12 nm
30 nm

Lead Project Scientist

Storm or Project Post-Gabrielle **Experiment name** Genesis
Flight ID 130907I1 **Mission ID** _____

Preflight

- ✓ 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 MGOC in Miami.
- ✓ 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 MGOC.
- ✓ 7. Determine next mission status, if any, and brief crews as necessary.
- ✓ 8. Notify MGOC 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 Post-Gabrielle **Experiment name** Genesis

Flight ID 130907I1 **Mission ID**

A. Participants:

HRD		AOC	
Function	**Participant**	**Function**	**Participant**
Lead Project Scientist	Rogers	Flight Director	Damiano
Radar/Workstation	J. Zhang	Pilots	Nelson, Sweeney, Martin
		Navigator	Gallagher
Cloud Physics	—	Systems Engineer	Peck, Neher
		Data Technician	Newman
Dropwindsonde	Uhlhorn	Electronics Technician	
AXBT/AXCP	Uhlhorn	Other	
Photographer/Observers/Guests	IWRAP group		

B. Take-off and Landing Times and Locations:

Take-Off: 1456 UTC Location: STX

Landing: 2233 UTC Location: STX

Number of Eye Penetrations: 0

C. Past and Forecast Storm Locations: —

Date/Time	Latitude	Longitude	MSLP	Maximum Wind

D. Mission Briefing: Conduct module mission into remnants of Gabrielle. Fly a burst module around any convection seen. Fly a box pattern, 30 nm on a side, at 7000 ft. Drop sondes and BT at corner points of first box, sondes only at corner points of subsequent drops. Once done, find location in clear air on W side to fly box stepped descent, fly 12 nm leg boxes, ~~at~~ 7000, 5500, 4000, 2500, 1000 ft. Drop sondes and BT at corner of highest box, sonde after rising back. Also conduct banking maneuvers in preap for IWRAP.

20.5 67.0

20 15
66 47

Lead Project Scientist Event Log

Date 9/7/13 **Flight ID** ____ **LPS** Rogers

Time	Event	Position	Comments
1456	takeoff	St. Croix	t/o from TISX
1532	pattern	20°15' 67°6'	preparing for burst module, plan is to set up SE corner of box at 20.5 67.0, fly 45 nm leg lengths, go N first, then W, then S, then E; repeat 2 more times
1604	pattern	20.5 67.0	beginning of first leg of box, GPS, BT
160630'	obs	on first leg, heading N	echo tops up to 16 km on our west
1611	pattern	middle of 1st leg	flying track 15 instead of 0, to avoid convection
1613	pattern		turn to track 315 GPS, BT; no launch detect, launched 2nd GPS
1641	obs	on 4th leg convection	sampling good MCS, vigorous (ET ~18 km, widespread strat.
1626	pattern		turn to track 225, GPS, BT
1638	pattern		turn to track 135, GPS, BT
1648	obs		
164822	pattern	end of 1st box	begin 2nd box; drops had problems, will try different box
1700	pattern	end of leg 1, box 2	GPS, fail, GPS

Margin notes (left): GPS, BT SE pt (1604); 2GPS, BT NE pt (1613); GPS, BT NW pt (1626); GPS, BT SW pt (1638); GPS SE pt (164822); 2GPS NE pt (1700)

1604 – 1648 – box 1

1648 – 1733 – box 2

1743 – 1831 – box 3

22.5
70.5

Lead Project Scientist Event Log

Date 9/7/13 **Flight ID** _____ **LPS** Rogers

Time	Event	Position	Comments
1710	pattern	21°30' 67°8'	turn to track 225, GPS drop
1716	obs	21°17' 67°3'	patches of weak returns off left side of plane; can see surface there
1722	pattern	20°59' 67°30'	turn to track 135, GPS
1733	pattern		end of 2nd box
1743	pattern		begin 3rd box, GPS
1749	obs	20°47' 66°39'	lightning off left wing
1800	pattern	21°5' 66°28'	GPS
1809	pattern		GPS
1822	pattern	20°56' 67°27'	GPS
1830	obs	on final leg	
1831	pattern		end of third box, heading west to 22.5 70.5 for stair-step descent
1836	pattern		GPS
1944	pattern	22.5 70.5	beginning of box pattern, GPS, BT, track 180
1948	pattern		turn to track 90, GPS, BT
1951	pattern		turn to track 0, GPS BT
1953	pattern		turn to track 270, GPS BT
2000	pattern		down to 5500', begin 2nd box, track 180
2007	" "		track 0
2010			track 270, winds very calm here, ~10 or fewer kt

Lead Project Scientist Event Log

Date 9/7/13 **Flight ID**_____ **LPS** Rogers

Time	Event	Position	Comments
2013	pattern		end 2nd box, descend to 4000 ft
2015	patt		track 180 at 4000 ft
2018			track 90
2028	pattern		track 180, descend to 2500 ft
2100	pattern	22° 22' 70° 30'	drop failed, backup drop released
2233	landing		

2GPS

Mission Summary
Storm name
YYMMDDA# Aircraft 43 RF

Scientific Crew (4 RF)
Lead Project Scientist Rogers
Radar Scientist J Zhang
Cloud Physics Scientist
Dropwindsonde Scientist Uhlhorn
Boundary-Layer Scientist Uhlhorn
Workstation Scientist
Observers (affiliation) —

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

See previous

Mission Synopsis: (include plot of actual flight track)

Flew a area of deep convection SE of the LLC. Box pattern worked well. Sampled only real cold cloud shield at the time, even if it was significantly displaced from LLC. may have been near MLC. Convective system had area of deep convection, echo tops as high as 18 kms, on SE side w/ pretty extensive stratiform shield. Occasional lightning. Convection appeared to be growing based on LF, but less clear on satellite. Good case sampled though. PBL module probably sampled winds that were too weak, could be useful for PBL evaluation in low wind environment.

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

Overall mission did meet objectives. Got a good sample of a convective system in 3 successive patterns, good coverage by the radar. PBL profile less successful, b/c winds were too weak. To get us to strong enough flow in clear air would've taken too long. System is still in unfavorable environment for strengthening → strong SW shear, very dry air in mid-upper levels, exposed LLC. There is deep convection, though it is displaced. Our burst module likely sampled convection downshear of a mid-level circulation.

Problems:(list all problems)

Dropsondes had some problems, BT's worked ok.

Expendables used in mission:
GPS sondes : 23
AXBTs : 8
Sonobuoys: —