Lead Project Scientist

Storm or Project TS Tomas **Experiment name** TDR
Flight ID 10110HI **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 Tomas **Experiment name** TDR

Flight ID 10110HI **Mission ID** NOAA2 1721A TOMAS

A. Participants:

HRD		AOC	
Function	**Participant**	**Function**	**Participant**
Lead Project Scientist	Rogers	Flight Director	
Radar/Workstation		Pilots	
	Reasor	Navigator	
Cloud Physics	—	Systems Engineer	
Photographer/Observer /Guests	—	Data Technician	
Dropwindsonde	Klotz	Electronics Technician	
AXBT/AXCP		Other	

B. Take-off and Landing Times and Locations:

Take-Off: 1948 UTC Location: TISX

Landing: 0255 UTC Location: TISX

Number of Eye Penetrations: 0

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind

D. Mission Briefing: fly TDR mission into TS Tomas, located just SE of Jamaica as a moderate TS experiencing W to SW shear. Fly butterfly pattern, 90 nm legs, IP on NE side along 60° radial. Drop sondes at end points and a center drop on 1st and 3rd pass. Fly at 10,000 ft.

Storm or Project_____ **Experiment name**_____

Flight ID _____ **Mission ID**_____

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 11/4/10 **Flight ID** 101104H1 **LPS** Rogers

Time	Event	Position	Comments
1948	takeoff	TISX	take off from St Croix
2137	obs	16.8 72.6	passing by bands of
		110 nm E of IP	deep convection on
			east side of storm.
			line of high-reflectivity on LF,
			~45 dBZ peak values
2204	drop 1	90 nm E of center	FL ~35 kt, SF~30 kt,
			in precip. on E side,
			55 kt at 1000 ft, 40 kt
			at sfc
2212	obs	55 nm E of ctr	in choppy conditions
			here, TA showing echo
			tops to 12-14 km, LF
			showing ref >50 dBZ
2218	obs	30 nm E of eye	went through convective
			band, time series of FL +
			SF wind showed significant
			drop-off in winds
2233	obs	16.7 76.53	LF showed a clear circular
			feature, almost looked like mesovortex
2242	turn		cut westbound leg short; no S sca[illegible] ver[illegible]
	drop 2	16.62 77.17	FL 27, SF 30 kt
2256	turn	15.85 76.71	turn to track 45
2256	drop 3		FL 28, SF ~30 kt
2300	obs	16.1 76.46	IR shows nice conv.
			burst, -80C temps, estimated
			center right along S/W edge of

cloud-top temp gradient;

center est. from 1st pass was

16°47' 75°44' @ 2224Z

Lead Project Scientist Event Log

Date 11/4/10 **Flight ID** 10114H1 **LPS** - Rogers

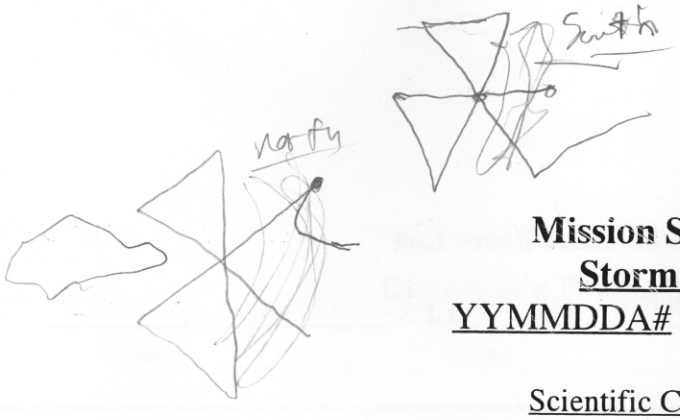
Time	Event	Position	Comments
2316	pattern	16°51' 75° 40', extrap sfc pres. 989	searching for center now,
2317	drop 4		FL winds 47 kt, but dropped to 41 kt right after drop;
			SF winds increased before FL,
			suggest sfc. center a bit SW of
			FL center; 41 kt at 6 m altitude
2328	obs	17°28' 75° 9', just NE of center	IR image shows circular
			shield of cold cloud tops
			< -80C, LF image shows
			convective core but mostly
			stout. rain on NE side
2340	turn	18.06 74.58	turn to downwind leg
			finished outbound leg to NE
2342	drop 5	18.12 74.76, NE of ctr	FL 38 kt SF 36 kt
2347	obs	18.24 75.18, NE of ctr	radar analysis from 21 hg
			shows tilt much less today
			than yesterday, <2.0 km
			b/w 1 & 5 km alt. peak
		winds at 0.5 km of 30-34 m/s	
2353	turn	18.37 73.63	turn to track 180
2355	drop 6	18.3 75.66	FL 23, SF 36 kt
0014	drop 7	16°56' 75°41'	FL 20, SF 20 kt
			targeting lows of winds
			here
0025	obs	45 nms of ctr, 16.11 75.67	no scatterers anywhere on this side, considering cutting leg 30 nm short

17°05'
75°42'
0012Z

Lead Project Scientist Event Log

Date 11/9/10 **Flight ID** 10KOYHI **LPS** Rogers

Time	Event	Position	Comments
0030	pattern	15.78 75.61	turning to track 135, continuing 180 would have no scatterers → this change brings us into some precip SE of center
0036	obs	15.49 75.33	at SE point, two bands of strong, isolated convective cores
0038	drop 8	15.5 75.16	at end of pattern, SF of ctr, FL 29kt, SF 34 kt band at T1SX
0255	land		



Mission Summary

Storm name

YYMMDDA# Aircraft 4_RF

Scientific Crew (4 RF)

Lead Project Scientist Rogers
Radar Scientist Leaser
Cloud Physics Scientist
Dropwindsonde Scientist Klotz
Boundary-Layer Scientist
Workstation Scientist Klotz
Observers

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

see previous

Mission Synopsis: (include plot of actual flight track) Generally flew pattern as planned. Center was a little further south than we thought, and as a result couldn't do NW leg. So started on E, flew to W, then down to SW, out to NE, then to N, flew some to S, but no scatterers so after 30 nm turned to track 135 to sample a line of precip. extending on SE side of storm.

Evaluation: (did the experiment meet the proposed objectives?) The experiment did accomplish the objectives as planned. Three radar legs were analyzed, as well as 8 drops, including 2 center drops. System is better organized today — during flight, a convective burst occurred, originally to NE of center. On first pass looked like a clear RMW at FL was forming. A small-scale circular feature on LF radar looked like it could be a mesovortex, though not certain.

Problems:(list all problems) Burst developed into circular cold cloud shield with coldest temps < -80°C. Initially FL center was on southedge of shield, along sharp gradient. By end of flight center appeared to be better positioned under some of the cold tops on SW side, LF showed most of area under shield was stratiform with a few isolated cores. System appears to be getting better organized. Vortex tilt is much less than it was yesterday (< 20 km b/w 1 & 5 km), and peak winds at 0.5 km are 30-35 m/s. Lowest pressure from sonde was 989 mb. This appears to be a case of a vortex slowly intensifying even in presence of shear. Shear could be relaxing some, though, as flt is decreas

No problems

Expendables used in mission:

GPS sondes : 8
AXBTs :
Sonobuoys: —