

U.S. DEPT. COMM./NOAA/DAO - DATA SECTION WORK FORM NO.1 OROWF1 FILE

FLT ID: 96032714	FM: KODU	TO: KODU
FLT NO: 96-007	BLK IN: 0018	ATA: 0015
ETD: 16Z	BLK OUT: 1553	ATD: 1601
ETE: 8	BLK TIME: 8:25(8.4)	FLT TIME: 8:14(8.2)
SPONSOR ORG: ERL	PROGRAM: OZONE 96	PURPOSE: FLIGHT 3

DAO PERSONNEL

AC Player ✓	SYS ENG Aoles ✓
CP Kennedy ✓	DATA SYS Delgado ✓
NAV Rathbun ✓	RADAR
FE Torrey ✓	BT/ODW
RADIO Sans Souci ✓	CLD PHYS
FD Parrish ✓	DOPPLER

PARTICIPATING SCIENTIST/VISITORS/DAO

LAST, FIRST NAME	ACTIVITY ON A/C	AFFILIATION
HUBBARD, G. ✓	P.T.	CU - CIRCLES
SHERIDAN, P. ✓	C.P.	CU - CIRCLES
AYERSON, T. ✓		CU - CIRCLES
JOBSON, ✓		CU - CIRCLES
HALLAM, ✓		CU - CIRCLES
WILLIAMS, J. ✓		CU - CIRCLES
WEAT, B. ✓		CU
KUSTER, B. ✓		DOAA-AL
PROPOSED/ACTUAL MISSION/REMARKS (RECCO, FIXES, STORM, PENET, NHOP #)		
LEE, Y-N ✓		DOAA-AL
TRAINER, M ✓		

APD - 155 Bnd before B.O. OZONE 10ST DEAD & REMOVED.
 Found low level front at about 34°57'N, 67°01'W. Fairly subtle
 except for sw wind shift. Flew across front at 25K (little signature),
 then 5K, 10K, 15K, & 20K. Returned 18.5K. Flew soundings B, D
 Enroute KODU.

U.S. DEPT. COMM./NOAA/ORD - DATA SECTION WORK FORM NO.2 DROWF2 FILE

FLT ID: 96032714 TIME OFF: 1601 TIME ON: 0015

	A/C T/O	WX STN	A/C LAND	WX STN
PRESSURE	1034	1032.5	1032	1033

NO DATA DISPOSITION/DATE/QUALITY

1/SEC FLT LVL TAPES	1	
FAST FLT LVL TAPES	0	
RADAR TAPES	1	
DOPPLER TAPES		
ODW CASSETTES		
HARD COPIES		
AXBT		
AXCP		
ODW		

PHOTOGRAPHY

	FWD	LS	RS	VERT	
ON	✓	✓	✓		
OFF					
RATE	1/5	1/5	1/5		

REMARKS

960327 H

Ozone # 4

BAD BLK

1602:50

:51

1603:00

1639:22 BAD POSIT

LA 36.591 40.277

LO -62.283 -68.513

1639:22

1639:30

1811:04

11:10

2018:42

:50

2225:42

:50

:53

2226:00

APN 159 INOP

INE#1 w/ GPS

170000 +0.3 +0.2

180000 -0.4 +0.3

190000 -1.1 +1.2

200000 -1.4 +1.1

210000 -2.7 +1.4

220000 -3.4 +2.4

230000 -3.2 +2.9

000000 -4.7 +2.6

001800 -4.1 +3.4

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TITLE (MAX 21 CHARACTERS) -- EX HURRICANE PAINE
OZONE FLIGHT 4
YYMMDDL FLT I.D.
960327H
HHMMSS START TIME -99999 DEFAULT TO START OF DATA FOR PRINTOUT ONLY
1549014(
HHMMSS END TIME 999999 DEFAULT TO END OF DATA FOR PRINTOUT ONLY
001800
HHMMSS TAKE OFF TIME
160101
* NUMBER OF TAPES (I2) ...FOR STANDARD TAPE OUTPUT ONLY
04
* -----LOGICAL UNIT OF INPUT DATA (I1) 5, 8 OR 9 FOR TAPE DRIVE
9
* -----LOGICAL UNIT OF OUTPUT TAPE DRIVE (I1) [FOR STANDARD TAPE ONLY]
9
* -----LOGICAL UNIT OF PRINTER (I1)
6
* -----DATE OF PROGRAM (MMDDY)
06094
* -----STATIC PRESSURE PROBE (I1)
* 1 = PSW (WINGTIP)
* 2 = PSF (CO-PILOT/FUSELAGE)
* 3 = FUTURE USE
2
* -----DYNAMIC PRESSURE PROBE (I1)
* 0 = PQW(WINGTIP)
* 1 = PQF1 (FUSELAGE 1281)
* 2 = PQF2 (FUSELAGE 1221)
* 3 =FUTURE US
1
* -----INE SELECTION (I1)
* 1 = INE 1
* 2 = INE 2
1
* -----ACCELEROMETER (I1) - USUALLY THE SAME AS YOUR INE SELECTION
1
* ----- 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)
2
* -----PRINTOUT RATE SECONDS (I2)
30
* -----WINDSPEED/DIRECTION RUNNING AVERAGE TIME, SECONDS (I2)
10 ! FOR STANDARD TAPE OUTPUT ONLY
* -----TIME OPTION (I1)
* 1 = MICRO 29
* 2 = TIME BASED GENERATOR #1
* 3 = TIME BASED GENEATOR #2
1
* -----NAME OF CONSTANTS FILE EX CO3863.CON
CO2962.CON
*****

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OZONE 96 FLT #4

FLIGHT #03 H960327

TYPE OF DATA -----	SENSOR OR OPTION -----
INE	1
Accelerometer	1
Temperature probe	1
Altitude change option (for vertical winds)	RA232
Static pressure	Rosemount fuselage
Dynamic pressure	Rosemount fuselage
Time source	Micro 99
Constants file	CO2962.CON

Notes:

There were thirteen time/data gaps: 1602:50 1602:51 1603:00
 1639:22 1639:30 1811:04 1811:10 2018:42 2018:50 2225:47
 2225:50 2225:53 2226:00

Radar Altimeter, APN-159, was inoperative for the entire flight.

Dewpoint temperature (TD) calculation on standard tape is +0.5 C higher than printout from aircraft due to a -0.5 C offset inadvertantly present onboard the aircraft.

Downward spikes in radar altimeter values were generated from overflying land.

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.

	Takeoff -----	Landing -----
Aircraft static pressure	1034.0mb	1032.0mb
Corrected tower pressure	1032.5mb	1033.0mb

Flight Meteorologist: Jack Parrish: (813) 828-3310 ext. 3077

960327 H OZONE #3

Time	LAT	LOD	TR	WD	WS	PA	GA	TA	TD	SP	PS				
1553	4135.9	7124.9				-14.9		2.9	-29.6		1031.3	134K			
160430	4135.9	7111.3	111	318	31.6	1984	1971	-9.0	-38.5	1019.6	1022.3	-7K			
161530	4120	7012	113	307	26	1980	2010	-7.8	-40.3	1025.9	796.8	CLIP 142			
1625	4055.7	6931.8	133	288	30.9	1979	2012	-6.6	-45.1	1025.1	797.4	CLIP 142			
163345	4030.6	6855.4	125	287	42.2	1974	2010	-2.5	-44.2	1021.9	797.2	OVER 50			
1635	↓ to	21K	22K	min		415	1060 m								
1638	4017	6835	138	323	20	461	579	-4.7	-10.6	1031.7	958.1	-21K			
164030	↑ to	2.7K													
164230	4005	6821	132	325	24	684	785	-6.5	-11.1	1031.4	984.1	-2.7K			
17016	↓ to	.5K	↑ to	6.5K	↓	2.9K									
1717	3759	6744	171	328	20	613	726	1.6	0.0	1029.7	742				
1719	↑ 2K	min	to	2 min		back ↓									
1729	3714	6733	168	330	16	638	757	6.1	3.2	1028.7	539.4				
1739	3635	6724	168	330	16	598	718	7.7	5.5	1028.4	943.3	3.9K PA BL			
175515	3533	6709.6	169	330	11	598	718	10.7	7.5	1027.5	943.4				
1804	FLY	LVL	FRNT			SWA	FRONT	AT	34	57	67	01			
181945	3448	6704	182	274	20.3	49	163	17.0	13.6	1027.4	995.0	12.5K ↑ 25K			
1833	CT	518K	PA	21	6.2K	PA	CT	9.7K	PA	182530	516AT	INDICATION			
1838	3442	6715	0	281	22	4100	4264	-6.2	-9.9	1020.9	602	↑ AT 18K TA/TO BLAT			
185130	3458	6654	332	271	62	7663	7619	-28.1	-34.7	987	373	-25K			
1900	3533	6709	351	247	68	7663	7627	-27.8	-34.1	987	373				
1908	3612	6716	2	270	74	7661	7516	-29.2	-32.3	982.2	373.8	AT OLD PT			
191230	3615	6709	↓ to	.5K											
1924	Thin	Circus	deck												
1929	3611	6701	72	266	40	2999	3113	0.0	-12.5	1021	708	↓ 193430 minor wind shift			
193930	3618	6658	359	353	19	140	262	11.6	6.6	1028.1	1002.1	↓ to 512			
1946	3610	6715	170	290	20	1417	1533	8.5	-17.7	1025.4	854.1	Crossing Fnt 5K N→S			
195730	WIND	SHIFT	LIKELY	SK	FRONT										
2006	3454	6659	↑ to	10K											
200945	3454	6702	5	285	24	2931	3067	1.1	-2.9	1022.0	707.2	-10K S→N			
2020	3532.4	6710.1	350	265	30	2931	3056	-0.3	-3.3	1022.1	707.3				
2030	3614	6718.4	351	269	38.2	2932	3053	0.1	-7.0	1021.3	706.1	↑ to 15K			
203430	3610.7	6719.2	170	272	51	4487	4623	-9.7	-14.2	1020.3	580.1	-15K N→S			
2052	3454	6704	171	276	31.2	4467	4636	-9.1	-12.0	1022.5	579.8				
2055	↑ to	20K	6	of	66	Frnt	pos.								
200020	3500.5	6701.6	352	273	48.3	6115	6112	-18.5	-23.3	996.7	404.5	-20K S→N			
2114	3559	6713	352	279	60.1	6113	6134	-18.7	-21.7	995.4	464.5				
211745	3615	6716.5	2	279	60.4	5934	5876	-17.5	-22.1	995.4	482.3	↓ 18.5K			
2132	3718.4	6705.3	3	284	75	5498	5436	-16.5	-19.0	996.3	505.1	-18.5 FOR SLATN			
214715	3824	6701.6	2	275	84.5	5498	5433	-17.2	-34.5	997.7	505.2	214530-516 DAYING			
215645	3903.9	6659.8	2	280	95.2	5495	5415	-16.2	-39.3	988.6	505.2	AT SLATN			
221015	3934	6740	315	281	87.4	5498	5400	-17.6	-48.7	995.5	505.2				
2219	↑ to	25K	now	3											
222645	3950.1	6747.9	304	279	110.9	7433	7234	-79.8	-57.1	977.6	393.6	↓ Frnt 25K AT B			
224545	4007	6814	304	340	21	34	178	-0.4	-10.1	995	1032.1	-15K BOT OF SOUNDING			
225245	4029.4	6852.6	317	292	78	5707	5609	-19.7	-43.2	990.6	482.1	↑ to 25K → 20K → D			
2306	4047	6916	309	283	93.9	7644	7424	-33.4	-57.4	986.1	374.7	-25K			
2319	4109	7005	285	281	99	7644	7399	-34.2	-54.1	981.0	374.8				
2330	4109	7050	2	282	91	7549	7302	-33.6	-53.4	985.6	383.2	↓ AT AT D			
2347	4108	7034.3	277	292	49.9	3166	3175	-8.0	-17.0	1019.6	685	↓			
000015	4110	7052	267	327	11.8	157	305	2.3	-77.3	1032.9	1001.4	100015 OF SOUNDING			
0018	4136	7125	244			53		4.8	-17.5		1031.2	BLK			

Flight on 27 March 1996

Takeoff : 11:00 EST planned

Time 00:00 (hh:mm) is at the full hour or 15 min increments here from.

From Pt. A, Quonset, head direction of Pt. B
Climb to 8000 ft MSL for calibration

O Head direction of Pt. C

At time (00:30) descend to 2000 ft. According to HC sample and NOy zeros (Observer calls), include positive and inverted traffic cones (down to 500 ft or lower). If we see an interesting layer chose that altitude for the next HC sample.

=> On the way to Pt. C we are looking to cross a front.

O Racetrack Profile ahead (20 km?) of the front at Pt. Fa,
descend to 500 AGL then climb to 25 kft,
(reverse direction every 2.5 min) climb at 1000 ft/min

O Return behind the front at 25 kft to Pt. Fb. ←

O Racetrack Profile behind (20 km?) the front, 25 kft to < 500 ft AGL, (reverse direction every 2.5 min) descend at 1000 ft/min

O Cross the front on 4 constant altitude legs,
adjust the constant altitude segments to accommodate HC sampling and NOy instrument zeros. 1000 ft, 2000 ft, 15 kft, 20 kft. (Here, I assume by default that these legs will be about 15 min or 100 km each. If the front is more extended reduce the number of crossings and increase the altitude increments. Along the same line, if we encounter the front closer to the US continent, reduce the altitude increments and increase the number of crossings)

O Return to Pt. B at 18 kft. According to HC sample and NOy zeros (Observer calls), include positive and inverted traffic cones. If we see an interesting layer chose that altitude for the next HC sample.

Include NOy calibration on the way to Pt. B (Observer calls).

O Head direction of Pt. D (Block Island)
Climb to 25 kft on approach to Pt. D.

O Racetrack Profile at Pt. D, 25 kft to < 500 ft AGL, (reverse direction every 2.5 min) descend at 1000 ft/min

O head direction of Pt. A

Estimated flight time: Roundtrip Quonset to Bermuda 2460 km => 6 hr at 230 knots

3 Profiles: 1 hr 30 min

Transects across the front 1 hr

Total : 8 h.30 min

*Behind sw Front, or
25k Front?*

→ what alt?

*At Pt B, do cal & profile
in dry air.*

POSITION REPORT

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

MAYDAY, MAYDAY, MAYDAY

THIS IS NOAA _____ NOAA _____ NOAA _____
- POSITION _____ N / S _____

- 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 DESIR

- PILOT INTENTIONS

POSITION REPORT

1. POSITION

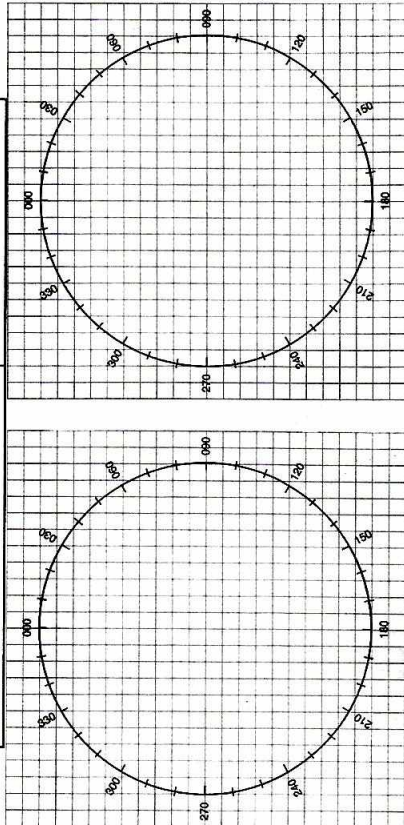
2. TIME

3. ALTITUDE

4. NEXT POSITION

5. ETA

6. NEXT POSITION

[illegible]

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
1549																					ENG START
1552																					TAXI
1600																					TAKEOFF
1609	GPS	4128.0 7042.8	4128.0 7042.6	0 +2	4128.3 7042.6	-1.3 +1.2			163	SR	108	256	320	38	7K	223					
1638		4016.7 6835.0	4016.5 6835.0	+2 0	4018.0 6834.2	-1.3 +1.8			137	SR	139	248	329	27	2K	215					LAGS 1045
1704		3848.2 6755.3	3847.8 6755.1	+4 +2	3849.1 6754.1	-1.9 +1.2			171	SL	169	223	327	17	3K	208					
1739		3632.0 6723.4	3632.2 6723.1	-1.2 +1.3	3633.0 6722.9	-1.0 +1.5			169	SL	168	224	359	14	2K	209					
1806		3451.7 6700.3	3452.1 6659.9	-1.4 +4	3453.0 6658.6	-1.3 +1.7			171	SL	166	221	272	20	1.5K	216					3457N 67W FRONT
1851		3458.1 6653.6	3458.9 6652.6	-1.8 +1.0	3459.2 6652.7	-1.1 +1.9			322	SR	333	251	268	57	25K	282					
1908		3612.1 6716.6	3614.4 6715.5	-1.3 +1.1	3613.6 6715.3	-1.5 +1.3			CIRCUITING												
1946		3610.0 6715.2	3611.3 6714.6	-1.3 +1.6	3611.0 6713.4	-1.0 +2.8			180	SL	175	231	294	21	5K	222					
2011		3459.1 6702.4	3500.7 6700.9	-1.6 +1.6	3458.7 6700.7	+1.4 +1.7			343	SR	350	227	265	28	10K	229					
2035		3609.0 6718.9	3611.2 6717.0	-2.2 +1.9	3608.7 6717.0	+1.3 +1.9			181	SR	171	269	285	50	15K	252					
2101		3505.8 6702.5	3508.5 6701.1	-2.7 +1.4	3507.3 6659.3	-1.5 +3.2			341	SR	350	270	262	42	20K	278					
2130		3710.5 6706.2	3713.0 6704.2	-2.5 +1.0	3709.6 6704.1	+1.9 +2.1			349	SR	305	257	278	73	10K	272					
2217		3950.3 6802.3	3954.0 6800.4	-3.7 +1.9	3952.0 6758.2	-1.7 +4.1			307	SR	313	202	292	75	18K	274					
2305		4045.2 6913.5	4048.6 6910.4	-3.4 +3.1	4044.3 6911.0	+1.9 +1.7			302	SR	309	207	285	92	25K	295					