Lead Project Scientist

Date 20190826 HI **Flight ID**

Storm or Project **Experiment name** EMC (EARLY STAGE / OCEAN WINDS)

Mission ID AL05/DORIAN

~~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 ALO5/DORIAN **Experiment name** EMC (EARLY STAGE / OCEAN WINDS

Flight ID 20190926H1 ~~**Mission ID**~~ 0305A

A. Participants:

Function	Participant	Function	Participant
Lead Project Scientist	ZAWISLAK	Flight Director	PARRISH / CARPENTER
Radar	HAZELTON	Pilot	KAHN
Workstation		Pilot	ABITBOL / ROSSI
Cloud Physics		Navigator	URATO
Dropsonde	J. ZHANG	Systems Engineer	SANCHEZ / DARBY — FEIS
Dropsonde		Data Technician	MASCARO / T. RICHARDS
AXBT/AXCP	SAPP, CHANG, ZELENAK } NESDIS OCEAN WINDS	Electronics Technicians	(ASPEN)
Observer/Guest			
Observer/Guest		Flight Engineer	

B. Take-off and Landing Times and Locations:

Take-Off: 1958 UTC Location: LAL

Landing: _____ UTC Location: STX

Number of Eye Penetrations: _____

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind
26/1800Z	12.5N	58.3	1002	50 ~~KT~~ KT
26/2100Z	12.7N	58.8	1002	50 KT
/				
/				
/				

WNW AT 12 KT

D. Mission Briefing:

LOOK LIKE CONVECTIVE ORGANIZATION HAS IMPROVED BANDING ON EAST SIDE. STILL BURSTING BUT MAYBE STILL A BIT OF SHEAR

THE INITIAL PLAN CALLS FOR A QUICK 105NM FIGURE-4, STARTING OUT (NE) THEN DOWN TO SW (225°) THEN DOWNWIND TO 135° (SE) AND OUT TO NW (315°). MAY NEED TO SHORTEN DUE TO FUEL AND NEEDING TO GO TO STX AFTER

ENDPOINT, MIDPOINT, CTR SONDES ON FIG. 4 - HAVE ENDPOINT BE HIGH, THEN DRUM DOWN TO 810 MB FOR MID AND IN, THEN GET BACK UP TO ALTITUDE (~720 MB) ON OUTBOUND AFTER MID

IF WE SHORTEN, ENDPOINTS MAY NOT BE SO HIGH

Storm or Project ALEX / DORIAN **Experiment name** EMC (EARLY STAGE / OCEAN WIND

Flight ID 20190826H1 **Mission ID** 0305A

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:

RADAR IS LOOKING GOOD, RSYNC IS RUNNING

Lead Project Scientist Event

Date 8/26/19 **Flight ID** 20190826H1 **LPS** Zawislak

Time	Event	Position	Comments
1939	TAKEOFF LAL		
2030Z			ADDED 2 SONDES ON FERRY TO MEET EMC NEEDS
			ONE FAST DOWNMAN AT ~70W AND ANOTHER 2° ALONG
			TRACK TO CAPTURE SOME OF THE UPPER LOW
			INFLUENCING THE THING.
		ALSO DECIDED ON THE FERRY TO SHORTEN THE PATTERN TO	90 NM LEGS TO ENSURE
		THAT WE GET THE DATA TO EMC IN THE WINDOW, TRANSFER	COULD TAKE MORE THAN
		30 MIN, WHICH MEANS	0230Z CUTOFF.
		STORM IS BURSTING AND ALTHOUGH IT MAY BE SOME LOW IN CONVECTION	THE BANDING HAS
		IMPROVED MAYBE SOME TILT TO THE WEST AS IT IS STILL	BEING IMPACTED
		BY SHEAR	
2208Z	21°21'/70°25'		STILL HEADING TO STORM CLEARED THE BAHAMAS
			APPROACHING AN AD HOC UPPER LOW PROFILE.
			PRETTY WEAK CONVECTIVE BURST NOW JUST WEST OF
			APPARENT CENTER. SO STILL A BIT DISORGANIZED
			BUT BANDING IS IMPROVING STILL
2213 Z	SONDE #1 / ALSO COMBO W/ MINI	21°1'/69°58'	DROPPING FIRST AD HOC SONDE ON TRANSIT TO
			HIT UPPER LOW
			DEFINITELY GOT SAL BELOW US,
2234 Z	SONDE #2	20°16'/67°57'	SONDE #2 (W/ MINI) AD HOC ON TRANSIT
2239Z	LOST TM SCANNING.		
2246Z	TM BACKUP AFTER	MASTER PC LOCKED UP.	
2302Z		SO BURST ON	WEST SIDE OF APPARENT LLC LOCATION
		AF ON	THEIR WAY IN → THEY'LL BE THE FIRST ONES
		BASED ON THE MI	CROWAVE 90 NM LEGS
		MAY DO IT TO C	OVER THE PRECIP.

Lead Project Scientist Event

Date 8/26/19 **Flight ID** 20190826 H1 **LPS** ZAWISLAK

Time	Event	Position	Comments
2321Z			STILL ON HOUR OUT FROM
			THE IP. MCS TO WEST OF
			US STILL GOING LOOKS
			LIKE SOMETHING OF MID LEVELS
			SHOWING UP ON RADAR
			GETTING CLOSE TO BANDAGE
0018Z		14°40' / 59° 41'	SO BURST IS FILLING A BIT NOW
			SHOWING CURVATURE IN IR
			SO PROBABLY A MINIATURE
● 0005Z		TEAL FIX: 26/23:40	12.98 deN / 59.09 deg W
			WOULD HAVE BEEN SOME NICELY
			TO GO THROUGH AT OUR
			ORIGINAL ALTITUDE AND
			WOULD HAVE HAD TO GO THROUGH
			SOME BANDING ON THE NORTH
			SIDE.
0040Z	IP SONDE #3	14°31' / 58°41'	SOME SHOULOW ECHO AROUND
			THIS IP
			NOW HEADING INBOUND
			SEEING THAT BAND
			AGAIN NOW
			OUR PATTERN IS SETTING UP
			NICELY PRETTY MUCH
			IN NEAR OF THE G-IV
			INNER CIRCUMFERENCE
			MEANS WE DIDN'T
			REALLY NEED TO USE THE OUTER DROPS
0051Z	MP SONDE #4 (MINI #2)	13°30' / 58°36'	DROPPING JUST PAST A
			HEAVY RAIN BAND
0101Z	CTR SONDE #5 (MINI #3)	13°0' / 59°7'	SO KIND OF HIT THE CB
			HEADING INTO LOTS OF PRECIP.
			LOTS OF STRATIFORM RAIN
			ON SOUTH SIDE
			SUGGESTS DECAYING BURST
0113Z	MP SONDE #6 OUTBOUND (MINI #4)	12°27' / 59°42'	FINALLY GETTING OUT OF THE
			STRATIFORM RAIN TUCKED
			UNDER ANVIL.
			NOW COMPLETELY OUT OF
			PRECIP HEADING TOWARDS EO
			TO SE
0124Z	SONDE #7 EO TO IW	11°55' / 60°16'	NOW TURNING DOWNWIND
			IN THE CLEAR

1007
35 KT REC
40 KT FC

Lead Project Scientist Event

Date 8/20/19 **Flight ID** 20190826H1 **LPS** Zawislak

Time	Event	Position	Comments
			PRETTY MUCH RIGHT OVE BARBADOS. FORTUNATELY
			WINDS NOT TOO BAD
0138Z		11°35'/59°19	NOW ON DOWNWIND PICKED UP SMALL CELLULAR CONVECTION
			BUT MOSTLY ANVIL ABOVE. ARE PAINTING THAT STRATIFORM OUT
			AT 20 - 50 KM
0155Z	SONDE #8 SEPT	11°56'/58°7'	NOW TURNING INBOUND ON 135 RADIAL IN THE CLEAR
			LIGHT ECHO IN ANVIL → BUT SHALLOW 6-10.
			A CTR SONDE ON THIS PASS WOULD HAVE BEEN WAY TO CLOSE TO BARBADOS
0206Z	SONDE #9 (MINI #5) MP OUTBOUND ON 135	12°31'/58°38'	JUST PAST TO BEGINNING BACK IN THE STRATIFORM [illegible]
			ABOUT THE CTR... SO NEW CONVECTIVE GROWTH ON NW SIDE
	NO CTR		OF CIRCULATION – RIGHT NORTH OF BARBADOS
			ALTHOUGH THERE CIRCULATION
			MORE CURVATURE [illegible]
0227Z	SONDE #10 (MINI #6) MP ON OUT ON 310	13°39'/59°39'	JUST GOT OUT OF MAIN CONVECTIVE AREA
			PRECIP MOSTLY CELLULAR W/ ANVIL ABOVE
			TRYING TO GET DATA THE 03Z CYCLE
		NEARING	ENDPOINT, GETTING MODERATELY DEEP CONVECTION
			ON NW SIDE NEAR ENDPOINT THEN SHALLOWING OUT
0237Z	SONDE #11 EP ON OUT 310 MORE LIKE 305	14°4'/60°19'	NEAR AT END OF FIG 4 ONLY SHALLOW PRECIP
			RACE TO GET DATA OFF THE AIRPLANE

Mission Summary

Scientific Crew (42RF)
Lead Project Scientist ZAWISLAK
Radar Scientist HAZELTON
Cloud Physics Scientist
Dropwindsonde Scientist ZHANG
Boundary-Layer Scientist
Workstation Scientist
Observers (affiliation)

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

THE STORM HAS INTENSIFIED SOME AND THE CONVECTION AND WIND FIELD APPEARS TO BE BROADENED. CONVECTION CONTINUES TO BURST, BUT SHEAR COULD STILL BE AFFECTING IT.

Mission Synopsis: (include plot of actual flight track)

FLY FIG 4 SINGLE TO GET EACH QUADRANT AND 2 CROSSES OF THE STORM. SHORTENED RADIAL LEGS TO 90 NM TO MAKE SURE WE GET DATA INTO 00-03Z DA WINDOW. ADDED 2 SONDES IN FERRY TO SAMPLE UPPER LOW B/W BAHAMAS AND PUERTO RICO AT [illegible]. NOW 90 NM SHOULD STILL GET US A GOOD LOOK AT WIND FIELD, AND IT WAS AT [illegible].

SO ACTUALLY FLEW 90 NM FIG 4, SAME ORIENTATION AND AT 10 KFT PRESSURE THE WHOLE TIME

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

FIRST PASS HAD RAIN SFMR AT 50 KTS, BUT MORE LIKELY 40 KTS. FL MAY HAVE GOTTEN TO 50 KT. PSURF MAYBE 1002 MB. BAND GOT DECENT CONVECTION ON NORTH/WEST SIDES IN RADAR BUT ALL STRATIFORM ON THE SOUTH. MAKES SENSE CONSIDERING THE WEAKENING BURST. PROBABLY STILL TILT. RADAR ANALYSES SUGGEST TILT B/W 2 AND 5 KM 25-30 NM OFF. + SOME "HOOKY" SHEAR W/ SHIPS OF LOW SHEAR. MCS DISSIPATING INTO STRATIFORM ON SOUTH SIDE. SOME KIND OF STRONG RADIAL FLOW AT 4

Problems:(list all problems)

TOOK A LONG TIME TO GET FULL GO IS THE AIRPLANE, THEN AN ISSUE W/ THE EDC ON ENGINE STARTUP, SO WE'RE 1.5 hr LATE T/O. THAT SQUEEZED OUR DATA TRANSMISSION WINDOW TO EMC - WHICH NEEDS TO BE TRANSMITTED BY 0300Z TO BE IN 00Z CYCLE. TO HELP THIS, SHORTENED LEGS

2TM LOST 2279, BACK AFTER MASTER PC REBOOT.

Expendables used in mission:

	Deployed	Good	Bad
GPS sondes :			
AXBTs :			
Sonobuoys:			
UAVs			

SOME NEW CONVECTION GROWING JUST NORTH OF BAHAMAS NW OF CAR

* TOUGHEST PART OF DELAY IS ENSURING DATA GETS INTO 00Z CYCLE BY GETTING IT OFF THE AIRPLANE BY 0030Z. THE SHORTENING LEGS TO 90 NM WORKED FOR SURE, THOUGH I HAD TO END THE FINAL OUTBOUND A BIT EARLY IN THE ANALYSIS.

END OF LEG AT 0235Z