

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

FLT ID: 970223H	FM: EINN	TO: EINN
FLT NO: 97-027	BLK IN: 1957	ATA: 1951
ETD: 1100	BLK OUT: 1039	RTD: 1047
ETE: 2000	BLK TIME: 9.3	FLT TIME: 9:04 (9.1)
SPONSOR ORG: NOAA	PROGRAM: FASTEX	PURPOSE: Dropsonde

OAO PERSONNEL

AC KENNEDY, D ✓	SYS ENG MCHILLAN, S ✓
CP TAGGART, B / PLAYER, G ✓	DATA SYS BARR, J ✓
NAV STRONG, T ✓	RADAR HILL, J ✓
FD TORREY, R / WADE, S ✓	DT/ODW OFFUTT, D ✓
RADIO	CLD PHYS
FD WHITE, S ✓	DOPPLER

PARTICIPATING SCIENTIST/VISITORS/OAO

LAST, FIRST NAME	ACTIVITY ON A/C	AFFILIATION
JORGENSEN, D ✓	SCIENTISTS ↓	NSSL
SHEPHERD, T ✓		NSSL
LEMAITRE, Y ✓		CNRS
HEWSON, T ✓		UKMO
HEWSON, F ✓		CNRS
CALLAGHAN, R ✓		
DOUGHERTY, J ✓		NSSL

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

51-61N / F260 995.8 187 979.0

12-30W / 11-22 180 230/356-50 12 160100 170/19k

leg 1-2 5 6h V10k BKN020

leg 3-4 5 SCT 006 BKN 010 Bk 1619 170/25k 635

leg 4-5 2 OVC 020 80°C Bk 1719 V5k

leg 5-6 4 move! 1+X (2) 5 Bk 008 Bk 020

leg 6-7 3 move! 1+X (5) 4 TEMPO 1819 R

leg 7-? 1 +1X Bk 1421 230/25k 645 BKN020

U.S. DEPT. COMM./NOAA/OAO - DATA SECTION WORK FORM NO.2 OAOWF2 FIL

FLT ID: 97022314 TIME OFF: 1047 TIME ON: 1951

	A/C T/O	WX STN	A/C LAND	WX STN
PRESSURE	1047 996.0	995.8	978.2	979.0

NO DATA DISPOSITION/DATE/QUALITY

1/SEC FLT LVL TAPES	✓	
FAST FLT LVL TAPES	✓	
RADAR TAPES	✓	
DOPPLER TAPES	✓	
DDW CASSETTES	✓	
HARD COPIES	✓	
AXBT		
AXCP		
DDW GPS sondes		25 dropped / 2 bad

PHOTOGRAPHY

	FWD	LS	RS	VERT
ON	1039	—————	—————	—————
OFF				
RATE	12h	—————	—————	—————

REMARKS

GPS

27

FASTEX FLIGHT #12

FLIGHT #12 H970223

TYPE OF DATA

SENSOR OR OPTION

INE	1
Accelerometer	1
Temperature probe	1
Altitude change option (for vertical winds)	RA159
Static pressure	Rosemount fuselage
Dynamic pressure	Rosemount fuselage
Time source	Micro 99
Constants file	CO2971.CON

Notes:

There were no time/data gaps.

Radar Altitude (APN-159) patched from: 1047:51 - 1048:10,
1950:01 - 1955:00.

Downward spikes in radar altimeter data are a result of overflying land.

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
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Aircraft static pressure	996.0 mb	978.2 mb
Corrected tower pressure	995.8 mb	979.0 mb

Flight Meteorologist: Sean White, (813) 828-3310 ext. 3072

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TITLE (MAX 21 CHARACTERS) -- EX HURRICANE PAINE
FASTEX IOP19 SYS SURVEY
YYMMDDL FLT I.D.
970223H
HHMMSS START TIME -99999 DEFAULT TO START OF DATA FOR PRINTOUT ONLY
104501
HHMMSS END TIME 999999 DEFAULT TO END OF DATA FOR PRINTOUT ONLY
195500
HHMMSS TAKE OFF TIME
104700
* NUMBER OF TAPES (I2) ...FOR STANDARD TAPE OUTPUT ONLY
12
* -----LOGICAL UNIT OF INPUT DATA (I1) 5, 8 OR 9 FOR TAPE DRIVE
8
* -----LOGICAL UNIT OF OUTPUT TAPE DRIVE (I1) [FOR STANDARD TAPE ONLY]
8
* -----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
* ----- 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)
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
CO2971.CON
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970203H

Time	LA	LO	TA	TD	WD	WS	12						
1035							ENC						
1039							BLK						
1047	LA	LO	TA	TD	170	10	TOFF						
1106	5325.4	1012.2	-23.2	-27.0	224	55.8	LEVEL 18K						
1155	571.0	1159.7	-31.8	-35.7	211	48.9	pt 1 20K	GPS	drop #1	good			
1215	5622.9	1320.2	-20.3	-33.7	210	62.8			drop #2	good			
1225	5559.8	1417.1	-30.5	-33.5	192	57.7	BUOY 62105		drop #3	good			
1232	tail	rc	-600	d			pearl	right					
1235	5534.2	1598.5	-29.5	-32.5	181	68.0	pearl	right	drop #4	good			
1248	5513.6	1500.9	-29.7	-32.9	173	88.1			drop #5	good			
1330	5727.5	193.7	-37.1	-61.8	254	49.4	pt 2 20K		drop #6	back good			
1406	5422.9	2330.9	-40.7	-54.2	316	62.6	pt 3 20K		drop #7	good			
1421	5526.4	2207.3	-42.7	-57.3	313	43.9	pearl	left					
1445	5651.8	2120.1	-43.9	-63.5	119	29.2			drop #8	bad 2			
1447							TIME #1	grabber	NAV J Box				
1449	5717.3	216.4	-42.9	-48.7	118	47.1			drop #9	good			
1500	583.9	2042.6	-41.3	-46.7	852	30.5			drop #10	good			
1515	5514.2	203.9	-40.0	-44.1	123	32.6			drop #11	good			
1526	567.4	1927.8	-41.4	-43.0	165	37.0			drop #12	good			
1550	5942.3	2311.1	-44.5	-49.2	111	23.5			drop #13	good			
1614	5859.9	271.7	-46.3	-49.6	124	35.1			drop #14	good			
1625	5872.2	2541.6	-47.9	-56.1	130	18.9	25K		drop #15	good			
1635	5840.0	2416.9	-46.9	-51.6	671	27.7			drop #16	good			
1637	5838.2	2357.3	-46.7	-51.6	075	22.0	pearl	right					
1650	5826.5	2241.2	-45.2	-49.3	661	28.1			drop #17	bad 3			
1652	5823.3	2222.3	-46.0	-49.4	054	27.0			drop #18	good			
1700	5814.3	2116.0	-46.6	-52.2	644	21.4			drop #19	good			
1709	580.9	1958.7	-44.6	-62.9	125	21.8			drop #20	good			
1726	571.3	2137.1	-48.1	-64.9	341	15.5	26K		drop #21	good			
1736	5623.1	2244.0	-47.6	-61.1	298	33.7			drop #22	good			
1747	5544.2	2349.9	-49.7	-58.8	275	25.3			drop #23	good			
1759	552.2	2456.5	-46.0	-65.6	287	43.7			drop #24	good			
1850	5354.1	1644.7	-45.2	-63.5	282	67.7			drop #25	good			
1951							LND						
1957							BLK						

4FASTEX AIRCRAFT CHIEF SCIENTIST EVENT LOG

Flight Number: 970223H1 Page 1 of

Date: February 23, 1997 Aircraft ID: 42RF Scientist: Jorgensen

Event Log

Time (UTC)	Approx. Location (Lat, Lon, trk, hd, gs, p, pa, ra)	Event & Comments
10:35:19	Shannon	Engine Start
10:40:21	Shannon	Block out
10:47:58	SNN	Take off
10:52:32		This is flight 12, IOP18, on Low 44 a P-3 only mission including dropsondes to su
11:07:22	53.492 -10.406 505.7 5491	radar system up nd running. Some bands evident on the LF 300-400 km to the west
11:23:21		apparently 27 sondes are on board-will use the extra 7 for backups initially and will deploy a few extra ones in the bent back region
11:24:37	54.344 -11.984 339.9 346.6 150 505.8 5489 5163	entering the airspace reservation box-turn to trk north to pt. 1
11:42:09	55.841 -12.000	climbing from 18k ft to 20k ft for first drop ETA 13 minutes
11:49:01		LF looks a little noisy-probably due to retracting the radome for the climb
11:55:55	57.017 -11.996 358.5 2.6 164 465.9 6092 5679	at pt. #1 - sonde #1 away-making outside turn to trk to pt. 2
11:56:42		LF radome extended-picture looks much better
11:57:16		sonde #1 looks good
12:00:26		trk 235 in cloud-no echoes on TA
12:03:40	56.829 -12.362 232.0 235.9 120 465.9 6091 5676	sonde #1 clear - good drop
12:15:41	56.357 -13.459 227.8 232.2 113 465.9 6091 5661	sonde #2 away-beginning to see weak echo on the TA-LF shows bands of precip (cold front) now 100 km ahead
12:22:22	56.110 -14.035 224.6 229.5 113 466.0 6091 5649	drop #2 clear good drop-TA now shous extensive stratiform precip-echo extends to about our altitude

12:25:20	55.992 -14.289 221.6 227.6 117 466.0 6090 5642	drop #3 away at the buoy-moderate stratiform precip-bright band near the sfc
12:33:10		drop #3 clear - good drop
12:33:28	55.646 -14.991 220.0 229.9 120 466.1 6089 5615	radar system froze up-restarted
12:35:20	55.566 -15.163 223.2 233.0 120 465.9 6091 5612	sonde #4 away-starting perl #1 in moderate stratiform precip
12:39:08		end of perl #1-conective cells on TA to the left-convergence pattern at low levels on Vr
12:42:47		sonde #4 clear - good drop
12:48:18	55.224 -15.848 214.1 229.0 114 466.2 6087 5567	sonde #5 away - appears to be good-winds 173/95 knts
12:50:37	55.131 -16.034 212.9 228.4 111 466.1 6089 5553	broke out into the clear-blue skies above-stratiform dect 500 ft below us
12:55:28		sonde #5 cleaar-good drop
12:59:52	54.761 -16.715 215.1 225.7 109 466.1 6089 5504	Relataive Humidity down to 9%
13:01:12	54.707 -16.811 216.0 226.1 111 465.9 6092 5499	going thourgh a field of small convective cells on the TA radar. The cloud deck below is now a broken field of cu
13:23:59	53.753 -18.545 230.1 226.2 115 466.1 6089 5462	convective storm to the left of track-overshooting top on a large anvil-winds have now come araound to 240/58 as we track south of the low center
13:31:03	53.455 -19.064 231.0 225.0 118 466.0 6091 5472	at pt. 2-sonde #6 away-looks good-turning to trk to pt. 3-climbing to 22k ft
13:37:50	53.698 -19.637 294.9 297.4 126 427.5 6713	at 22k ft-at the very top of the altostratus cloud deck
13:45:09	53.916 -20.389 294.0 296.2 117 427.6 6712 6052	LF radar going down to check on the high apparent noise level in the reflectivity
13:47:19	53.978 -20.599 294.0 297.0 115 427.5 6712 6051	stratiform precip now appearling gelow us on the TA
13:55:17		LF back up
14:06:38	54.499 -22.511 300.6 295.6 121 427.6 6710 6061	at pt. 3-sonde #7 away-good drop- turn to trk to pt. 4-climb to 23k ft

14:10:05		LF still having problems with noise
14:10:21	54.725 -22.412 16.3 24.9 134 408.6 7034 6355	at 23k ft-stratiform echo increasing as we go north
14:14:41	54.994 -22.263 2.3 12.4 124 408.8 7032 6342	passing just to the right of a pretty good convective storm
14:15:11		sonde #7 clear-good drop
14:21:24	55.460 -22.085 350.0 356.8 131 408.6 7034 6334	start perl #2 in heavy stratiform precip below
14:28:02		end perl #2 - precip decreasing again-can see sea sfc-low center 200 km ahead is marked by absence of sea return, indicative of calm seas
14:31:11	55.873 -21.866 8.6 12.6 142 408.7 7034 6325	winds now have dropped off to 320/25 knots as we get closer to the low center
14:43:22	56.783 -21.416 16.4 14.1 149 408.8 7032 6321	winds just shifted from 320 to 125 so we're at the low center
14:45:22	56.933 -21.339 25.4 19.1 151 409.1 7025 6318	sonde #8 away near the low center
14:48:09		sonde #8 failed readying another
14:50:02	57.291 -21.107 25.1 16.7 150 407.9 7047 6349	sonde #9 away-looks like good launch-we're north of the low center winds now 112/38-only light precip indicated by the TA
14:54:58	57.667 -20.953 24.7 16.8 144 408.4 7038 6356	in cloud again
14:56:09	57.755 -20.902 25.7 17.1 147 408.7 7034 6355	passing to the left of a pretty good convective cell
15:00:21	58.072 -20.709 24.8 18.3 148 408.7 7034 6370	sonde #10 away-looks like good drop-stratiform precip increasing below our altitude
15:10:08		sonde #10 cleared 955 mb sfc press
15:15:19	59.252 -20.066 26.7 19.7 155 408.6 7035 6424	sonde #11 away-moderate stratiform precip-winds 126/31 knts
15:22:41	59.844 -19.677 20.5 16.2 159 408.6 7034 6440	winds beginning to drop off as we approach the coll north of the low center
15:23:51		sonde #11 cleared-good drop

15:26:28	60.164 -19.495 20.5 16.2 166 408.7 7034 6447	at pt. 4-sonde #12 away-turn to trk to pt. 5- climb to 24k ft
15:34:45		sonde #12 cleared-good drop
15:39:06	59.993 -21.398 248.6 252.5 161 392.6 7318 6697	stratiform precip increasing as we go west
15:50:23	59.993 -21.398 248.6 252.5 161 392.6 7318 6697	sonde #13 away in light stratiformprecip below
15:57:55	59.495 -24.476 247.1 250.2 159 392.6 7317 6673	precip tops coming down on TA-sun is coming out too
15:58:30		drop #13 clear-good drop
16:11:26		from the sonde data on the pass through the center it appears that the low is about 60 nm north of the forecasted position. Will shift pt. 6 to 58N, 20W
16:14:13	58.997 -27.026 245.3 250.2 163 392.5 7319 6664	at pt. 5-sonde #14 away-good drop in no precip-climb to 25k ft
16:23:16		sonde #14 clear-good drop
16:25:21	58.869 -25.690 105.7 103.2 144 375.6 7628 6961	sonde #15 away-very light precip on TA
16:32:05	58.717 -24.733 101.6 103.4 139 375.7 7626 6960	winds finally coming more northerly as we move to the center now 073/27 knts
16:35:19	58.665 -24.277 100.8 102.1 140 375.7 7626 6958	sonce #16 away in moderate precip-sonde #15 clear-good drop
16:37:20	58.635 -23.994 108.2 108.1 141 375.7 7627 6958	start perl #3 in moderate precip below-clear skies above
16:40:50		end perl #3
16:44:02		sonde #16 cleared-good sonde
16:50:19	58.441 -22.686 104.5 108.3 143 375.7 7626 6941	sonde #17 away-apparently a bad drop
16:52:34	58.387 -22.369 104.8 108.1 142 375.7 7625 6937	sonde #18 away-good so far-precip has weakened considerably-only very low level echo on TA below 2 km AGL
17:00:19	58.238 -21.271 103.5 106.9 145 375.6 7628 6920	sonde #19 away in no precip-sonde #18 clear-good drop
17:08:30		sonde #19 clear-good drop

17:09:19	58.011 -19.961 108.3 106.2 145 375.5 7629 6893	at modified pt 6-sonde #20 away-climb to 26k ft-apparently near the low center as winds dropped below 10 knts
17:12:30	57.838 -20.121 225.3 226.9 157 358.7 7948 7195	at 26k ft- light stratiform precip below
17:26:29	56.989 -21.670 228.2 224.7 162 358.6 7950 7208	sonde #21 away in no precip on TA-winds have shifted to northwesterly
17:36:28	56.372 -22.749 230.3 223.7 152 358.7 7947 7234	sonde #22 away in no precip
17:45:17		sonde #22 clear-good drop
17:47:42	55.713 -23.862 225.5 221.2 148 358.7 7947 7256	sonde #23 away
17:55:42		sonde #23 cleared-good drop
17:59:19	55.032 -24.943 226.7 218.0 147 358.7 7948 7275	at pt. 7-sonde #24 away in clear skies all the way to the sfc
18:08:14		sonde #24 cleared-good drop
18:25:35	54.483 -20.779 101.9 100.6 182 358.8 7946 7274	shutting down the TA transmitter to preserve the magnetron lifetime as there are no echoes likely on return
18:50:22	53.898 -16.736 107.9 106.0 191 358.8 7946 7276	sonde #25 away-beginning slow descent to 25k ft for approach to SNN
19:25:08		radar system secured
19:51:02		land
19:57:22		block in

MSA Coordinator Summary Report

9702023H IOP18 (Flight 12) on Low 44

Aircraft Involved: P-3

Summary Description of Mission:

The planned mission was a single aircraft survey of Low 44 for model validation and structure determination. The dropsonde system will be utilized as the C-130 will not investigate this system. Flight level will be as high as possible. The proposed flight pattern will consist of a modified "figure 4" survey that will include a leg segment through the cold front, and two legs

through the "bent back" region the the northwest and southwest regions of the low center. Three passes through the low center are planned. 26 dropsondes were available for the pattern.

The P-3 departed SNN about 15 minutes ahead of the scheduled 1100 UTC departure to insure getting ahead of the rapidly eastward advancing cold front. Five sondes were deployed on the first leg through the cold front. Once through the cold frontal rainband, the relative humidity dropped to less than 6% at 20,000 ft altitude as the aircraft traversed the dry slot. The second leg cut northward through the approximate location of the sfc low center. Five sondes were deployed on that leg. Based on the sonde data, the 6th turn point (that was to go back to the low center) was shifted northward by 48 nm. The next two legs to the low center deployed 6 and 4 sondes, respectively. There was little precipitation evident on the "bent-back" side of the low.

Communications and Coordination:

1. No problems

P-3 Equipment Problems Encountered:

1. The LF radar appeared very noisy at times.

Recommendations & Evaluation:

1. 25 sondes were deployed, 23 were perfect, 2 failures. Apparently an excellent case of a mature, deep, cyclone. Lowest sfc pressure was about 955 mb.
2. 3 "perl" patterns were completed.

--Dave Jorgensen & Yvon Lemaitre

