

Lead Project Scientist

Date 8/29/19

Flight ID 190829H2

Storm or Project Dorian
Mission ID

Experiment name TOR

Pre-flight

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 Field Program Director.
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 Field Program Director
7. Determine next mission status, if any, and brief crews as necessary.
8. Notify Field Program Director 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 Dorian

Experiment name TDR

Flight ID 190829HP

Mission ID _____

A. Participants:

Function	Participant	Function	Participant
Lead Project Scientist	Rogers	Flight Director	Parrish, Carpenter
Radar	Hazelton	Pilot	Kilbey,
Workstation	_____	Pilot	Kahn, Ross;
Cloud Physics	_____	Navigator	Richards
Dropsonde	Sellwood	Systems Engineer	Rek
Dropsonde	_____	Data Technician	McAllister
AXBT/AXCP	_____	Electronics Technicians	
Observer/Guest	House staffers	Flight Engineer	Daly
Observer/Guest	Supp/NES DIS		

B. Take-off and Landing Times and Locations:

Take-Off: 0057 UTC Location: Lakeford

Landing: 0454 UTC Location: Lakeford

Number of Eye Penetrations: 3

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind
/				
/				
/				
/				
/				

D. Mission Briefing:

Conduct TDR mission into storm Dorian, approaching the SE Bahamas as a 75-kt cat. 1. Dorian has been gradually getting better organized as it struggles with some possible shear and remnant dry air. Storm is quite small. Previous mission found a 25 nm RMW and outer wind max at a 25 suggesting a possible ERC. Eye has yet to clear out; it may during this flight if outer-eyewall contracts. Environment is expected to improve over next 24h, RI is possible. Fly butterfly, 90 nm legs, 1P on NW side. Drops at end, mid, RMW, and center fixes on 1st, maybe 3rd pass, 5000ft altitude. Once pattern is done, do NES DIS penetrations.

Storm or Project Donnan Experiment name TOR

Flight ID 190829H2 Mission ID _____

E. — Equipment Status (Up U, Down D, Not Available N/A, Not Used O)

Equipment	Pre-Flight	In-Flight	Post-Flight	# DATs / CDs / Expendables / Printouts
Radar/LF	U			
Doppler Radar/TA	U			
Cloud Physics	U			
Data System	U			
GPS sondes	U			
AXB/AXCP	N/A			
Ozone instrument	N/A			
Workstation	U			
Cameras	U			

REMARKS:

Lead Project Scientist Event

Date 8/29/19

Flight ID 190829 HZ LPS Rogers

Time	Event	Position	Comments
2057	takeoff	KLAL	takeoff from Lakeview
2324	drop 1, IP	at IP, 90nm NW	FL 10, SF 12 m/s
2327	obs	inbound leg, ~ 75 nm	widespread strat, around us, no edge tops higher than 8 km, Some shallow moderate convection in this outer band
2336	drop 2	midpt, NW, 45 nm from ctr	FL 18, SF 18 m/s
2340	obs	25 nm NW of ctr	satellite suggests some midlevel southerly shear
2346	obs	~ 15 nm from ctr	multiple bands on radar, multiple FL wind maxima; high reflectivity on W side
2350	drop 3, center	22° 50' 67° 58'	eyewall open on SE side, no asymmetry w/ rel. max on NW side, consistent w/ southerly shear
2359	obs	outbound on SE side	peak FL winds were 90 kt on SE, peak SF were 80 kt on SE
0002	drop 4, mid	45 nm SE	FL 18, SF 17 m/s
0005	obs	outbound to SE	center drop showed winds of 16 kt from 130, suggesting surface center was to S, i.e., tilted toward north with height, also consistent w/ S shear
0014	drop 5, end	outpt SE, 20 nm	FL 16, SF 17 m/s
0036	drop 6, end	90 nm NE	FL 19, SF 17 m/s

23
22.9
68
network
22° 50'
67° 58'

6/50
28

Lead Project Scientist Event

Date

Flight ID

LPS

Time	Event	Position	Comments
0037	obs	90 km NE	1st sat. shows cloud shield upwind back over broader area upshar; suggesting some convection possibly getting upshar
0047	drop 7, mid	midpt NE, 45 km	FL 25, SF 22 m/s
0052	obs	~25 km NE	RF presentation shows open eyewall SE, multiple banding features on N side
0057	drop 8, eyewall (NES PLIS)	NE eyewall	41 SF 48 FL
0110	drop 9, mid	SW ~45 km	FL 18, SF 18 m/s
0118	obs	near SW end	total absence of precip out here
0120	drop 10, end	SW end pt	FL 18, SF 10 m/s
0139	drop 11, end	S end pt	FL 12, SF 10 m/s
0145	obs	inbound on S	shallow convection in an outer band here
0148	obs	50 km S of ctr	nearing edge of anvil on IR, little indication of precip; nothing aloft (small ice?); shallow, a few echoes
0150	drop 12, mid	S mid pt	FL 17, SF 16 m/s
0156	obs	~25 km SSE	solid-looking stratiform or mixed shallow and convection; anvil ice crystals at 12-14 km; apparent MT DR; some lightning in S eyewall, on band just outside

2nd mark
23° 00'
68° 05'

Lead Project Scientist Event

Date Flight ID LPS

Time	Event	Position	Comments
0202	drop 13	center	
0204	drop 14	N eyewall	FL 49 SF 43 m/s
0208	obs	N outboard	heavy stratiform here
0210	drop 15 (NEG DIS)	N outboard	~25FL SF 24 m/s
0212	data		lost telemetry for both drops 13, 14 for ~45-50%
0213	drop 16, mid	45km N	FL 24, SF 14 m/s
0224	drop 17, end	90km N	FL 17, SF 12 m/s
0454	land		

work 3
23° 8'
68° 19'

8.9.
60/8

Mission Summary

Scientific Crew (4 RF)

Lead Project Scientist
 Radar Scientist
 Cloud Physics Scientist
 Dropwindsonde Scientist
 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 path as planned. All instruments worked well, Arion is gradually getting better organized. Storm was dealing w/ surface shear, maybe 10kt. Eye not open on SE, clear vortices number-1 pattern indicative of shear. Sonda at center + TDR analysis showed tilt toward N. Se tilt but it's a small storm. Center in mission IR showed anvil developing up shear. TDR showed ice crystals along and filling in shallow and connecting up shear. winds up near 90 kt at stc. Still very small storm. Extensive banding features on NW, limited precip on SE except for center.

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

Mission was successful. TDR analysis correct. 4 transmitters, 17 drops launched. 2 drops lost telemetry in lower half. Good sampling of a TC organizing in mid shear.

Problems: (list all problems)

2 drops lost telemetry (lost center + N eyewall)

Expendables used in mission:

	Deployed	Good	Bad
GPS sondes:	17	15	2 (halfway down)
AXBTs:	—		
Sonobuoys:	—		
UAVs	—		