

## Lead Project Scientist

Storm or Project TD Harvey Experiment type TD R  
Flight ID 170824H1 Mission ID \_\_\_\_\_

### Preflight

- ☒ 1. Participate in general mission briefing.
- ☒ 2. Determine specific mission and flight requirements for assigned aircraft from the Field Program Director.
- ☒ 3. 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.
- ☒ 4. Meet with AOC flight director and navigator at least 3 hours before take-off for initial briefing.
- ☒ 5. Determine from AOC flight director the mission designation and whether aircraft has operational fix responsibility.
- ☒ 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 Field Program Director.
- ☒ 8. Before take-off, brief the on-board GPS dropsonde operator on times and positions of drops.
- ☒ 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. Request AOC flight director to leave radar in non-sector mode for initial Figure 4.
- \_\_\_\_\_ 5. Once at IP, request AOC flight director adjust radar tilt to minimize sea clutter.
- \_\_\_\_\_ 6. Complete Lead Project Scientist Form.
- \_\_\_\_\_ 7. Check in occasionally 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 Dropsonde raw and processed files from the AVAPS operator on thumb drive.
- \_\_\_\_\_ 4. Obtain a copy of the radar LF files from the radar technician on thumb drive.
- \_\_\_\_\_ 5. Obtain a copy of the tar'ed radar TA files from the radar scientist on thumb drive.
- \_\_\_\_\_ 6. Obtain a copy of serial flight data and raw NetCDF file on thumb drive from the data technician.
- \_\_\_\_\_ 7. Obtain a copy of SFMR data on thumb drive from the data technician.
- \_\_\_\_\_ 8. Obtain a copy of DMT data on thumb drive from the data technician.
- \_\_\_\_\_ 9. Report landing time, aircraft, crew, and mission status to the Field Program Director.
- \_\_\_\_\_ 10. Determine next mission status, if any, and brief crews as necessary.
- \_\_\_\_\_ 11. Prepare written mission summary using **Mission Summary** form.

### Lead Project Scientist Check List

Storm or Project TD Harvey Experiment name TDR  
 Flight ID 170824H1 Mission ID \_\_\_\_\_

#### A. Participants:

HRD		AOC	
Function	Participant	Function	Participant
Lead Project Scientist	<u>Rogers</u>	Flight Director	<u>Belson</u>
Radar/Workstation	<u>Zhang</u>	Pilots	<u>Price Rossi, Mitchell</u>
		Navigator	<u>Urato</u>
Cloud Physics	<u>_____</u>	Systems Engineer	<u>Magaro</u>
		Data Technician	<u>Peck, Richards</u>
Dropwindsonde	<u>Sellwood</u>	Electronics Technician	<u>Peck</u>
AXBT/AXCP	<u>Nolbach</u>	Other	
Photographer/Observer	<u>_____</u>		
s/Guests	<u>_____</u>		

#### B. Take-off and Landing Times and Locations:

Take-Off: 0152 UTC Location: KLAL  
 Landing: 0956 UTC Location: KLAL

Number of Eye Penetrations: \_\_\_\_\_

#### C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind

#### D. Mission Briefing:

Conduct a TDR survey into TD Harvey, currently located in SW Gulf of Mexico after having emerged from Yucatan peninsula. Storm has a broad circulation, with a lack of an inner core at this point. Environment is generally favorable, though there is some moderate SW shear associated with an upper level low to NW of TD. Convective bursts are continually developing over and down shear of center (which is likely tilted), but they are transient. Some slow intensification seems likely until an inner core becomes established. Fly butterfly pattern, 1P on N, 105 and 135. Combo GPS/IBT at all turns, GPS at center if center is found. Fly at 7000 ft. Final outboard leg to NE is coordinated w/ GROSS overpass. If possible, do CPMR bulk maneuvers, likely on NINE side.

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 8/13/17 Flight ID 170824H1 LPS Rogers

Time	Event	Position	Comments
0152	takeoff		takeoff from KLAZ
0307	obs	Berry's IP	CB's keep forming at and down shear of center, but freeze out, water vapor & G-W drops show very dry air about 400 mb along western boundary of Bay of Campeche. Uncertain how close that dry air gets, but water vapor looks a bit moister w/ in 60 km of center
0344	obs	~15 min from IP	AFAR showed center is displaced about 50 km from centroid of cold cloud tops from IP, indicating SW shear impinging system
0350	obs	~10 min from IP	TA sweeps show stratiform rain all on both sides of AR, in a band well NE of center
0404	pattern	at IP	
0406	GPS, BT	at IP	FL 25, SF 25, precip. to east of plane, all stratiform, no BT
0411	obs	on inbound leg from N	passing just west of band of precip., all strat. of TA still
0418	obs	~50 km from center	seeing echo tops up to ~16 km to our east, ~10 km to east
0425	obs	west of FL center	N-S line of precip, some embedded convective cores getting up to 18 km

AF 2500'  
0314  
22  
a 2.6

42-7000'  
0425  
22.5  
a 2.7

AF  
0520  
22.5  
92.5

# Lead Project Scientist Event Log

Date 8/23/17 Flight ID 170824H1 LPS Regers

Time	Event	Position	Comments
0436	drop 2	22 05 92 30	SLP ~1002 extrop, peak FL on N side of peak SF ~ 30-35 kt, not a firm fix though; estimated center 22°28' 92°34'
0502	drop 3, BT	100 nm S of center	FL 20 kt; completely devoid of precip on S side, except for some isolated areas of <del>precip</del> reflecting in lower levels; BT had ~30.5 C
0523	obs	near SE pt to	very low SFMR obs
		turn inbound	on this whole leg
0530	obs	near inbound	deviating around
		turn point	convection on SE side)
			AF just fixed center much further north from previous fix, and close to our fix. Possible that low-level center has shifted within convection
0532	drop 4, BT	105 nm SE	FL 35 kt, 28 C SST SF doesn't seem to be working correctly, not measuring surface winds < 15 kt
0552	obs	~30 nm SE	Flying above some gusting Cy

2244

0604

9232

## Lead Project Scientist Event Log

Date 8/23/07

Flight ID 170824H1

LPS

Rogers

Time	Event	Position	Comments
0604	center, drop 5	22°44' 92°52'	extrap SLP ~ 999 mb, still pretty broad
0633	drop 6, BT	105 nm NW	turn to track 180, downwind leg, 30C
0703	drop 7, BT	105 nm SW	upshar here, FL 15kt, no laminar detect, no BT
0719	obs	~50 nm SW of center	LP presentation does not show a clear center, but some curvature, and bands extending out forward S from east side
0733	drop 8	2307 92°40'	extrap SLP ~ 996 mb, splash press 995.5 w/20 kt SFC winds
0739	obs	outbound to NE, ~30 nm from center	in precip bumpiest leg, widespread stratiform with some embedded convective elements, echo tops near 18 km IR shows broad cold cloud shield cloud top temps < -80C, CDO trying to form
0747	drop 9		50 kt FL winds, heavy stratiform Ocear wind S drop, in heavy precip, mostly stratiform, but quite bumpy
0805	drop 10, BT	105 nm NE center	BL 40 kt, but peak FL winds var ~60 kt on NE side BT 24, but suspect that's wrong

23 07  
8240

## Mission Summary

### Storm name

YYMMDDA# Aircraft 42RF

### Scientific Crew (4 RF)

Lead Project Scientist Rogers  
Radar Scientist Zhang  
Cloud Physics Scientist \_\_\_\_\_  
Dropwindsonde Scientist Sellwood  
Boundary-Layer Scientist Holbach  
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 was flown as planned. Had hard time finding centers on first two passes as storm was still broad and center trying to consolidate. Most of precip NE of center, likely bc of sw shear. Center appeared to shift north into this precip. Satellite shows expanding cold cloud shield appearing to get more over center, including into this precip. Embedded deep convection in the stratiform, primarily on NE side (downshear). Storm was strengthening. By end of flight, FC winds 155kt, drop splash pressure

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

on final pass radar sub.

There has been a problem with the radar analysis, still trying to fix. Analysis are not producing any winds. As such, no analyses were transmitted to Eme (all data were flagged). Also there was a problem w/ STAP, but that seemed to have gotten fixed. Perhaps radar data can be recovered post flight.

Problems: (list all problems)

Radar analyses, STAP for part of flight, 1 sonob failed, 3 BT's failed

Dropped 10 sondes, 6 HPR, 3 NHC, 1 ocean winds. Final SW-NE pass well coord. w/ OYU-NSS. 6 BT's, 3 worked well

Expendables used in mission:

GPS sondes: 10

AXBTs: 6

Sonobuoys: \_\_\_\_\_