Lead Project Scientist

Storm or Project Irma **Experiment type** TDR
Flight ID 170905H **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 occasionaly 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 Irma **Experiment name** TDR

Flight ID 170905H1 **Mission ID**

A. Participants:

HRD		AOC	
Function	**Participant**	**Function**	**Participant**
Lead Project Scientist	Rogers	Flight Director	Holmes
Radar/Workstation	Aberson	Pilots	Kibbey, Kalen
		Navigator	Freeman
Cloud Physics		Systems Engineer	Naeher
		Data Technician	Richards
Dropwindsonde	Sellwood, Alvey	Electronics Technician	
AXBT/AXCP		Other	
Photographer/Observers/Guests			

B. Take-off and Landing Times and Locations:

Take-Off: 0754 UTC Location: TBPB

Landing: 1353 UTC Location: TBPB

Number of Eye Penetrations: 3

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind

D. Mission Briefing: TDR mission into Hurricane Irma, now a Cat-4 as it approaches the northeastern Leeward islands. Rotated Fig 4, 1P on SE side. Align 1st leg with CYGNSS overpass. First pass at 10,000 ft then descend and fly 8000 ft pressure. Drops at turn points and center fixes for NHC. If eye is large enough, attempt an eye/overall mixing module.

Lead Project Scientist Event Log

Date 9/5/17 Flight ID 170905H1 LPS Rogers

Time	Event	Position	Comments
0754	takeoff		
0855	pattern	near IP	radar computer crash. can't repair in-flight, or trying to fix. If can't repair, radar operator will use LPS machine. Also, SFMR issue, working to resolve that. So, now in holding pattern at IP.
0914	pattern	at IP	
0915	drop 1	105 nm SE	FL 40, SF 35 kt
0944	center drop 2	16°39' 57°20'	extrap SLP 928, peak FL ~~SE~~ 130, SF 136
0954	obs	outbound to NW	good stadium effect in eye, cleared out at/above FL; peak FL ~130 kt on both SE/NW, SF ~125-130. Symmetric wind field. Outer bands on SE had isolated intense convective cores, strong updrafts encountered
1010	drop 3	NW turn point	FL 6, SF 90 kt, outer local max in FL wind on NW side
1044	drop 4	SW turn, inbound	FL 30, SF 85 kt
1111	drop 5, center	16°42' 57°42'	wave #2 reflectivity pattern; peak FL 170, 130 at SF on NE side, 930 extrap SLP

1.5 h   3 min N   22 min W

2 min/h N   .033 degN/h

14 min/h W   .22 degW/h

.9

Lead Project Scientist Event Log

Date 9/5/07 **Flight ID** 070905H1 **LPS** Rogers

Time	Event	Position	Comments
1141	drop 6	NE, 105 nm	65 kt, 40k ft, mostly stratiform on the outbound outside eyewall
1202	drop 7	N, 105 nm	FL 70, SF 35 kt
1217	obs	inbound from N, ~ 50 nm north	broader wind field on N side. Earlier, asymmetry in winds on SW/NE side
1231	drop 8, center	16° 42' 57° 53'	929 extrap, peak FL ~175 kt on N side, SF ~ 160 kt; weaker on S side; no real signs of SEF/ERC → perhaps because it's low shear?
1303	pattern	outbound to S, ~ 100 nm from center	vibration began during recent center pass. They've tried to inspect, but can't determine the source. Mission will have to be aborted after 3 passes, RTB now.
1308	drop 9	105 nm S center	FL 30 kt, SF 25 kt RTB
1353	land		

Mission Summary

Storm name

YYMMDDA# Aircraft 42RF

Scientific Crew (42RF)

Lead Project Scientist Rogers

Radar Scientist Aberson

Cloud Physics Scientist

Dropwindsonde Scientist Sellwood

Boundary-Layer Scientist

Workstation Scientist

Observers (affiliation) Alvey

1/

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

see previous

Mission Synopsis: (include plot of actual flight track) Flew mission generally as planned. Rotated pattern 15 degrees counterclockwise to align first pass with CYGNSS. Did 3 passes, w/ analyses + sepeobs. During third pass noticed a vibration that couldn't be identified. As a result mission was scrubbed to allow inspection on the ground. Irma still intensifying, became a cat 5 from our mission. Impressive structure, stadium effect, tight core with symmetric winds on N & NE side outside eyewall. No obvious sign of SEF/ERC.

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

The mission did generally meet objectives, though the vibration causing the mission to be aborted prevented one of the 4 analyses from being done. Status of next mission uncertain.

Problems:(list all problems) Problem with the radar computer, but a solution was quickly found. Communications were slow intermittently. Vibration and mission abort.

Expendables used in mission:

GPS sondes : 9 (all worked)

AXBTs : —

Sonobuoys: —