

Lead Project Scientist

Date 7/6/19

Flight ID 190710 H1

Storm or Project ALQ2

Experiment name EMC/TDR

Mission ID 0202A

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 ALOZ

Experiment name EMC TOR (Genesis)

Flight ID 190710M1

Mission ID _____

A. Participants:

Function	Participant	Function	Participant
Lead Project Scientist	<u>Rogers</u>	Flight Director	<u>Holmes</u>
Radar	<u>Reagan</u>	Pilot	<u>Price</u>
Workstation	<u>Reagan</u>	Pilot	<u>Abitbol</u>
Cloud Physics	_____	Navigator	<u>Richards</u>
Drosonde	<u>Sellwood</u>	Systems Engineer	<u>Mascaro</u>
Drosonde	_____	Data Technician	_____
AXBT/AXCP	_____	Electronics Technicians	_____
Observer/Guest	<u>Alford, Nave Z</u>	Flight Engineer	_____
Observer/Guest	_____		

B. Take-off and Landing Times and Locations:

Take-Off: 2203 UTC Location: Labelard

Landing: 0147 UTC Location: Labelard

Number of Eye Penetrations: _____

C. Past and Forecast Storm Locations:

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

D. Mission Briefing:

Conduct EMC-tasted mission into ALOZ, in the northeastern Gulf of Mexico. ALOZ still a broad circulation encountering moderate NE shear. Embedded regions of precipitation maximized on S side of diffuse circulation. Models forecast slow intensification initially, then more significant int. near land fall in ~48-72h.

Fly lowrunner pattern, oriented 60° E-W, spanning 4° N-S. 1P on NE side. Drop sondes at 1° spacing, combo BT/sonde at 5 points on SW. Fly 20,000ft or as high as possible, especially important on N side. Only descend below melting level if necessary.

Lead Project Scientist Event

Date

Flight ID

LPS

Time	Event	Position	Comments
2002	takeoff		
2037	obs pattern	NE corner	at IP, 6500 m altitude
2042	obs drop 1	E-w leg, along FL parallel coast	stratus, shallow cu, some moderate congested around, cirrus
2051	drop 2		FL 15 m/s
2055	obs	E-w seg, b/w pts 2 & 3	TDR showing good coverage, solid stratiform to N side of a/c
2057	pattern		climb to 22,000 ft
2105	drop 3	point 3	FL 15 m/s
2110	obs	near NW pt of 1 st leg	many cells isolated cells of high reflectivity inland over FL, AL, MS coasts evident on LF, ~40-80 nm to right of a/c
2114	pattern	near NW pt	descent back to 20,000 based on ATC request
2116	drop 4	NW point	drop released ~ 3 min early b/c of proximity to land; continue flying a/c to turn point through tier in situ
2119	pattern	NW point	end E-w leg, turning to track ~ 210 to set up W leg
2121	obs	heading toward 1 st point of W-E leg	passing between some regions of convective cores on LF. look to be ~40 nm on right side, ~30 nm (more linear) on left

27

90.95

Lead Project Scientist Event

26 89

Date

Flight ID

LPS

Time	Event	Position	Comments
2133	pattern	start of W-E leg	could not release drop at turnable oil rigs, helicopters below
2142	drop 5	midway b/w 1 st & 2 nd point of w/e leg	released drop and clear of land & helicopters
2148	drop 6	2 nd point on 2 nd leg	FL 7 m/s
2152	obs	midway thru 2 nd leg	samples from 1 st leg look good, pretty moist, with RH b/w 80-90%
2203	drop 7	midway thru 2 nd leg	FL 8 m/s
2218	drop 8	near end of 2 nd leg	FL 6 m/s
2232	drop 9	end of 1 st W-E leg, turn S	FL 12 m/s, SF 7 m/s
2245	drop 10	start of 2 nd E-W leg, turn to track 270	FL 7.5, SF 11 m/s
2259	drop 11	2 nd drop on E-W leg	FL 6, SF 15 m/s
2313	drop 12	3 rd drop, E-W	FL 5, SF 12 m/s
2319	pattern	E-W leg	demeistering around potential icing
2327	drop 13	E-W leg	FL 15, SF 8 m/s
2339	pattern	E-W leg	shutting leg to 90.3 and heading SSE for an AEOLUS underpass, will get back on pattern from the

28.0 90.3 → 26.7 90.1 → back

Lead Project Scientist Event

Date

Flight ID

LPS

Time	Event	Position	Comments
2341	drop 8 (combo)		FL 12, SF 11 m/s SST missed
2343	drop 15 (combo)		but came up
2349	drop 16 (combo)	new W part of E-W leg	FL 12 SF 12 m/s, no SST
2350	obs	heading SSE	limited convection on SE side now, but there is a cold cloud shield that formed near where there may be a LLC
2354	drop 17	1/3 of way through sat. underpass leg	
2358	drop 18	2/3 of way through underpass	
0004	drop 19, combo	end of sat leg	FL 18, SF 10 m/s, 30 C SST
0013	drop 20, combo	2 nd pt of W-E leg	FL 9, SF 12 m/s, 30 C
0025	drop 21, combo	3 rd pt of W-E	30 C
0026	pattern	midway W-E tracking NE a bit to try to sample mes to our north, looks like it may be associated w/ midlevel center; descending to 11.5 kft	
0041	drop 20	4 th pt of W-E	clear wind shift we've passed through at FL
0057	drop 23	5 th pt W-E	
0113	drop 24	final drop	FL 18, SF 7 m/s
0147	land at KLAL		

Mission Summary

Scientific Crew (4 RF)

Lead Project Scientist Rogers
 Radar Scientist Reaser
 Cloud Physics Scientist
 Dropwindsonde Scientist Sellwood
 Boundary-Layer Scientist
 Workstation Scientist
 Observers (affiliation) Alfred (OU), Mamez (PSU)

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

see previous

Mission Synopsis: (include plot of actual flight track) Mission was flown mostly as planned.

was able to stay at 20 kft (and sometimes 22 kft) for most of pattern, until half way thru last W-E leg. Truncated leg to W (3 leg) to set up for an underpass w/ AEGOLUS. Then W-SSE, dropping 2 extra drops. On final W-E leg extended a 30 km N of line to try to sample MCS occurring to north. Then had to stay on that line for longer distance b/c of cells ahead of plane.

Evaluation: (did the experiment meet the proposed objectives?) then returned back to original line

Mission was a success, mostly. Radar had noise along flight track, source uncertain. ~~PRC not confident~~ in S-Fair b/c of altitude, so turned off HDOB transmission was helpful for sondes to fly high.

Problems: (list all problems)

- TDR noise along flight track, will need to do bug
- 2 of 24 sondes failed
- 3 of 5 BT's failed.

Radar analyses were limited in effectiveness b/c of lack of scatter, esp. on N portion. Drops showed N-S or N-W/SSE shear axis below 700 mb; hint of mid level circ and 50 sondes on N side were fairly moist, N 80-90% RH.

Expendables used in mission:

	Deployed	Good	Bad
GPS sondes:	24	22	2
AXBTs:	5	2	3
Sonobuoys:	—	—	—
UAVs	—	—	—