

## Lead Project Scientist

Storm or Project Hurricane Harvey Experiment type TDR  
Flight ID 170825H1 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 Harvey Experiment name TDR  
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#### 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, Bossi, Mitchell</u>
		Navigator	<u>Gallagher</u>
Cloud Physics		Systems Engineer	<u>Mascaro</u>
		Data Technician	<u>Reeb</u>
Dropwindsonde	<u>Sellwood</u>	Electronics Technician	<u>Richards</u>
AXBT/AXCP	<u>Holbach</u>	Other	
Photographer/Observer			
s/Guests			

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

Take-Off: 0445 UTC Location: KLAL  
 Landing: 0845 UTC Location: KLAL

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

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

Date/Time	Latitude	Longitude	MSLP	Maximum Wind

#### D. Mission Briefing:

Fly TDR mission into Hurricane Harvey, which has undergone R1 and is now a 75 kt hurricane. Storm is still experiencing ~10 kt SV shear, but warm waters and mostly moist air in the environment. Good CDO, evidence of eye trying to form on a low-level IR & IR. Convection in eyewall can be seen developing downshear, wrapping left of shear, activating upshear, and wrapping around to right of shear. Could be a second stage of intensification over next 12 h, as we enter nighttime + eye clears out possibly. Fly butterfly 10 mi by butterfly for time constraints. Combine GPS/BT at all time points, after drop, max wind drop on NE outboard, which aligns w/ GPS/BT.

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Flight ID 170825H1 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 8/24/17 Flight ID 170825 H1 LPS R. J. G. 88

Time	Event	Position	Comments
0146	takeoff	FLAC	
0253	obs	ferry, NE of	satellite imagery (SSM/I 2023 etc 85 PCT) shows from 6 h ago shows ring of moderate scattering w/ generally intense scattering in outer band on NE side; suggests potential for SEF)
0343	obs	near IP, NE of storm	in band on NE side of storm. This is where most of the weather is. Primarily stratiform precip here, and some more isolated, shallow/moderate convective cores FL 50kt, SF 40kt here
0349	obs	near IP	diverging around some convection on way to IP, peaks up to 14-15 km here; eyes clear on LP, outer ring around eyewall on N side
0400	drop 1, BT	75 nm N of	FL 55, SF 40kt, no BT
0406	obs	50 nm N of eye	in widespread precip, some intense convective cores, growing Cu, some stratiform too
0411	obs	~30 nm W of eye	in outer band feature, all stratiform, no local maximum in FC or SF winds
0420	drop 2,	center, 25° 2' 44" S, 105° 55' W	group SL P 968, peak FC ~ 105kt, SF ~ 85kt
0426	obs	60 nm S of center	going through spiral band, connects to eyewall in OSR or OSL quads; stratiform precip. in this outer band

# Lead Project Scientist Event Log

Date 8/24/17 Flight ID 17082541 LPS Rogers

Time	Event	Position	Comments
0434	drop 3, BT	~60 nm S of ge	FL 40, SF 20 kt, turn downwind, no SST
0443	obs	downwind leg, SE of center	looking at FL/SF divergence series, see a clear broad circulation on N side, peak eyewall wind stronger than S eyewall. On S side, you see winds drop sharply outside eyewall, but also see a pronounced secondary peak in FL (and somewhat in SF), likely coincident w/ that <del>outer</del> spiral band on S side
0448	drop 4, BT	75 nm SE	FL 40, SF 30 kt, lost signal to sonde, BT SST 26 (not sure about that)
0454	obs	~40 nm SE center	going through spiral band on SE (USR) side; cellular, shallow to moderate convection, some strat
0459	obs	20 nm from center	LF shows strong echo on NW eyewall, this is some feature we went through on 1 <sup>st</sup> inbound leg
0504	drop 5	25°28' 25°03'	peak FL 80, SF 70 kt on SE eyewall, heading outboard to NW
0511	obs	~40 nm NW	in widespread banding features here, mostly strat - w/ isolated shallow convection; burst in NW eyewall had peak tips to 18 ft

## Lead Project Scientist Event Log

Date 8/28/07

Flight ID 170825M

LPS Rogers

[illegible]

## Mission Summary

### Storm name

YYMMDDA# Aircraft 42RF

### Scientific Crew (42RF)

Lead Project Scientist Riggs  
Radar Scientist Zhang  
Cloud Physics Scientist \_\_\_\_\_  
Dropwindsonde Scientist Sell word  
Boundary-Layer Scientist Kolbach  
Workstation Scientist \_\_\_\_\_  
Observers (affiliation) \_\_\_\_\_

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

See previous

Mission Synopsis: (include plot of actual flight track)

Flaw pattern as planned. However continued to strengthen some, but not rapidly during flight. Satellite radar presentation showed pronounced banding features. Open eye wall to SE & S, likely due to SW shear; updraft on system. Band showed complex structure, w/ evidence of wind maximum on S side, but not as much on N. Band connected to inner eyewall on N side (DSL). Sampled convection in eyewall first on N side inbound, then again on N side outbound ~1.5 h later. Thinking that was same

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

Mission did meet objectives. Radar worked fine; 3 analyses produced and transmitted; sondes mostly worked (1 failure); most BT's did not work. SFMR worked.

Problems: (list all problems)

4 of 6 BT's did not work; 1 produced suspect SST.

Expendables used in mission:

GPS sondes: 10 (6 HFIP, 3 NHC, 1 NESOL)

AXBTs: 6

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

feature, so may have gotten multiple looks at same feature as it moved around storm. Truncated leg on S side for time saving; satellite around ship reflected w/ gradient on final NE pass. Extended leg to NE for agass coordination, dropping NESOLs some there. This could be a good dataset to examine the structural variability of a spiral rain band that could potentially transition to a secondary eyewall in the next 12 h.