

19930827H1-FDIR

Hurricane Emily 93, Flight 1

Flight 930827H N42RF (Miami - Bermuda)

<u>Type of data</u>	<u>Sensor or option</u>
INE	2
Accelerometer	2
Temperature probe	2
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	1015.7 mb	1019.7 mb
Corrected tower pressure	1016.9 mb	n/a

Flight Meteorologist: Jack Parrish

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TITLE (MAX 21 CHARACTERS) -- EX HURRICANE PAINE
H. EMILY #1
YYMMDDL FLIGHT ID EX: 930316H
930827H
HHMMSS START TIME -99999 DEFAULT TO START OF DATA FOR PRINTOUT ONLY
183301
HHMMSS END TIME 999999 DEFAULT TO END OF DATA FOR PRINTOUT ONLY
015210
HHMMSS TAKE OFF TIME
184600
* 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 UNIT OF OUTPUT TAPE DRIVE (I1) [FOR STANDARD TAPE ONLY]
4
* -----LOGICAL UNIT OF PRINTER (I1)
6
* -----DATE OF PROGRAM (MMDDY)
04092
* -----STATIC PRESSURE 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]
2
* ----- DEWPOINT 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./NORA/OAO - DATA SECTION WORK FORM NO.1 OAOWF1 FILE

FLT ID: 930827H	FM: MacDill	TO: MIA/TXKF (Bermuda)
FLT NO: 93-68	BLK IN: 1651/0153	ATA: 1644/0147
ETD: 16Z	BLK OUT: 1554/1833	RTD: 1603/1846
EYE:	BLK TIME: 0:57/1:07 7:20/7:33	FLT TIME:
SPONSOR ORG: HED	PROGRAM: T.S./H. EMILY	PURPOSE: Vortex/Env. Int. Ex.

0A0 PERSONNEL

AC	Ticknor	SYS ENG	Boles ✓
CP	Philippsborn ✓	DATA SYS	Burr ✓
NAV	Strong ✓	RADAR	
FE	Wade ✓ Torrey ✓	BT/ODW	Gonzales ✓
RADIO	Arnason ✓	CLD PHYS	
FD	Farrish ✓	DOPPLER	Mech Kinnen ✓

PARTICIPATING SCIENTIST/VISITORS/OAO

[illegible]

1736
26 30
64 26
990

TIME	PROPOSED/ACTUAL MISSION/REMARKS (RECCO, FIXES, STORM, PENET, NHOP #)
0.03	PROPOSED/ACTUAL MISSION/REMARKS (RECCO, FIXES, STORM, PENET, NHOP #)
24/20	SFMA readings poor on ground. No track ball at FD station.
10.5	MIA 160/7 14T 112
10/9	2025Z - 1200Z problems. Shut down to cool.
2015.5	2305 - Orbiting to fix railw.
1.3K	FIX 1 2158Z 26 34N, 64 57W 983mb
1014.8	FIX 2 2230Z 26 34N, 65 04W 982mb
11.5K	FIX 3 2256Z 26 33N 65 12W 979mb
And	FIX 4 2018Z 26 38N 65 23W 979mb
11020.7	4 penetrations

65
1916

IP 2120

93082714 T.S. / H. EMILY VORTEX / ENVIRONMENT INT

Time	LAT	LONG	TK	WD	WS	PA	GA	TA	TD	SP	PS						
192530	2545.0	7706.9	89	215	6	5502	5845	-7.2	-12.5	1016.8	505.0						
201430	2619.7	7235.5	84	33	7	5800	6152	-8.5	-31.9	1015.9	484.9						
21227	2628.9	7129.5	80														
2028	2630.0	7128.1	79	45	8	5797	6151	-9.2	-24.5	1017.0	485.0						
204215	2642.9	7006.8	80	30	11	5797	6144	-8.0	-27.4	1013.8	485.2						
2056	2647.8	6852.0	88	37	14	5796	6139	-9.1	-19.1	1015.7	485.3						
2106	2653.8	6755.4	84	29	15	5794	6132	-9.3	-29.0	1016.6	485.3						
2125	2703.5	6611.5	85	20	38	5810	6130	-8.7	-20.0	1010.0	485.7						
213930	2709.7	6511.1	66	71	65	2442	2517	13.3	8.2	1006.5	752						
214730	2718.1	6500.8	179	75	56	2441	2525	13.0	8.3	1006.5	752						
2204	2612	6458	180	272	66	2469	2498	11.1	11.1	1002.3	751.1						
2220	2635	6421.9	274	170	63	2458	2526	11.0	11.2	1005.8	749.7						
222930	2634	6504								982	9						
225530	2633	6512								978	6						
235415	2719.6	6431.3	124	118	52	2447	2559	12.7	8.0	1010.6	751						
0018	2638	6523								977							
0034	2721.8	6544	7														
0051	2822.6	6523.9	16	85	37	5190	5501	-4.1	-12.2	1013.5	526.7						
0109	2950.6	6501.7	347	97	23	5187	5518	-5.3	-19.2	1018.6	526.7						
0153	3221.6	6438.9				-55		27.7	21.9		1019.9						

32 AS 6438.7 1062

2158 2634 64 57
983m

→ W

Fix 2

Fix 3

-171K PA

A/C COMMANDER	NAVIGATOR	A/C NO.	MISSION NO.	TIME AIRBORNE	LOCATION	DATE	PROJ. NAME		
TICKNOR	STRONG	N42RF	93-068	1603	KMCF	27 Aug 43	EMILY 1		
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
1551	27-50.9 82-29.6	4 2							Checks MCF
1613	27-26.0 81-59.8	6PS 2	27-25.6 81-59.7	+1.4 +1.1	27-25.8 81-59.7	+1.2 +1.1	290	133 134	POOP 2.7
1650	25-48.4 80-17.6	4 2	25-48.0 80-17.5	+1.4 +1.1	25-47.9 80-17.6	+1.5 0	0	2	Checks MIA
1920	25-45.6 77-36.4	6PS 2	25-45.4 77-36.2	+1.2 +1.2	25-45.6 077-36.1	0 +1.3	250	092 091	3.7
2003	26-10.4 73-40.9	6PS 2	26-09.4 73-40.7	+1.0 +1.2	26-09.9 73-40.3	+1.5 +1.6	190 296	083 082	POOP 2.6
2057	26-48.3 68-46.4	6PS 2	26-46.1 68-46.1	+2.2 +1.3	26-47.5 68-45.5	+1.8 +1.9	190 258	079 081	2.9
2158	26-34.0 64-58.9	6PS 2	26-29.6 64-59.2	+4.4 -1.3	26-32.3 64-58.2	+1.7 +1.7	8K 236	190 180	1.9 - 9 26-33. 64-57
2229	26-33.9 65-4.9	6PS 2	26-29.2 65-05.1	+1.7 -1.2	26-32.3 65-04.1	+1.6 +1.7	8K 220	220 220	9 26-34 65-05
2255	26-32.9 65-9.7	6PS 2	26-28.0N 65-10.3	+4.9 -1.5	26-31.7 65-09.1	+1.2 +1.6	8K 250	030 026	6 26-33 65-12
0004	27-11.6 64-31.1	6PS 2	27-05.1 64-32.0	+6.5 -1.1	27-09.9 64-30.3	+1.7 +1.8	8K 246	218 231	2.0
0017	26-37.6 65-23.1	6PS 2	26-31.1 65-24.1	+6.5 -1.0	26-36.2 65-22.3	+1.4 +1.8	8K 250	7	6 26-38N 065-23W
ATC CLEARANCE: 15 080 1600									
exp 15k 52 4676									
134.25 4676									
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

26.5
64.8

Tao 16 @ 2315

2002

PROPOSED T.O. 16002/1800
ACTUAL T.O. 846

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) MIA																
2) 40 Nm N of 500m																
3) 43 starts when 12 23 MIN out from 11																
1) 25-42.1												55	55	+11	1851	1857 18
2) 079-12.1												166	221	+33	1859	1859 19
3) 25-46.4												166	221	+44	1939	1939 19
4) 076-12.9												169	840	+47	2133	2133 214
5) 27-10N																
6) 064-48W																
7) 26-30N																
8) 64-48W																
9) 26-30																
10) 64-26																
11) 1736																
12) 26-30																
13) 64-26																
14) 26																
15) 34																

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	1500/1855				0/0	1550/1824	1650/0150	1400/1426	4.4/8.1	4.1/2.1	0/1
INS 2 IMU	1500/1855				5/5	1550/1827	1650/1650	1400/1423	4.5/2.1	0/1.2	2/1

ALIGN REMARKS:

OTHER REMARKS:

650
36
26

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