

Lead Project Scientist

Date October 18, 2019 Flight ID 20191018H1
Storm or Project PTC16/TS Nester Experiment name EMC
Mission ID 0316A

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 PTC 16 ITS ^{Nestor} Experiment name EMC

Flight ID 20191018H1 Mission ID 0316A PTC16

A. Participants:

Function	Participant	Function	Participant
Lead Project Scientist	Holbach	Flight Director	Holmes / Kalen
Radar	Holbach	Pilot	Abitol
Workstation		Pilot	Mitchell, Aremus
Cloud Physics		Navigator	B. Richards
Dropsonde	Sellwood	Systems Engineer	Mascaro
Dropsonde		Data Technician	Mac
AXBT/AXCP		Electronics Technicians	T. Richards
Observer/Guest			
Observer/Guest		Flight Engineer	Darby

B. Take-off and Landing Times and Locations:

Take-Off: 1154 UTC Location: LAL

Landing: 1902 UTC Location: LAL

Number of Eye Penetrations: 0

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind
18/0900Z	24.3N	92.5W	1004 mb	35 kt
18/1800Z	26.8N	89.8W		40 kt
19/0600Z	29.0N	87.0W		45 kt
19/1800Z	31.5N	84.5W		35 kt
20/0600Z	33.5N	80.5W		35 kt

NE(045)@12

Post-trop/
extratrop

D. Mission Briefing:

PTC16 continues to look better organized in satellite imagery this morning. A 03Z ASCAT-C overpass indicated that the "center" is still elongated, but may be trying to close off on the SW end. The evolution of this system is extremely complicated given the baroclinic influences. There is a large amount of dry air over the western GOM impinging on the circulation associated w/ the upper level trough coming off Texas. There is also a warm eddy that was shed from the loop current earlier this year present in the central GOM that the storm is moving over & a cold eddy in the NE GOM. It is in a region of increasing shear (gradient) 15-40 kt.

Storm or Project ATC 16 / TS Nestor Experiment name EMC

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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		↑		
Doppler Radar/TA		↑		
Cloud Physics				
Data System		↑		
GPS sondes		↑		
AXBT/AXCP		↑		
Ozone instrument				
Workstation		↑		
Cameras		↑		

REMARKS:

- Radarsync - u hung, but resolved w/ computer reboot
- radar workstation monitor stopped working, but Mike was able to get it working during ferry.

Lead Project Scientist Event

Date Oct. 18, 2019 Flight ID 299101841 LPS Holbach

Time	Event	Position	Comments
151941	mini sonde		
1529Z	had to deviate north around convection, heading back to PT 8 going to CPA	the drop due North of PT 8	
153329	PT 8 sonde	26° 87° 57'	lost comms around 3000'
153343	mini sonde		
1548Z	turning W		
154920Z	PT 9 sonde	27° 0' 87° 2'	
154935Z	mini sonde		
1550Z	heading W slightly north of convective cells	27° 51' 10'	
1600Z	240 track to PT 10	27° 4' 88° 19'	
160949Z	PT 10 sonde	27 0 88 30	
161002Z	mini sonde		last mini
161528Z	climbing to 20k ft		
1624Z	altitude 21k ft	27° 0' 89° 40'	passed through a wind shift
162817Z	PT 11 sonde BT	26° 59' 90° 1'	tried launching BT again w/ no luck
164358Z	PT 12 sonde	27° 2' 91° 30'	
165423Z	PT 13 sonde	27° 58' 91° 27'	
1656Z	descending to 10k'	28° 0' 91° 14'	
171154Z	PT 14 sonde	27° 59' 89° 59'	
173530Z	PT 15 sonde	28° 0' 88° 13'	near glider
1736Z	TS Nestor	NHC upgraded PTC 16 to TS Nestor	
175145Z	PT 16 combo	28° 7' 86° 57'	bad BT still didn't launch 27.6°C
1827Z	no whitecapping	27° 43' 84° 16'	seas look fairly calm
1844Z	TDR off	coastline of FL	
1902Z	landing		

center at 18Z
26.3N 89.5W

29°C SST
45°F 500'

glider 13:08Z 28.13N 88.24W

Lead Project Scientist Event

Date Oct. 18, 2019 Flight ID 20191018H1 LPS Holbach

Time	Event	Position	Comments
1154	Takeoff	LAL	
1200Z	TOP on		
1255Z	beginning descent		encountering convective cells + stratiform prior to IP
132642Z	IP sonde	25°0'9" 88°1'8"	
1327Z	mini sonde		
1334Z	SW winds at FL	25°0'4" 88°35'25"	
1336Z	lightning	25°0'4" 88°41'36"	saw a couple others after this
1339Z	teal found wind shift around	25.5°N 89.8°W	
134842Z	PT 2 sonde C/P	25°8'15" 89°27'28"	
134855Z	mini sonde		
135110Z	can see clear	skies in the distance	
1353Z	possible teal fix	25°35' 89°51'	
1400Z	sunny	25°9' 90°13'	
141233Z	PT3 Combo 1sonde 2BT	25°0' 91°1'	No indication of BT that was having issue
1413Z	mini sonde		
143251Z	PT4 ^(EP) sonde	25°1' 92°29'	
143310Z	mini sonde		
~1410Z	increased speed	slightly	
144435Z	PT5 IP sonde	25°59' 92°21'	
144452Z	mini sonde		
145951Z	PT6 sonde	26°0' 90°56'	bad
150006Z	mini sonde		
15Z	NHC advisory	25.9N 90.0W increases intensity to 50 kt 1001 mb based on ow data	
150056Z	back-up sonde	26°0' 90°50'	
1516Z	seas are picking up	26°0' 89°15'	
1517Z	slowing to 20 kt	26°0' 89°10'	approaching convection
151924Z	PT7 sonde	26°1' 89°2'	

ch 12 bad

28°C ch 14

Mission Summary

Scientific Crew (4 RF)

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

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



The plan is to fly a lawnmower pattern beginning to the south of the forecasted center position. Our second leg should pass fairly close to the center & then the final two should get north of the center. Dropsondes will be spaced every 1.5°. We will launch 5 BTs targeting the warm & cold eddy's (where no argo floats or gliders are present)

Mission Synopsis: (include plot of actual flight track)
 We successfully flew the lawnmower pattern around PTC 16. While we were out there MHC upgraded it to TS Nestor at 1736Z. The east side of the system had a lot of stratiform & convective precipitation while the west side was dry w/ only low clouds. The strongest winds (FL ~70kts + SFMR 45-50kts) were on the SE side. We also found that the minimum central pressure had dropped. TDR showed very strong upper level westerlies. SSTs in the warm eddy were around 29°C & 27.6°C in the cold eddy.

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

The mission was a success.

We transmitted 16 sondes & 5 TDR analysis for ingestion into the models. Additionally, we transmitted SFMR data and had 3 good BT drops. We also launched 10 mini sondes to help with their validation.

Problems: (list all problems)

- Some minor issues with radersync-a & the radar workstation. None of these prevented data transmission.
- ASPEN seemed to have a bug with correcting the pressure data in the tempdrop for a sonde that did not hit the sfc.

Expendables used in mission:

	Deployed	Good	Bad
GPS sondes:	17 (10 mini)	16 (10)	1
AXBTs:	4	3	1 (1 stuck)
Sonobuoys:	—	—	—
UAVs	—	—	—

P-3 Data Download Checklist

Flight ID: 20191018H1
Storm: Nestor
LPS: Holbach

On the disk drive create a single folder named by flight ID (ex., YYYYMMDDA#). Within that directory, create subdirectories: "Dropsonde", "TDR", "MMR", "FLIGHT LEVEL", "SFMR", "DMT", "AXBT"
 Within these directories, copy the following data:

DROPSONDE		
Obtain from	HRD SCIENCE CREW	Notes
Location	ASPEN Workstation(s)	
Data Files		[Dfiles]
	<input checked="" type="checkbox"/> DYYYYMMDD_hhmmss.X	
	<input checked="" type="checkbox"/> DYYYYMMDD_hhmmss_P.X	[ASPEN OUT]
	<input checked="" type="checkbox"/> DYYYYMMDD_hhmmssWMO.txt	
	<input checked="" type="checkbox"/> DYYYYMMDD_hhmmssQC.frd	
	<input checked="" type="checkbox"/> DYYYYMMDD_hhmmssQC.bfr	
	<input checked="" type="checkbox"/> DYYYYMMDD_hhmmssskewL.png	
	<input checked="" type="checkbox"/> DYYYYMMDD_hhmmssSynMap.Lev.png	
	<input checked="" type="checkbox"/> .Sqlite File	

TDR		
Obtain from	HRD SCIENCE CREW	Notes
Location	HRD Radar Workstation	Must run "makearchive_whole"
Data Files		[Analysis Products and Raw Data]
	<input checked="" type="checkbox"/> thumb YMMDDA#_products.tar.gz	A# is e.g., H1, I1, H2, I2
	<input type="checkbox"/> thumb YMMDDA#_slave.tar.gz	
	<input type="checkbox"/> thumb YMMDDA#_master.tar.gz	

AXBT		
Obtain from	AVAPS TECHNICIAN	Notes
Location	AVAPS Workstation	
Data Files		
	<input checked="" type="checkbox"/> YYYYYMMDDA#_BT_HHMMSS.dat	A# is e.g., H1, I1, H2, I2
	<input checked="" type="checkbox"/> NTACC###.WAV [TA = 42 or 43; CC = Channel #12, #14, #16, ### is incremental]	
	<input checked="" type="checkbox"/> CC [Folders for each channel containing files: log#####.dat]	

MMR		
Obtain from	TBD	Notes
Location	TBD	
Data Files		[TBD]
	<input type="checkbox"/> TBD	

SFMR		
Obtain from	DATA TECHNICIAN	Notes
Location	Data Technician Workstation	Operational file into SFMR directory
Data Files		LIPF file into subdirectory labeled, "Experimental"
	<input checked="" type="checkbox"/> SFMRYYMMDDhhmm.dat.gz [Operational]	
	<input type="checkbox"/> SFMRYYMMDDhhmm.dat.gz [LIPF / Experimental] (NOAA43 only)	

DMT		
Obtain from	DATA TECHNICIAN	Notes
Location	Data Technician Workstation	HHMMSS below is the start of acquisition
Data Files		
	<input checked="" type="checkbox"/> All contents should be contained within a folder: YYYYYMMDDHHMMSS	

FLIGHT LEVEL		
Obtain from	FLIGHT DIRECTOR	Notes
Location	Flight Director Station	
Data Files		
	<input checked="" type="checkbox"/> YYYYYMMDDA#.serial.txt	A# is e.g., H1, I1, H2, I2

Other Notes:

2019 1018 HI

