **Flight ID** 090820I1 **LPS** - Rogers

Time	Event	Position	Comments
1447	landing	TBPB	landing

Mission Summary
Storm name
YYMMDDA# Aircraft 43RF

Scientific Crew (4 RF)
Lead Project Scientist Rogers
Radar Scientist Murillo
Cloud Physics Scientist —
Dropwindsonde Scientist Sellwood
Boundary-Layer Scientist —
Workstation Scientist Sellwood / Murillo
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 has weakened appreciably since last P3 mission. No SF winds of 100+kt were observed. There were no scatterers on W and SW sides, just thin cirrus anvil. ~~Rad~~ NE and N eyewall was still active, and a rainband was seen on E side that had turbulence. Storm was highly asymmetric — winds were strongest on NE side, azimuthal variation of SF/PL reduct suggests WSW shear below surface flight level. Sonde humidities show an interesting pattern of dry air in lowest 100 mb on N side of storm, perhaps indic subsidence associated with ban on N side. That data combi w/ D-W data should provide interesting study of low-level thermo. structu in outer bands + possib within core.

Evaluation: (did the experiment meet the proposed objectives?)
There were radar probs the entire flight. The radar was down for the entire inbound part of the 1st leg, and then it was down for whole 3rd leg. Doppler analyses were marginal at best. FL-SF data, + drop data provided some interesting data for future research, but Doppler problems seriously degraded success of this mission.

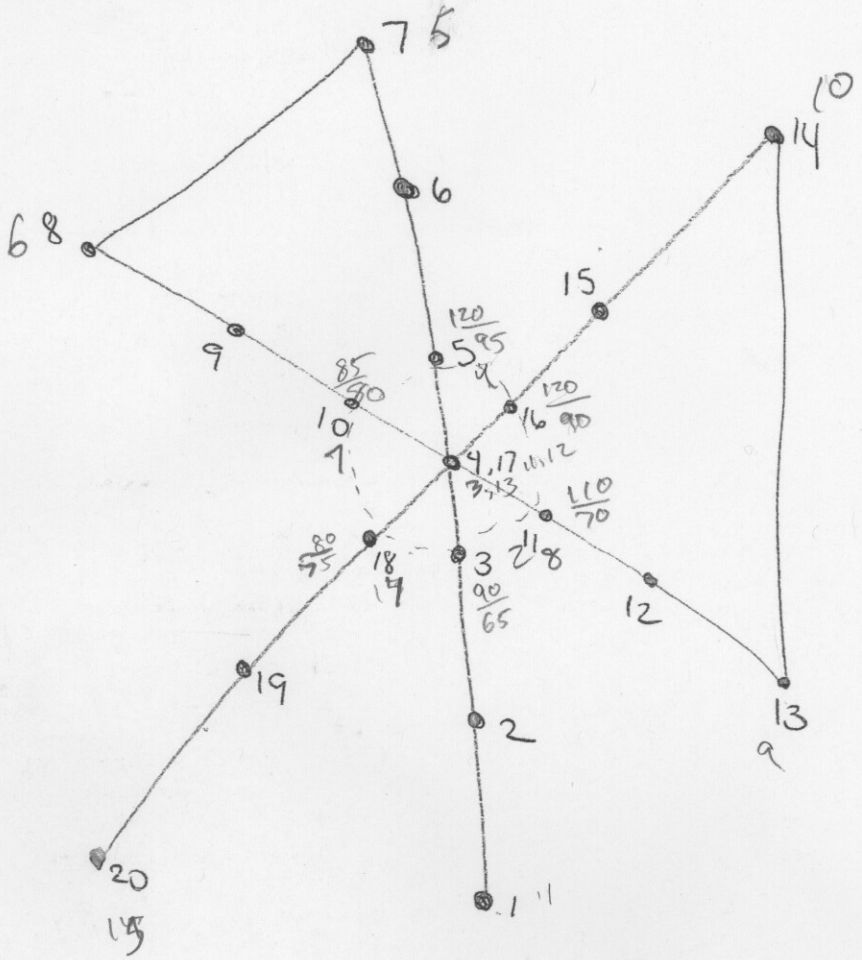
Problems:(list all problems)
major probs w/ tail Doppler. One dropsonde had no launch detect.

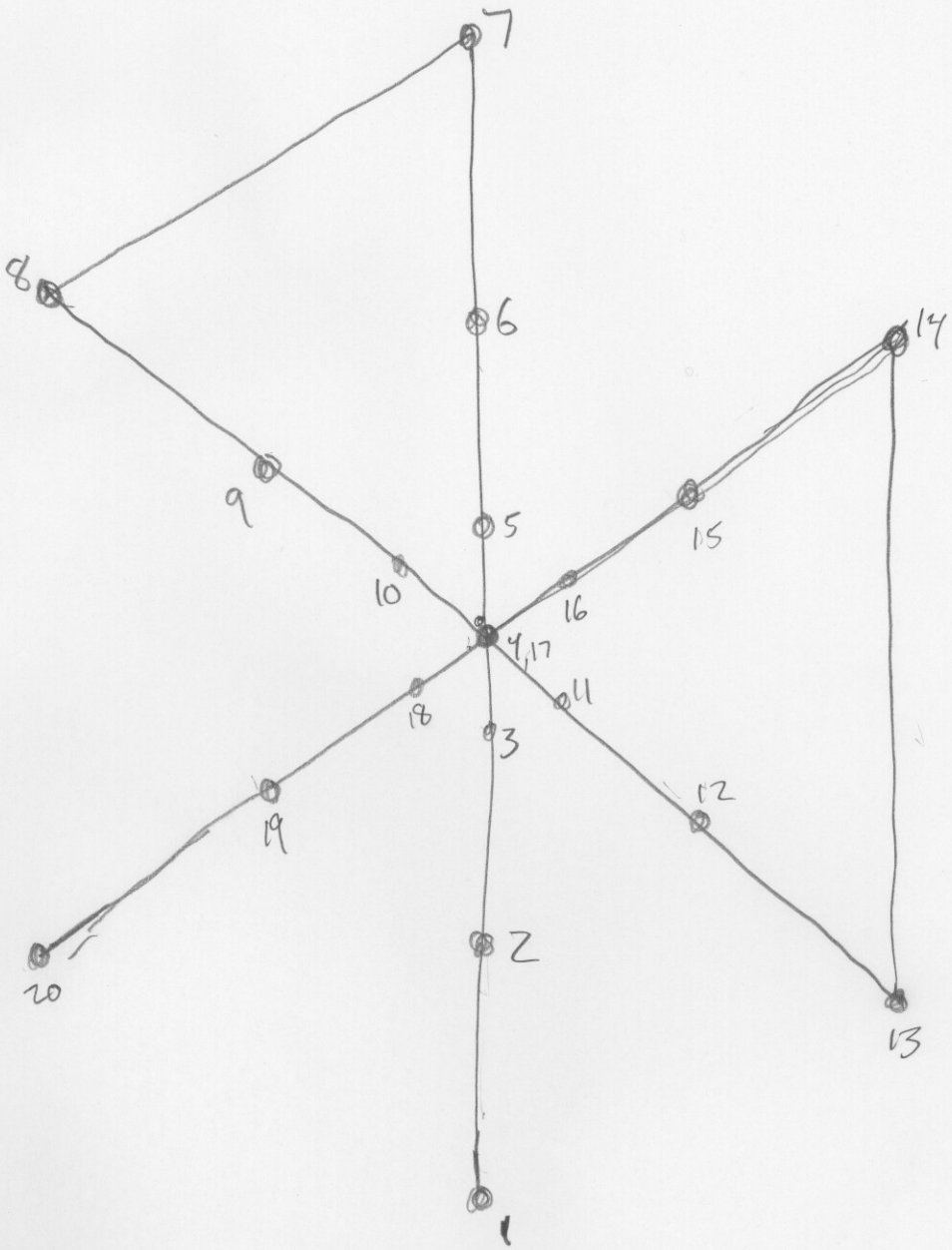
Expendables used in mission:
GPS sondes : 15
AXBTs : —
Sonobuoys: —

center positions 305/15

20/3z	20.7 N	58.9 W
12z	22.1	60.9
21/0	24.1	63.4
12	26.6	65.6

WX03A Bill S

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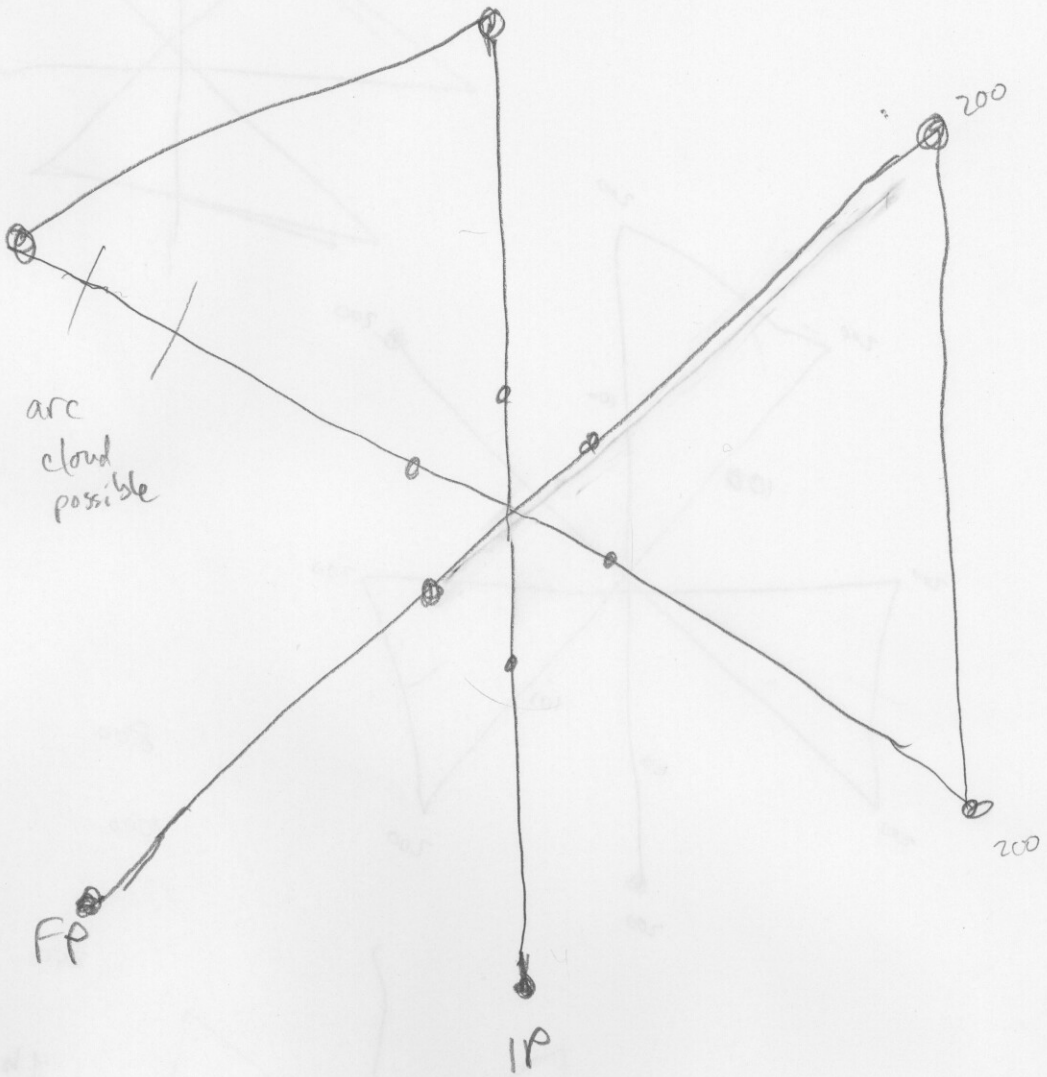

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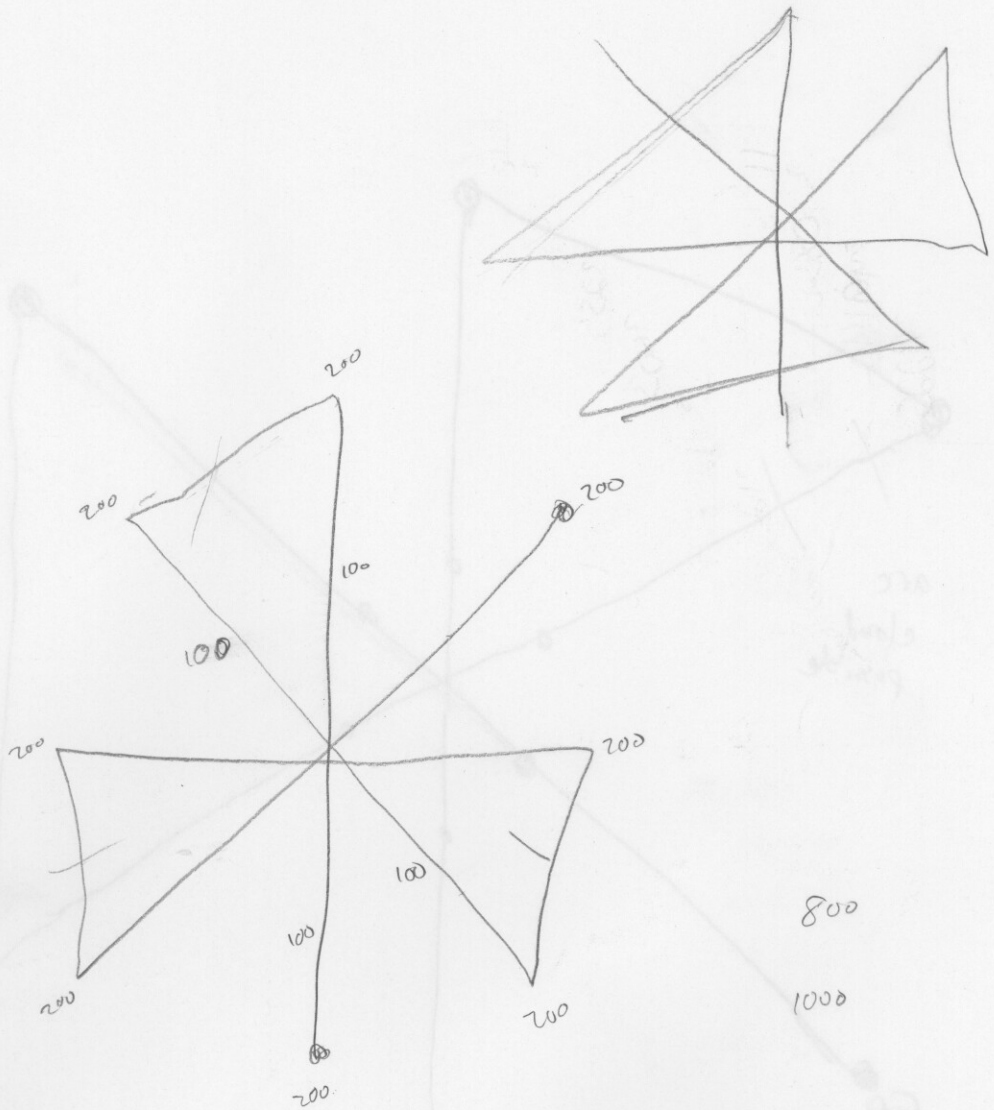
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