Lead Project Scientist

Storm or Project TD #4 **Experiment name** TDR
Flight ID 140824H1 **Mission ID** _____

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 TD 4 **Experiment name** TDR

Flight ID 140824H1 **Mission ID** ______

A. Participants:

HRD		AOC	
Function	**Participant**	**Function**	**Participant**
Lead Project Scientist	Rogers	Flight Director	Henning
Radar/Workstation	Zhang	Pilots	Halverson, Kerns, Adier
		Navigator	Gallagher
Cloud Physics		Systems Engineer	Lynch
		Data Technician	Ryles
Dropwindsonde	Marks	Electronics Technician	San Souci
AXBT/AXCP	—	Other	
Photographer/Observers/Guests	—		

B. Take-off and Landing Times and Locations:

Take-Off: 0625 UTC Location: KMCF

Landing: 1343 UTC Location: KMCF

Number of Eye Penetrations: —

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind

D. Mission Briefing: Fly TDR pattern into TD4, which is still trying to organize in the SE Bahamas. Storm was declared a TD <12 h earlier, still had a diffuse circulation based on recent recon. Some convection has developed near the center in the past 3 hours, with IR temps ~-70. Environment generally appears favorable: westerly shear <10kt, high SST, improving upper-level outflow structure, despite this models and NHC predicting only slow intensification.

Fly butterfly pattern, IP on W, 120 nm leg lengths. Drop sondes at turn, mid, and center points. No BTs. Fly at 10,000 ft.

2252
7330

Lead Project Scientist Event Log

Date 8/24/14 **Flight ID** 140824r1 **LPS** Rogers

Time	Event	Position	Comments
0625	takeoff	KMCF	
start RADIAL 0804	IP, drop1	120nm W etr	start RL1
0810	obs	inbnd, ~100nm W	no precip on this side
0820	drop 2	60nm W	FL 10 SF 15 kt
0830	obs	~ 20 nm W of etr	very limited to non-existent precip, some indications ahead of us and just to the south
		~ 100 nm	
0843	center, drop3	22°47' 72°55'	1003 MSLP
0848	obs	~20nm E of etr	passing just to northy of precip, TA shows echoes only up to ~ 8 km
0854	obs	~50nm E	in area of more widespread precip, mostly stratiform but some convective towers extending up to 12 km
0900	drop 4	60nm E	FL 20, SF 35kt
end RADIAL 0915 start DWI	drop 5	120nm E	FL 20, SF 40kt
0921	obs	downwind bogon E side	surrounded by more moderate to deep convection, highest echo tops ~ 14 km
end DWI 0937 start RADIAL 2	drop 6	120nm NE	FL 25, SF 20kt
0953	drop 7	55nm NE	FL 15, SF 20 kt
1004	center, drop 8	22°55' 72°39'	
1018	drop 9	50nm SW	FL 10, SF 20 kt
end RADIAL 2 1033 start DW2	drop 10	120nm SW	FL 15, SF 20kt

Lead Project Scientist Event Log

Date 8/24/14 **Flight ID** 14082401 **LPS** Rogers

Time	Event	Position	Comments
1043	obs	downwind leg S	fair amount of precip
		of storm	here, sat imagery
			shows some overshooting
			tops, got some turb.
1101	drop 11	120 nm SE	FL 35 SF 30 kt
			more OT's here
		on SE side, a fair amount	
		of deep W/E, OT's > 24°C	
		colder than surrounding along flight path	
1116	drop 12	Center SE	FL 25 SF 40
1129	obs	near center on	all of precip is on E
		SE side	and SE side, OT's of
			50,000 ft thick. Most
		of precip is displaced to SE of	
		center. First radar analysis	
		showed storm tilted significantly	
		to E btw 2 & 8 km, about	
		100 km	
1135	drop 13, center	23° N 72°38' W	
1151	drop 14	NW wind pt	FL 15, SF 20 kt
1158	obs summary	near FP	storm shows significant
		displacement btw 2	& 6-8 km, about 100 km
		to east. Circulation center at upper levels	
		w/in 2-km RMW, which is at about 20 km.	
	Almost all precip on E & SE side of storm		
	but some convective cores; OT product shows some tops		
	24 deg C colder than environment, tops of 50,000 ft		

end dw2
start RADIAL 3

end RADIAL 3

Lead Project Scientist Event Log

Date 8/24/14 Flight ID 140824H1 LPS Rogers

Time	Event	Position	Comments
1202	drop 15	NW corner pt	FL 20 SF 10 [illegible]
1343	landing	KMCF	

Mission Summary
Storm name
YYMMDDA# Aircraft 42RF

Scientific Crew (4 RF)
Lead Project Scientist Rogers
Radar Scientist J. Zhang
Cloud Physics Scientist
Dropwindsonde Scientist Marks
Boundary-Layer Scientist
Workstation Scientist
Observers (affiliation)

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

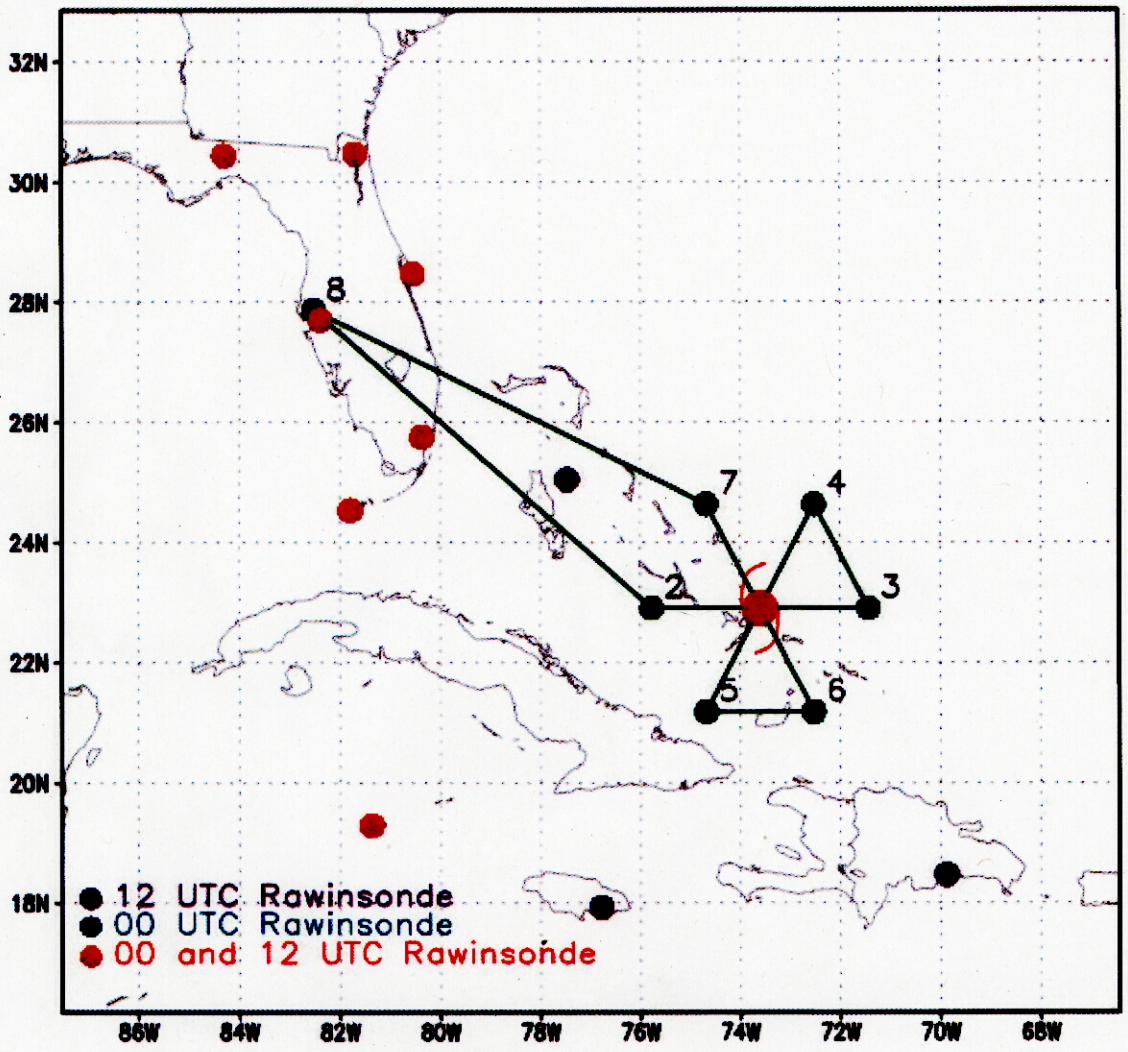
See previous

Mission Synopsis: (include plot of actual flight track) mission flown as planned. Dropped 15 sondes; all worked. There were problems with AOC ground server which prevented transmissions of some data to ground (sondes). Patch was implemented with alternate server; data from radar did reach EMC, and sondes were processed on plane. Storm is slowly intensifying; was declared TS Cristobal during flight. See discussion in notes for summary of structure. Some indication an RMW is trying to form inside current (200 km) RMW.

Evaluation: (did the experiment meet the proposed objectives?)
Mission did meet objectives, despite communications problems with AOC ground server. Radar analyses & supercobs transmitted to EMC, sondes transmitted to NHC. Sampled a tropical storm still trying to consolidate, with some areas of deep convection w/ overshooting tops near FL center.

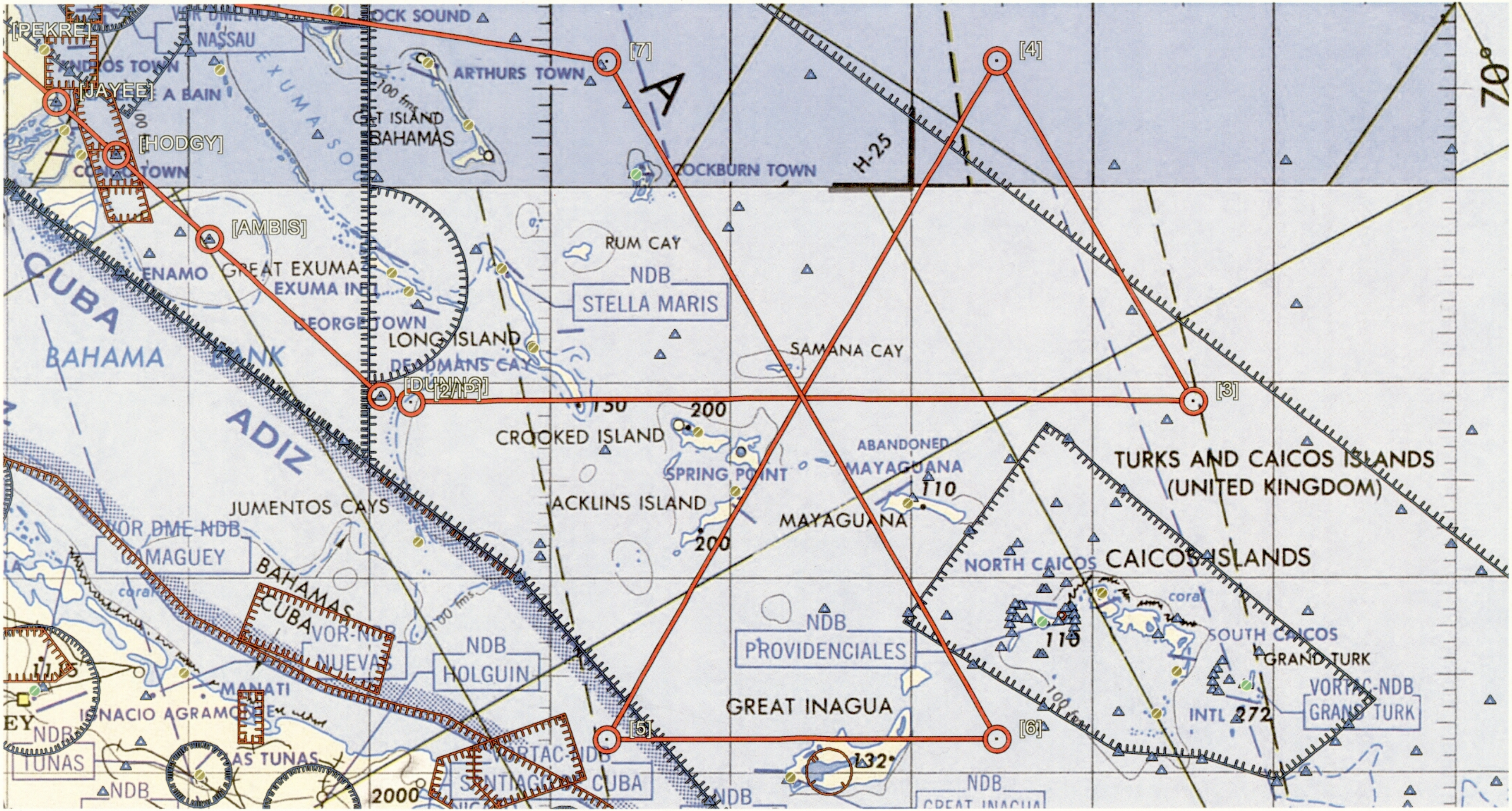
Problems: (list all problems)
Communications with AOC ground server

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



GrADS: IGES/COLA

2014-08-23-21:02



[PEKRE]
NASSAU
ROCK SOUND
[7]
[4]
ARTHURS TOWN
[JAYEE]
[HODGY]
CAT ISLAND
BAHAMAS
COCKBURN TOWN
H-25
[AMBIS]
RUM CAY
NDB
STELLA MARIS
GREAT EXUMA
EXUMA INTL
GEORGETOWN
LONG ISLAND
DEADMANS CAY
SAMANA CAY
CUBA
BAHAMA
BANK
[DUNNG]
[2/IP]
[3]
CROOKED ISLAND
ADIZ
ABANDONED
MAYAGUANA
TURKS AND CAICOS ISLANDS
(UNITED KINGDOM)
SPRING POINT
ACKLINS ISLAND
JUMENTOS CAYS
MAYAGUANA
VOR DME-NDB
CAMAGUEY
NORTH CAICOS
CAICOS ISLANDS
BAHAMAS
CUBA
VOR-NDB
NUEVAS
NDB
HOLGUIN
NDB
PROVIDENCIALES
SOUTH CAICOS
GRAND TURK
VORTAC-NDB
GRAND TURK
MANATI
IGNACIO AGRAMONTE
GREAT INAGUA
INTL
NDB
TUNAS
LAS TUNAS
VORTAC-NDB
SANTIAGO DE CUBA
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NDB
NDB
GREAT INAGUA