

Lead Project Scientist

Storm or Project Isaac Experiment type NHC-tasked
Flight ID 20180912H1 Mission ID 0109A ISAAC

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.

Storm or Project Isaac Experiment name NHC

Flight ID 20180912H1 Mission ID 3109A

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		N/A		
Ozone instrument				
Workstation		↑		
Cameras		↑		

REMARKS:

- IWRAP power supply was not replaced before takeoff + we were told we are not allowed to use the battery charger that powered it during last mission into Florence. Therefore, ^{no} IWRAP data will be recorded on this mission.
- slightly delayed takeoff due to fueling + paperwork needs. Scheduled takeoff was 0930Z.
- Center was much further South of forecasted position, so we were slightly late for the first fix
- Second fix was very tricky. Flight level winds were very light. Visible imagery suggests we fixed ~1° south of center.
- Pressure + wind centers seem misaligned!
- Final two fixes were primarily done based on visual clues from the curvature in the clouds
 - ↳ Flight level winds at 5000 ft were trying to take us further to the south than the apparent low-level center.

Lead Project Scientist Event Log

Date 9-12-18 Flight ID 2018091241 LPS Holbach

Time	Event	Position	Comments
0944Z	Takeoff	STX	
1005Z	TDR turned on		
1006Z	SFMR turned on		
1024Z	pockets of light turbulence	Between St. John's & Guadeloupe	lots of cumulonimbus clouds present.
1022Z	Carcara-warren relayed that updated center position is "fuzzy" due to poor satellite presentation. May be as far south as 14.0N. We will adjust accordingly once we paint it with the MMR.		
1059Z	SAL	15°42'N, 58°40'W	Appears that there may be some dust present. Slightly hazy
1116Z	low clouds	15°34'N, 57°8'W	Primarily low clouds present
1121Z	descending to IP	15°32'N, 56°37'W	still only low clouds present some cirrus
1132Z	flying just above low cloud layers	15°28'N 55°53'W	
1133Z	Troubleshooting issue w/ vertical velocity display for flight		
1133Z	Sonde		IP sonde
1134Z	Inbound leg 1	15°27', 55°46'	Inbound on track 135° for leg 1
1137Z	Tried to identify center on MMR		sea surface mode w/ no track
1138Z	Flying in clouds	15°17' 55°36'	
1143Z	Sonde	15°4', 55°22'	midpoint sonde
1144Z	adjusting track	" "	track = 165° following winds to find center
1146Z	no reflectivity present	14°53' 55°18'	Nose + MMR show no precipitation around us
1149Z	adjusting track	14°45 55°16'	track = 155°
1152Z	adjusting track		track = 140°
1157Z	adjusting track		track = 125° → 130°
1208Z	sonde mark center	13°59', 54°19'	extrap = 1008mb 38kt SMC under edge of cirrus
1209Z	adjusting outbound track		track = 135°
1212Z	little convection		only a small amount of convection near the center
1217Z	sonde	13°35' 53°51'	midpoint sonde
1222Z	adjusting track	13°24' 53°39'	track = 115° to avoid some cellular
1225Z	Sonde + begin downwind leg	13°20' 53°28'	EP Sonde

NWS #

HRD #

NWS #

HRD #

NWS #

Lead Project Scientist Event Log

Date 9-12-18 Flight ID 2018091241 LPS Holbach

Time	Event	Position	Comments	
1228Z	increase in clouds	13°31' 53°18'	significantly more clouds on downwind leg	
1241Z	convective cells	14°28' 53°33'	convective cells off of right wing. Echotops ~16 km	
1247Z	sonde	14°53' 53°41'	EP Sonde inbound track = 225°	NWS+
1257Z	sonde	14°33' 54°6'	midpoint sonde	HRD+
1258Z	adjusting track	14°31' 54°9'	track = 230	
1300Z	adjusting track	14°24' 54°17'	track = 210	
1306Z	adjusting track	14°3' 54°30'	track = 230	
1308Z	hunting center			
1311Z	center	13°52' 54°38'	Forecaster doesn't believe this is the true center	
1325Z	Sonde	13°13' 55°15'	midpoint sonde	HRD+
1331Z	Sonde	12°58' 55°31'	EP Sonde	NWS+
			tracking 55° to EP for S-N leg	
1353Z	sonde	13°46' 54°19'	EP sonde	NWS+
1358Z	descending to	Flight level 1500'	CARCAH cleared us to go lower to hunt center	
1403Z	in clouds	14°27' 54°19'	flying through low level clouds	
1414Z	center	14°59' 54°36'		NWS
1437Z	EP		climbing to 3000'	
1439Z	climb to 5000'		to get out of clouds	
1503Z	sonde	14°59' 56°7'	EP Sonde	NWS+
			tracking 90° for W-E leg	
1513Z	adjusting track	14°56' 55°31'	track = 85	
1517Z	Sonde	14°57' 55°19'	midpoint sonde	HRD+
1525Z	center	15°6' 54°47'	estimated visually from curvature in clouds. It was likely off our left wing a little	NWS
			passing through small rainband	
1537Z	rainband	15°9' 54°2'		
1541Z	sonde	15°8' 53°49'	midpoint sonde	HRD
1533Z	CARCAH request for last pass		is to come in from NE 120 nm leg; fix for 1730Z requirement; exit outbound to NW + RTB	10

1600Z vis imagery center estimate: 15.37°N 55.13°W
 1615Z vis imagery center estimate: 15.40°N 55.24°W

Lead Project Scientist Event Log

Date 9-12-18 Flight ID 20180912H1 LPS Holbach

Time	Event	Position	Comments
1546Z	Sonde	15° 9' 53" 28'	EP Sonde
1608Z	EP		EP inbound track 225
1613Z	adjusting track	16° 21' 53" 46'	track 215°
~1620Z	adjusting track		track = 230 just went through a rainband
1625Z	sonde	15° 47' 54" 17'	midpoint sonde
1643Z	center	15° 12' 55" 17'	outbound ^{track} 315
1653Z	sonde	15° 37' 55" 46'	midpoint sonde
1702Z	EP	16° 5' 56" 15'	end scene

NWS
HRD
NWS
HRD

4

Mission Summary

Storm name

YYMMDDA# Aircraft 42RF

Scientific Crew (4 RF)

Lead Project Scientist Holbach
Radar Scientist Christophersen
Cloud Physics Scientist _____
Dropwindsonde Scientist Sellwood
Boundary-Layer Scientist _____
Workstation Scientist _____
Observers (affiliation) _____

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

Isaac is currently battling off moderate to high shear + dry air to its west + south. It is forecast to slowly weaken over the next several days. It is moving into an area w/ warmer SSTs. There is some uncertainty in the models as to when it will dissipate or if it will turn northward while in the Caribbean.

Mission Synopsis. (include plot of actual flight track)

Completed 5 center fixes for NHC. There was a cloud shield w/ some deep convection over the center for our first pass. For all subsequent passes the LLC was exposed + was much further north than the first fix. All but the 3rd fix were performed at 5000' pressure alt (3rd was at 1500' pressure, but determined to be too dangerous w/ flight level winds > 50 kts + being in the clouds). Final

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

We were able to complete the 1130Z + 1730Z fixes for NHC. However, the 1130Z fix was slightly late due to first fix location being forecasted. We also dropped EP, midpoint + center sondes

Problems: (list all problems)

- IWRAP ^{band} was not operational. while at 5000'.
- Difficulties finding sfc center.
- Could not transmit TOR data to EMC since the HWRP ensembles would run on Isaac instead of Florence.

Expendables used in mission.

GPS sondes 19

AXBTs 0

Sonobuoys: 0

