Hurricane 1999
Warm Pool Eddy

Flight #1: 990806H N42RF

Sensor or system	Number or Name
INE	1
Accelerometer	1
Temperature Probe	1
Dew Point Probe	2
Altitude (for vertical wind)	RA-159
Static Pressure	Rosemount Fuselage
Dynamic Pressure	Rosemount Fuselage
Time Source	Micro 99
Constants File	CO2991.CON

Notes:

A number of very brief GPS dropouts occurring around 2028Z-2031Z were removed and patched with corrected INE 1 positions. GPS ground speeds were also patched during this period.

The APN-159 Radar Altimeter was patched with good APN-232 positions just before take off and just after landing.

INE1 positions were renavigated using 13 valid GPS positions during the flight.

During the flight, it appeared the Downward Radiometer was reading about 3 degrees C too cold.

	Takeoff	Landing
Aircraft static pressure	1014.8	1014.9
Corrected tower pressure	1013.2	1014.8

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

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

FLT ID: 990806H	FM: KMCF	TO: KMCF
FLT NO:	BLK IN: 2045	ATA: 2036
ETD: 12Z	BLK OUT: 1157	ATD: 1208
ETE: 8+	BLK TIME: 8:48 (8.8)	FLT TIME: 8:28 (8.5)
SPONSOR ORG: HRD	PROGRAM: Research	PURPOSE: Warm Core Ring

OAO PERSONNEL

AC	Taggart ✓	SYS ENG	Roles ✓/ Goldstein ✓
CP	McKim / Philippsborn ✓	DATA SYS	Delgado ✓
NAV	Rathbun ✓	~~RADAR~~	
FE	Kast ✓	BT/ODW	Carpenter ½
RADIO		CLD PHYS	
FD	Parrish ✓	~~DOPPLER~~	Dewey Floyd ✓

PARTICIPATING SCIENTIST/VISITORS/OAO

LAST, FIRST NAME	ACTIVITY ON A/C	AFFILIATION
Black, P. ✓	PI	HRD
Shay, N. ✓	PI	↓
Cione, J. ✓	Drops	↓
Van Gowerden, E. ✓	PAO	↓
Daniel Jacob ✓		
Gustavo Goni ✓		
Phillip Willette ✓	PA	CBS local

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

Fly BT, CP, CTD pattern over warm ring.

Numerous rainbands S end of pattern.

3 CTD Failures (1 st due to receivers)

~~5~~ CP failures (4 due to bad receiver)

Primary failure was a bad receiver from Nick Shay & U of M. Once replaced, much better results.

- It appears RD is reading about 3°C too cold.

29.92
1013.2 ATIS
100/9
25.3/23.8
PS 1013.2
100/12
ATIS
29.97
1014.8
210/17
1014.9
27.5/23.6

990806H WORK CODE LOG (WL)

Time	Lat	Lon	TR	WD	WS	P1	C1	TA	TD	SP	PS	RA		
157	27 51	8229.6						25.7	22.8		1013.1		BLK	
1709	27 49	82 32	185	206	11	263	279	24.6	22.3	1012.9	968	SHWRS	CS 3K	
122515	27 06	83 10	241	190	8.4	3365	3555	7.7	3.8	1011.9	469			
24045	26 33	84 07	243	212	13.4	1526	1611	17.4	13.1	1014	842.9	- 5K	SHWRS	
12	26 15	84 35											BT 12	(1)
1256	26 05	84 57	241	205	14	1522	1612	16.9	14.8	1014.7	843.2			
130335	25 46	85 13		201	16			16.5	14.9	1015		24	CTD 12	(2)
131331	25 23.9	85 39.9	226	210	16.6	1522	1610	16.2	15.0	1015.1	843	23.6	CP 14	(3)
132329	25 00	86 03	236	212	19	1522	1612	16.3	15.5	1015	843	21.9	BT 16	(4)
133042	24 50	86 26	229	213	.21	1522	1607	17.7	15.6	1014.4	8436	24.0	CTD 14	(5)
134018	24 30	86 51	223	219	16.4	1519	1607	17.0	13.7	1014.5	843.3		BT 16	(6)
134946	24 09	87 15	265	199	26	1536	1625						CTD 4	(7)
135557	24 07	87 35	276	232	26	1534	1633	16.5	12.9	1014.8	841.9		CP 16	(8)
140140	24 09	87 56	281	226	17.8	1532	1619	16.8	15.4	1014.4	841.9		BT 12	(9)
141400	24 26	88 34	285	224	15.8	1530	1610	17.3	14.4	1013.4	842.3		BT 16	(10)
142146	24 35	88 59		208	5.9	1531	1610	16.8	13.8	1013.6	842.5		CTD 14	(11) Drop
142735	24 55	88 50	22	176	2.5	1527	1604	17.1	15.3	1013	842		BT 12	(12)
143225	25 09	88 43	25	89	1	1532	1607	17.8	10.5	1012.6	842	23.7	CP 16	(13)
1440	25 26	88 38	0-4	Trying to fix current probes - laptop										
144506	25 26	88 36	25	147	2.1	1529	1608	17.7	11.1	1013.1	842	23.0	CP 14	(14)
145110	25 45	88 26	26	140	2.8	1529	1607	17.0	14.4	1013.3	842.3		BT 12	(15)
145851	26 11	88 14		127	4.3			17.5	12.5	1013.4			BT 16	(16)
151534	26 38.7	88 01.7	36	127	7.6	1530	1616	17.2	14.0	1014	DEAD	DEC	CP 14	(17)
152455	27 06	87 46.5	27	145	11	1531	1620	17.5	13.4	1014.4			BT 16	(18)
153145	27 35	87 33	29	102	11	1530	1623	18.3	12.7	1014.4			CTD 16	(19)
154717	27 16	88 21	249	75	9.2	1529	1622	17.7	13.0	1014.5	842.5	24.1	CTD 12	(20)
155618	27 04	88 55	249	70	12	1530	1621	17.4	13.5	1014.6	842.6		CP 16	(21)
160138	26 56	89 16		67	12			16.9	14.5				BT 12	(22)
160730	26 49	89 38	249	67	13.3	1529	1619	18.4	8.5	1014.4	842		Drop	(22A)
161201	26 43	89 56	252	67	16.5	1530	1617						BT 16	(23)
161721	26 37	90 17	249	72	13	1531	1622	17.1	15.2	1014.5	842.6		CP 14	(24)
162222	26 30	90 36	248	66	9.4	1531	1620	17.0	18.9	1014			CP 12	(25)
162920	26 25	91 00	31	68	10	1530	1621	17.1	13.4	1014.9	842		CTD 14	(26)
163829	26 51	90 42	30	87	8.2	1529	1622	17.3	9.9	1015			CP 16	(27)
164312	27 05	90 33	29	100	10	1529	1623	17.4	11.7	1014.7			BT 12	(28)
164957	27 26	90 21	25	93	11.3	1531	1629	17.9	10.8	1015			CTD 14	(29)
165820	27 51	90 06.5	29	98	12.2	1531	1630	17.7	8.6	1015.3	842.8		BT 16	(30)
170520	27 58	89 45	178	85	14	1527	1623	17.4	9.5	1015.2	842.3		CTD 16	(31)
170926	27 44	89 44	173	64	10.8	1529	1623	18.2	11.1	1014.7			CP 12	(32)
171452	27 23.5	89 41	174	72	12								BT 16	(33)
172440	26 53	89 40	158	67	9.3	1530	1621	17.5	11.2	1014.7			CTD 14	(34)
173229	26 24	89 35	169	64	10.8	1529	1615	17.7	11.1	1014			CP 16	(35)
173845	26 09	89 32											CP 14	(36)
174335	25 53	89 23	163										CTD 12	(37)
174719	25 39	89 09	166	80	5.2	1529	1613	17.2	13.8	1014	842.6		CP 14	(38)
175011	26 03	88 59	166	61	4.9	1531	1612	17.8	13.2	1013.3	842.4		CP 12	(39)
180129	26 19	88 19	164	153	6	1527	1609	17.3	14.6	1013.3	842.4		CTD 16	(40)
181648	26 38.7	87 24.1	167	173	6.9	1529	1616	17.4	13.9	1014	842.5		CP 12	(41)

990806H WARM RING DROPS (HRD) Page 2

Time	LAT	LON	TK	WD	WS	AT	GA	TA	TD	SP	PS			
182350	26 47	86 59	67	155	8.9	1529	1618	17.3	14.8	1014.3	842.5		BT 16	(42)
183410	26 58	86 25	202	156	8.6	1530	1621	17.7	15.4	1014.3	842.5		CTD 12	(43)
184444	26 25	86 38	195	194	7.5	1529	1616	17.2	14.4	104.4			CP 16	(44)
185045	26 04	86 41.9	191	188	10.3	1529	1613	18.2	13.2	1013.4	842.6		BT 12	(45)
185648	25 45	86 47	193	189	7.5	1529	1614	17.8	14.0	1013.6	842.5		BT 12	(46)
190252	25 24	86 52		245	12.6			17.1	14.2				CTD 16	(47)
190610	25 14	86 49	155	245	9.5	1530	1619	17.2	13.5	1014.5	842.4		Drop	
191138	24 48.6	86 23.7	24	224	21.8	1529	1623	17.4	13.3	1014.9	842.4		CTD 14	(48)
192454	25 10	86 04	51	228	22	1529	1625	17.3	13.5	1015.2	842.6		CTD 16	(49)
193221	25 29	85 39	50	224	25	1530	1625	17.2	12.5	1015	842		CP 4	(50)
193943	25 46	85 14	67	222	23	1529	1628	17.3	12.7	1015.7	842.5		CTD 2	(51)
194535	25 57	84 53	32	228	25.5	1533	1632	17.7	12.1	1015.2	843.3		BT 12	(52)
195730	26 39	84 20	↑ to	11K										
2027	27 48	82 28	49	243	20	777	828	21.1	20.4	1013.9	823			
2045	27 51	8229.6				-2		27.2	23.0		1013.5		BLOCK IN	

NOAA FORM 56-49
(2-95)

MISSION PREFLIGHT LOG

DESTINATION	MISSION	NAVIGATOR	AIRCRAFT COMMANDER	FLIGHT DIRECTOR	SCHEDULED / ACTUAL TAKEOFF Z	DATE OF TAKEOFF
KMCF-KMCF	AXBT FEST #2	NATHBUN	TAGGART	PARRISH	1200Z / 1207Z	6 AUG 99

	WP	LAT / LON	RTE	MH	VAR +E==>	TH	DR +R==>	TRK	GS	WD	WS	ALT	TAS	LEG / TOT DIST	LEG / TOT TIME	PROP ETA	ETA	ATA	REMARKS
8	MCF	2750.9 8229.6						230						147 147	+42 0+42			1249	
9	IP	2815 8435						231	210					208 355	+57 1+39	1346	1355	1351	
1	1	2400 8730						295						89 444	+25 2+04	1411	1420	1421	
2	2	2435 8900	+1 -1					027						198 642	+56 3+00	1507	~~1525~~ 1546	1533	
3	3	2735 8730	+2 -1					251						202 844	+58 3+58	1605	1630	1628	
4	4	2620 9100	+2 -1					031						135 979	+39 4+37	1644	1707	1704	SKIPPED POINT
5	5	2820 8950	+3 -2					177						151 1130	+43 5+20	1727	1743		
6	6	2550 8930	+3 -2					070						180 1310	+51 6+11	1818	1834 1838	1839	
7	7	2700 8625	+4 -2					196						109	+31	1905			
8	8	2315 8655	+4 -2					147						35	+16	1915			
9	9	2445 8635	+4 -2					051	↓					141	+40	1955			
1	10	2615 8435	+4 -2					044	240					147	+36	2031			
2	MCF	2750.9 8229.6	+4 -2						↓					-----	-----				

INS PERFORMANCE

	INS 1	INS 2
BEGIN ALIGN TIME	1050Z →	
ALIGN STATUS (0-5)	1	1
END NAV TIME	2040Z →	
START NAV TIME	1150Z →	
DELTA T	8+50 →	

TERMINAL ERRORS

	INS 1	INS 2
DELTA LAT	-4.2	-5.4
DELTA LON	+3.4	+1.9
RGS	1	4
RADIAL ERROR	5	6

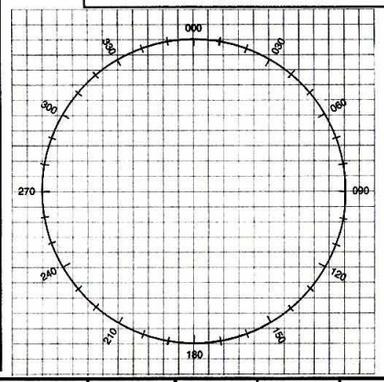
REMARKS

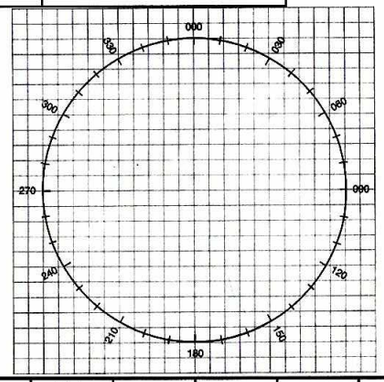
U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
AIRCRAFT OPERATIONS CENTER

CLEARANCES			
FREQ	ALT	HDG	OTHER

MISSION LOG

PAGE ___ OF ___





POSITION REPORT

1. POSITION
2. TIME
3. ALTITUDE
4. NEXT POSITION
5. ETA
6. NEXT POSITION

EMERGENCY MESSAGE

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
  _____ E / W AT _____ Z
- 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 DESIRED
- PILOT INTENTIONS
- WE HAVE _____ ENDURANCE REMAINING

TIME	FIX TYPE	POSITION GPS	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
1132 1157 1207																					ENG START TAXI TAKEOFF
1235	FM1	2643.7 8346.8	2643.7 8346.9	Ø -.1	2643.7 8347.1	Ø -.3			236	Ø	236	22Ø	228	14	↘ 5K	231					
1323	FM1	2459.8 86Ø3.7	25ØØ.1 86Ø3.7	-.3 Ø	25ØØ.4 86Ø4.4	-.6 -.7			235	1R	236	195	225	17	5K	217					
141Ø		2422.2 882Ø.2	2423.Ø 8819.9	-.8 +.3	2423.5 8821.2	-1.3 -1.Ø			282	4R	286	2Ø5	226	16	5K	217					
1445		2527.5 8835.2	2528.3 8834.8	-.8 +.4	2529.Ø 8836.6	-1.5 -.8			Ø26	2L	Ø24	213	124	7	5K	217					
1525		27Ø8.6 8745.2	271Ø.Ø 8744.4	-1.4 +.8	271Ø.3 8745.7	-1.7 -.5			Ø31	4L	Ø27	214	138	15	5K	219					
1609		2647.7 8941.9	2649.6 8941.3	-1.9 +.6	2656.Ø 8942.6	-2.3 -.7			25Ø	1L	249	225	Ø46	17	5K	209					
1644		27Ø8.Ø 9Ø31.7	27Ø9.7 9Ø3Ø.7	-1.7 +1.Ø	271Ø.5 9Ø32.3	-2.5 -1.6			Ø33	4L	Ø29	2Ø6	11Ø	12	5K	209					
1725		2651.3 8939.4	2654.5 8938.Ø	-3.2 +1.4	2654.9 8939.5	-3.6 -.1			167	3R	17Ø	216	Ø54	9	5K	21					
1803		2620.4 8816.Ø	2622.9 8814.5	-2.5 +1.5	2624.Ø 8816.4	-3.6 -.4			Ø75	3L	Ø72	2Ø9	179	11	5K	214					
1843		2629.6 8636.3	2633.9 8633.9	-4.3 +2.4	2634.5 8635.8	-4.9 +.5			2Ø1	Ø	2Ø1	2Ø2	19Ø	7	5K	211					
1924		2457.6 8619.2	25ØØ.8 8617.2	-3.2 +2.Ø	25Ø2.1 8619.3	-4.5 -.1			Ø45	1L	Ø44	234	215	22	5K	211					
2002		2652.8 84Ø3.2	2657.3 8359.5	-4.5 +3.7	2659.2 84Ø1.7	-6.4 +1.5			Ø53	Ø	Ø53	272	215	1Ø	11K	259					
2Ø36 2Ø45		2739.7 8246.Ø	2743.9 8236.6	-4.2 +3.4	2745.1 8238.1	-5.4 +1.9															LAND BLOCK IN