Lead Project Scientist

Storm or Project Lane **Experiment type** EMC/TDR
Flight ID 20180822H1 **Mission ID** 1114E LANE

Preflight

X 1. Participate in general mission briefing.

X 2. Determine specific mission and flight requirements for assigned aircraft from the Field Program Director.

X 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.

X 4. Meet with AOC flight director and navigator at least 3 hours before take-off for initial briefing.

X 5. Determine from AOC flight director the mission designation and whether aircraft has operational fix responsibility.

X 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.

X 7. Report status of aircraft, systems, necessary on-board supplies and crews to Field Program Director.

X 8. Before take-off, brief the on-board GPS dropsonde operator on times and positions of drops.

X 9. Make sure each HRD flight crew member has a life vest.

X 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 LANE **Experiment name** EMC

Flight ID 20180822H1 **Mission ID** 1114E

A. Participants:

HRD		AOC	
Function	**Participant**	**Function**	**Participant**
Lead Project Scientist	Holbach	Flight Director	Henning
Radar/Workstation	Ryan	Pilots	Kahn Abitol/Didier
		Navigator	Urato
Cloud Physics		Systems Engineer	Heystek/Sanchez
		Data Technician	Mascaro/Greene
Dropwindsonde	Sellwood	Electronics Technician	Patel
AXBT/AXCP		Other	
Photographer/Observers/Guests	Hayley Betker Caleb Brown Tina Stall	OWL	Bucci

B. Take-off and Landing Times and Locations:

Take-Off: 0154 UTC Location: HNL

Landing: 0934 UTC Location: HNL

Number of Eye Penetrations: 3

C. Past and Forecast Storm Locations:

22/0300Z 14.5N 154.0W

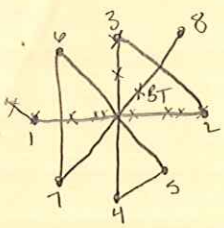
Date/Time	Latitude	Longitude	MSLP	Maximum Wind
21/2100Z	14.3N	153.2W	929mb	135 kt
22/0600	14.7	154.2		130
22/1800	15.6	155.3		120
23/0600	16.6	156.2		110
23/1800	17.9	156.9		100

D. Mission Briefing:

hurricane warning issued for Hawai'i county at 03Z; hurricane watch for Oahu county

Initial motion 280° @ 8kt

2pm HST CPHC advisory max winds 135 kts sfc prs 929 mb. Lane has been intensifying (possibly rapidly for the past 24+ hours & has a clear stadium eye on visible imagery. The State of Hawai'i is in the forecast cone & Hawai'i & Maui counties are under a hurricane watch. The data we will collect on this mission will prove vital for preparations.



Flight plan is rotated Fig-4 w/ possibility of SFMR circles & partial circumnave for DWL. Drops at EP, midpoint, RMW. BT for circles, close as possible to 15.1 N / 153.7 W, & possibly RMW.

105nm legs

Storm or Project LAN **Experiment name** EMC

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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:

- Slight vibrations felt rear DWL on climb after takeoff, increased slightly when radome was lowered.
- Scattered strato cumulus present during transit to the storm.
- First pass through eyewall was not too sporty until reaching inner edge, but still not bad.
- Flt level temp in eye at 8000' pressure alt was 31°C w/ dew point of 8°C!

0516 Mike Mascaro noted a change in WSRA returns after 1st outbound penetration; will ask Ivan if he shows up on Xchat.

0613 Northern eyewall had high reflectivity, but not too turbulent. Southern eyewall was very turbulent. (2.5 G)

- Mike Mascaro forgot to turn down-looking camera on.

0929 • Data transmission is slow again

Lead Project Scientist Event Log

Date 20180822 **Flight ID** 20180822H1 **LPS** Holbach

		Time	Event	Position	Comments
		0154Z	Takeoff from HNL		
Ob1	S1	0240Z	Sonde released on transit for OWL		
		0323Z	Circling to descend to IP		
	S2	0325Z	Sonde released at IP		(Pt 1)
		0330Z	No precip near IP, low cumulus under		
			stratus deck; MMR sfc scatter mode		
			shows the eye is slightly south of		
			expected position; adjusting inbound		
			track to 095		
		0335	approach first rainband; looks stratiform		
		0322	Teal 77 off the deck		
	S3	0339	Midpoint Sonde		
		0344	Streaking present on sfc		
		0347	little finger present in MMR in outer portion of		
			eyewall		
	S4	0351	eyewall sonde		
	S5	0352	eyewall sonde		
	S6	0354	mark center at sonde		
	S7	0355	eyewall sonde		
		0356	extrap sfc prs 922 mb sustained SFMR 154kt		
			on inbound eyewall penetration		
	S8	0409	midpoint sonde		
		0413	orbiting to depressurize for BTs in order		
			to release for circles.		
		0414	depressurized, tube in for BTs		
BT1	S9	0416	combo released BT failed		
		0416	begin 15° circles		

Lead Project Scientist Event Log

Date 20180822 **Flight ID** 20180822H1 **LPS** Holbach

	Time	Event	Position	Comments
BT2	0420	Backup BT released		Failed
repressurized the cabin	0420	Kathryn had to correct ob 6		
	0432	finished 15° circles, repositioning back		
		to beginning location for 30° & 45°.		
		SFMR reading ~16-17 m/s on retrace		
	0436	Begin 30° circles		
	0438	Our flight track appears evident in		
		MMR imagery while circling		
	0444	end 30° circles		
	0445	Begin 45° circles after repositioning		
	0453	End 45° circles; returning to outbound		
	0454	left-hand turn to get back on		
S10	0504	EP Sonde		
	0520	Downwind leg appears to be just outside		
		of a rainband/ rain field		
	0524-1526	slight deviation to avoid edge of rainband		
S11	0541	EP Sonde	beginning leg 2.	
	0552	large band of stratiform precip		
S12	0552	midpoint Sonde		
	0556	MMR painting eyewall while inside stratiform		
		precip; indicating it is likely very strong		
	0602	eyewall appears to be contracting		
S13	0605	eyewall Sonde		
S14	0607	mark center Sonde		932 mb
S15	0609	eyewall sonde		
S16	0610	eyewall sonde		
	0612	moat present in MMR & nose radar		

Lead Project Scientist Event Log

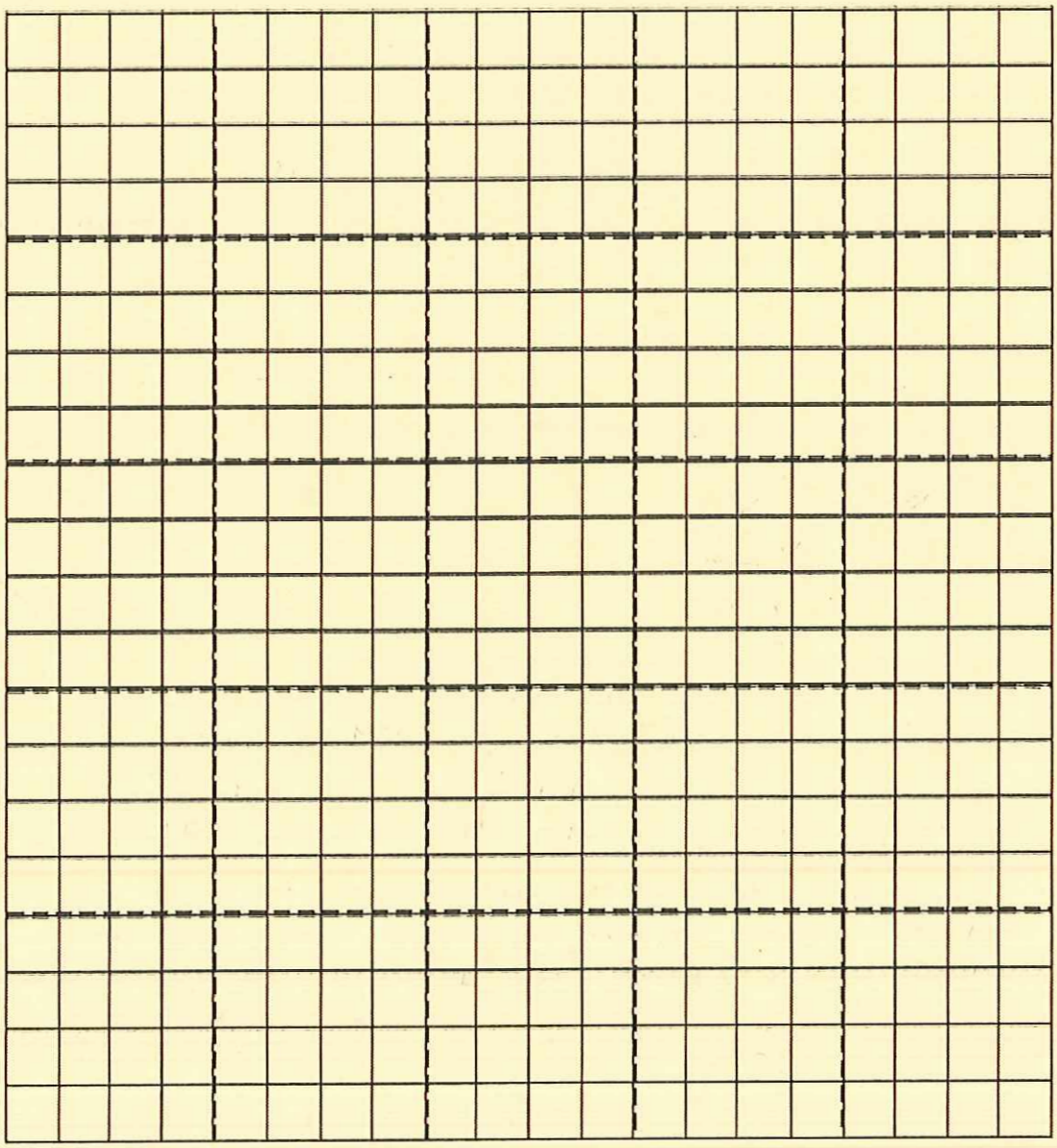
Date 20180822 **Flight ID** 20180822H1 **LPS** Holbach

	Time	Event	Position	Comments
	0619	Adjusting track to avoid cellular convection		
		apparent in MMR.		
S17	0622	Midpoint Sonde		
	0623	Back on	track 180	
	0625	A lot more cellular convection present		
		on south side		
S18	0634	EP Sonde		
S19	0651	EP sonde	inbound	leg 3
	0700	lots of cellular convection inbound		
		Slight deviation for avoidance		
	0703	return to	315° track	
S20	0706	Midpoint sonde		
	0708	thick band of heavy, likely stratiform precip,		
		between us & eyewall.		
S21	0715	eyewall sonde	141 kts	sfc
S22	0717	Mark center sonde		some cirrus clouds above
S23	0719	eyewall sonde	NW eyewall	very sporty 3.0G
S24	0720	eyewall sonde		
	0724	lightning observed by K. Ryan off left wing		
	0729	slight deviations to avoid cellular convection		
S25	0733	Midpoint sonde		
	0739	OWL vibration increased		to ~ 50% of yesterday
S26	0745	EP sonde		
	0758	rainfield off our left wing		
	0802	aborting	mission b/c	of OWL vibration
		Pilots were	concerned that	we couldn't
		find a spot	for final	penetration that
		wouldn't exceed 2G.		
	0835	TDR turned off		
	0838	beginning climb	on transit home	(Teal's block prevented us doing so sooner)

0846 Vibration by DWL has gotten worse w/ altitude
827 0850 Sonde for DWL on transit home

Observer's Flight Track Worksheet

Date _____ Flight _____ Observer _____

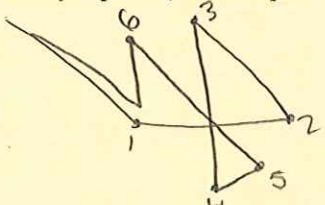


Mission Summary
Storm name
YYMMDDA# Aircraft 4ZRF

Scientific Crew (4 RF)
Lead Project Scientist Holbach
Radar Scientist Ryan
Cloud Physics Scientist
Dropwindsonde Scientist Sellwood
Boundary-Layer Scientist
Workstation Scientist
Observers (affiliation) Stall (NWS HNL) Betkes (NOAA corps)
DWL Bucci Brown (Navy)

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

Mission Synopsis: (include plot of actual flight track)



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

Main objectives of collecting & transmitting TDR data, collecting DWL data, & SFMR circles were accomplished. We also released several max wind sondes to aid in SFMR high wind calibration. We got some very high unflagged SFMR on this flight that helped CPHC increase Lane's intensity to Cat 5.

Problems:(list all problems)

Vibrations near DWL increased throughout the duration of the flight each time we exceeded 2.0 G. FD & pilots decided to abort the mission during the final downwind leg b/c they didn't think we could find a soft enough spot to get back into the eye w/o exceeding 2.0 G, which likely would have made the vibration worse.

Expendables used in mission:
GPS sondes : 27
AXBTs : 2, 2 bad
Sonobuoys: 0

We appeared to enter Lane near peak intensity & the eyewall began contracting & slight weakening was observed throughout the duration of the flight. May have also captured beginning of SEF / ERC based on MMR & MW.