Lead Project Scientist

Storm or Project Harvey (AL09) **Experiment type** TDR / NESDIS
Flight ID 20170825H2 **Mission ID** 1809A

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.

AXBT ✓

____ 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 HARVEY (AL09) **Experiment name** TDR / NESDIS

Flight ID 20170825H2 **Mission ID** 1809A

A. Participants:

HRD		AOC	
Function	**Participant**	**Function**	**Participant**
Lead Project Scientist	ZAWISLAK	Flight Director	HOLMES
Radar/Workstation	NGUYEN	Pilots	KIBBEY KAHN / REES
		Navigator	FREEMAN
Cloud Physics		Systems Engineer	DELGADO
		Data Technician	NAFHER
Dropwindsonde	KLOTZ	Electronics Technician	
AXBT/AXCP		Other	AVAPS: MCALISTER
Photographer/Observers/Guests	RUF (MICHIGAN) SIEBER (HRD)		NESDIS: CHANG / JELENAK

B. Take-off and Landing Times and Locations:

Take-Off: 1401 UTC Location: LAL

Landing: 2317 UTC Location: LAL

SHIPS SHEAR: 231°/13 KT

MOTION: 315°/10 MPH

Number of Eye Penetrations: _____

C. Past and Forecast Storm Locations:

	Date/Time	Latitude	Longitude	MSLP	Maximum Wind
AF	25/1122Z	26° 18' 26.3	95.8 95° 48'	950	95
AF	25/1300Z	26° 25'	95° 56'	949	95
AF	25/1414Z	26° 35'	95° 59'	949	
AF	25/1515Z	26° 45' 26.8	96° 5' 96.2	947	94

D. Mission Briefing:

NHC FIX 18Z ; EMC (10'K RADAR) ; NESDIS RMW PENETRATIONS BOTH LEGS

PLAN IS FOR INITIAL FIG-4 SURVEY, WHILE PLAN HAD 180° IN / 0° OUT, DOWNWIND TO 270° / 90°. INSTEAD WE'LL ATTEMPT 0°/180° DOWNWIND TO 90°/270° → HOPEFULLY SAVE TIME. THEN WE'LL FIND AN EWRT, EITHER RETRACE COURSE OR HEAD SOUTH. THEN HAND IT OFF TO NESDIS FOR MAX WIND PENS → WE COULD TRY A CONVECTIVE BURST. FOLLOWING A BURST AROUND THE EYEWALL ON THE SPOKES. DROPS AT TURN POINTS 1, 2 ON CENTER FIX 4 BTS AT EACH ENDPOINT.

Storm or Project HARVEY (AL09) **Experiment name** TDR / NESDIS OCEAN WIND

Flight ID 20170825H2 **Mission ID** 1809A

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:

EVERYTHING APPEARS TO BE OPERATIONAL. MASTER/SLAVE BOTH REPORTING VELOCITIES

Lead Project Scientist Event Log

Date 8/25/17 **Flight ID** 20170825H2 **LPS** ZAWISLAK

Time	Event	Position	Comments
1401Z	T/O		
1447Z			HEADING TOWARDS THE IP. THE IP WILL BE ON THE NORTH
			FOR 0° INBOUND / 180° OUTBOUND. SATELLITE INDICATES INTENSE
			CONVECTIVE BANDING TO THE NORTH AND EAST WHICH COULD
			CAUSE ISSUES ON APPROACH TO IP. AN EYE HAS CLEARED SOME.
			QUITE SMALL STILL SOME DEEP CONVECTION
			SPIRALING AROUND THE EYEWALL DESPITE POSSIBLE SECONDARY
			EYEWALL LOOKS LIKE INNER EYEWALL IS HOLDING TOGETHER.
1539Z	ENROUTE TO IP	28°3' / 91°29'	GOING THROUGH AN OUTER RAINBAND.
1543Z	ENROUTE TO IP	28°4' / 92°7'	DESCENDING THRU SOME STRATIFORM RAIN
			IP MOVED TO 90 NM INBOUND ON 0° B/C 105 NM
			WOULD BE OVER LAND
			SOME TOPS TO 10 KM.
1604Z	ENROUTE TO IP	28°23' / 93°44'	TEAL 94 KT SFC. (1515Z) 947mb 13 NM RTR
			SO STILL HOLDING STEADY ON INTENSITY
			MAY BE DIFFICULT TO PULL A U TURN IN THE EYE FOR
			IWRAP
1616Z			PASSING NORTH OF SOME INTENSE RAIN BAND ACTION
			APPROACH TO IP 53 KT FL MAX ~ 35 KT SFMR
1636	IP	29°16' / 96°14'	SONDE AT IP (margin: SONDE 1 NO BT)
		28.26 / 96.23	NOW TURNED INBOUND
			MOVED THE BT TO THE MAX WIND DROP ON INBOUND
			TOO SHALLOW AT IP
1650Z			INBOUND STILL ABOUT 80 KT FL

Lead Project Scientist Event Log

Date _____ **Flight ID**_____ **LPS** _____

Time	Event	Position	Comments	
1653	INITIAL MAX WIND DROP 0°		SONDE / BT MAX WIND 0°	SONDE 2 BT 1 NO DATA
			~20nm MAX WIND 108 KT	
			MAYBE 15-19 nm	
1654Z	MAX WIND DROP	27°5'/96°15'	GETTING BRIGHTER. 2nd EYEWALL MAX SFC WIND	SONDE 3
1656	CTR 1	26° 55'/96°14'	SONDE CTR 948.7 hPa CENTER ATTEMPTED.	SONDE 4
1	ANOTHER MAX WIND	26.9/96.23	OUTBOUND FROM EYE 180°	SONDE 5
	DROP SOUTH SIDE	26.5/96.27	EYERAP 944 mb	
1718Z	WP #2 DOWNWIND	25° 28'/96° 15'	SONDE BT TURNING DOWNWIND TO PT 3	SONDE 6 BT 2 ~~NO DATA~~ 30.1 -30.2C SST
1722Z	DOWNWIND TO WP #3	25° 35'/95° 57'	JUST CUMULUS TOPPED PBL STRATUS ABOVE.	
1745Z	NEARING WP #3	26°53'/94°25'	HENNING INDICATES DROP 2nd EYEWALL (SONDE ?) OUT	
			MAX WIND. 102 KT SFC 115 KT AT 230 m	
1748Z	WP #3	27° 1'/94°22'	SONDE 7 AT WP #3	SONDE 7 BT 3
	INBOUND ON 090°		CLEAR BELOW, SOME CIRRUS SHALLOW CU PBL TOP, ANVIL	
			ABOVE.	
			STAYING AT 8' KFT (RADAR) REMAINDER OF FLIGHT	
			DOWN TO 8'B UNFORTUNATELY DURING LEG.	
1813Z	MAX WIND DROP IN 090°	26°59'/96°13'	INBOUND FROM EAST. 100 FT UNTIL EYEWALL	SONDE 8
1816Z	CTR 2	27°9'/96°22'	SONDE 9 CTR	SONDE 9 944.4 SKT
	104 KT OUTBOUND JEMR	DROP 944.4	OUTBOUND 270°	
1819Z	MAX WIND OUT 270°	27°9'/96°31'	SONDE / BT MAX WIND	SONDE 10 BT 4 NO DATA
	OUTBOUND ON 270		LOTS OF STRATIFORM W/	
1823Z			ONE CONVECTIVE TOWER ON WEST SIDE	
1824Z		27°8'/96°58'	SONDE	SONDE 11
			WE'RE HEADING DOWNWIND TRY TO GET ON INBOUND	
			TO NORTHEAST	

Lead Project Scientist Event Log

Date _____ **Flight ID**_____ **LPS** _____

Time	Event	Position	Comments	
1845Z	NOW GOING INBOUND 360°	26°17' / 96°20'	INBOUND 360° TO CENTER 180° S→N PASS	
			104 KT ON THAT OUTBOUND SFMR W SIDE	
			FROM CTR 2	
	ENTER MAX WIND 193		SONDE	SONDE R
~1858Z	CTR 3	27.21 / 96.34	OUTBOUND ON 045°	
1901Z	MAX WIND 045°	27°21' / 96°10'	OUTBOUND ON 045° MAX WIND SONDE	SONDE 13
	CHANG LEG #1		111 KT FL UP TO 120 KT FL	
	MAYBE 25nmi		122 KT FL OUT TO NE.	
1910Z	INBOUND 210°		BACK TO RYR. ALONG 030°	
1914Z	MAX WIND INBOUND 030°	27°29' / 96°21'	SONDE	SONDE 14
	MAX WIND 2 IN 030	27°25' / 96°22'	SONDE	SONDE 15
1920Z	CTR 4	27°13' / 96°29'	TURNING 180° TOWARD RYR OUT	
		27°16' / 96°24' ←	APP → KING OF EDDY	
1923Z	MAX WIND 030° OUTBOUND	27°29' / 96°19'	MAX WIND	SONDE 16
1952Z		28°12' / 96° 8'	WE EXTENDED LEG OUT TO BE SIM ALONG 030°	
			LOITERED FOR PAST 10 MIN OR SO	
			ASPEN ENCOUNTERED AN ISSUE	
1957Z	INBOUND TEAL WITH 030°	TO SW, 27°30' / 96°15'	040° INBOUND	
2004Z	MAX WIND INBOUND ON 030°		MAX WIND	SONDE 17
2007Z	CTR 5	27°24' / 96°20'	TURN OUT TO 030° 070°	
2009Z	MAX WIND SONDE	27°24' / 96°12'	MAX WIND OUTBOUND 090°	SONDE 18
			129 KT MAX FL SO FAR IN NE QUAD 104 SFC	
2017Z			TURNING DOWNWIND TO DO RUNAWAY ~15°	
2021Z	INBOUND TO CENTER ALIGN 080° TO SW		NOT MUCH TURBULENCE OR REAL INTENSE CONVECTION	SONDE 19
2027Z		27°34' / 96°23'	125 KT FL, 50 AT SFC	← 130 KT MAX FL
2030Z	CTR 6	27°27' / 96°29'	CENTER, OUT 045°	
2037Z	MAX WIND OUTBOUND 045°	27°38' / 96°23'		SONDE 20

NOW OUT 060°

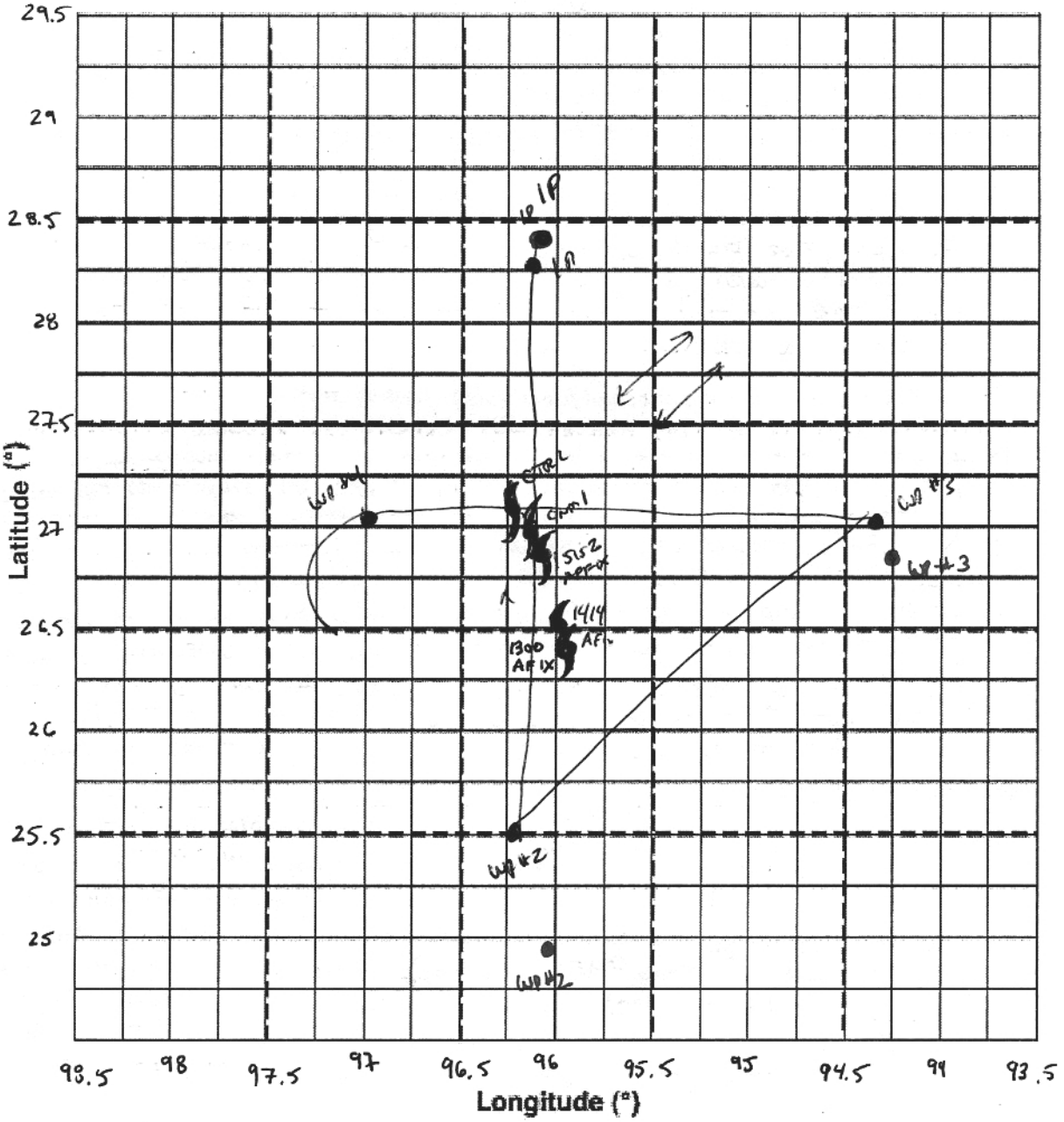
TEAL ON OUR TRACK SO 060° → HAVE TO LOWER IN ALTITUDE OUT 60nm – 70nm TOTAL THEN DONE. ← LONGER LEG OUT

2052Z END OF OUT ON 060° HEADING HOME

2058Z OVER BUOY AT 27°59' / 95°11' QUIET BAM ECHO TO 15 KM.

Observer's Flight Track Worksheet

Date _____ Flight _____ Observer Zawislak



Mission Summary
Storm name
YYMMDDA# Aircraft 42RF

Scientific Crew (4 RF)
Lead Project Scientist ZAWISLAK
Radar Scientist NGUYEN
Cloud Physics Scientist
Dropwindsonde Scientist KLOTZ
Boundary-Layer Scientist
Workstation Scientist
Observers (affiliation) SIPPEL (HRD)

Mission Briefing: (include sketch of proposed flight track or page #)
PLAN WAS FOR FIG 4 W/ N→S, E-W PASSES OF HARVEY, FOLLOWED BY A NESDIS INBOUND HIGH WIND MODELS. 2 FIX POINTS FOR NHC DURING TDR PATTERN. 10KFT, BUT MAY NEED TO BE LOWER TO DECONFLICT W/ TEAL

Mission Synopsis: (include plot of actual flight track)
IT APPEARS THAT AS OF T/O, HARVEY WAS EXPERIENCING EYEWALL REPLACEMENT SO WE WERE ABLE TO COMPLETE A FIG.4 W/ N→S LEG THEN DOWNWIND TO E→W PASS 105nm ON INBOUND 0° THEN 80nm ON 180° OUTBOUND. SHORTENED FOR TIME BC LITTLE PRECIP FOR ON THE SOUTH SIDE. GOT 105 nmi ON INBOUND ON 090° nmi ABOUT 30-40 nmi ON OUTBOUND 270°, LANA WAS ON LOOP ON THAT OUTBOUND. WE THEN WENT DOWNWIND TO SOUTH AND ENDED THE TDR PORTION. ON NESDIS WE DID AN INBOUND FROM SOUTH AGAIN TO EYE. NO FIX, THEN OUTBOUND FOR INNER LEG. OUT 045, IN 030, OUT 030', → N25nm OUT 030' TO 50 nmi (GOOD LEG FOR TDR), LOITERED. IN ON 045° AND OUT ON 090°, IN ON 090°, OUT ON 045 LAST LEG OUT WAS EXTENDED ON 045° FOR 70nmi FOR BETTER TDR COVERAGE, BUT SHORTLY AFTER EYE HAD TO TURN ON 060° TO EP. HAD 4 BTs, BUT ONLY ONE W/ GOOD DROP (#3) 20 DROPS.

Evaluation: (did the experiment meet the proposed objectives?)
ABLE TO DO A COUPLE GOOD TDR ANALYSES GIF SOUNDS, 2 FIXES FOR NHC
CHANG GOT 7 PASSES OF HIGH WINDS IN EAST TO NORTH QUADRANT.

STORM INTENSIFIED FROM 95 KT TO 110 KT DURING FLIGHT. MOSTLY CONCENTRIC EYEWALL DECENT OB CONVECTION, NOT TOO INTENSE IN EYEWALL. IF THERE WAS AN ERC, IT DID NOT WEAKEN.

Problems:(list all problems)

Expendables used in mission:
GPS sondes : 20 (2 NHC, 4 HFIP, 14 NESDIS)
AXBTs : 4 (1 GOOD, 3 BAD)

Sonobuoys: —

20170825 H2 HARVEY