

FLT ID: 1960827	FM: TISX	TO: TISX
FLT NO: 96-053	BLK IN: 00:48	ATA: 00:43
ETD: 1600	BLK OUT: 1615	RTD: 16:24
ETE: 11	BLK TIME: 9:33 (8.6)	FLT TIME: 8:19 (8.4)
SPONSOR ORG: HRD	PROGRAM: RESEARCH	PURPOSE: EREWALL EDUARDO

OAO PERSONNEL

AC KENNEDY, P ✓	SYS ENG LYNCH, T ✓
CP KENUL, P ✓	DATA SYS MCNOMARA, R ✓
NAV KOZAK, S ✓	RADAR
FE BAST G ✓ / MOORE B ✓	DT/ODW GONZALEZ, J ✓
RADIO SANS SOUCI, D ✓	CLD PHYS
FD OZYZYK, S ✓ / DAMIANO, B ✓	DOPPLER

PARTICIPATING SCIENTIST/VISITORS/OAO

LAST, FIRST NAME	ACTIVITY ON A/C	AFFILIATION
31 MCFADDEN, J ✓	PM	AOC HRD
MCNEERNEY, S ✓		AOC
BLACK, M ✓	SCIENTIST	PRO, HRD
MARK, F -		
DODGE, P -		
ABERSON, S -		
LEIGHTON, P -		
47 DORST, N -		

PROPOSED/ACTUAL	MISSION/REMARKS	(RECCO, FIXES, STORM, PENET, NHOP #)
6 20 22 N	6 20 25 N	6 20 28 N
59 16 W	59 33 W	59 41 W
946 mb	944	941
120 KT	125 KT	110 KT
6 20 42	6 20 46	
60 01	60 13	
939	939	
120	135 KT	

U.S. DEPT. COMM./NOAA/OAD - DATA SECTION WORK FORM NO.2 OROWF2

FLT ID: 1960827

TIME OFF:

TIME ON:

	A/C T/O	WX STN	A/C LAND	WX STN
PRESSURE	1011.5(29.87)	29.91	1010.5(29.88)	29.89

NO DATA DISPOSITION/DATE/QUALITY

1/SEC FLT LVL TAPES		
FAST FLT LVL TAPES		
RADAR TAPES	3	
DOPPLER TAPES		
ODW CASSETTES		
HARD COPIES		
AXBT		
AXCP		
ODW		

PHOTOGRAPHY

	FWD	LS	RS	VERT
ON				
OFF				
RATE				

REMARKS

NOAA • AOC • SED Flight Performance Log

Aircraft : N43RF

Project: Hurricane '96

Mission : EDOUARD #2

SED Crew: Lynch Gonzalez McNamara

Flight ID : 960827I

Pre-Flight: 14:10

Take-Off: 16:24

Landing: 00:43

System		Pre-Flight	In-Flight	Post-Flight			
NAV	INE #1	Aligned to: ✓	✓ TL		42.1	41.0	5
	INE #2	Aligned to: ✓	✓ TL		42.9	-1.7	5
	GPS		✓ TL		Lat	Long	GS
RADAR	Nose		✓ TL				
	L/F	R/T SN: 103	✓ TL		Mod Switch Off? ✓ TL		
	Tail	R&T SN: 2021207	✓ TL		Mod Switch Off? ✓ TL		
	ASAU's & RCU		✓ TL				
	MARS Data System		✓ TL	④	# DATs: 3		
PMS	2DG-C	Ch 1/64: /	✓ TL ①	⑤			
	2DG-P	Ch 1/64: /	✓ TL				
	FSSP	Ref VDC: 8.5	✓ TL				
	SEA Data System		✓ TL		# DATs: 1		
TEMP		Cal High	Cal Low		Cal High	Cal Low	
	Temp #1	30.6	-30.2	✓ TL	30.6	-30.2	
	Temp #2			✓ TL			
	Temp #3 (Starboard)			NI			
	Dewpoint #1			✓ TL			
	Dewpoint #2 (AOC)			✓ TL			
PRESS	Attack Angle (AP/DAP)		✓ TL				
	Slip Angle (BP/DBP)		✓ TL				
	Differential (PQ1/PQ2/PQ3)		✓ TL				
	Absolute (PS1/PS2)		✓ TL				
	Radome Transducers		Plugs ① J6 ✓ TL				
Cabin Transducer (Station 5)		✓ TL					
FLTLVL	Apn-159	SN: 71-01	✓ TL		Off?:	✓ TL	
	Apn-232	SN: 1699	✓ TL		Off?:	✓ TL	
	King Liquid Water		NI				
	J&W Liquid Water		✓ J6				
	Down PRT-5 (SST)		✓ TL				
	Side PRT-5 (CO ²)		✓ TL				
MISC	RAMS Data System		RDM		# DATs: 1		
	ASDL		✓ TL		Off?:	✓ TL	
	Epply Radiometers (PSP / PIR)		NI				
	Exterior Walk Around		✓ J6				
	Video	① ② ③ ④	✓ TL				
	AXBT Receivers		NI				
	AXBT Sonobouys		#On Board: —	# Dropped: 0	# Good: —		
	ODW System		✓ J6		# Tapes: —		
	ODW Dropsondes		#On Board: 28	# Dropped: 0	# Good: —		
	FCU	CDA	✓ TL		UPS Off?: ✓ TL		
USER	Charge Probe		NI		Accelerometers		
	HRD Workstation		✓		#1 (2 G):	8154	
	Field Mills	① ② ③ ④	✓ TL		#2 (2.5 G):	10684	
	Lawrence Water Collector		✓		#3 (3 G):	5907	
	Formvar		NI		#4 (3.5 G):	2892	

Please Note any Discrepancies

Item #	Zulu Time	Problem Description	Initials	A-23A #
①		Swapped Cloud + Precip probes of pre-flight (back into standard config)	TZ	OK
②		GRAPHICS CHANNEL 8 NOT LOADING PLOT SCREENS OPER CARD WILL NOT RESET	RJM	
③	19:21	ASDL got (1) error at "hardware error" Swapped to Tx #1 bottom of 19:21	TZ	OK
④	21:45	TARDY about Address 15A71 - Reason LD04 TADAT " " " " RNO3		OK
		Rebooted - CPU + DSP - OK Kind of warm.		OK
⑤		1/3 way through flight the Precip probe stopped updating - reset didn't help	TZ	OK
⑥		Oh Final → FCC ID chirped	TZ	OK
*		NEED MORE "FREEZE MIST" THE NEW LIGHTLY SCUMED TOILET WATER FROM CALVIN KLEIN		

NOAA • AOC • SED
N43RF DATA STATION LOG

Project : Hurricanes '96 Mission : Edouard #2 Flight ID : 960827I
 Operators : Mc Namara
 Take Off : 1624Z Landing : 00:48'25

RAMS DAT 1 On [8 9]: <u>1612Z</u>	RAMS DAT 1 Off: <u>00:49</u>	CPU Selected: <u>A</u> B
RAMS DAT 2 On [8 9]:	RAMS DAT 2 Off:	VCR's Used: <u>N</u> <u>L</u> <u>R</u> <u>D</u>
RAMS DAT 3 On [8 9]:	RAMS DAT 3 Off:	
Printer On: <u>1612Z</u>	Printer Off: <u>00.49</u>	
VCR's On: <u>1613Z</u>	VCR's Off: <u>00.47</u>	VCR Count: <u>4260</u>
MARS DAT On:	MARS DAT Off:	
PMS DAT On: <u>17:51</u>	PMS DAT Off:	

ASDL Messages							
Message	Time	Message	Time	Message	Time	Message	Time
<u>R</u> V S B	<u>1629Z</u>	<u>R</u> V S B	<u>2350Z</u>	R V S B		R V S B	
<u>R</u> V S B	<u>1701Z</u>	<u>R</u> V S B	<u>2410Z</u>	R V S B		R V S B	
<u>R</u> V S B	<u>1731Z</u>	R V S B		R V S B		R V S B	
<u>R</u> V S B	<u>1811Z</u>	R V S B		R V S B		R V S B	
<u>R</u> V S B	<u>1840Z</u>	R V S B		R V S B		R V S B	
<u>R</u> V S B	<u>1919Z</u>	R V S B		R V S B		R V S B	
<u>R</u> V S B	<u>2001Z</u>	R V S B		R V S B		R V S B	
<u>R</u> V S B	<u>2034Z</u>	R V S B		R V S B		R V S B	
<u>R</u> <u>V</u> S B	<u>2147Z</u>	R V S B		R V S B		R V S B	
<u>R</u> V S B	<u>2216Z</u>	R V S B		R V S B		R V S B	
<u>R</u> V S B	<u>2244Z</u>	R V S B		R V S B		R V S B	
<u>R</u> V S B	<u>2317Z</u>	R V S B		R V S B		R V S B	

R = Recco V = Vortex S = Sonde B = AXBT

Data Station Operator Notes

CHANGED PRINT RATE FROM 30 TO 10 @ 18:02
CBPS INT. OSCILLATION
18:31:00 ASDL Comm. PGM ASDL - VI ERROR! INT. STATUS - HARDWARE ERROR
CHANGED PRINT RATE FROM 10 TO 5 @ 19:28
" " " " 5 TO 10 @ 23:25
10 TO 30 @ 00:26

HURRICANE EDOUARD 1996

FLIGHT #2 960827I

TYPE OF DATA -----	SENSOR OR OPTION -----
INE	2
Accelerometer	2
Temperature probe	1
Altitude change option (for vertical winds)	RA-159
Static pressure	Rosemount fuselage
Dynamic pressure	Rosemount fuselage
Time source	Micro 99
Constants file	CO3964.CON

Notes:

Downward spikes in radar altimeter output are a result of overflying land (St. Croix, 1626:00-1628:30, St. Martin 1650:30-1651:30, and St. Croix, 0030:00-0031:30).

Radar Altimeter, RA-159 was patched during takeoff due to spike (1623:30-1624:30). There were 23 electronic spikes/glitches in the radar altimeter during the flight. All were patched and are listed below:

2003:00-2004:30 (2)	2053:00-2055:00 (2)
2004:30-2006:30 (2)	2057:30-2058:00
2011:00-2013:00 (2)	2058:30-2059:00
2046:30-2047:00	2059:30-2100:00
2047:30-2048:00	2100:30-2101:00
2048:30-2049:00	2101:30-2102:00
2049:30-2050:00	2102:15-2102:45
2050:00-2052:30 (3)	2103:00-2103:30
	2104:00-2104:30

The radar altimeter was set to zero after landing due to spike (0043:15-0049:00).

Dewpoint temperature #1, DW1, exceeded ambient several times throughout the flight when heavy precip was occurring.

An electronic glitch/spike occurred the static pressure sensor, PSF, between 1630:00-1630:30, and was patched.

	Takeoff -----	Landing -----
Aircraft static pressure:	1011.5 mb	1010.5 mb
Corrected airport pressure:	1012.9 mb	1012.2 mb

The aircraft INE positions were renavigated with respect to GPS.

SPECIAL NOTE!!! Locations 80, 81 and 82 of record five on the

standard tape contain vertical ground, vertical air
and vertical speeds, respectively, computed using
Dave Jorgensen's vertical wind algorithm.
It is recommended that these values be used for
vertical wind analysis.

Flight Meteorologist: Stan Czyzyk: (813) 828-3310 ext. 3086

DATE 8/27/96 SCHEDULED FIX TIME 2100Z AIRCRAFT NUMBER N43RF ARWO

MANOP HEADING (PRECEDENCE IMMEDIATE)
 (NOAA 3)

MISSION IDENTIFIER AND OBSERVATION NUMBER
 WXWXA EDOUARD OBS# 09

(ABBREVIATED) (DETAILED) VORTEX DATA MESSAGE

A	27/2112	Z	DATE AND TIME OF FIX	6577
B	20 DEG 37 MIN (N) S		LATITUDE OF VORTEX FIX *	
	59 DEG 54 MIN (W) E		LONGITUDE OF VORTEX FIX *	
C	700 MB 2600	M	MINIMUM HEIGHT AT STANDARD LEVEL	
D	NA	KT	ESTIMATE OF MAXIMUM SURFACE WIND OBSERVED	
E	NA DEG	NM	BEARING AND RANGE FROM CENTER OF MAXIMUM SURFACE WIND	
F	345 DEG 120	KT	MAXIMUM FLIGHT LEVEL WIND NEAR CENTER	
G	220 DEG 09	NM	BEARING AND RANGE FROM CENTER OF MAXIMUM FLIGHT LEVEL WIND	
H	942	MB	MINIMUM SEA LEVEL PRESSURE COMPUTED FROM DROPSONDE OR EXTRAPOLATED FROM WITHIN 1500 FT OF SEA SURFACE	
I	11 CI 3255	M	MAXIMUM FLIGHT LEVEL TEMP / PRESSURE ALTITUDE OUTSIDE EYE	
J	16 CI 3385	M	MAXIMUM FLIGHT LEVEL TEMP / PRESSURE ALTITUDE INSIDE EYE	
K	10 CI NA	C	DEWPOINT TEMP / SEA SURFACE TEMP INSIDE EYE	
L	OPEN CLOSED		WALL EYE CHARACTER: <u>Closed wall</u> poorly defined, open SW, etc.	
M	C22		EYE SHAPE/ORIENTATION/DIAMETER. Code eye shape as: C - Circular; CO - Concentric; E - Elliptical. Transmit orientation of major axis in tens of degrees, i.e., 01-010 to 190; 17-170 to 350. Transmit diameter in nautical miles. Examples: C8 - Circular eye 8 miles in diameter. E09/15/5 - Elliptical eye, major axis 090-270, length of major axis 15 NM, length of minor axis 5NM. CO8-14 - Concentric eye, diameter inner eye 8 NM, outer eye 14 NM.	
N	20 DEG 37 MIN (N) S		CONFIRMATION OF FIX: Coordinates and Time *	
	59 DEG 54 MIN (W) E			
	27/2112	Z		
O	12345 / 7		FIX DETERMINED BY/FIX LEVEL FIX DETERMINED BY: 1 - Penetration; 2 - Radar; 3 - Wind; 4 - Pressure; 5 - Temperature. FIX LEVEL (Indicate surface center if visible; indicate both surface and flight level centers only when same): 0 - Surface; 1 - 1500 ft; 8 - 850 mb; 7 - 700 mb; 5 - 500 mb; 4 - 400 mb; 3 - 300 mb; 2 - 200 mb; 9 - Other.	
P	1 / 2	NM	NAVIGATION FIX ACCURACY/METEOROLOGICAL ACCURACY	

REMARKS FL CNTR NW QUAD OF RADAR CENTER

SURFACE CENTER OBSCURED BY CLOUDS
 MAX FLR WIND 133 KT N QUAD 2025Z
 EXCELLENT RADAR PRESENTATION
 STRONG CONVECTION BANDING ALL QUADS
 SLP FROM DROPSONDE FROM 700 MB

INSTRUCTIONS: Items A through G (and H when extrapolated) are transmitted from the aircraft immediately following the fix. The remainder of the message is transmitted as soon as available for scheduled fixes and at the ARWO's discretion for unscheduled (intermediate) fixes. * CHECK SUM REQUIRED IN WESTPAC.

DATE	8/27/96	SCHEDULED FIX TIME	2100Z	AIRCRAFT NUMBER	NR3RF	ARWO	
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MANOP HEADING (PRECEDENCE IMMEDIATE)

NOVA 3

MISSION IDENTIFIER AND OBSERVATION NUMBER
 WXXYA EDUARDO DB# 9

(ABBREVIATED) (DETAILED) VORTEX DATA MESSAGE

A	27/2112	Z	DATE AND TIME OF FIX
B	20 DEG 37 MIN (N) S		LATITUDE OF VORTEX FIX *
	59 DEG 54 MIN (W) E		LONGITUDE OF VORTEX FIX *
C	700 MB 2600	M	MINIMUM HEIGHT AT STANDARD LEVEL
D	NA	KT	ESTIMATE OF MAXIMUM SURFACE WIND OBSERVED
E	NA DEG	NM	BEARING AND RANGE FROM CENTER OF MAXIMUM SURFACE WIND
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K	10 CI NA	C	DEWPOINT TEMP / SEA SURFACE TEMP INSIDE EYE
L	OPEN SE CLOSED		WALL EYE CHARACTER: Closed wall, poorly defined, open SW, etc.
M	C22		EYE SHAPE/ORIENTATION/DIAMETER. Code eye shape as: C - Circular; CO - Concentric; E - Elliptical. Transmit orientation of major axis in tens of degrees, i.e., 01-010 to 190; 17-170 to 350. Transmit diameter in nautical miles. Examples: C8 - Circular eye 8 miles in diameter. E09/15/5 - Elliptical eye, major axis 090-270, length of major axis 15 NM, length of minor axis 5NM. CO8-14 - Concentric eye, diameter inner eye 8 NM, outer eye 14 NM.
N	20 DEG 37 MIN (N) S		CONFIRMATION OF FIX: Coordinates and Time *
	59 DEG 54 MIN (W) E		
	27/2112	Z	
O	12345/7		FIX DETERMINED BY/FIX LEVEL FIX DETERMINED BY: 1 - Penetration; 2 - Radar; 3 - Wind; 4 - Pressure; 5 - Temperature. FIX LEVEL (Indicate surface center if visible; indicate both surface and flight level centers only when same): 0 - Surface; 1 - 1500 ft; 8 - 850 mb; 7 - 700 mb; 5 - 500 mb; 4 - 400 mb; 3 - 300 mb; 2 - 200 mb; 9 - Other.
P	1 / 2	NM	NAVIGATION FIX ACCURACY/METEOROLOGICAL ACCURACY

REMARKS FL CNTR NW QUAD OF RADAR CTR

SURFACE CENTER OBSCURED BY CLOUDS.
 EXCELLENT RADAR PRESENTATION
 SLP FROM DROPSONDE AT 700MB
 STRONG CONVECTION BANDING ALL QUARS
 MAX FL WIND 133 KT " N QUAD 2025Z

INSTRUCTIONS: Items A through G (and H when extrapolated) are transmitted from the aircraft immediately following the fix. The remainder of the message is transmitted as soon as available for scheduled fixes and at the ARWO's discretion for unscheduled (intermediate) fixes.
 * CHECK SUM REQUIRED IN WESTPAC.

DATE : 8/27/96

TO : Chief, AOC Flight Operations

FROM : Pilot/Flight Director, Aircraft

ON 0043 BLOCKTIME

OFF 1624 8.4

SUBJECT: Hazardous Duty

PURPOSE OF FLIGHT: HURRICANE RESEARCH FOR HRD

Hazardous Duty Pay is required for flight made on 8/27/96 (DATE)

Request based on HURRICANE EDOUARD PENETRATIONS

Personnel on board authorized Hazard Pay:

CZYZYK, S

DAMIANO, B

BAST, G

MOORE, B

MCNAMARA, R

MCFADDEN, J

GONZALEZ, J

LYNCH, T

SANS SOUÏ, D

PILOT/FLIGHT DIRECTOR:

APPROVED: X

DISAPPROVED:

for

CHIEF, AOC FLIGHT OPERATIONS:

Edwards

MISSION PREFLIGHT LOG		NAVIGATOR		AIRCRAFT COMMANDER		FLIGHT DIRECTOR		SCHEDULED / ACTUAL TAKEOFF Z			DATE OF TAKEOFF			
DESTINATION	MISSION	DR	TRK	GS	WD	WS	ALT	TAS	LEG / TOT DIST	LEG / TOT TIME	PROP ETA	ETA	ATA	REMARKS
STX → STX	98-53													
LAT / LON	RTE	MH	VAR +E=>	TH	+R=>									
1 1502.2 N 6027.1 W	STX								98 98	135 135				
2 20 24 ON 0015.0 W	T.P.								19.5 99.2	140 1407				

INS PERFORMANCE	
BEGIN ALIGN TIME	INS 1 INS 2
1430	1430
ALIGN STATUS (0-5)	1
END NAV TIME	0049
START NAV TIME	1607
DELTA T	842

TERMINAL ERRORS	
DELTA LAT	INS 1 INS 2
12.1	+29
41.0	-17
RGS	5 5
RADIAL ERROR	2 3

REMARKS
RKD 260