

19930829H1-FDIR

Hurricane Emily 93, Flight 3

Flight 930829H N42RF (Miami - Miami)

<u>Type of data</u>	<u>Sensor or option</u>
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 29
Constants file	CO2931.CON

Notes:

Vertical winds were calculated using the radar altitude source, causing spurious values while the aircraft crossed mountainous islands (not much of a problem on this flight). This problem does not occur over the water.

INE2 positions were corrected with reliable GPS positions.

A new algorithm for dynamically correcting Dynamic and Static Pressure (PQ and PS) is in place for Hurricanes 93, and is described in the Record 2 section of the Standard Tape Format Sheet. The net result is a slightly higher PS and PQ than is found on the 10-second real-time printout.

Special Note: Locations 80, 81, and 82 of Record 5 on the AOC Standard Tape contain Vertical Groundspeed, Vertical Airspeed and Vertical Winds, respectively, computed using Dave Jorgensen's vertical wind algorithm.

	<u>Take Off</u>	<u>Landing</u>
Aircraft static pressure	1014.4 mb	1014.2 mb
Corrected tower pressure	1016.2 mb	1016.0 mb

Flight Meteorologist: Jack Parrish

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TITLE (MAX 21 CHARACTERS) -- EX HURRICANE PAINE
H. EMILY #3 SYN FLOW
YYMMDDL FLIGHT ID EX: EARL1.PAR
930829H
HHMMSS START TIME -99999 DEFAULT TO START OF DATA FOR PRINTOUT ONLY
174901
HHMMSS END TIME 999999 DEFAULT TO END OF DATA FOR PRINTOUT ONLY
040210
HHMMSS TAKE OFF TIME
182840
* NUMBER OF TAPE (I2) ... FOR STANDARD TAPE OUTPUT ONLY
01
* -----LOGICAL UNIT OF INPUT DATA (I1) 4, 8 OR 9 FOR TAPE DRIVE
1 1 FOR READ FROM DISK
* -----LOGICAL UNI OF OUTPUT TAPE DRIVE (I1) [FOR STANDARD TAPE ONLY]
4
* -----LOGICAL UNIT OF PRINTER (I1)
6
* -----DATE OF PROGRAM (MMDDY)
04092
* -----STATIC PRSSURE PROBE (I1)
* 1 = PSW (WINGTIP)
* 2 = PSF (CO-PILO/FUSELAGE)
* 3 = FUTURE USE
2
* -----DYNAMIC PRESSURE PROBE (I1)
* 0 = PQW (WINGTIP)
* 1 = PQF1 (FUSELAGE 1281)
* 2 = PQF2 (FUSELAGE 1221)
* 3 = FUTURE USE
1
* -----INE SELECTION (I1)
* 1 = INE 1
* 2 = INE 2
2
* -----ACCELEROMETER (I1) - USUALLY THE SAME AS YOUR INE SELECTION
2
* ----- TOTAL TEMPERATURE PROBE (I1) [1 OR 2]
1
* ----- DEWPONT TEMPERATURE PROBE (I1) [1 OR 2]
1
* -----ALTIMETER OPTION (I1) - FOR VERTICAL WIND COMPUTATION
* 0 = PRESSURE ALTITUDE (OVER LAND)
* 1 = RADAR ALTITUDE APN-159 (OVER WATER)
* 2 = RADAR ALTITUDE APN-232 (OVER WATER)
1
* -----PRINTOUT RATE, SECONDS (I2)
10
* -----WINDSPEED/DIRECTION RUNNING AVERAGE TIME, SECONDS (I2)
10 ! FOR STANDARD TAPE OUTPUT ONLY
* -----TIME OPTION (I1)
* 1 = MICRO 29
* 2 = TIME BASE GENERATOR #1
* 3 = TIME BASE GENERATOR #2
1
* -----NAME OF CONSTANTS FILE EX CO3863.CON
CO2931.CON
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U.S. DEPT. COMM./NOAA/OAO - DATA SECTION WORK FORM NO.1 OAOWF1 FILE

FLT ID: 93082914	FM: MIA	TO: MIA
FLT NO: 93-70	BLK IN: 0404	ATA: 0356
ETD: 182	BLK OUT: 1749	RTD: 182840
ETE: 9	BLK TIME: 10:15(10.3)	FLT TIME: 9:27(9.4)
SPONSOR ORG: IADP	PROGRAM: Synoptic Flow	PURPOSE: H-Emily

OAO PERSONNEL

AC TICKDOR ✓	SYS ENG AOLES ✓
CP TENNESON ✓	DATA SYS BAAA
NAV STRONG ✓	RADAR
FE TORREY ✓	BT/ODW GONZALES ✓
RADIO ADDASON ✓	CLD PHYS
FD PARRISH ✓	DOPPLER

PARTICIPATING SCIENTIST/VISITORS/OAO

LAST, FIRST NAME	ACTIVITY ON A/C	AFFILIATION
WILLOUGHBY, M. ✓	P.I.	IADP
GAMACHE, J. ✓	ODW	↓
GOLDWASSER, S. ✓	ODW	
DORST, D. ✓	ODW	
PAYLOA, A. ✓	C-SCAT	
OHLEND, B.	VISITOR	LA MASS
TACKARD, J.	"	IMAX
		↓

PROPOSED/ACTUAL MISSION/REMARKS (RECCO, FIXES, STORM, PENET, NHOP #)

Fm. 8K T.O. DELAYED 30 min due to ground traffic.

190/2 FIX 2050Z 30 59N, 70 03W

1014.5 FIX 2119Z 31 05N, 70 02W. BAD SONDE PRESSURE

22300Z. ALL CH. 1, 2 sondes failing baseline. Looks like only ch. 3s.

Dropped 20 sondes, 15 usable. 5 total fail, 5 partial.
2 penetrations.

93082914 N. EMILY SYNODAL FLOW

Time	Lat	Lon	TR	WD	WS	PA	GA	TA	TD	SP	PS			
1749	2548.4	8017.4				-17		28.5	27.3		1015.3	13LK		
190630	2729	7757.8	45	124	13	5489	5814	-5.0	-21.9	1011.1	505.7	-18K		
192048	2820.6	7701.0	40	95	16	5496	5816	-6.4	-27.9	1013.5	505.7	Drop 1 CH3 Good		
194912	29325	7501.	52	28	20	5811	6147	-8.5	-26.1	1013.7	484.3	Drop 2 CH1 Good		
201630	30521	7305.1	91	32	23	6098	6441	-9.7	-22.2	1009.7	465.5	Drop 3 CH3 Good		
203230	30563	735.4	89	10	30	6099	6410	-8.2	-9.5	1001.0	465.5	Drop 4 CH1 Good		
2050	3059	7003												
210830	3141	6956	315	93	66	6102	6363	-9.8	-10.1	999.1	446.2	NO OF EYE		
21130	3138	7008	169	76	67	6100	6341	-9.9	-9.0	997.6	465.5	Drop CH3 NO W.W.		
211850	3106	7001	180	218	9	6102	6259	-1.9	-7.3	964.0	465.7	Drop CH1 6 NO W.W.		
213255	3006.4	6930.8	092	249	51	6096	6386	-7.1	-10.5	995.5	465.5	Drop CH2 13th W.W.		
215235	3001.0	6755	92	193	32	6407	6773	-8.9	-29.6	1003.5	446.1	Drop CH3		
220230	2959.2	6656.4	90	190	23	6404	6786	-11.0	-33.4	1009.6	446.2			
221234	2859	6600	90	226	11	6726	7140	-13.6	-33.4	1013.2	426.6	Drop		
2225	2959.1	6447.7	91	119	7	6723	7137	-14.2	-17.7	1014.5	426.9			
223555	2948	6359	181	181	6	6693	7108	-13.4	-20.4	1012.2	427.8	Drop CH3		
2245	2906	6359	179	140	3	6704	7117	-14.1	-18.1	1015.0	428.1			
225515	2817.7	6359.5	182	138	5	6702	7113	-14.9	-19.1	1016.2	428.1			
230530	2727.9	6359.8	180	100	5	7018	7445	-17.4	-20.1	1017.6	407.6	Drop CH3		
233315														
233320	2506.7	6359.9	179	200	4	5571	5916	-6.5	-26.4	1015.7	500.4	Drop		
000213	2430.7	6600	270	144	11	5569	5912	-7.2	-22.2	1016.1	500.5	Drop		
002440	2436.6	6801.7	3	157	22	5569	5901	-8.0	-13.5	1016.9	500.3	Drop		
0033	2521.3	6800.6												
004805	2641.3	6800.4	0	197	12	5570	5920	-7.1	-19.1	1016.1	500.6	Drop		
010345	2800	6807	271	200	19	5568	5911	-6.7	-15.3	1013.4	500.4	Drop		
0115	2800	6909	270	230	16	5567	5910	-6.2	-30.7	1013.8	500.5			
012417	2800	7000	270	257	10	5567	5907	-6.2	-17.2	1013.5	500.4	Drop		
014640	2734	7200	180	244	4	5567	5904	-6.1	-18.9	1013.0	500.3	Drop		
015630	2704.7	7200.6	180	308	5	5566	5906	-7.0	-29.1	1015.8	500.5			
022117	2501	7207	288	59	7	5568	5895	-8.2	-22.0	1017.7	500.5	Drop		
023945	2535.8	7342.1	293	46	6	5566	5897	-7.9	-23.5	1016.9	500.4			
025328	2559.9	7500	267	84	5	5564	5893	-7.6	-29.8	1015.6	500.5	Drop		
0308	2558.5	7626.6	268	129	10	5566	5899	-6.4	-26.5	1013.5	500.6			
0319	2556.2	7730.1	268	131	10	5566	5892	-6.7	-23.0	1014.0	500.6			
034436	2551.4	7950.5	288	253	6	2422	2568	11.3	8.8	1015.8	754.2			
0404	2548.4	8017.4				-10		27.6	21.1		1014.4	254788015.4	13LK	

A/C COMMANDER	NAVIGATOR	A/C NO.	MISSION NO.	TIME AIRBORNE	LOCATION	DATE	PROJ. NAME		
TICKNOR	STRONG	N42RF	93-060	1828	KM1A	29 AUG 93	Emilio		
TIME OF ENTRY	POSITION	TYPE INE USED	INE #1 POSITION	LAT LON COR'S	INE #2 POSITION	LAT LON COR'S	ALT GS	TH TK	REMARKS
1844	26-18.8 79-17.4	GPS 2	26-18.4 79-17.4	+1.4 0	26-17.8 79-16.9	+1.0 +.5	242 242	046 046	2.8
1944	29-23.6 75-22.8	GPS 2	29-22.6 075-22.6	+1.0 +.2	29-22.3 75-21.4	+.3 +.4	19.0 280	053 055	2.5
2000	30-09.4 74-15.5	3 2	30-09.4 074-15.5		30-08.9 74-14.3		19.0 283	050 052	Sun line
2050	30-59.2 70-1.2	GPS 2	30-57.6 70-02.1	+1.6 -.9	30-57.3 70-00.4	+1.9 +.8	200 295	092 80	30-59 70-03
2119	31-5.4 70-1.9	GPS 2	31-03.4 70-03.1	+2.0 -1.2	31-03.2 070-01.1	+2.2 +.8	200 283	180 180	31-05 70-02
2202	29-59.2 66-59.0	GPS 2	29-57.4 67-00.0	+1.8 -1.0	29-57.1 66-58.6	+2.1 +.4	21.0 300	095 090	2.0
2343	24-30.5 64-13.4	GPS 2	24-28.5 64-15.6	+2.0 -2.2	24-29.2 64-12.8	+1.7 +.6	18.2 300	271 270	2.2
0106	28-00.3 68-19.2	GPS 2	27-58.2 68-22.1	+2.1 -2.9	27-59.8 068-18.2	+1.5 +1.0	18.2 295	267 270	2.4
0215	25-21.1 72-00.1	GPS 2	25-25.0 72-01.9	+2.1 -1.8	25-26.9 71-59.1	+1.2 +1.0	18.2 310	180 180	2.4
0403	25-48.4 80-17.4	4 2	25-47.4 80-21.0	+1.0 -2.6	25-47.8 80-15.4	+.6 +2.0	5 2	X	CHOCKS
ATC CLEARANCE:									
7K									
ENROUTE CLEARANCES:									
TYPE OF FIX: (1) DR (2) RADIO (3) CELESTIAL (4) VISUAL (5) LORAN (6) RADAR (7) DOPPLER - INERTIAL (8) OMEGA (9) INERTIAL (10) OMEGA - INERTIAL									

FLIGHT PLAN

PROPOSED T.O. 1800 Z
ACTUAL T.O. 1828

WAY POINT	TO	RTE	ALT	TAS	TC	W DC	V	TH	VAR	MH	GS	ZONE DIST	TOTAL DIST	ZONE TIME TOTAL TIME	PROPOSED ETA	ETA ATA
1	28-18N 77-00W			280								230	230	51 +51	1919	1921
2	29-36N 75-00W			290								130		27 +148	1947	1949
3	31-00N 73-00W			280					32			134		28 +147	2015	2017
4	31-00N 71-30W			280								77		17 +201	2032	2034
5	40N 69			280								77		17	2049	2050
6	30-00N 70-00W															2020
7	40N 69															2119
8	30-00 68-00			290								104		22		2130
9	30-00 66-00											104		22		2127
10	30-00 64-00											105		22		2201
11	28-30 64-00											90		18		2149
12	26-30 64-00			300								120		25		2225
13	24-30 64-00			300								120		25		2212
14	24-30 66-00			300								109		22		2245
15	24-30 68-00											109		22		2234
16	26-30 68-00											120		23		2252
17	28-00 68-00											90		27		2317
18	28-00 70-00											110		22		2342
19	28-00 72-00											110		22		0004
20	26-00 72-00											120		25		0025

SYS	BEGIN ALIGN TIME	NCS CONN	Ω AID	TIME OUT OF COARSE ELAPSE ALIGN POST TIME	ALIGN STS 0-5	(1) TIME INTO NAV.	(2) TIME OUT NAV.	ΔT (2)(1)	TERMINAL ERRORS		
									LAT	LONG	GS
INS 1	1530				0	1740	0404	1024	+1.0	-2.6	5
INS 2 IMU	✓				5	✓	✓	✓	+6	+2.0	2

ALIGN REMARKS: 21-24-00/75-00W

OTHER REMARKS: 22-00-00/75-00W

20

290