

Lead Project Scientist

Storm or Project Lane Experiment type EMC/TOR
Flight ID 20180820H2 Mission ID 6414E

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.

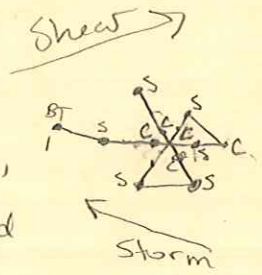
In-Flight

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.

Planned flight is butterfly w/ 105 nm legs. BT drop out ahead of storm (24 hr fcst pos.) We will be flying at 8,000 ft pressure alt (unpressurized for internal BT drops). Planned sondes at IP, midpoints, end points. Combo max wind if \vec{w} winds > 100 kts (no midpoint); combo drop for SFRZ circles inbound SE leg & end point of 1st leg.



Planned 5 BT, 12 sondes

Storm or Project Lane Experiment name EMC

Flight ID 20180820H2 Mission ID 0414E

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		↑		

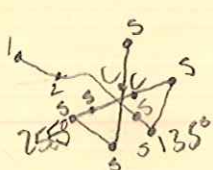
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REMARKS:

- Issues w/ flight plan submission (I think) caused delay in takeoff.
- DWL transmitting data (laptop needs to remain open during takeoff)

1457Z TOR radarsync - a running jobfile on data from previous flight although initial cleanup was run. Old jobfile appears to have triggered an analysis

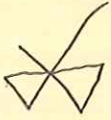
- IR + MW imagery indicate more deep convection beginning to form on west + north sides of eyewall.
- no diurnal pulse evident on NW side of storm; likely sheared by shear
- Rotated butterfly to account for eye being south of forecasted position, leg 1 outbound at 135° leg 2 will be inbound at 285°.
- DWL struggled w/ stratiform precip on 1st leg.
- leg 3 will be inbound heading 015°
- DC-8 has X-band radar + PDP + IWC w/ met probes.
↳ contact Steven Harrah @ NASA Langley to share data



ground spd ~4nm/min
20nm @ 5min

LP colorbar

- 10 dBZ : blue
- 20 : green
- 30 : yellow
- 35 : orange
- 40 : red
- 45 : maroon
- 50 : magenta



Lead Project Scientist Event Log

Date 2018-08-20 Flight ID 20180820HZLPS Holbach

Time	Event	Position	Comments
1424Z	takeoff	HNL	
1509Z	DWL data transferring		woot!
1457Z	old TDR jobfile prompted analysis		
1542Z	stratocumulus clouds present		to NW of storm
~1530Z	sunrise		
1601Z	begin descent to IP		
BT1 1607Z	BT at pt 1	descended to 8k' ^{SFC} 27.8°C 14° 47'	152° 4'
1611Z	starting to see some banding features on LF		
1615Z	WSRA collecting data		
1630Z	cirrus clouds present		above us.
S1 1635Z	sonde at pt 2		
1635Z	curvature on nose radar indicates eye may be		S of estimated position
1637Z	CDO / anvil present above us; not much convection		
1645Z	nice rainband showing on MMR & nose radar		
	quite a bit of attenuation of MMR making it		
	difficult to see eyewall past outer rainband		
1651Z	going to track 125 to align w/ eye (ended up on 135)		
1653Z	short spurt of mild turbulence		
1656Z	Eyewall showing up nicely on MMR & nose radar		
1702Z	passing through rainband		
S2 BT2 1706Z	Combo drop (no launch detect) ^{no SST} likely too early		
S3 1707Z	Backup sonde launched		
1709Z	rossby / meso vortices appear possibly in LF		
1709Z	mark center 13° 31' 148° 32' 964 mb		extrapolated
1709Z	eye is very cloudy		
S4 1722Z	Midpoint sonde		
1727Z	stratiform precip subsiding on SE side.		
	evidence of 2-3 rainbands.		

echo tops ←
up to 18 km

Lead Project Scientist Event Log

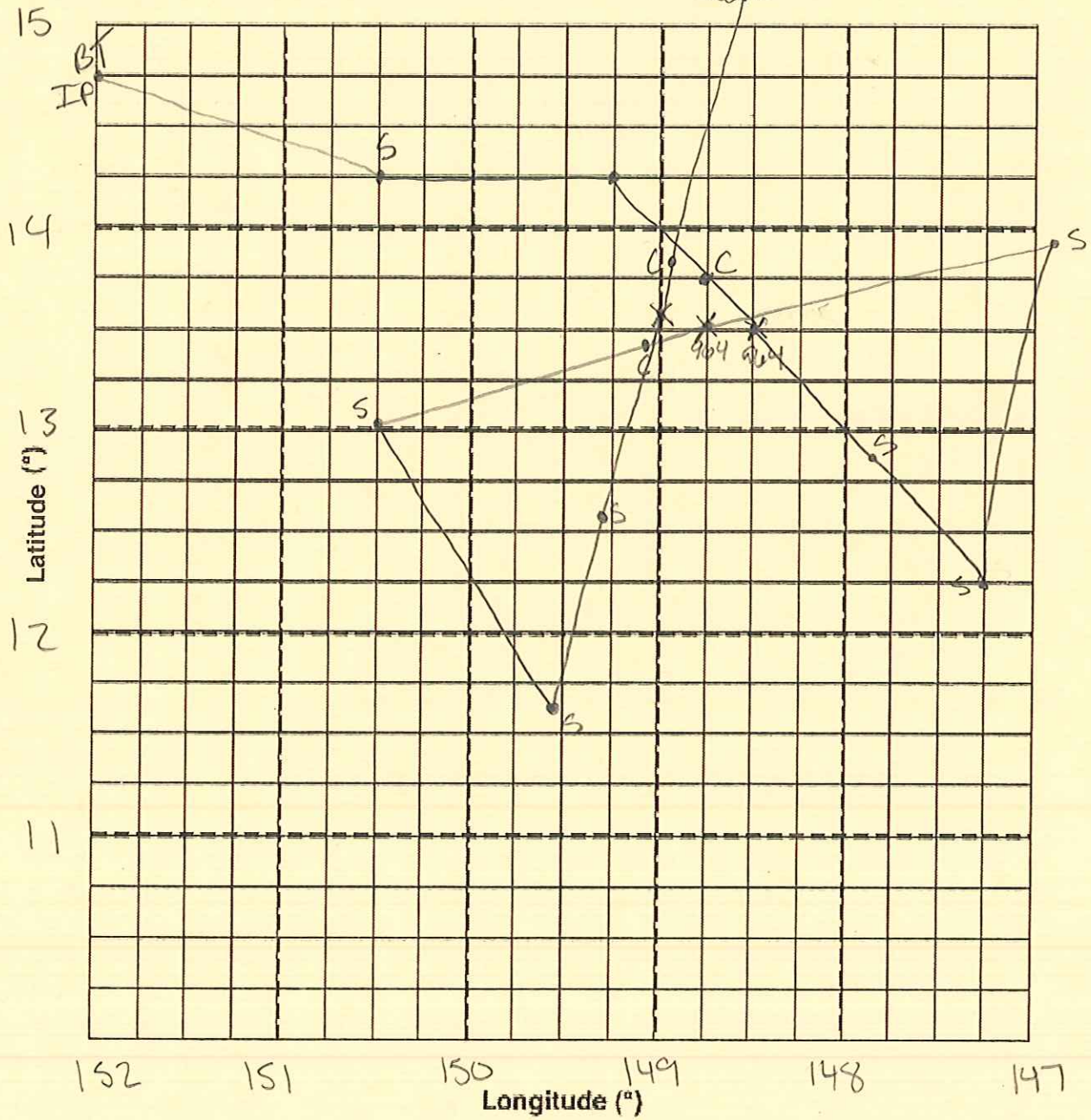
Date 2018-08-20 Flight ID 20180820H2 LPS Holbach

	Time	Event	Position	Comments
	1734Z	some sunshine poking	through CDO in SE	(USR) quadrant
	1736Z	DWL getting good data	to complement lack	of TOR
S5	1737Z	EP sonde		near EP
	1759Z	still sun poking through	on E side nearing	pt 4
S6	1802Z	EP sonde	beginning of leg 2	at pt 4
	1812Z	IR imagery shows eye	is trying to clear	
	1813Z	First TOR analysis shows	echo tops to ~6 km	
		on NW eyewall ~15 km	on SE eyewall although	
		LF showed	eyewall somewhat open.	
	1822Z	LF showing undulation	in NW eyewall	
	1826Z	Winds were just shy of	100 kts at sfc so no combo	
	1828Z	mark center	extrap 964 mb	
	1830Z	right turn circle in eye	to return to 255° track	
		eye looks brighter	indicating it may be clearing	
S7 BT3	1832Z	Combo drop WSW eye wall	bad BT	
	1848Z	out of stratiform precip	on WSW side	
S8	1855Z	EP sonde	pt 5 end of 2nd leg	
	1918Z	Visible imagery agrees w/ IR	that eye	
		is beginning to clear		
S9	1920Z	EP sonde	pt 6 beginning of 3rd leg	
		Rainband appearing on LF	behind us	
S10	1934Z	Midpoint sonde		
	1938Z	radar computer slightly	frozen	
	1944Z	SE eyewall still appears	open on LF	965 mb
	1949Z	Center ~5 mi to left	(CPA to avoid finger in	eyewall)
S11 BT4	1951Z	Max wind	combo	SST 26-27°C (unartain)
S12 BT5	2015Z	Combo end point into	circles	27.5°C SST

~~Observer's~~ Flight Track Worksheet

Date 20180820 Flight 20180820Hz Observer ~~Observer~~

~~Observer~~ C



Mission Summary

Storm name

YYMMDDA# Aircraft 4_RF

Scientific Crew (4 RF)

Lead Project Scientist Holbach

Radar Scientist Rogers

Cloud Physics Scientist _____

Dropwindsonde Scientist Bucci

Boundary-Layer Scientist _____

Workstation Scientist _____

Observers (affiliation) Peshecek (NWS)

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?)

Collected & transmitted TDR data to EMC

Collected DWL + WSRA data

Collected 30° & 45° SFMR high incidence angle data

Collected data through a period where the shear seemed

Problems: (list all problems) to relax & lane began reorganizing

Initial leg had to be adjusted to account for eye being further south of forecasted position. ∴ we had to rotate the butterfly.

The radar computer temporarily froze

Expendables used in mission:

GPS sondes: 12, 1 bad

AXBTs: 5, 3 bad

Sonobuoys: 0