Lead Project Scientist

Storm or Project TS Tomas **Experiment name** TDR/ET
Flight ID 101106H1 **Mission ID** 2221A TOMAS

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 (EMC)

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A. Participants:

HRD		AOC	
Function	**Participant**	**Function**	**Participant**
Lead Project Scientist	Rob Rogers	Flight Director	Ian Sears / Jack Parrish
Radar/Workstation	Paul Reasor	Pilots	Carl Newman Justin Kibbey, Cathy Martin, Ryan Kidder
		Navigator	Greg Bast → Jim Warnecke
~~Cloud Physics~~		Systems Engineer	Bobby Peek
Photographer/Observer /Guests	Shirley Murillo	Data Technician	Terry Lynch Mitchell
Dropwindsonde	Brad Klotz	Electronics Technician	Bill Olney
~~AXBT/AXCP~~		Other	Rob Miletic

B. Take-off and Landing Times and Locations:

Take-Off: 1949 UTC Location: TISX

Landing: 0350 UTC Location: KMGF

Number of Eye Penetrations: _____

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind

D. Mission Briefing: Fly EMC-tasked TDR mission into TS Tomas, located in the southern Bahamas. Tomas is slowly weakening as it tracks NE, but it should rapidly weaken as strong shear and dry air encroach on storm in next 24 h. Fly rotating fig. 4, IP on SE, FP on N side. Fly at 10,000 ft, 90 nm leg lengths. Drop sondes at end points and on 2nd and 4th center pass.

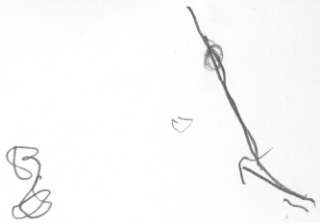
Storm or Project_____ **Experiment name**_____

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 11/6/10 **Flight ID** 10110641 **LPS** Rogers

Time	Event	Position	Comments
1949	takeoff	TISX	tko from TISX
2103	obs	75 nm from IP	going through bands of deep convection toward eyewall
			N-S on the SE side of storm
2122	drop 1	at IP 23.0N 68.75W	FL 26 kt, SF 24 kt
2126	obs	78 nm SE of ctr	non-precipitating anvil here, even though wkn inner core; sat. & LF show that convection mostly on N side, consistent w/ storm S + SW shear; there is region of convection on SE side close to center
2155	pattern	center to N of leg, missed center on this pass but will adjust for	
2207	turn	25.15 71.06	at end of outbound leg, turning to downwind leg
2208	drop 2	25.10 71.12	FL 13 SF 40 kt
2215	turn	24.68 71.35	turn to track 90, next radar leg
2216	drop 3	24.66 71.28	FL 16 SF 42
2233	obs	~~25.0 72.0~~	FL < SF all on this side
2236	drop 4	center 24.8269.79	FL ~ 7 kt, SF 35 kt, tilted system
2243	obs	just outside center on E side	very asymmetric wind field, vortex appears tilted to east, FL winds very form peak of 45 kt on W side to 80 kt on E side; SF not as asymmetric peak SF ~ 60-65 kt on E side

24.2
10.0

80° 33kt

Lead Project Scientist Event Log

Date 10/6/10 **Flight ID** 10 H06H1 **LPS** Rogers

Time	Event	Position	Comments
2248	obs	~ 50 nm E of center	mostly strat. on E side, some embedded convection
2252	obs	near turn point on E	center drop 989 mb, but winds were 33 kt at 518 m, with direction of 80°
2300	turn	24.73 68.16	turn to downwind leg
2302	drop 5	24.87 68.06	FL 30 kt SF 40 kt
2317	turn	25.98 68.53	turn to track 225, next radar leg
2319	drop 6	25.98 68.62	FL 35 kt SF 32 kt
2325	obs	25.65 68.95, approaching center from NE	widespread precip on NE side, mostly strat. but some convective elements
2333	obs	230 nm NE center	3 distinct bands on LF NE of center
2339	obs	in NE "eyewall"	peak FL ~75 kt, SF ~65 kt on NE side
2342	drop 7	in center	targeted sfc center drop, drop was when SF winds ~ 10-15 kt, about 5 nm SW of FL center
2349	obs	SW of center, NE	large asymmetry in FL winds ~ 75 kt peak on NE side, 40 kt on SW side
0001	turn	1st crossing of outbound SW leg	

24°42' 69°48' 2236 center fix

0201 FL center 24°54' 69°45' 2341 SF center 24°50.5' 69°46' 2342

Lead Project Scientist Event Log

Date 11/6/10 **Flight ID** 101106H1 **LPS** Rogers

Time	Event	Position	Comments
0003	drop 8	90 nm SW of eye	FL 25kt SF ~35kt
0015	turn	90 nm S of eye	turn to track 0
0020	drop 9	70 nm S of eye	FL 30 SF 22 kt
0034	obs	near S "eyewall"	
0038	drop 10	N eyewall drop	FL 65, SF ~ 55-60 kt
0039	obs	~30 nm N of center	couldn't do center fix, b/c FL winds were from the S on the inbound leg from the S, looks like small-scale mesovortex formed in NW part of center, so missed center, instead did a drop in the N eyewall
0054	turn	90 nm N of ctr	turn to track 245, end of pattern
0056	drop 11	after final point	FL 20kt SF 30kt
0350	land	KMCF	land at KCMF

24° 1'
64° 40'

Mission Summary

Storm name

YYMMDDA# Aircraft 4_RF

Scientific Crew (4 RF)

Lead Project Scientist Riggs
Radar Scientist Reasor
Cloud Physics Scientist —
Dropwindsonde Scientist Klotz
Boundary-Layer Scientist —
Workstation Scientist Klotz
Observers

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

TOR mission; see previous

Mission Synopsis: (include plot of actual flight track) Generally flew proposed ~~actual~~ flight track. Missed the center on the first pass b/c did not deviate when it was apparent from LF imagery that storm was moving faster than originally planned. Corrected flight error on subsequent passes, except for final pass, where we missed FL center b/c a mesoscale center was forming in NW part of center, providing FL wind direction inconsistent with our location.

Evaluation: (did the experiment meet the proposed objectives?) The experiment did not fully meet proposed objectives. Ran 4 radar analyses, transmitted all 4. Because we missed center on first pass, missed some winds on the NE side of system. But subsequent legs captured them. Storm was highly asymmetric, with peak FL winds on NE & E side of storm. SF winds did not show nearly as much asymmetry. Precip. mostly on N & E side. Storm managed to reintensify to a hurricane during our flight, despite presence of shear that was SW and strong. Should be an interesting case to evaluate for this reason.

Problems:(list all problems)

None

Expendables used in mission:

GPS sondes : 11
AXBTs : —
Sonobuoys: —