

Lead Project Scientist

Date 7/11/19

Flight ID 19074HZ

Storm or Project TS Barry
Mission ID

Experiment name EUCATOR

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 TS Barry

Experiment name EMCTDR

Flight ID 190711H2

Mission ID _____

A. Participants:

Function	Participant	Function	Participant
Lead Project Scientist	<u>Rogers</u>	Flight Director	<u>Holmes</u>
Radar	<u>Reason</u>	Pilot	<u>Price</u>
Workstation	_____	Pilot	<u>Arbitor</u>
Cloud Physics	_____	Navigator	<u>Richards</u>
Dropsonde	<u>Sellwood</u>	Systems Engineer	_____
Dropsonde	_____	Data Technician	_____
AXBT/AXCP	_____	Electronics Technicians	_____
Observer/Guest	<u>NY Times Reporter/Photographer</u>		_____
Observer/Guest	_____	Flight Engineer	_____

B. Take-off and Landing Times and Locations:

Take-Off: 2013 UTC Location: KLAL

Landing: 0348 UTC Location: KLAL

Number of Eye Penetrations: _____

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind
/				
/				
/				
/				
/				

D. Mission Briefing: TDR mission into TS Barry. Storm is a broad, diffuse circulation

in northern Gulf. Experiencing northerly shear (moderate) and dry air coming from land. Peak winds from AF were ~100 nm to SE of center, which really is an assortment of multiple vortices swirling around a broad circulation. Convection is confined to the Sand SW side.

Fly rotated figure-4, 1 PM NE, FA on S. 105 nm legs. Drop sondes at aft end, midpoints, and center. May drop 2 sondes on NE downwind leg. Fly at 20kft for as much of pattern as possible, but definitely on W (explosion) side of storm.

Storm or Project Borby Experiment name EMCTOR

Flight ID 190711H2

Mission ID _____

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

REMARKS:

Lead Project Scientist Event

Date 7/1/09

Flight ID 19020042

LPS

Rogers

Time	Event	Position	Comments
2013	takeoff	KLAZ	
2124	IP, drop 1	at IP, 105 um	
		NE	
2130	obs	near NE mid pt	Sat shows mostly clear conditions on N side, mostly shallow Cu outside, some isolated regions of Cumulus congestus, blue sky above
2135	drop 2	mid pt NE	FL 13, SF 6 m/s
2144	drop 3, center	89.18 27.48	100 L3, 8kt at splash from 70
2153	obs	outbound SW, near mid pt	LF shows widespread convection, echo tops 6-10 km, some isolated cores of 12-14 km
2156	drop 4	SW mid pt	mixed convective & stratiform precip, linear features on satellite
2207	drop 5	SW mid pt	FL 15, SF 15 m/s
2208	drop 6, backup	"	"
2212	obs	downwind leg on S side	radar shows a leading convective line oriented WNW-ESE, trailing stratiform behind that to SW. will be curious what radar analysis shows

27.8

89.3

W

Lead Project Scientist Event

Date 7/11/19

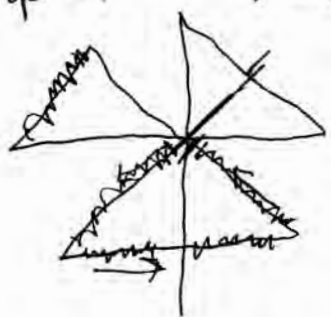
Flight ID 1907UH2 LPS Rogers

Time	Event	Position	Comments
2340	pattern	downwind to W side	deviating a little to east to avoid convection on W side, should set up ~ 100 nm W of adv
2343	obs	downwind	growing Cu below Cb
2347	obs	near W point	cellular convection off right wing broader convective region at W point, echo tops to 12 km or so
2348	drop 11	W turn point	descended to 10 kft, FL 16, SF 10 m/s
2358	drop 12	W midpt	FL 9 SF 3 m/s; we climbed back up to 20 kft before drop
0009	trap 13, center	27.77 89.28	
0017	obs	near E midpt	congestus, mod. convection S of adv
0020	drop 14	midpt E	precip. falling in esp. on S side but everywhere here. mixed convection & stratiform, could be moistening over core
0030	drop 15	E midpt E	FL 5 SF 9 m/s
0042	drop 16	1/3 pt. on downwind leg	supplemental drop on downwind leg
0049	drop 17	2/3 pt on downwind leg	
0109	drop 18	midpt N	did not do N end of leg of land
0116	obs	near center, from W	drops do not show any real dry layers, even on N side; no indication of shear even up to 450 mb; shear must be above that. Center drops on 3rd pass showed tilt toward SW with height
0118	drop 19	27.7 89.3	center drop
0130	drop 20	S midpt	a little early to be ahead of band
0143	drop 21	S endpoint	

Affix
28.09
89.01
at 2332 Z

27.46
89.17

27.77
89.28
0109



min ~ 10 kft
— — 20 kft

Lead Project Scientist Event

Date Flight ID LPS

Time	Event	Position	Comments
2221	obs	downwind leg S of storm	passing through gap in precip; to left (NW) looks like could be growing convection, to south border, more steady like stratiform, but great coverage regardless
2224	pattern	downwind leg	deviating a little to avoid developing convection to south
2232	instrument	downwind leg	reboot TDR, problem with ingest of TDR; no radar data for first pass
2245	drop 7	SE end pt	FL 20, SF 15 m/s
2254	obs	near mid pt SE	choppy conditions, mostly strat, maybe some moderate convection here. Bands oriented NE/SW
2258	obs	near mid pt SE	strongest winds here on SE
2259	drop 8	mid pt SE	FL 10 SF 15 m/s
2322	drop 9	mid pt NW	climbed back to 20 kft, most clear conditions, no scatterers
2329	obs	outbound to NW	satellite looks like growing convection over LLC, may indicate relaxing of shear a bit over center
2331	drop 10	near end pt NW	had to drop here before hitting land; now turning to rotate fig. 4 and descend.

Center
2303
27.4
88.9
-
27.55
89.02
2304

0146 pattern

setting up CB module, going to sample this band we just passed thru set up on WSW side, fly along side band. Showing possible convective strat. transition along band. Fly 30 nm leg lengths, race track 3 times.

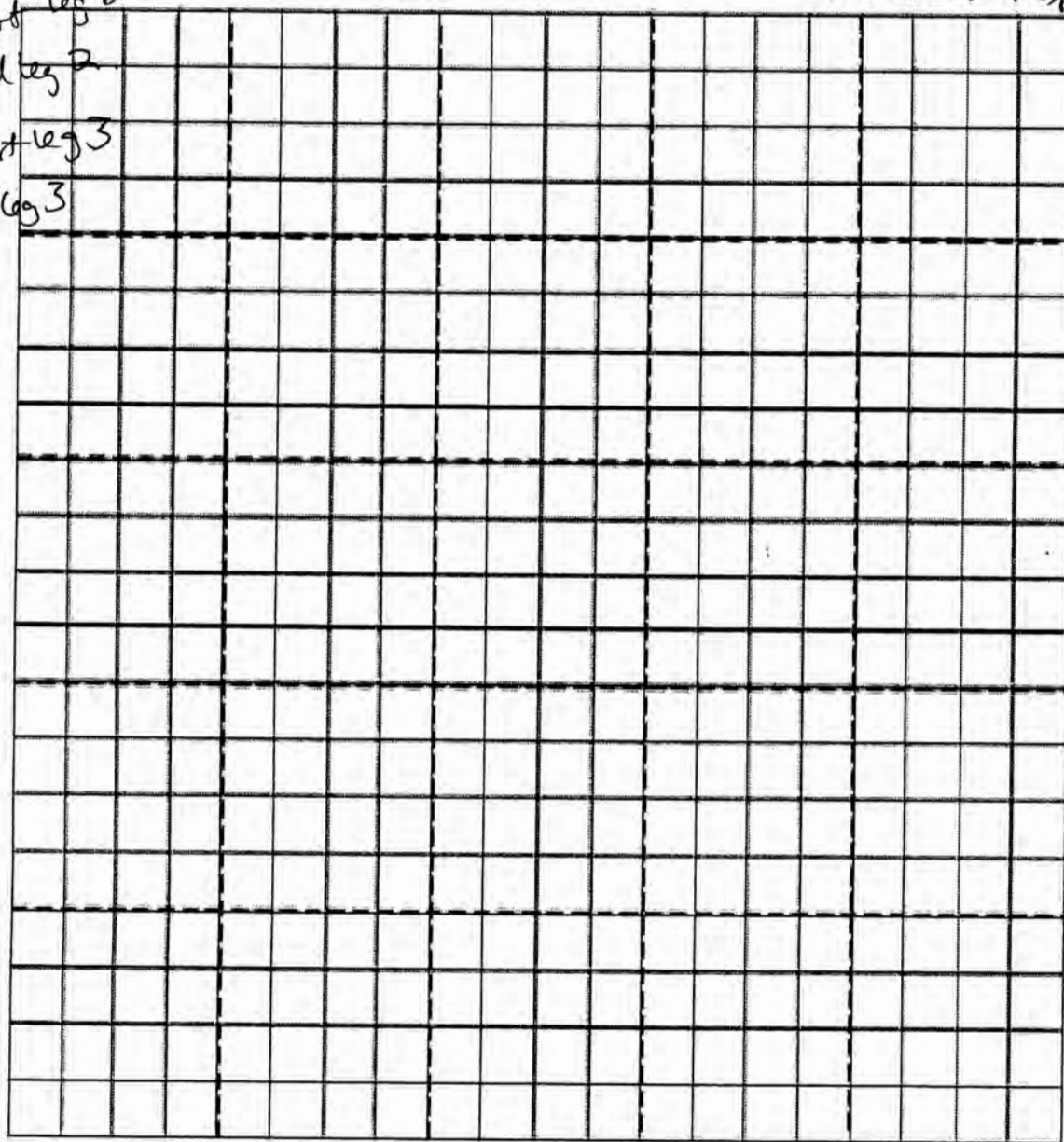
Observer's Flight Track Worksheet

Date _____ Flight _____ Observer _____

0156 start leg 1
0205 end leg 1

Seeing ET's of moderate depth mostly, but heavy rainfall on N side, widespread strat. precip on S side
Use highlighter to draw freehand on chart

0206 start leg 2
0218 end leg 2
0219 start leg 3
0230 end leg 3



reflectivity ~ 50 dBZ below freezing level, but echo tops only 10-12km; possibly heavy moderate convection?

Latitude (°)

Longitude (°)

26.5 89.1

26.4 89.9

4
4
2
3.3

Mission Summary

Scientific Crew (4RRF)

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

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

See previous

Mission Synopsis: (include plot of actual flight track) Mission flown almost exactly as planned.

Flew at high altitude for majority of survey pattern, only deviated on NW downwind leg on a S downwind leg. Radials were quite straight. Center drops on 1st, 3rd, 4th passes, pressure steady at 1000 mb. Drops at all end, mid pts except N+NW side (cloud). 2 extra drops on NE downwind leg. Flew CB module on S side, 3 racetracks ~ 30-40 nm in length.

Evaluation: (did the experiment meet the proposed objectives?) Mission went very well. Radials were straight, flew at high altitude for most of pattern, extra drops. Drops on N side did not show dry air, nor shear up to 450 m/s. Only clear inhibitor of convection on north side is high level shear or stability. Multiple swirls around a parent circulation, but toward end of flight did appear to be more convection, strat. on S, SE sides and getting nearer to a possible dominant circulation. Flew CB module on S side after survey complete. Saw upwind peak in rain rate, 1/2 of 10 km or so, possibly heavy moderate convection?

Problems: (list all problems)

Problem with TWR on 1st NE-SW pass, raw file from master not transferred, may be recoverable. 20 of 22 sondes worked.

Expendables used in mission:

	Deployed	Good	Bad
GPS sondes	22	20	2
AXBTs:	—	—	—
Sonobuoys:	—		
UAVs	—		



Mission Overview

Tasking(s): EMC: 10K Press, Rotated Fig Four and possibly a Convective Burst Module

NHC: NA

Sondes/BT's: 30 / 0

Souls onboard: 16

Guests: Patricia Mazzei & Chang Lee

