

Lead Project Scientist

Storm or Project HARVEY (AL09) Experiment type TDR

Flight ID 20170824H2 Mission ID 1309A

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. SAVE
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. W/DRIP ON SPEC
7. Obtain a copy of SFMR data on thumb drive from the data technician. NEED
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

Flight ID 20170824 H2 Mission ID 1309A

A. Participants:

HRD		AOC	
Function	Participant	Function	Participant
Lead Project Scientist	<u>ZAWISLAK</u>	Flight Director	<u>HOLMES</u>
Radars/Workstation	<u>NGUYEN</u> <u>CHANG (NWSDF)</u>	Pilots	<u>KIBBEY</u> <u>KAHN/REAS</u>
Cloud Physics	_____	Navigator	<u>FREEMAN</u>
Dropwindsonde	<u>KLOTZ</u>	Systems Engineer	<u>MCCAUSTER</u>
AXBT/AXCP	_____	Data Technician	<u>NAEHR</u>
Photographer/Observer s/Guests	<u>RYGLICKI (NRL)</u>	Electronics Technician	_____
	_____	Other	_____

B. Take-off and Landing Times and Locations:

Take-Off: 1436 UTC Location: LAL

Landing: 2222 UTC Location: LAL

Number of Eye Penetrations: 3

24/06Z
SHEAR / SHEAR : 250° / 13 KT

C. Past and Forecast Storm Locations:

MOVING NORTH / 9 KT
OPEN ON SW 3/4 EYE

Date/Time	Latitude	Longitude	MSLP	Maximum Wind
<u>24/1200Z</u>	<u>23.8</u>	<u>93.0</u>	<u>986</u>	<u>50KT</u>
<u>24/1304Z</u>	<u>23° 49'</u>	<u>93° 08'</u>	<u>984</u>	<u>55KT</u>
<u>24/1500Z</u>	<u>24.0</u>	<u>93.3</u>	<u>982</u>	<u>55KT</u>
<u>24/1635Z</u>	<u>24° 17'</u>	<u>93° 25'</u>	<u>979</u>	<u>75KT</u>
<u>24/1944Z</u>	<u>24° 38'</u>	<u>93° 51'</u>	<u>979</u>	<u>75KT</u>

BASED ON AF FIX AF
AF
NHC
AF
N 42

D. Mission Briefing:

PLAN IS FOR A BUTTERFLY AT 10' BT, ALTHOUGH W/ AF OUT THERE, WERE DONE 7' BT. DROPS AT EACH TURN POINT W/ BT COMBO. CENTER DROPS ON EACH PASS, NO BT. SO 8 DROPS / 6 BT POSITIVE IT APPEARS THAT HARVEY IS EXPERIENCING RI → THE SATELLITE PRESENTATION HAS DRAMATICALLY IMPROVED. SEEMS TO BE GAINING PRECIP SIMILAR

18Z FIX ON 2ND PASS SEARCH ON 2ND PASS

Storm or Project HARVEY (AL09) Experiment name TDR

Flight ID 20170824 H2 Mission ID 1309A

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:

SFMR HAS BEEN SWAPPED FROM THE PREVIOUS MISSION
BUT THE CALIBRATION ON THIS ONE ON THE PLANE IS UNKNOWN.

THE PREVIOUS FLIGHT EXPERIENCED ISSUES W/ THE AFT SCAN
AND THEY DID NOT GET RADIAL VELOCITY DATA.
WE'LL NEED TO EVALUATE WHETHER WE'RE GETTING VELOCITY
DATA IN THE TRANSIT OUT. IN THE AFT SCAN. FURTHER AFT
LOOK DIFFERENT. WORK W/ PANA TO SEE IF WE
CAN'T WORK OUT THE ISSUES.

Lead Project Scientist Event Log

Date 8/24/17 Flight ID 20170824H2 LPS ZAWISLAK

Time	Event	Position	Comments
1436Z	T/O		
			ENROUTE SHORTLY AFTER T/O
			WE OPENED BOTH JUNE (AFT) AND MASTER (FORE) TDR → TS
			ONBOARD PASSER BY SOME ANVIL, CONGESTED, AND TS WAS DETECTING VELOCITY W/ dBZ SO THAT LOOKED OK.
			NEAR THE A/C, WITHIN 20NM THE SEC RETURNS WERE SIMILAR TO RIGHT NOW IT DOESN'T LOOK LIKE A PROBLEM, BUT IT COULD BE SOMETHING IN THE BACK END.
1540Z	WBOUND TO IP		CAROL WANTS FIX ON 1 st 2nd PASS → ALL 3 PASSES
1548Z			PAINTING ANVIL ON TDR
			TS IS PICKING UP VELOCITY SO LOOKS GOOD
			WE HAD WIND AT FL FROM 197° (A/C HEADING 172°)
1556Z			SEMR DOES SEEM
1619Z	DESCENT TO IP	26° 5' / 90° 57'	DESCENT TO IP EARLY
			PRETTY INTENSE OUTER BAND TO GO THROUGH.
1623Z	NEARING IP	25° 53' / 91° 13'	LOTS OF SLOW/MID CONGESTION
1635Z	NEARING IP	25° 43' / 92° 51'	CIRCULAR BANDING IN OUTER BAND 30dBZ TO 16KM
			SO DBZ TO 8KM
1639Z	IP	25° 43' / 92° 20'	DROP/ST INBOUND 210° GOOD SOUND
	INBOUND TO CTR #1	25° 18' / 92° 37'	LOOKS LIKE SOME CONVECTIVE BANDING AHEAD
		25° 0' / 92° 49'	ACTUAL GOT INTO CLEARIN BETWEEN BANDS
1707Z	CTR (HUB CLOUD) #1	24° 19' / 95° 31'	CENTERED IN
		24.3 / 93.5	75KT FL 62KT SEMR JFC NE
			GOOD FOR 210°
			PAINTING CTR 30 TO 10KM 34DBZ TO 11KM
			ON OUTBOUND ON 210°

SOUNDE #1 (ST #)

SOUNDE #2

EYEWALL

Lead Project Scientist Event Log

Date 8/24/17 Flight ID 20170824H1 LPS ZAWISLAK

WAS 64 FT ON INBOUND

Time	Event	Position	Comments
1724Z	OUTBOUND ON 210° TO WP #2	23° 19' / 94° 01'	HEADING INTO CLEARING BUT AS MUCH BANDING OF THIS SW (UPHEAR?) SIDE
1733Z	WP #2 NOW ON DOWNWIND	22° 49' / 94° 27'	ARRIVED WP #2 TURNING DOWNWIND PRETTY CLEAR OUT
1747Z	DOWNWIND #3	22° 52' / 93° 22'	SHALLOW / LOWESTY BEHIND ONVIL
1758Z	WP #3	22° 56' / 92° 41'	INBOUND TO CENTER ON 230° WE'LL GO WEDGE MORE ON INBOUND TO CENTER, RACE TO FULL IN CENTER.
1812Z	INBOUND ON 330°	23° 51' / 93° 16'	REAR REAR! GOOD ANALYSIS CORRECT FILE SIZES, SO WE'RE IN THE CLEAR
1817Z	JUST OUTSIDE OF SW FIREWALL	NOT AS MUCH TALL TOWERS IN THE FIREWALL	A LOT OF SIGAN FROM HERE TO THE SE OF THE CENTER
1824Z	CTR #2	24° 00' / 93° 41'	SONDE AWAY, DIP JUMP SEARCHING
1843Z	OUTBOUND TO WP #4	24.43 / 93.68	WEDGE BACK ON; NO WEDGE MADE IN CTR REALLY GOOD CONVECTION IN NW FIREWALL OUTBOUND 37.5 KVS PEAK SEEN. 80 KT FL; 97.7 SONDE CTR
1844Z	OUTBOUND TO WP #4	So 75KT SEC GOOD ESTIMATE.	SO SATELLITE SHOWING REALLY GOOD CONVECTION ON THAT NW FIREWALL. CLEANING UP TO NW
1850Z	WP #4	25° 29' / 94° 36'	SONDE / BT
1910Z	DOWNWIND TO #5		SO AN INTERESTING CONVECTION BURST IS MAKING IT'S WAY AROUND THE FIREWALL FIRST PASS WAS TO SE SECOND PASS WE WENT THROUGH IT TO THE NORTH IT MAY BE ON THAT W OR 'UPHEAR' SIDE ON OUR FINAL.
1915Z	WP #5	24° 34' / 95° 41' 24° 34' / 95° 41'	INBOUND ON 090° SONDE / BT

SONDE #3
BT
30.1 BT
SST
GOOD BT

SONDE #4
BT #3
↑
NO DATA FROM BT #3
BAD BT

SONDE #5
97.6m
80KT FL IN BAND
97.4 ON SWASH

SONDE #6
BT
30.2°C
GOOD BT

SONDE #7
BT
NO DATA FROM BT
WAS CH 14
FIX

So now 20 KT INTENSIFICATION WHILE WE'VE BEEN OUT HERE. (WELL, SINCE 1843Z OF FIX)

Lead Project Scientist Event Log

Date _____ Flight ID _____ LPS _____

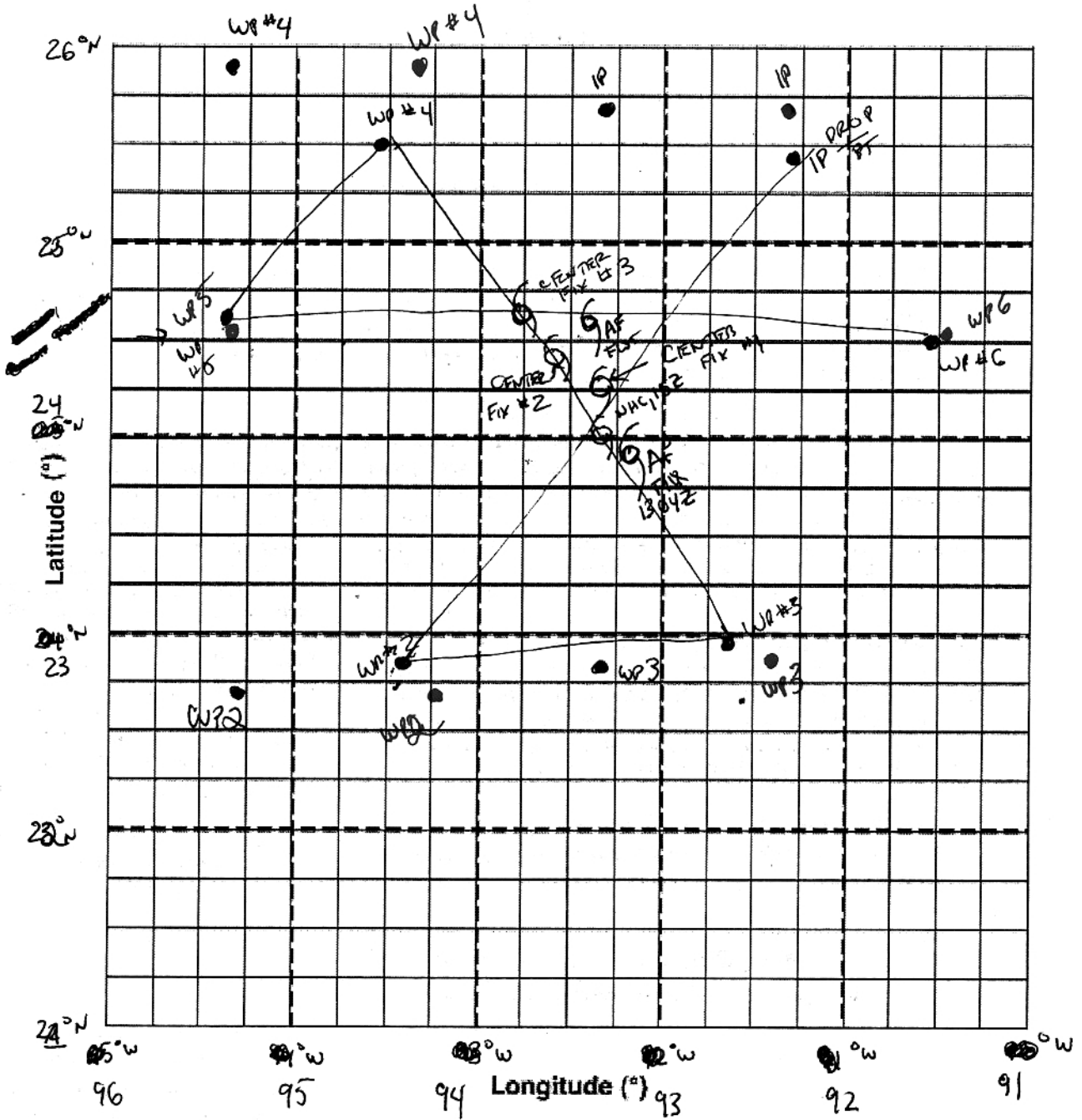
Time	Event	Position	Comments
1925Z	INBOUND FROM WP#5 TO CENTER	24°34' / 95°12'	LF SHOWING MUCH BROADER RAIN BAND - 400mi FROM CTR LOOKS LIKE LOT OF STRATIFORM BUT WILL SEE LF INDICATED A LITTLE MORE CELLULAR
1931Z		24°35' / 94°47'	RAINING A LOT OF STRATIFORM LF IN WEDGE MODE, OFF IN CENTER
1939Z	INBOUND TO CTR		ENTERED A HEAT REGION BEFORE REACHING EYE WALL APPARENTLY LOOKING SIMILAR LOOKS LIKE ANOTHER HUB CLOUD ON WESTERN EYE WALL 30-35 dBZ, SPECKLES OF 40dBZ
1944Z	CTR #3 OPEN SSE	24°38' / 93°51' 24.63 / 93.85	THAT INTENSE BURT MAY HAVE WEAKENED THAT INT. CLOUD HAS GOOD BUMPS LOOKS LIKE SOME SOME ON WESTERN SIDE, ~21ms FL SOMEWHERE IN BAND AVAD: OPERATOR MAY HAVE LOST PROB WP# IN CTR IN RUSH TO GET MAX WIND REQUEST, MAY HAVE SAID 'NO SONDRE' LOOKS LIKE SOME MORE CELLULAR RAINING IN THE OUTER BAND
	↓ LOOKS LIKE 410ms FL, 34 KT SPAR SOME RAIN MAINTAIN 75ms		
1959Z			
2003Z	OUTBOUND TOWARD WP#6	ASKED FD TO EXTEND OUTBOUND LEG	ABOUT 15-20 MI AT STRAIGHT LEVEL TO CENTER CONVECTIVE OUTER BAND
2016Z	1	2	
2016Z		24°32' / 91°37'	WENT THROUGH OUTER BAND VERY CELLULAR PROB WILL BE JUST OUTSIDE OF IT
2018Z	RAIT WP#6 by 75ms	24°32' / 91°31'	SONDE 1 BT
2021Z			SCIENCE COMPLETE

SONDE #8
LOST
507/3
SUFAR
DATA FOR
SOUNDRE
BARROS
979m
SFC IN
THE LAST
CTR
SONDRE

SONDE #
BT 6
HIGH 28
LOW 2
1FF4
DATA
OUT OF
THAT

Observer's Flight Track Worksheet

Date 8/24/17 Flight 20170824 H2 Observer ZAWISLAK



Mission Summary

Storm name

YYMMDDA# Aircraft 4Z-RF

Scientific Crew (4 RF)

Lead Project Scientist ZAWISLAK

Radar Scientist NGUYEN

Cloud Physics Scientist _____

Dropwindsonde Scientist KLOTZ

Boundary-Layer Scientist _____

Workstation Scientist _____

Observers (affiliation) RYGUCKI (NRL)

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

PLAN IS FOR A BUTTERFLY IN HARVEST; INBOUND 030°, OUTBOUND 210° (1)
THEN DOWNWIND TO 150° INBOUND / 330° OUTBOUND, (2) THEN DOWNWIND TO
240° INBOUND / 090° OUTBOUND. DROC/BT AT EACH ENDPOINT WHEN AND
DROC FOR NHC AT CENTER. FIX REQUESTED AT EVERY PASS. TRFT UNLESS
OTHERWISE DICTATED BY AF.

Mission Synopsis: (include plot of actual flight track)

FIRST INBOUND ENCOUNTERED AN INTENSE CONVECTIVE RAINING IN OUTER AND INNER.
W/ A MOST. CENTER WAS MOSTLY CLOUDS W/ 75KT FL / 62 KT SPMR SFC. ABLE TO
FLY SAME IN/OUT AZI. WENT DOWNWIND FROM W/ 2 TO 3. WENT IN ON 150° LITTLE
DEFLECTIONS WERE NECESSARY INBOUND TO SW LAM 80KT FL / 75KT SPMR - GOOD
CONJECTURE IN NW EYEWALL → SEEMS TO HAVE ROTATED AROUND FROM THE SE EYEWALL
ON OUR FIRST PASS. WENT OUTBOUND 330° TO W/ 4. DOWNWIND TO W/ 5 INBOUND
• 270° → MUCH WIDER BAND 40-50mi FROM CTR TO WEST. LOT OF STRATIFORM EMBEDED
CONVECTION. HUR CANON ON WEST
EYEWALL GOT US GOOD W/ 10DOWN
FIXED 3rd CTR. 75KT SPMR, SO
NO MORE INTENSE
CONVECTION ON 090° → EXTENDED
15 MI TO SAMPLE DEEPER
CONVECTIVE OUTERBAND. NOT
THAT DEEP, ALTHOUGH THE VIS
SHOWED MORE IMPRESSIVE.
DROPPED SONDE / BT TO
EAST OF THE BAND AND
CLIMBED OUT

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

ALL SONDETS WERE GOOD, ONLY 2 GOOD BT'S.
LF WAS IN QUEUE MORE ALL SECRET 1st PASS / CTR
TOR DESPITE EARLY WORRIES ABOUT THE NET (JAVO)
WORKED FINE. PAUL RECEIVED GOOD DATA / GOOD
ANALYSIS. WE CHECKED EXTENSIVELY THE TROPICAL
WIND AGAINST THE F03E (MASON) AND ALL CHECKED
OUT

Problems: (list all problems)

CH14 BT? STATE THAN BAD BT, MISSION ACCOMPLISHED
OBJECTIVES. NEED TO MAKE SUR TOR TO EMC
~~STATE~~

Expendables used in mission:

GPS sondes: 89 (6 HPIR / 3 NHC) - ALL GOOD

AXBTs: 6 (2 GOOD / 1 W/ SOME DATA / 3 BAD)

Sonobuoys: _____

STORM IS EXPERIENCING
RI. PRECIP AROUND
CTR INNER CORE NEARLY
SYMMETRIC. INTENSE
BURST ROTATE AROUND EYEWALL
LOOK LIKE W/ 55KT TO START
FLIGHT BODED ON AF FIX. WE
SAW 75KT FROM SPMR BDR
FL

V982ms
TO 979ms

20170824H2 HARVEY (AL09)

