Lead Project Scientist

Date 8/27/19 **Flight ID** 20190827H1

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

Mission ID 07052

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

Flight ID 20190827H1 ~~**Mission ID** 0705A~~

A. Participants:

Function	Participant	Function	Participant
Lead Project Scientist	ZAWISLAK	Flight Director	PARRISH / CARPENTER
Radar	J. ZHANG	Pilot	KAHN
Workstation		Pilot	ABIMBOL / ROSSI
Cloud Physics		Navigator	URATO
Dropsonde	HAZELTON	Systems Engineer	AVARS: T. RICHARDS
Dropsonde	NESDIS	Data Technician	MASCARO
AXBT/AXCP	CHANG	Electronics Technicians	
Observer/Guest	SAM		
Observer/Guest	ZELENAK	Flight Engineer	DARBY / SANCHEZ

B. Take-off and Landing Times and Locations:

Take-Off: 2130 UTC Location: ST. CROIX

Landing: 0228 UTC Location: BARBADOS

Number of Eye Penetrations: _____

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind
27/2100Z	15.3N	62.5W	1005	45 KT WNW AT 11 KT
/				
/				
/				
/				

D. Mission Briefing:

PLAN IS FOR A STANDARD ROTATED FIG. 4, 90 nms LEGS, 10 KFT FOR TDR PURPOSES. WON'T FIX THE CENTER, BUT GET A GOOD SHOT BASED ON THE AIRFORCE. CENTER SONDE ON 1ST/LAST, EVERY AM POINT AND END POINT.

OCEAN WINDS HAS CHOICE AFTER COMPLETION OF PATTERN TO DO THIS WORK. SHOULD BE WORKING TIME

STORM HAS BEEN STEADY STATE SO FAR

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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:

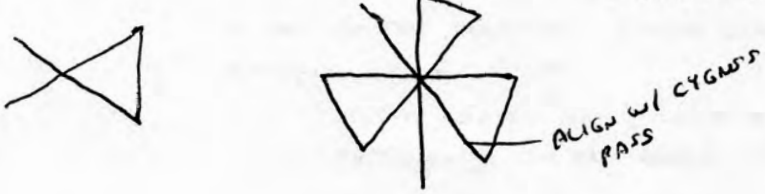
Lead Project Scientist Event

Date 8/27/19 **Flight ID** 20190827H1 **LPS** ZAWISLAK

Time	Event	Position	Comments
2130 Z	TAKEOFF FROM STX		HEADING OUT TO THE STORM DEFINITELY A BIRD OF THE
			CENTER TO THE NORTH IN THAT CONVECTION EARLIER
	PAUL CHANG WANTED TO ALIGN OUR FIRST PASS		MORE OPEN TO THE SOUTH NICE OUTFLOW, CONVECTION
	WITH AN OVERPASS AT 22332 SO THAT	EGNSS	AIRCRAFT TO BE GETTING AROUND THE CENTER.
	REQUIRED DECLINE, WHICH ACTUALLY HELPS EMC IN		LIKELY OUT A BIT OF STRATIFORM IN THE STORM
	CENTERING OUR PATTERN MYER AND ALIGNED W/ 125° HDG		HASN'T QUITE CLEARED THE ISLANDS FOR OUR
	WHICH IS ONLY 10° OFF WHAT WAS PLANNED		PATTERN
22058			LOITERING TO TIME OVERPASS AND CENTER
			PATTERN FOR EMC ABOUT TO GO INBOUND
			GETTING MORE UP
2211 Z	SONDE #1	16°30' / 64°46'	HEADING INBOUND ON 305° OR 125 DEG HDG
2223 Z	SONDE #2 (MINI #1)	15°59' / 64°07'	HEADING TOWARD MD NOT MUCH PRECIP OR BEEN
			JUST ANVIL. NOT MUCH LOW CLOUD
			LOOKS LIKE STRATIFORM ON THE WEST SIDE, CLOSE IN
2234 Z	SONDE #3 (MINI #2) CTR #1	15°33' / 63°28'	"CTR" #1 STILL NOT NEAR THE CENTER
			IT'S HARD TO GET THIS THING STEERING
			DIFFERENT WINDS BELOW
2244 Z	SONDE #4 (MINI #3) MP OUT 125	15°10' / 62°35'	LOTS OF STRATIFORM ON THIS SOUTH SIDE. THINK THE
	SONDE #5 (BACKUP) NOW TO MP	→ FAST FALL	CIRCULATION IS A BIT NORTH
2254 Z	SONDE #6 MP ON 125	14°43' / 62°13'	GOING TO WEST TO REALLY POSITION OURSELVES
			TO GET ON EAST SIDE 55 MI TO GET EAST OF CTR
			AT TAILCHTWO 62.3 / 15.4
			THIS THING IS TUCKED UP AGAINST THE ISLANDS
2300 Z	DOWNWIND TO MEET INBOUND USING NEW CTR 62.8 /		
	MUCH MORE CONVECTION OVER HERE		

OUR EAST SIDE → NOT GETTING AS MUCH STRATIFORM

CLEARER OUT WEST SOME HAZE



Lead Project Scientist Event

Date 8/27/19 **Flight ID** 20190827H1 **LPS** ZAWISLAK

Time	Event	Position	Comments
2309Z	ON SONDE #7 TURN TO 90° RADIAL	15°48'/61°52'	SO NOW READY FOR THE CIRCLE AT TARGET OF
	A LOT MORE CONVECTION ON THE NORTH SIDE	CONVECTION	G2 S W/ (5) ON TRY TO DO A GUST ANALYSIS
			LOTS MORE CONVECTION
2322Z	SONDE #8 GOING OUT ON 270°	15°47'/62°49'	"LTR #2" BASED ON AT LOS TARGET
	4 PROBLEMS		LOOKS LIKE WE TRIANGLE TO THE CENTER AT OUR
	WEST OF CIR GIMPY FIGURE	GOOD TURNING IN OUR WINDS AT FL	ALTITUDE. DEFINITELY STILL A TILT TO IT
	TRACK CENTER MAY BE TO EAST OF AT TARGET	TO SOUTH OF CIR TARGET	STILL LOTS OF STRATIFORM RAIN
2333Z	SONDE #9 (MINI #4) MOVING OUT ON 270	15°47'/63°38'	NEARING MIDPOINT OF OUTBOUND. BEAM GOING
			THROUGH PRETTY MOSTLY STRATIFORM?
			SO NOW WE'LL SET UP ON THE SW → NE AND SHOULD
			GET SOME LEGS THERE
2343Z	SONDE #10 TURN DOWNWIND FROM W AT	15°58'/64°24'	NOT MUCH PRECIP SHOWN ON RADAR
			DEFINITELY STILL SEEING TILT THIS TIME TO SOUTH
	DOWNWIND NOW TO SW		RADAR SHOWS MORE SOUTH BUT FROM SFC
			TO MID LEVELS. STILL NOT MUCH PRECIP.
0000Z	SONDE #11 TURNING DOWNWIND TO SW AT	14°43'/63°53'	NOW HEADED UPWIND ON 225° RADIAL.
			GOOD TO BE HEADED INTO STRATIFORM.
0011Z	SONDE #12 (MINI #5) NE OF 225° RAD	15°47'/63°19'	MOSTLY STRATIFORM DOWN SOUTH, STILL SEE NW WINDS UP OVER FL
			CIR #3 NO DROP, BUT DEFINITELY HAVE A CLEAR CIR
0023Z	CIR #3 NO SONDE	15°51'/62°44'	NOW, RING OF CONVECTION ON NNE → STRATIFORM TO
			SW, CONVECTION ELSEWHERE
		NOW OUTBOUND ON 045° AND	DEFINITELY NEW CONVECTION DEVELOPING
			ON EAST SIDE REALLY GOOD RETURNS
0035Z	SONDE #13 (MINI #6) NE OF 045°	16°25'/62°9'	MIDPOINT, WATCH TO DROP
			SONDE THROUGH NICE HEAVY LINEAR CONVECTIVE BAND THAT WE WENT THROUGH

Lead Project Scientist Event

Date **Flight ID** **LPS**

Time	Event	Position	Comments
0044Z	SONDE #14 EYEPOINT OF 045	16°54' / 61°43'	NOT MUCH PRECIP, TURNING DOWNWIND TO NORTH PT
			FOR FINAL PASS WELL OUTSIDE THE BANDING.
			BIT LOWER EXTRAPOLATED PRESSURE ON THIS PASS
			1003 FROM 1004 MAYBE 50 KT STAR OUTSIDE OF RAIN
0059Z	SONDE #15 INBOUND PT TO NORTH	17°10' / 62°49'	NOW TURNED INBOUND TO SAMPLE THE MOISTURE OUT OF
			PRECIP
			BANDING IN THE MIDDLE OF THE LEG JUST AS WE
			SAMPLED ON THE PREVIOUS OUTBOUND
			CC
0108Z	SONDE #16 (MW1 X6) MB ON 180° HDG 360° RADIAL	16°30' / 62°51'	BANDING
0122Z		"CENTER #4" SOME DECENT CONVECTION CLOSE TO THE LLC	
	15°28' / 62°53'	SO CERTAINLY A LOT OF CONVECTION ON NORTH SIDE, WHICH RADAR CLEARLY SHOWS AND SATELLITE	
		NOT AS MUCH PRESSURE DROP	
0130Z	SONDE #17 E MB ON OUTBOUND ON 180°	14°55' / 62°53'	HEADING OUTBOUND WEAKENING STRATIFORM
0140Z	SONDE #18	14°16' / 62°53'	END POINT TO SOUTH DUNE PATTERN

Mission Summary

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

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

PLAN FOR A ROTATED FIG 4 WITH 90 KM LEGS AT 10 KFT, AND TIME FOR NESDIS OCEAN WINDS WORK. MAYBE A CROSS SHELF/LOW UNDERFLIGHT ALIGNMENT.
THE STORM IS STILL STRUGGLING TO GET ORGANIZED WITH BURSTING AND A REFORMATION OF THE CENTER TO THE NORTH

Mission Synopsis: (include plot of actual flight track)

SO THE RADAR DEPARTMENT SHOWS A TILTED STRUCTURE W/ A MID-LEVEL CIRCULATION TO THE SOUTH OF THE LOW-LEVEL, AND SOMEWHAT ELONGATED. SO OUR REFORMATION LEG HAPPENED EARLIER. IT WAS TOUGH GETTING THE CTR ON THE FIRST PASS (WHICH WE HAD TO FLY SOUTH (BECAUSE THE MID-LEVEL) WE REORIENTED BASED ON THE CARIBOU TARGET FOR THE AF FIXES AND TOTT WORKED WELL. WE DID AN UNDERFLIGHT OF CYGNSS FOR OCEAN WINDS. BURNING TAPE

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

HAD TO DEAL W/ WINDS AND A CENTER WE WEREN'T ABLE TO GET INITIALLY, BUT OTHER THAN THAT GOOD FLIGHT. GOOD COVERAGE AND AN UNUSUAL, INTERESTING STORM. SHOULD BE GOOD FOR EMC.

FIRST PASS FOR ~22307, WHICH CAPTURE A DECENT TC AND CENTER. THEN DO SOME CALIBRATION ON THE WATER

Problems:(list all problems)

100 AND LOWEST ENTRY, MAYBE 50 KT SFMR

CAN'T INCLUDE THE FIRST LEG IN THE ANALYSIS SINCE WE MISSED BY SO MUCH AND DECIDED TO TARGET FURTHER NORTH
ONE FAST FALL SONDE

TOUGH W/ THE WINDS AND UNKNOWN CENTER, BUT WAS ABLE TO ADJUST.

Expendables used in mission:

	Deployed	Good	Bad
GPS sondes :		18 ALSO 6 MINI 7 SONDES.	1 FAST FALL
AXBTs :			
Sonobuoys:			
UAVs			