Lead Project Scientist

Storm or Project TS Nate **Experiment type** AIPEX
Flight ID 170106H2 **Mission ID** _____

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 occasionaly 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 Nate **Experiment name** AIPEX

Flight ID 17100602 **Mission ID** _____

A. Participants:

HRD		AOC	
Function	**Participant**	**Function**	**Participant**
Lead Project Scientist	Rogers	Flight Director	Williams
Radar/Workstation	Nguyen	Pilots	Price, Mitchell, Richards
		Navigator	Vrato
Cloud Physics		Systems Engineer	Mascaro
		Data Technician	Patel
Dropwindsonde	Dunion	Electronics Technician	
AXBT/AXCP	Zhang, Jaimes	Other	
Photographer/Observers/Guests			

B. Take-off and Landing Times and Locations:

Take-Off: 1952 UTC Location: KLAL

Landing: 0338 UTC Location: KLAL

Number of Eye Penetrations: _____

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind

D. Mission Briefing: AIPEX mission; to TS Nate. Nate is in the NW Caribbean, having emerged from Honduras ~ 12-18 h previously. storm is asymmetric, with peak winds well-removed from center to the east. But sat. shows precip. beginning to develop near center, and getting to the east side, possibly upshear. Environment is other favorable for intensification. Fly rotated fig.-4, 105 nm legs, 1 IP on north. Drops at all turns + mids, plus 1st + last center. BT drops at all mids., plus 1st / last center, and 1 to the north. If time, perform banked SFMR maneuvers, likely on the SE side. 10,000 ft. PA.

Lead Project Scientist Event Log

Date 10/6/17 **Flight ID** 171006H2 **LPS** Rogers

Time	Event	Position	Comments
1952	takeoff	KLAL	
2112	obs	Near IP	storm continues tracking
		NNW,	at high speeds 18 kt.
		Convection continues to develop	
		near center, and wrapping around some.	
		But has not made it all the way	
		around, possibly b/c of high	
		translational speed	
2122	pattern, drop1	90 nm N, IP	FL 35 SF 20kt
2126	obs	~70nm N	in SE quad Cshear
		from ~175deg. Cu & Scu below,	
		cirrus above, but precip free	
2136	drop2, BT	45 nm N	just passed thru some
			precip, drop was in
		precip-free region; FL 30, SF 30	
		low-level clouds filled in, complete	
		coverage below a/c	
2142	obs	near center	peak FL on W side
			40kt, SF 30 kt
2143	drop3, BT	center,	
		20 39 85 35	extrap SLP 983
2150	obs	~30nm S	on OSL now, ETs
		of 16+ km, also heavy	
		strat and conv cirrus	
2154	drop 4, BT	45 nm S	FL 45, SF 50 kt
2206	drop 5	90 nm S	FL 30, SF 20 kt,
		end outbound leg, turn downwind	

Lead Project Scientist Event Log

Date 10/6/17 **Flight ID** 171006H2 **LPS** Rogers

Time	Event	Position	Comments
2235	obs	downwind leg, near turn point	in broad area of stratiform precip
		east	
2238	drop 6	90 nm east	FL 60, SF 30 kt, FL bkn 60-65 kt
		on this SE (DSL) downwind leg	
2246	drop 7, BT	45 nm east	FL 65, SF 45 kt, strat precip
2256	drop 8, BT	center, 21°03' 85°46'	eyrap 991
2259	obs	~ 20 nm W of ctr, DSR	some precip here, mostly shallow/moderate Cu
2305	drop 9, BT	~ 45 nm W	FL 25-30 kt, SF 30, very asymmetric wind field; no drop at end possible over land, but will continue leg for TDR
2318	pattern	90 nm W	end outbound, turn downwind
2330	drop 10	~ 95 nm SW	extended leg on SW side so we could get a drop there, clear skies above, little to no precip below FL 20 kt
2344	drop 11, BT	~ 45 nm SW	FL 20 SF 30 kt
2347	obs	~ 20 nm SW	Center appears tilted toward S or SE, DSL

Lead Project Scientist Event Log

Date 10/6/17 Flight ID 171006H2 LPS Rogers

Time	Event	Position	Comments
2352	center fix	21°18' 85°50'	vx drop, turning to track 035 instead of 045
0003	drop 12, BT	45nm NE	FL 55, SF 90 kt
0014	drop 13	90nm NE	FL 50, SF 30 kt
0020	obs	downwind leg, N of center	little to no precip out here, some shallow convection to N on upshear side
0038	obs	near NW turn point	FL winds show continued SW flow; this is a small circulation, at least on N side
0045	drop 14	90nm NW	FL 10., SF 10 kt
0047	obs	80nm NW of a line of convection, saw lightning	fly just SE to the right
0057	drop 15, BT	45nm NW	FL 25, SF 10 kt
0101	pattern	center waiting for AF to clear out for drops	orbiting in center
0112	drop 16, BT	center 21°37' 85°57'	extrap 990
0123	obs	outside SE eyewall	peak FL 70, SF 60 on SE
0123	drop 17, BT	45nm SE	FL 55 SF 40
0134	drop 18, BT	90nm SE	FL 40 SF 25
0134	pattern	90nm SE	turning back to find 30kt+ SFMR banks
0140	pattern		begin SFMR banks, 3@30°, ~16nm from drop 5@45°

0338 land KLAL

Mission Summary
Storm name
YYMMDDA# Aircraft 42RF

Scientific Crew (4 RF)
Lead Project Scientist Rogers
Radar Scientist Nguyen
Cloud Physics Scientist
Dropwindsonde Scientist Dunion
Boundary-Layer Scientist Zhang
Workstation Scientist
Observers (affiliation) James (UM)

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

See previous

Mission Synopsis: (include plot of actual flight track) Pattern was accomplished as planned. Got Mexican overflight clearance, so was able to complete TDR legs on west side. Also called SFMR leaves at end of pattern, can SE side of storm in ~30 kt SFC winds. Storm is slowly intensifying, trying to become more symmetric. Still highly asymm. in wind field. Convection generally on S, SE (DSL) side, though profiles showed higher-ETs in DSR quad, lower in USL. Not a clear signal, in terms of azim. dist. of convection. Land interaction may be clouding signal, plus complex shear pattern, and broad circ. with strong easterly flow on N side

Evaluation: (did the experiment meet the proposed objectives?) Mission did not objectives. 18 drops, 4 good radar passes, 11 BTs mapped out thermodynamic fields in this slowly intensifying, asymmetric storm. Storm is fast-moving, making it harder to symmetrize. This is 2nd in series of 4 missions in Nate.

Problems:(list all problems) DWL having some issues with scanning. Otherwise everything else worked well.

Storm is not tilted, yet still asymm. for much of flight. Suggests tilt not driving asymm. Maybe translation? Storm getting better organized as we're leaving, eyewall trying to form. Convection USL

Expendables used in mission:
GPS sondes : 18
AXBTs : 11
Sonobuoys: