

## Lead Project Scientist

Storm or Project Genesis Experiment type Genesis  
Flight ID 180927H1 Mission ID WBWKF GENESIS

### Preflight

1. Participate in general mission briefing.
2. Determine specific mission and flight requirements for assigned aircraft from the Field Program Director.
3. 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.
4. Meet with AOC flight director and navigator at least 3 hours before take-off for initial briefing.
5. Determine from AOC flight director the mission designation and whether aircraft has operational fix responsibility
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 drops.
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. Request AOC flight director to leave radar in non-sector mode for initial Figure 4.
5. Once at IP, request AOC flight director adjust radar tilt to minimize sea clutter.
6. Complete Lead Project Scientist Form.
7. Check in occasionally 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 Dropsonde raw and processed files from the AVAPS operator on thumb drive.
4. Obtain a copy of the radar LF files from the radar technician on thumb drive.
5. Obtain a copy of the tar'ed radar TA files from the radar scientist on thumb drive.
6. Obtain a copy of serial flight data and raw NetCDF file on thumb drive from the data technician.
7. Obtain a copy of SFMR data on thumb drive from the data technician.
8. Obtain a copy of DMT data on thumb drive from the data technician.
9. Report landing time, aircraft, crew, and mission status to the Field Program Director.
10. Determine next mission status, if any, and brief crews as necessary
11. Prepare written mission summary using **Mission Summary** form.

### Lead Project Scientist Check List

Storm or Project Genesis Experiment name Genesis  
 Flight ID 18092711 Mission ID WUBW XE GENESIS

**A. Participants:**

HRD		AOC	
Function	Participant	Function	Participant
Lead Project Scientist	<u>Rogers</u>	Flight Director	<u>Sears</u>
Radar/Workstation	<u>Zawislak</u>	Pilots	<u>Price, Kaku, Ross</u>
		Navigator	<u>Richards</u>
Cloud Physics		Systems Engineer	<u>Mascaro</u>
		Data Technician	<u>Greene</u>
Dropwindsonde	<u>J. Zhang</u>	Electronics Technician	
AXBT/AXCP	<u>J. Zhang</u>	Other	
Photographer/Observer s/Guests	<u>Chang, Sapp NESAS</u>		

**B. Take-off and Landing Times and Locations:**

Take-Off: 1300 UTC Location: Liberia, Costa Rica  
 Landing: 2033 UTC Location: Liberia, CR

Number of Eye Penetrations: \_\_\_\_\_

**C. Past and Forecast Storm Locations:**

Date/Time	Latitude	Longitude	MSLP	Maximum Wind

**D. Mission Briefing:**

Conduct 2nd genesis mission into system in E Pac. System has moved away from coast, appears as an elongated circulation (SW/NE) around 16N 96W. Scattered showers + convection have occurred in general vicinity of elongated circ. but it has not consolidated yet. FMA square-spiral pattern, 3 x 3 degree outer box centered on best guess of 700-mb vorticity center. Drop sondes at each 1-degree lat/lon point. Begin on NE outer corner, head west, complete outer box thru fly, inner box, continuing to drop sondes at each 1-degree point. Drop BT at 4 outer corner points, 1P snde paired w/ those, Fly at 12,000 ft.

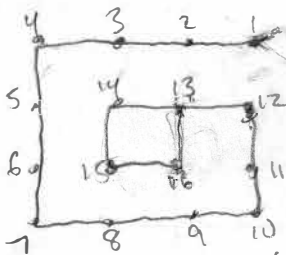
Storm or Project QUEST Experiment name \_\_\_\_\_

Flight ID 180927H1 Mission ID \_\_\_\_\_

E. — Equipment Status (Up ↑, Down ↓, 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 Log

Date 9/27/18

Flight ID 180927M1

LPS Rogers

Time	Event	Position	Comments
1300	take off	Liberia	
1443	obs	12.4 94.0, near IP	wind shift, but track was during descent, now at 12 kft, winds are ESE.
			passed near shallow/undercut convection of stratiform for. to 100-150 um leading up to IP, NE of presumed ANOV
1450	drop 1, BT	point 1, NE corner of outer box	IR sound, saw 40 kft below 500-2000 ft → no SST
1503	drop 2	point 2	over 40 kft from 15000 ft, winds at ~ 75-80 degrees
1514	obs	btw pts 2 & 3	wind shifts at FL, drops suggest 850 mb center still to SW of pt 2, but 925 mb center to SE → not consolidated
1516	drop 3	point 3	
1522	obs	btw 3 & 4	going right through a growing cumulus, echo tops to ~ 12-14 km, in NW side of box
1528	drop 4, BT	point 4, NW corner of outer box	IR sound → no SST
1538	obs	btw 4 & 5, along N-S leg	congestus forming along east side of aircraft, precip filling in, esp. on N side of pattern
1550	drop 5	point 5, on N-S leg	
1552	obs	11°20' 97°23'	wind shift at PL to NW/NW, speeds near 0 though, at trough axis

Lead Project Scientist Event Log

Date 9/27/18 Flight ID 180927H1 LPS Rogers

Time	Event	Position	Comments
1557	obs	11°04' 97°38'	still widespread precip here, shallow/moderate convection on both sides of a/c
1605	drop 6	point 6, SW portion of N-S leg	East fall
1609	drop 6b	point 6 backup, at 10°9' 97°30'	winds turned from NE above 2 kft to NW to <del>WNW</del> below
1618	drop 7, BT	SW corner of outer box	IR sonde
1633	drop 8	point 8, on W-E leg	
1634	drop 8b	point 8 backup	GPS was spotty on drop 8, so launched this, but GPS came up right after launch
1646	drop 9	point 9, W-E leg	
1653	obs	along W-E leg near SE corner	synoptic map from sonde so far shows a definite shear axis, at a minimum (possible circulation) in the SW portion of box below 850 mb. Above that, mostly easterly flow, with strongest winds on N side of box
1659	drop 10	SE corner of outer box	IR sonde, no BT
1714	drop 11	pt. 11 on S-N leg	Sharp wind shift at ~2.5 kft, from S to ENE flow → suggests this is still a shear axis, at least near surface

### Lead Project Scientist Event Log

Date \_\_\_\_\_ Flight ID \_\_\_\_\_ LPS \_\_\_\_\_

Time	Event	Position	Comments
1727	drop 12	SE corner of inner box	SE flow throughout, maybe a broad circ., NHC may initiate on invest b/c of this flight
1740	drop 13	NE point of inner box	
1752	drop 14	NW point of inner box	
1806	drop 15	SW point of inner box	very weak winds over most of profile, but quite moist throughout
1819	drop 16	SE point of inner box	last drop
1826	obs	near final point	both TOR and drops show a pretty clear LLJ in the SW region of the box. This is most pronounced below 700 mb. At 700 mb, mostly easterly flow but a region of weak westerlies along the southern W-E leg. Almost looks like more of a shear axis oriented WSW-ENE at 700 mb, and looking more like a circulation closer to the surface. Strongest SW winds are 25 kt on the northern side, and 15 kt westerly flow on south side. Radar generally confirms this interpretation of a shear axis aloft and circ. center in lower levels. Drops show mostly moist air everywhere, RH ~80% or higher, so doesn't appear like there is dry air inhibiting much. At start of flight there was scattered convection and precip around the edge of the box; during mission interior started to fill in with more congestus, stratiform, occasional deeper convection getting up to 14 km or so. System is definitely better organized than previous day. With continued period of diabatic heating seems likely to develop into a TD. This could happen by Friday, if deep persistent convection develops.

1834 pattern at end point, climbing and RTB

2033 land in Liberia

## Mission Summary

### Storm name

YYMMDDA# Aircraft 4 2RF

### Scientific Crew (4RF)

Lead Project Scientist Peters  
Radar Scientist Zawislak  
Cloud Physics Scientist \_\_\_\_\_  
Dropwindsonde Scientist J. Zhang  
Boundary-Layer Scientist J. Zhang  
Workstation Scientist \_\_\_\_\_  
Observers (affiliation) \_\_\_\_\_

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

see previous

Mission Synopsis: (include plot of actual flight track)

see comments at 1826 UTC

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

Mission was definitely a success. All drops released mostly at planned locations. Managed to capture a broad LC both with radar and dropsondes. Sondes also provide thermo. With this dataset should be able to calculate circulation budget terms and mass flux profiles, to determine roles of stretching and tilting in circulatory spin-up, as well as possibly contribution of different pre-tilt modes to spin-up. NHC looked at these drops as well, which helped them in writing their out look.

Problems: (list all problems)  
None of BT's worked. There was 1 fast fall sonde. All 4 IR sondes seemed to work.

Expendables used in mission:

GPS sondes: 18 (16 plus 2 backup), 4 of these sondes were IR sondes  
AXBTs: 4 (0 worked)

Sonobuoys: \_\_\_\_\_