Lead Project Scientist

Storm or Project TS Karen **Experiment name** TDR
Flight ID 13003HI **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 Karen **Experiment name** TDR

Flight ID [illegible] **Mission ID** ______

A. Participants:

HRD		AOC	
Function	**Participant**	**Function**	**Participant**
Lead Project Scientist	Rogers	Flight Director	Henning
Radar/Workstation	Hazelton/Sellwood	Pilots	Nelson, Sweeney, Kerns
		Navigator	Siegel
Cloud Physics		Systems Engineer	Bosko
		Data Technician	Rolos
Dropwindsonde	Sellwood / Hazelton	Electronics Technician	Lynch
AXBT/AXCP	Sellwood / Hazelton	Other	
Photographer/Observers/Guests			

B. Take-off and Landing Times and Locations:

Take-Off: [illegible] UTC Location: KMCF

Landing: 0145 UTC Location: KMCF

Number of Eye Penetrations: [illegible]

C. Past and Forecast Storm Locations:

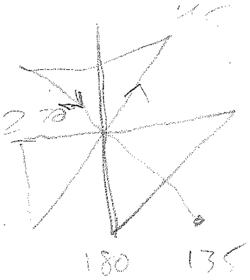
Date/Time	Latitude	Longitude	MSLP	Maximum Wind

D. Mission Briefing: Conduct EMC-tasked TDR mission into TS Karen. Fly rotating Fig-4, IP on N side, FP on SE, 100 nm legs. Drop sondes/CBT at all turn points and first center pass. Drop sondes only at all midpoints and remaining center passes. Fly at 8000 ft. Storm is slowly intensifying, encountering moderate SW shear. Convection has waned during day, is displaced to E & NE of low-level center. Dry air also present on N side.

Lead Project Scientist Event Log

Date 10/3/13 **Flight ID** 131003H1 **LPS** Rogers

Time	Event	Position	Comments
1805	takeoff	KMCF	
1936	obs	near IP, 100 nm N of center	clear air around, little echoes on LF, 30-35 kt on SFMR
1943	drop 1, BT	100 nm N center	FL 32, SF 32 kt, SST 29
1952	obs	~30 nm S of IP	anvil debris here, no real precip, but there is a band of ~ 28-32 dBZ ahead → psbl "eyewall"?
2000	drop 2	30 nm from center, N "eyewall"	SF 50-55, FL 30-35
2006	drop 3, BT	center, 23° 13' 88° 28'	extrap SLP 996, SST 28
2017	drop 4	50 nm S	FL 25, sf 20
2026	drop 5, BT	100 nm S	FL 20, SF 20, turn to downwind leg, outbound leg was only 80 nm, SST 27.5
2056	drop 6, BT	100 nm E	FL 35, SF 30, SST 27.8
2106	obs	60 nm E	mostly strat from here on E side, haven't seen any echo tops above 10 km
2112	drop 7	50 nm E	FL 45, SF 50
2123	drop 8	center, 23° 22' 88° 34'	extrap SLP 997, peak FL wind on E inbound 50 kt, SF 50 kt
2136	drop 9	50 nm W center	FL 30, SF 30

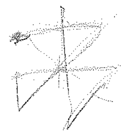


center
23° 13'
88° 28'
20067

Radar leg 1
1943–2056

center
23° 22'
88° 34'
21232

329/8 - motion b/w 2 fixes



Lead Project Scientist Event Log

Date 10/3/13 **Flight ID** 131003H1 **LPS** Rogers

Time	Event	Position	Comments
2148	drop 10, BT	100 nm W	FL 15, SF 10 kt, SST 29.25
2206	drop 11, BT	100 nm SW	FL 15, SF 5-10 kt
2220	drop 12	50 nm SW	FL 20, SF 5-10 kt
2231	drop 13	center 23°24' 88°44'	peak FL ~~20~~, SF 30 kt on SW side, extrap SLP 998
2238	drop 14	NE "eyewall"	FL 45, SF 45 kt
2239	obs	NE outbound leg	see deep convection to our left; echo tops up to 16-17 km, highest of flight
2244	drop 15	50 nm NE center	FL 35, SF 45 kt
2247	obs	20 nm NE	good radar coverage. Moderate stratiform, clear bright band, echoes getting up to 10-12 km with some convective turrets
2255	drop 16, BT	100 nm NE	FL 35-40, SF 20-25 kt
2329	drop 17, BT	100 nm NW	FL 20, SF 20 kt, still clear on this side; no clouds above FL
2343	drop 18	50 nm W	FL 30, SF 30 kt
2351	drop 19, center	23°38' 88°51'	extrap SLP ~999-1000 mb
2358	obs	SE of center	peak FL 35, SF 40 kt on SE side

Radar log 2
2056 – 2206

23°24' center
88°44'
2231Z

center
23 38
88 51
2351Z

316/9 motion btw 2d 4th fixes

Radar log 3
2206 – 2328

25 N
23 W

Lead Project Scientist Event Log

Date 10/3/13 **Flight ID** 13003HU **LPS** Rogers

Time	Event	Position	Comments
0003	drop 20	50 nm SE	FL 30, SE 25 kt
0015	drop 21, BT	100 nm SE	FL 30, SE 30 kt
0145	land.	KMCF	

2328-
0015
radar Leg 4

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Mission Summary
Storm name
YYMMDDA# Aircraft 42RF

Scientific Crew (42RF)
Lead Project Scientist Rogers
Radar Scientist Hazelton
Cloud Physics Scientist —
Dropwindsonde Scientist Sellwood
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) Flew mission as planned. Dropped sondes at all end, midpoints, center; combat endpoints and 1st center pass. Completed four radar analyses. Superobs did not make it in time for 18 Z run though; may be due to processing issues at NCO. Storm is highly sheared, w/ precip well-displaced from LLC. However, tilt it is less than what would be expected given satellite presentation. Peak SFMR winds ~55 kt on N side; peak FL 50 kt on E side. During latter half of flight convection started redeveloping NE and N of center. Saw echo tops up to 16-18 km on N side. Most scatterers were on NE side, with widespread stratiform, clear bright band, some convective turrets. No intensification during flight, likely due to SW shear / dry air on west side.

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

Mission did meet the objectives; All drops worked well, 4 radar analyses produced and transmitted to EMC. Observed TS struggling w/ SW shear and dry air on west side.

Problems:(list all problems)

No problems, other than delay in getting superobs to EMC w/ 18 Z window.

Expendables used in mission:
GPS sondes : 21
AXBTs : 9

Sonobuoys: —