

## Lead Project Scientist

Storm or Project Chris (03L) Experiment type EMC TDR, Early Stage/Genesis

Flight ID 20180709HZ Mission ID 0903A

### 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 Chris (03L) Experiment name EMCTDR, Early Stage/Gen  
 Flight ID 20180709HZ Mission ID 0903A

**A. Participants:**

HRD		AOC	
Function	Participant	Function	Participant
Lead Project Scientist	<u>ALAKA</u>	Flight Director	<u>HENNING</u>
Radar/Workstation	<u>MARKS</u>	Pilots	<u>PRICE</u>
			<u>DIDIER/ABITOL</u>
		Navigator	<u>FREEMAN</u>
Cloud Physics		Systems Engineer	<u>HEYSTER/DARBY</u>
		Data Technician	<u>RICHARDS</u>
Dropwindsonde	<u>CHRISTOPHERSEN</u>	Electronics Technician	<u>PEEK</u>
AXBT/AXCP		Other	
Photographer/Observer		<u>AWAPS</u>	<u>LYNCH</u>
s/Guests	<u>ZAWISLAK</u>		

YOUNG

CAMERON

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

Take-Off: 20:25 UTC Location: KLAL  
 Landing: \_\_\_\_\_ UTC Location: \_\_\_\_\_

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

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

Date/Time	Latitude	Longitude	MSLP	Maximum Wind
<u>7/9, 22:25Z</u>	<u>32.26°N</u>	<u>74 51°W</u>	<u>994mb</u>	<u>53 kt</u>
<u>7/9, 23:53Z</u>	<u>32.26°N</u>	<u>74.34°W</u>	<u>994mb</u>	<u>42 kt</u>
<u>7/10, 00:48Z</u>	<u>32 19°N</u>	<u>74.36°W</u>	<u>993mb</u>	<u>61 kt</u>
<u>7/10, 02:13Z</u>	<u>32.25°N</u>	<u>74 35°W</u>	<u>993mb</u>	<u>42 kt</u>
<u>7/10, 02:43Z</u>	<u>32.29°N</u>	<u>74 29°W</u>	<u>993mb</u>	<u>57kt</u>

**D. Mission Briefing:**

EMC-tasked this TDR mission. Also, good data for Early stage  $\frac{3}{2}$  Genex experiments. Start from South, then rotated Fig-4 at 8kft After, climb to 10+ kft, then another Fig 4 Maybe a module if time permits (C.B. or SFMR circles)

Storm or Project Chris (03L) Experiment name ENCTDR; Early Stage / Gen

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/ <del>W</del> MMR	Up	/		
* Doppler Radar/TA	Up			
Cloud Physics	Up ↑			
Data System	Up			
GPS sondes	Up			
AXBT/AXCP	O			
Ozone instrument	O			
Workstation	Up			
Cameras				

**REMARKS:**

- ozone instrument hasn't been used in maybe 10 yrs
- precip probe replaced last mission — worked great
- WSRPA had an issue on first pass. Problem was fixed

### Lead Project Scientist Event Log

Date 2018-07-09 Flight ID 20180709HZ LPS ALAKA

Time	Event	Position	Comments
20:00Z	AF measured	73 kt flight level	- SFMR of ~55kt
	Chris appears to be intensifying		
	Everything is WORKING		
	Requested 12kft instead of 10kft (climb)		
	FD said this is possible *		*
20:25Z	Take-off from KLAL → 1.5h ferry to IP		
	TDR analysis posted on Twitter		
	Radar transfer bug fixed by John Hill		
	P. Reason's software can see data on seab monitor 'radarsync-a' issue		
20:40Z	MMR online and functional		
	TDR online and functional		
	Where/IP to extend legs to 105 nmi?		
	extend N and E (2+3) after first pass → confirmed		with FD
21:41Z	NOAA42 sondes not getting into HWRF		
	semicolon syntax issue with WMO msg		
	Hui will test by manually adding it to WMO msg for endpoint sondes		
21:45Z	Confirmed backup sondes for CENTER & ENDPOINTS		
① 22:02Z	IP-1, endpoint drop, good launch, splash		at ①
22:05Z	outer rainband to S of CTR picked up nicely by MMR		
	AVAPS_PRIMARY not loading on Drop Computer → notified PEF		
② 22:12Z	Midpoint drop, good launch, splash		
22:15Z	Passed through outer rainband S, SFMR 49kt, TDR 15kft		CTO
③ 22:25Z	CENTER 32 26°N, 74 51°W		
	drop, good launch, splash		53 kt S of CTR
	PMIN ≈ 993mb → deepening		

ISSUE \*



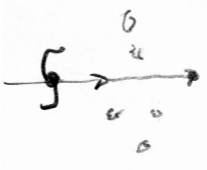


### Lead Project Scientist Event Log

Date 2018-07-09 Flight ID 20180709H2 LPS ALAKA



Time	Event	Position	Comments
22 31 Z	spiraling rainbands on E/S of CTR are looking more like an eyewall		
	intense new band NW of CTR		
④ 22 38 Z	Midpoint Drop, good launch, splash		
22 42 Z	Issue with ASPEN Synoptic map → fixed by Hui/Rich		
⑤ 22 52 Z	Endpoint Drop, good launch, splash		at ②
23 10 Z	Downwind NE of CTR outside outermost bands		
	WSRA not functional on first pass		
	Todd is testing → if it doesn't work, we will climb to 10kft at ③ instead of ④		
23 16 Z	WSRA Problem fixed! Will stay at 8kft for next CTR pass		
	Will climb to 10 kft at ④		
⑥ 23 25 Z	Endpoint Drop, good launch, splash		at ③
⑦ 23 38 Z	Midpoint Drop, good launch		
	TDR velocities showing flight level HU winds W of CTR		
⑧ 23 53 Z	CENTER 32 26°N 74.34°W		
	drop, good launch		
	PMIN = 994mb		
* 00 03 Z	We need clarification on "Hit Surface" in ASPEN		
⑨	Midpoint Drop, good launch, splash		
00 10 Z	Supercells on E of CTR		
⑩ 00 15 Z	Endpoint Drop, good launch, splash		at ④
	Climb to 10kft		
⑪ 00 31 Z	Endpoint Drop, good launch, splash		at ⑤
⑫ 00 42 Z	Midpoint Drop, good launch		



### Lead Project Scientist Event Log

Date 2018-07-09 Flight ID 20180709142 LPS ALAKA

Time	Event	Position	Comments
00:48Z	Scattered convection in NE quadrant → no banding		
⑬ 00:59Z	CENTER drop, good launch, splash	32 19°N 74 36°W	tucked up near southern eyewall
	eyewall echo tops to 16km on TDR		
	60kts on SFMR		
⑭ 01:06Z	Midpoint Drop, good launch, splash		
⑮ 01:17Z	Endpoint Drop, good launch, splash		
01:35Z	FLIGHT PLAN ADJUSTMENT		
	• truncate CTR → 8 to 50 nmi		
	• only drop endpoint sonde		
	• return to CTR, drop to 8kft		
	• exit SW and drop maxwind sonde		
	• 7 → 8, climb to 12kft		
01:45Z	Climbed to 12kft right before reaching ⑦		
⑯ 01:47Z	Endpoint Drop, good launch, splash		
01:54Z	IR representation: asymmetric, cold CTOPs are S		
⑰ 02:00Z	Midpoint Drop, slow launch detected		
⑱ 02:13Z	CENTER drop, good launch, splash	32 25°N, 74 35°W	almost complete eyewall
	PMIN = 993 mb SFMR ~ 50kt		
⑲ 02:26Z	Endpoint Drop, good launch, splash		
⑳ 02:43Z	CENTER drop, good launch, splash	32.29°N, 74.29°W	
	PMIN = 993 mb SFMR ~ 57kt		
㉑ 02:51Z	MAXWIND drop, late launch		
02:57Z	Last outbound leg: 105 nmi to SW, then home		



## Mission Summary

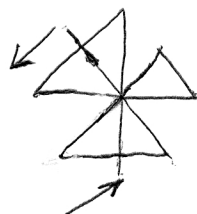
### Storm name

YYMMDDA# Aircraft 4\_RF

### Scientific Crew (4 RF)

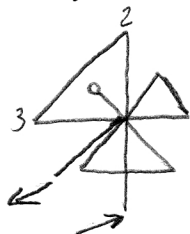
Lead Project Scientist FLAKA  
Radar Scientist MARKS  
Cloud Physics Scientist \_\_\_\_\_  
Dropwindsonde Scientist CHRISTOPHERSEN  
Boundary-Layer Scientist \_\_\_\_\_  
Workstation Scientist \_\_\_\_\_  
Observers (affiliation) ZAWISLAK, YOUNG

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



Two rotated Fig 4's at 8kft, climb if possible  
EMC-Tasked TDR mission, 8hrs  
20 drops (center, mid, end)  
90 n mi legs  
Potential for extra module/leg, time permitting

Mission Synopsis. (include plot of actual flight track)



(1) rotated Fig 4 at 8kft  
(1) rotated Fig 4 at 10-12 kft  
Extend Leg 2+3 to 105 nmi  
Shortened Leg 8 to 50 nmi, returned to CTR  
maxwind drop in SW eyewall

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

Yes · 8kft ideal for WSRA  
10-12 kft for deeper drop coverage  
TDR and Drops transmitted in real time  
Great coverage of an intensifying T.S.

Problems:(list all problems)

- 1) NOAA42 sondes not making it into HWRF
- 2) WSRA not functional for first pass
- 3) MAXWIND drop was a late launch

Expendables used in mission.

GPS sondes 21

AXBTs 0

Sonobuoys: 0



