U.S. DEPT. COMM./NOAA/OAO - DATA SECTION WORK FORM NO.1 OAOWF1 FILE

FLT ID: 951004I	FM: MCF	TO: MCF
FLT NO: 95-67	BLK IN: 2359 ~~0000~~	ATA: 2348
ETD: 16Z	BLK OUT: 1512	ATD: 1527
ETE: 9	BLK TIME: 8:47 (8.8)	FLT TIME: 8:21 (8.3)
11 SPONSOR ORG: HRD	PROGRAM: H. Oral Elec	PURPOSE: Research

OAO PERSONNEL

AC	Philippsborn ✓	SYS ENG	Lynch ✓
CP	O'Mara ✓	DATA SYS	McMillan ✓
NAV	Rathbun ✓	RADAR	McNamara ✓
21 FE	Moore / Bast ✓	~~[illegible]~~	McDeerney ✓
RADIO	Sans Souci ✓	~~CLD PHYS~~	Bass ✓
FD	Parrish	DOPPLER	

27 28 / 88 24 / WXWX ofAL 1231Z 7mm 18Z

PARTICIPATING SCIENTIST/VISITORS/OAO

TEAL 41 till 21Z

TEAL 06

LAST, FIRST NAME	ACTIVITY ON A/C	AFFILIATION
31 Black, M. ✓	P.I.	HRD
Willoughby, H. ✓	Mentor	↓
Black, R. ✓	C.S.	↓
Leighton, P. ✓	Radar	↓
Sumsury, C. ✓	"	↓
Landsea, C. ✓	Observer	↓
~~Gazzelman, S.~~ Lawrence, Bin ✓		SUNY
		U. Houston
47 Bush, J.		Hands On

PROPOSED/ACTUAL MISSION/REMARKS (RECCO, FIXES, STORM, PENET, NHOP #) TEAL 06 00Z

IP 2700, 8842 ⊕ 2830, 8735

150/18 1431Z 27.9 88.3 925mb 8mi 16-17kts Mobile Doppler

29.68

1004.5 FLEW INITIAL FIG. 4 AT 14K, RAINBAND, EYEWALL WORK 14K PA.

30.1/24.8 $ 1712Z 28°41'N, 87°58'W $ 205430Z 29°52'N, 87°19'W   Dropped 5

1003.2 $ 1810Z 28°50'N, 87°46'W $ 2128Z 30°05'N, 87°04'W   dropsondes.

150/22 $ 1959Z 29°35'N, 87°29'W $ 2146Z 30°16'N, 87°10'W

SP 1003.2 Fm 2K

SP 1005.3 Fm 1K $ 2013Z 29°42'N, 87°22'W $ 2205Z 30°23'N, 87°07'W

SP 1005 2K $ 2032Z 29°47'N, 87°16'W $ 223330Z 30°30.5'N, 87°09.5'W

25/77

170/20-30   10 penetrations:

29.61

59 1002.5 SP 1001.2 Fm 3K   Chris - X large T-shirt

SP 1004.1 Fm 1.5K

260/20 1004

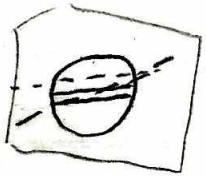
NOAA • AOC• SED Flight Performance Log

Aircraft : N43RF Project: Hurricane '95 Mission : OPAL #1

SED Crew: LYNCH, MCNAMARA, MCMILLIAN, BARR Flight ID : 951004I

Pre-Flight: 1330Z Take-Off: 15:27 Landing: 23:48

	System			Pre-Flight	In-Flight	Post-Flight		
NAV	INE #1	Aligned to : 3		✓		+.9	+4.4	3
	INE #2	Aligned to : 0		✓		-13.1	+7.0	5
	GPS			✓		Lat	Long	GS
RADAR	Nose			JMB				
	L/F	R/T SN : 102		JMB		Mod Switch Off ? JMB		
	Tail	R&T SN : 201/202		JMB		Mod Switch Off ? JMB		
	ASAU's & RCU			JMB				
	MARS Data System			JMB (5) (10)		# DATs : 3		
PMS	2DG-C	Ch 1/64: 1		✓ RM				
	2DG-P	Ch 1/64: 1		✓ RM				
	FSSP	Ref VDC:		✓ RL				
	SEA Data System			✓ STM		# DATs : 1		
		Cal High	Cal Low			Cal High	Cal Low	
TEMP	Temp #1	+30.7	-30.2	RJM		+30.9	-30	
	Temp #2			RJM		+47.7	+48.6	
	Temp #3 (Starboard)			RJM #2				
	Dewpoint #1			RJM #1				
	Dewpoint #2			RJM				
PRESS	Attack Angle (AP/DAP)			RJM				
	Slip Angle (BP/DBP)			RJM				
	Differential (PQ1/PQ2/PQ3)			RJM				
	Absolute (PS1/PS2)			RJM				
	Radome Transducers			Plugs Out ? RJM				
	Cabin Transducer (Station 5)			✓ TL				
FLT LVL	Apn-159	SN: 66-0824		✓ TL		OFF		
	Apn-232	SN: 1699		✓ TL		OFF		
	King Liquid Water			NI				
	J&W Liquid Water			✓ TL				
	Down PRT-5 (SST)			RJM				
	Side PRT-5 (CO^2)			RJM				
	RAMS Data System			TL	6,7,8	# DATs : 1		
MISC	ASDL			✓ TL				
	Exterior Walk Around			RJM				
	Video	(N) (L) (R) D		✓ TL				
	AXBT	8	# on Board	NU	# Dropped: 5	# Good 5		
	ODW	8	# on Board :	✓ STM	# Dropped : —	# Good : —		
	FCU	-A-B-C-		✓ STM				
USER	Charge Probe			✓		Accelerometers		
	Formvar			✓		#1 (2 G) : 6152		
	Field Mills	(L) (R) (W) (D)		✓	(4)	#2 (2.5 G) : 6684		
	Lawrence Water Collector			✓		#3 (3 G) : 5967		
	HRD Workstation			✓		#4 (3.5 G) : 2892		



Please Note any Discrepencies

Item #	Zulu Time	Problem Description	Initials	A-23A #
1		Replaced Dewpt #1 at Preflight SN # 92768 in		
2		TEMP #3 NOT INSTALLED	RJM	
3		Need updated Common Descr. TXT		
4	1544	Power dropped of line to VID DIST/ APN 159 Synchro Box So expect a drop out on 159 data, because the 400HZ PWR CKT BKR IN N-Rack got switched off by BARR.	STM	
5	1652Z	RADAR Hung-up System time Restarted or Reset ALL From software with tape still Running. System had trouble still. Stopped processes again, turned-off Recording Reset ALL System appears to function @ this time.	JMB	
6		T3 - ws to knts for UG² 109,109,1,139,1,9A35,0,0,0		
7	17:39:30	RAM Setup to load in new T3		
8	17:52:50	RAM Setup		
9		Upper FieldMill - FlatLined at OUX	K	
10	2050Z	Duplicate of #5	JMB	
11		Dewpoint #1 went ≈20° high a few times - (went to 35°)		

3 15
6 8
0 0
9 6

WB Form 413-50
2 - 63

1836 - Overload house

ch 1
ch 1

951004I H. OAL ELECTRIFICATION

Time	LAT	LON	TK	WD	WS	PA	GA	TA	TD	SP	VS			
1512	2750.9	8229.5				77		30.2	24.8		1003.5	BGIL		
153030	29 34.1	82 20	72	166	42	2043	1033	21.8	18.6	1005.6	877.1	↑		
153345	28 02	82 18	278	181	52	1960	2001	16.8	12.2	1004.5	XA7	↑		
1537	28 04	82 33	277	185	40.5	2793	2850	15.1	2.3	1000.1	715.2			
~1542	Big	data	system	crash										
1544	28 01	83 03	257	195	45.2	4032	4216	6.2	-0.2	1001.3	607.4			
154913	2756.5	8325.8	260	198	49.5	4364	4557	3.5	0.4	1000.6	587.7			
160630	2745	8443	263	192	68	4358	4518	4.0	-6.2	997.3	588.1			
1626	27 31	84 05	262	200	76	4358	4460	6.7	-1.6	984.5	588.2			
1641	2721	8704												
1654	27 14	87 52	IP	HEAD	INC N									
1656	27 20	87 51	1	254	68.6	4425	4454	7.0	—	973.7	583.5			
171232	28 41	87 58	Drop							922m)		S		
171245	28 41	88 00								922m)				
1721	29 20	87 58	0	117	51	4401	4365	6.2	—	969.6	585.2			
1730	30 04	88 00	230	107	61	4404	4439	4.0	—	980.2	584.9	AT N PT		
1749	28 51.3	89 10.8	215	348	31.7	4402	4418	7.2	—	972.6	584.7			
175145	28 39	89 19.5	AT	40 PT										
180215	28 42	88 25	71	333	57.5	4398	4318	10.1	6.5	957.8	584.6			
181022	26 50	87 46								930		S Drop - too far E		
1822	28 51	86 41	90	193	85	4401	4397	6.2	6.5	973.5	585.0	S		
1825												↑ to higher		
183527	28 46	85 56	290	183	93	5810	5981	-3.8	-4.8	980.3	484.12	Drop	START 1st SAW TOOTH	
184705	29 05	86 24	50	191	85.9	5808	5936	-1.9		971.0	484.11	1854 END OF LEG 2		
1856	29 38	85 53	280	169	91	5808	5972	-3.8	-4.4	980.5	484.0			
1907	NEXT	SAW TOOTH	LEG											
1915	30 27	86 47	231	153	70	5809	5924	-2.1	—	971.4	484.2			
1921	30 17	87 10	336	144	52.8	5807	5915	-1.8	-0.2	969.0	484	NEXT SAW TOOTH		
1936	30 26	87 59	340	107	35	5809	5938	-2.1	-0.2	969.0	484.4			
1945	30 10	88 27		53	33	5809	5922	-1.5	-0.4	968	484			
195220	29 50	87 59	122	27	30	5810	5864	0.6	-0.5	956	484			
1959	29 35	87 28										S		
2008	30 00	87 23	~	121	33	5829	5854	1.0	—	952	483			
201236	29 41.6	87 21.7										S		
201515	29 39	87 15	30	207	26	5675	5634							
2023	30 09	86 51	124	160	69	5830	5893	-0.7	+0.2	960.2	482.7			
2025	30 05	86 45	Inbound	060								[redacted]		
203230	29 47	87 15.5										S		
2036	29 42	87 04	90	209	73	5832	5814	1.0	2.0	948.1	482.7			
204530	29 31.7	86 38.5	301	209	92	5824	5887	-0.2	1.2	959.7	483.5			
205430	29 52.4	87 19.0										S		
210515	29 46	86 31	90	202	68	5822	5892	-0.6	2.5	961.8	483.5			
211340	30 14	86 32	242	167	68	5822	5877	-1.0	1.0	960.4	483.6			
2128	30 05	87 04										S		
2140	30 43	87 09	~	127	41.5	5800	5778	0.2	—	952.4	484.7			
2146	30 156	87 10.4										S		
2153	30 35	87 19	330	91	30	5830	5810	0.8	0.8	951.7	482.8			
220045	30 44	87 07	113	126	37.7	5832	5824	-0.1	1.3	950.1	482.7			
2205	30 23	87 07										S		
221915	30 47	86 17	~	167	95	5839	5833	-1.4	—					
222215	30 41	86 27	240	174	85	5824	5796	-0.8	—	951.8	483.4			
223330	30 305	87 06.5										S	6125	
2247	29 39	86 42	136	241	71	5808	5934	-0.0	-29	967.6	484.3			
2330	28 37	84 16	114	207	61	5808	6067	-1.6	-12.5	986.8	484.3			
231930	28 29	83 55	111	207	62	5587	5824	-1.5	-12.2	993.2	507.9	↓ to land		
2332	2805.4	8307.5	97	201	47	2243	2285	16.4	12.9	1001.7	772.7			

951004I N43RF HRD Hurricane Opal Landfall

Sensor or system	Number or Name
INE	1 (See note)
Accelerometer	1
Temperature Probe	1
Dew Point Probe	1
Altimeter	APN-159
Altitude change option (for vertical winds)	RA
Static Pressure	Rosemount Fuselage
Dynamic Pressure	Rosemount Fuselage
Time Source	Micro 99
Constants File	CO2952.CON

Notes:

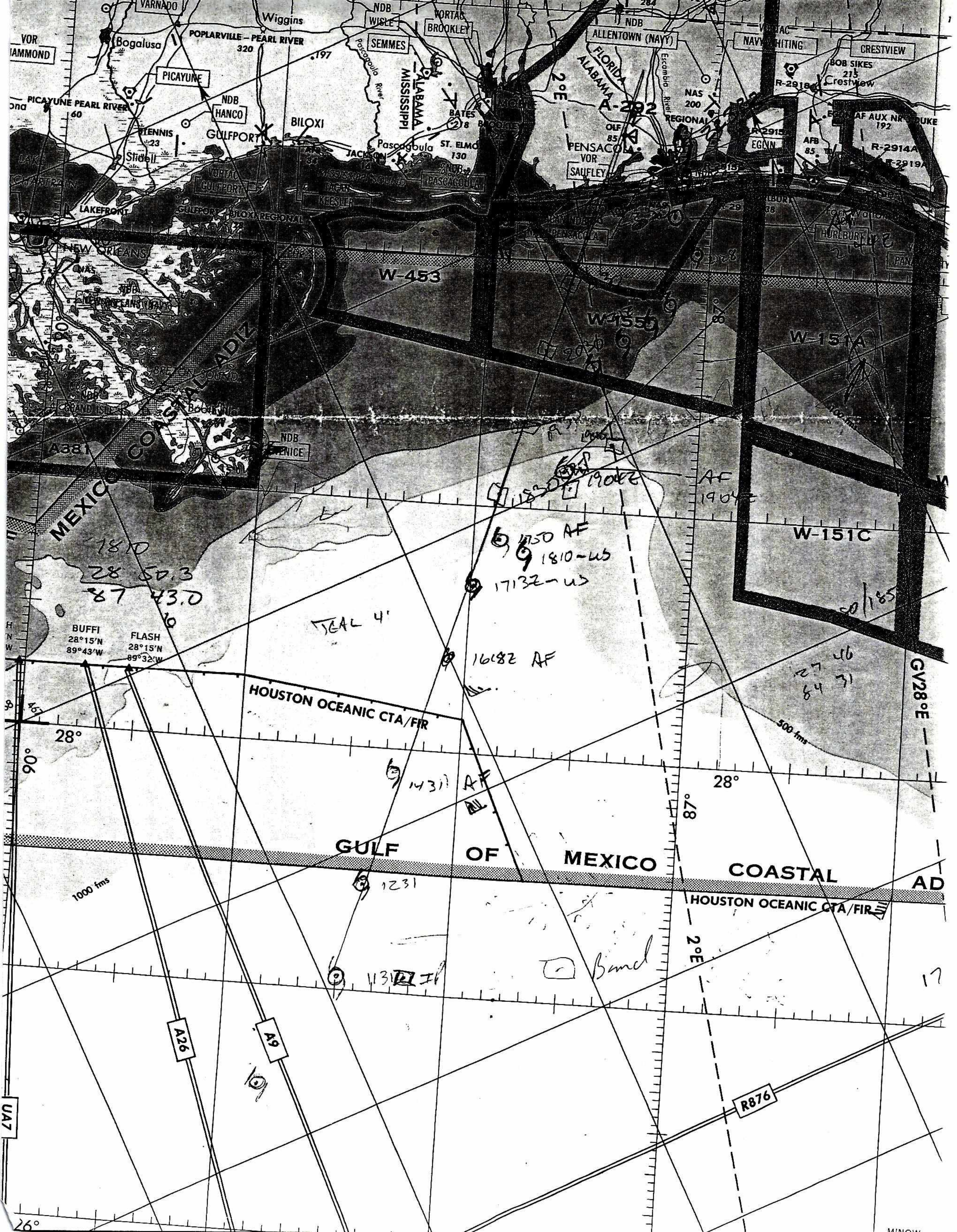
INE 1 positions were corrected periodically with good GPS positions. No corrections were made to INE 1 groundspeeds.

Patched large positive APN-159 RA departure near landing with APN-232 radar altimeter.

Removed three substantial Dewpoint #1 departures, around 1645Z, 2030Z, and 2245Z, and substituted corrected Dewpoint #2 values when necessary.

Special note. Locations 80, 81 and 82 of the Type 5 record on the Standard Tape contain vertical groundspeed, vertical airspeed and vertical wind, respectively, computed using Dave Jorgensen's vertical wind algorithm. It is recommended that these values be used for vertical wind analysis.

Jack Parrish, Flight Director



VARNADO
Wiggins
NDB WISLE
VORTAC BROOKLEY
NDB ALLENTOWN (NAVY)
VORTAC NAVY WHITING
CRESTVIEW
VOR HAMMOND
Bogalusa
POPLARVILLE – PEARL RIVER 320
SEMMES
Pascagoula River
ALABAMA MISSISSIPPI
FLORIDA ALABAMA
Escambia River
BOB SIKES 215
R-2918
Crestview
PICAYUNE
PICAYUNE PEARL RIVER 60
NDB HANCO
BILOXI
BATES
NAS 200
A-292
REGIONAL
EGLIN AF AUX NR 3 DUKE 192
R-2915
EGLIN
AFB 85
R-2914A
R-2919A
STENNIS 23
GULFPORT
Slidell
Pascagoula
JACKSON
ST. ELMO 130
OLF 85
PENSACOLA
VOR SAUFLEY
2°E
VORTAC GULFPORT
NDB PASCAGOULA
KEESLER
LAKEFRONT
GULFPORT-BILOXI REGIONAL
PENSACOLA
HURLBURT
NEW ORLEANS
NAS
NDB NEW ORLEANS (NAVY)
W-453
W-155
W-151A
W-151C
ADIZ
MEXICO COASTAL ADIZ
NDB GRAND ISLE
A381
NDB VENICE
87°
BUFFI 28°15'N 89°43'W
FLASH 28°15'N 89°32'W
HOUSTON OCEANIC CTA/FIR
28°
90°
500 fms
GV28°E
GULF OF MEXICO COASTAL AD
1000 fms
HOUSTON OCEANIC CTA/FIR
A26
A9
R876
UA7
26°
1810
28 50.3
87 43.0
TEAL 4'
1850 AF
1810 – US
1713Z – US
1618Z AF
1431 AF
1231
1131 IP
Band
AF 1904Z
1904Z
2030
27 46
84 31

$-41 - (-39) =$

$-41 + 39 = -2$

951004I H. OPAL IDE 1 REDAV

152700	0.0	-0.2	50.4	31.8 ✓
155500	+0.3	-0.8	52.3	51.1 ✓
162500	+0.6	0.0	31.7	00.9 ✓
171800	+0.9	-1.5	04.9	57.6 ✓
181030	+1.4	-0.5	50.3	42.0 ✓
183000	+2.0	-1.1	51.4 (9.4)	56.9 ✓
191030	+1.0	-2.0	12.9	41.0 ✓
201000	+2.0	-2.1	53.0	21.0 ✓
210500	+1.4	-0.6	46.3	33.1 ✓
215030	+1.9	-3.9	23.0	10.1 ✓
222030	+1.1	-3.0	44.0	19.6 ✓
232030	+2.2	-5.1	27.4	51.2 ✓
(13) 235830	+0.7	-3.7	51.0	29.6 ✓

DATE : 4 October 95

TO : Chief, AOC Flight Operations

FROM : Pilot/Flight Director, Aircraft N431RF ON 2359 BLOCKTIME
OFF 1512Z 8.8

SUBJECT: Hazardous Duty

PURPOSE OF FLIGHT: Hurricane Opal Electrification, Landfall

Hazardous Duty Pay is required for flight made on 4 Oct 95
(DATE)

Request based on penetration of hurricane eyewalls.

Personnel on board authorized Hazard Pay:

Moore, H.	
Bast, G.	
Sans Souci, D.	
Parrish, J	
Lynch, T.	
McMillan, S.	
McNamara, R.	
Barr, J.	

PILOT/FLIGHT DIRECTOR: John R Lamm

APPROVED: _____ DISAPPROVED: _____

CHIEF, AOC FLIGHT OPERATIONS: _____

1748

45) 80 nmi. 1.8
45
350

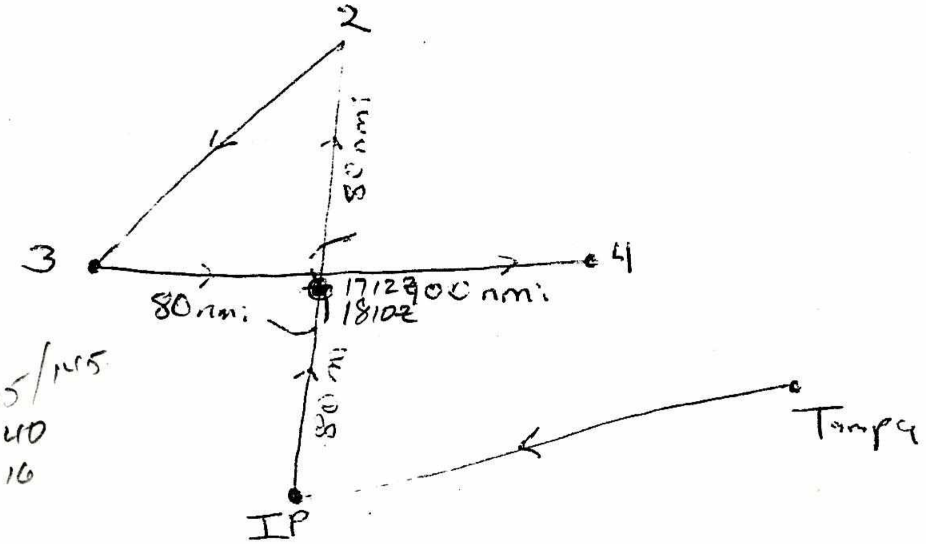
28 23
89 33
16182
28 24
88 05

CH1

(i)

Electrification
Survey Module, 11,000 ft

17
3) 52
3
22



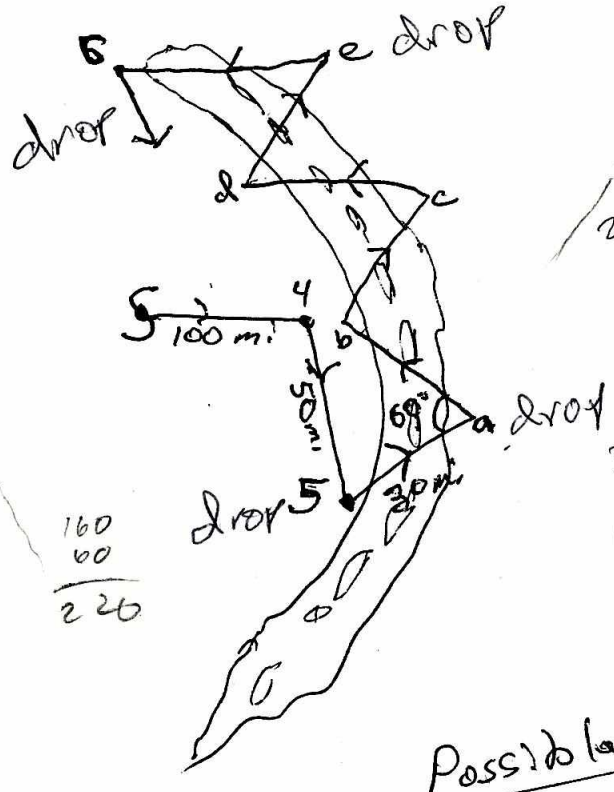
285/145
27 40
85 16

eye drop

2.5 h

(2) and (4), highest possible altitude.

Electrification Rainband Module



Possible

Note: at 6 Fly upwind along band to point 5 and repeat zig-zag across band to 6.

MISSION LOG

PAGE ___ OF ___

CLEARANCES			
FREQ	ALT	HDG	OTHER

POSITION REPORT

1. POSITION
2. TIME
3. ALTITUDE
4. NEXT POSITION
5. ETA
6. NEXT POSITION

EMERGENCY MESSAGE

TRANSMIT THE FOLLOWING MESSAGE TO ANY AGENCY ON THE AIR-GROUND FREQUENCY IN USE. IF UNABLE TO ESTABLISH COMMS, ATTEMPT CONTACT ON ANY OF THE FOLLOWING EMERGENCY FREQUENCIES:

UHF/VOICE 243.0 | VHF/VOICE 121.5 | MF/VOICE 2182 KHZ | HF/CW 8364 KHZ | MF/CW 500 KHZ

MAYDAY, MAYDAY, MAYDAY
THIS IS NOAA ______, NOAA ______, NOAA ______

- POSITION ____________ N/S ____________ E/W AT ______Z
- HEADING ______ TRUE/MAG
- AT ______ KTS TRUE/INDICATED
- FLIGHT LEVEL OR ALTITUDE ______
- WE ARE A P-3 AIRCRAFT WITH ______ SOULS ON BOARD
- NATURE OF EMERGENCY
- ASSISTANCE DESIRED
- PILOT INTENTIONS
- WE HAVE ______ ENDURANCE REMAINING

TIME	FIX TYPE	POSITION	INS 1 POSITION	K ERR	INS 2 POSITION	K ERR	MH	VAR +E==>	TH	DR +R==>	TRK	GS	WD	WS	ALT	TAS	NEXT PT	DIST	TIME	ETA	REMARKS
1508 1512																					ENG START TAXI
1526																					TAKEOFF
1604	GPS FM1	2746.2 8433.7	2745.8 8433.0	+.4 +.7	2746.1 8433.7	+.1 0															
1635		2725.1 8641.6	2724.4 8641.8	+.7 -.2	2724.8 8641.7	+.3 -.1			245	14R	250	207	204	76	14K	256	IP				
1655		2720.3 8751.5	2719.8 8751.0	+.5 +.5	2720.8 8751.1	-.5 +.4			348	13R	001	279	244	65	14K	254	[symbol]				IP
1712:45		2840.6 8757.8	2839.1 8756.2	+1.5 +1.6	2840.7 8756.6	-.1 +1.2			018	16L	002	253	108	75	14K	266					[symbol]
1810:20		2850.3 8743.0	2848.9 8742.4	+1.4 +.6	2851.5 8742.5	-1.2 +.5			108	19L	089	273	201	91	14K	261					[symbol]
1839		2845.5 8553.2	2843.6 8551.6	+1.9 +1.6	2848.4 8551.5	-2.9 +1.7			274	18R	292	279	179	86	FL 190	271					DROP
1907		2954.2 8649.1	2953.2 8646.8	+1.0 +2.3	2958.9 8649.4	-4.7 -.3			030	10L	020	328	163	81	FL 190	262					
1958:45		2935.1 8728.9	2933.4 8728.0	+1.7 +.9	2939.6 8726.5	-4.5 +2.4			338	6L	332	296	107	46	FL 190	268					[symbol]
2012:38		2941.6 08721.7	2939.5 8719.4	+2.1 +2.3	2947.7 8719.1	-6.1 +2.6			001	1L	090	308	259	34	FL 190	269					[symbol]
2032:30		2947.1 8715.5	2945.2 8712.0	+1.9 +3.5	2954.8 8714.0	-7.7 +1.5			092	6L	086	300	234	50	FL 190	260					[symbol]
2054:30		2952.4 8719.0	2951.3 8717.3	+1.1 +1.7	2959.9 8717.9	-7.5 +1.1					CIRCLING										[symbol]
2128		3005.5 8703.6	3003.6 8702.3	+1.9 +1.3	3013.6 8659.5	-8.1 +4.1			033	4L	029	357	179	72	FL 190	286					[symbol]
2146		3015.6 8710.4	3013.4 8706.9	+2.2 +3.5	3025.4 8706.4	-9.8 +4.0					TURNING										[symbol]
2205:15		3023.4 8706.8	3022.0 8702.4	+1.4 +4.4	3033.9 8703.6	-10.5 +3.2					TURNING										[symbol]

.2942 8723 | 2824 8805 | 1618 | 2850N 8753W 1750 | TEAL 41 | 220/60

MISSION LOG	PAGE ___ OF ___

FIX TYPES
(G) - GPS (I) - INS (R) - RADIO (V) - VISUAL (C) - CELESTIAL (D) - DR

TIME	FIX TYPE	POSITION	INS 1 POSITION	K ERR	INS 2 POSITION	K ERR	MH	VAR +E==>	TH	DR +R==>	TRK	GS	WD	WS	ALT	TAS	NEXT PT	DIST	TIME	ETA	REMARKS
2233:30		3030.5 8709.5	3029.5 8707.6	+1.0 +1.9	3040.2 8705.3	-9.7 +4.2			180	4L	176	290	261	38	FL 190	289					
2348		2750.8 8231.4	2749.9 8227.0	+.9 +4.4	2803.9 8224.4	-13.1 +7.0															LAND

NOAA FORM 56-49
(2-95)

MISSION PREFLIGHT LOG

DESTINATION	MISSION	NAVIGATOR	AIRCRAFT COMMANDER	FLIGHT DIRECTOR	SCHEDULED / ACTUAL TAKEOFF Z	DATE OF TAKEOFF
MCF → MCF	95-067 OPAL	RATHBUN	PHILLIPSBORN	PARRISH	1500Z / 1526Z	4 OCT 95

	WP	LAT / LON	RTE	MH	VAR +E==>	TH	DR +R==>	TRK	GS	WD	WS	ALT	TAS	LEG / TOT DIST	LEG / TOT TIME	PROP ETA	ETA	ATA	REMARKS
1	MCF	27 51.0 82 29.6							200					11 11	103 +03				
2	PIE	27 34.5 82 41.1							240					91 102	+23 726				
3	LEFKO	27 52.7 84 24.3							255					45 147	+10 736				
4	KISSR	27 52.6 85 15.2							↓					164 311	+39 1415				
5	IP	27 05 88 12							↓					81 392	+19 1434				
6	S	28 40.6 88 01																	

INS PERFORMANCE

	INS 1	INS 2
BEGIN ALIGN TIME	1330Z	1330Z
ALIGN STATUS (0-5)	5	0
END NAV TIME	2345Z	2345Z
START NAV TIME	1505Z	1505Z
DELTA T	8+40	8+40

TERMINAL ERRORS

	INS 1	INS 2
DELTA LAT	+.9	-13.1
DELTA LON	+4.4	+7.0
RGS	3	5
RADIAL ERROR	4	14

REMARKS

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
AIRCRAFT OPERATIONS CENTER

27.9 1430Z
88.3