~~ISSA~~ ISAAC

U.S. Dep't. of Commerce / NMAO / NOAA / Aircraft Operations Center

FLT ID: 20120828H2	From: KJAX	To: KMCF
FLT #:	Blk In: 0426 Z	Lnd Time(on): 0414 Z
ETD: 20 Z	Blk Out: 1936 Z	T/O Time (off): ~~1943~~ Z
ETE: 8	Total Blk: 8.8 8+50	Total Flt: 8.5
Sponsoring Org: HRD/EMC	Program: TDR	Purpose: ISAAC

AOC Flight Crew

Aircraft Commander: HALVERSON	Data System: LYNCH, T
Co-Pilot: KIBBEY, MARTIN	Avaps: PAUL, S
Navigator: BRAKOB,	System Engineer: RICHARDS
Flight Eng: KLIPPEL,	~~AS~~: Jason Dunion
Flt Director: WILLIAMS, FLAHERTY	~~AA~~: Lisa, Bucci
Avionics: NAEHER	Crew Chief:

Participating Scientists, Visitors, & Add'l Aircrew on back. # of people listed on back:

	A/C - Takeoff	Wx Station - Takeoff	A/C - Land	Wx Station - Land
Pressure	1012.3	1011.5	1013.2	1014.4

ATIS - Takeoff: ·1956Z 17005 4SM -RA SCT038 SCT130 BKN250 29/26 A2990

ATIS - Land: 2904Z 14013 10SM FEW150 22/26 A2997

Data Source	Number	Data Disposition / Date / Quality / File Name(s)
Flight Level Tapes		
Radar Tapes		
Dropsondes	35	Good: 34 Bad: 1 Sent:
AXBT	22	

List other data sources on back in Remarks section.

Remarks (Storm Name, Mission ID, Recco Times, Fix Times)

Storm Name:

Mission ID: NOAA2 3309A ISAAC

6 PENNIES

Recco Times: 6 x 6

Fix #	Fix Time
1	971 2154
2	971 2244
3	E 970 2344
4	967 0042Z
5	E971 0145Z
6	966 0235

51 ob cant

52 hdobs

U.S. Dep't. of Commerce / NMAO / NOAA / Aircraft Operations Center

FLT ID: 20120828H2	T/O Time: 1943 Z	Lnd Time: 0414 Z
Name (Last, First)	Activity on Aircraft	Affiliation
DUNION, JASON	PI	HRD
BUCCI, LISA	DROPS	HRD

Remarks:

N42RF ERROR SUMMARY
HURRICANE ISAAC, KJAX - KMCF
28 Aug 2012

Flight ID: 20120828H2

Sensor or system	Number or Name
Inertial Selected (for wind derivation)	INE 1
Accelerometer	AccZfilterI-GPS.1
Temperature Probe	TTM.2
Dew Point Probe	TDM.2X
Static Pressure	PSM.2
Dynamic Pressure	PQM.2
Altitude (for vertical wind)	AltI-GPS.1
Flight Directory	acdata/MET/2012/20120828H2
Constants File	20120828H2/AAMPSConfig/core/n42.xml

Local Met Data:	Takeoff (1943Z)	Landing (0414Z)
Aircraft Static Pressure (PSM.2)	1012.3 mb	1013.2 mb
Tower Pressure (corrected)	1011.5 mb	1014.4 mb

Notes:
There was a data gap in all parameters from 00:00:07Z – 00:00:50Z.

The Edgetech dewpoint, TDM.2, performed best and was used as default. However, it spiked erroneously when the aircraft climbed through the freezing level, from 03:18:18:Z – 03:21:41Z, when TDM.1 did not. During this time the following substitution was made: TDM.2X = TDM.1 Dew point values intermittently exceeded ambient temperature values during portions of flight where the aircraft was in precipitation, causing RH values greater than 100%.

The Novatel Alt, Lat and Lon (GPS.3) had one data spikes at 02:58:05Z. The blended inertial-GPS solution Alt, Lat and Lon (I-GPS.1) is the default position source.

SPECIAL NOTE!!! The variable names GSZ_DPJ, ASZ_DPJ and WSZ_DPJ in the netCDF file represent vertical ground speeds, vertical air speeds and vertical wind speeds, respectively, computed using Dave Jorgensen's vertical wind algorithm. It is recommended that these values be used for vertical wind analysis.

All other AOC instruments worked properly.

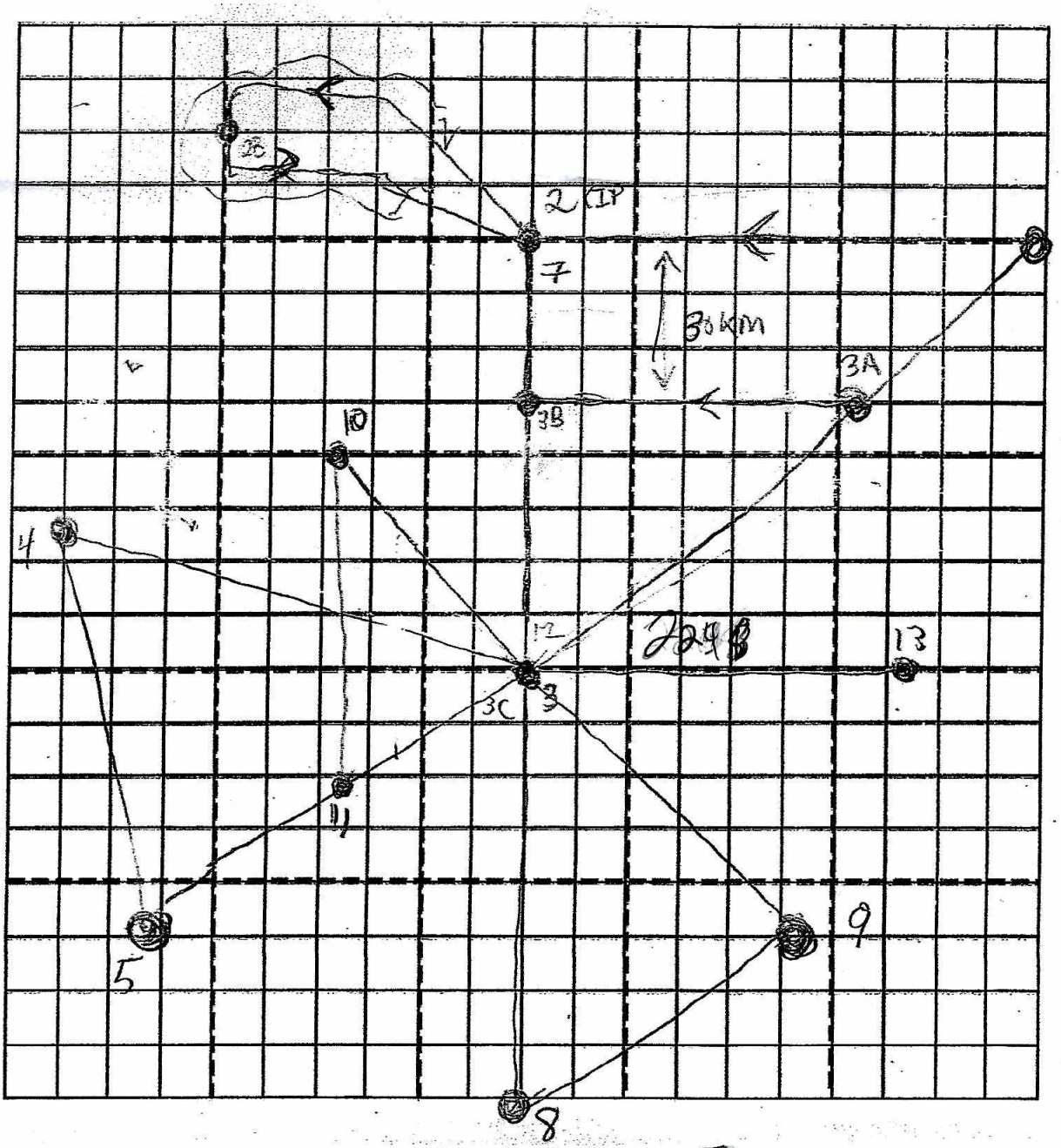
There were 35 GPS dropsondes (34 good) and 22 AXBT's released from the aircraft. There were 6 hurricane penetrations.

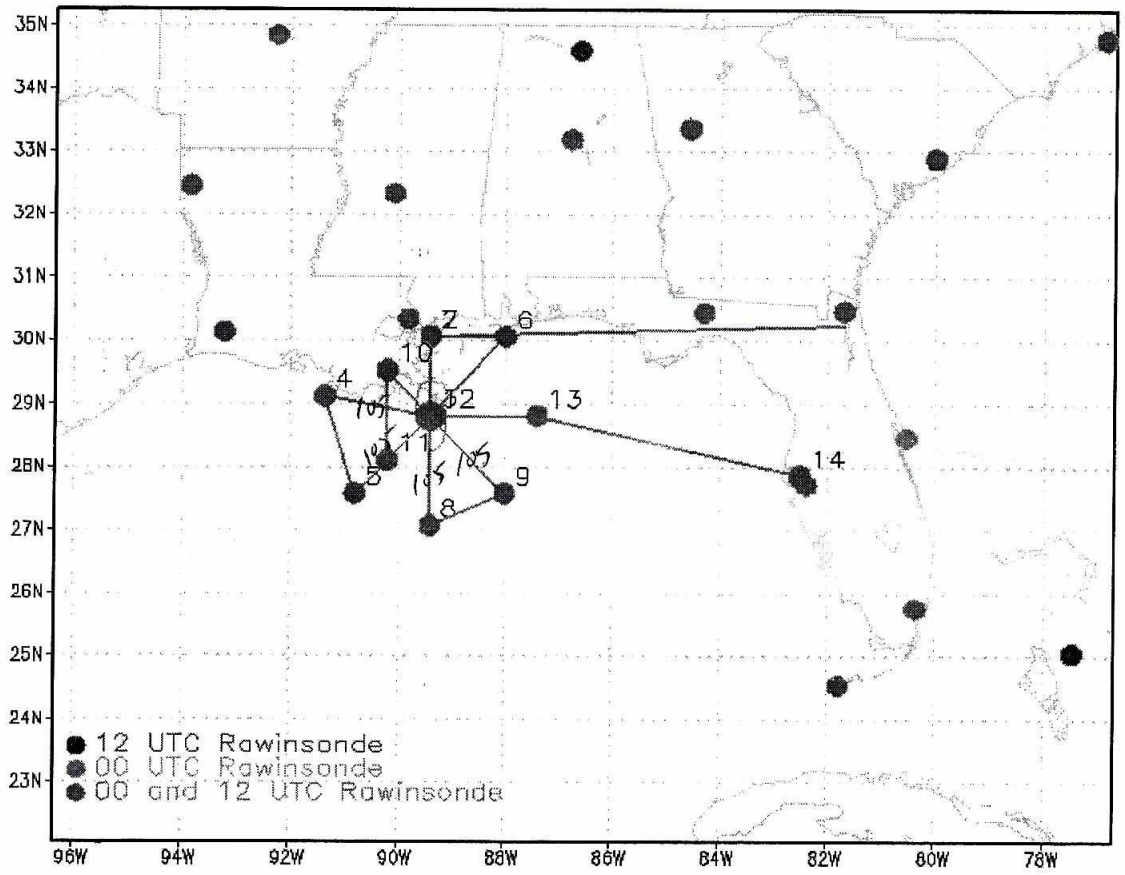
During the last hour of the flight, the transit back to KMCF, from 03:02:17Z to 04:05:22Z, 15 one second data gaps were observed in only some derived and reference parameters (with a .d or ref extension).

Flight Director: *Jess Williams / Paul Flaherty*
Phone #: *(813) 828-3310 ext. 3140/3094*

Observer's Flight Track Worksheet

Date _____ Flight _____ Observer _____





GrADS: COLA/IGES 2012-08-28-11:06

NOAA • AOC • SED N42RF AVAPS DROP LOG Lead Tech: Joe Bosko

Project: Hurricane 2012 Mission: ISAAC Flight ID: 20120825H2

Take Off : 1942Z Landing: _____ Flt Dir : WILLIAMS / RAHSTON

75

Drop #	Sonde Serial #	Rcvr #	Press Offset	Launch Time	Operator	Charge $$ To	Comments	Good ?
1	122 455 149	1/8	Ø	2058	SCP	HRD		✓
2	122 455 189	2	Ø	2103	SCP	HRD		✓
3	122 455 097	3/8	Ø	2107	SCP	HRD		✓
4	122215 145	1	Ø	2109	SCP	HRD		✓
5	111 755 179	1/8	Ø	2147	SCP	NWS		✓
6	122 215 254	2/8	Ø	2200	SCP	NWS	CP	✓
7	122 215 130	1	Ø	2208	SCP	NWS		✓
8	122 215 131	3/8	Ø	2219	SCP	NWS		✓
9	122 455 173	2	Ø	2223	SCP	HRD		✓
10	122 215 141	1/8	Ø	2227	SCP	HRD		✓
11	122 215 129	3	Ø	2231	SCP	NWS		✓
12	122 455 191	2	Ø	2244	SCP	NWS	CP	✓
13	111 925 073	4/8	Ø	2252	SCP	NWS		✓
14	122 455 136	1	Ø	2258	SCP	HRD		✓
15	112 065 061	2/8	Ø	2303	SCP	NWS		✓
16	122 455 148	3	Ø	2307	SCP	NWS		✓
17	122 215 210	4	Ø	2320	SCP	NWS	IP	✓
18	111 925 017	1/8	Ø	2335	SCP	NWS	MP - late launch (12min) data	X
19	122 215 209	2	Ø	2335	SCP	NWS	back up for 18	✓
20	112 065 010	1	Ø	0000	SCP	NWS		✓
21	111 925 021	2	Ø	0009	DAN	NWS		✓
22	112 065 017	1/8	Ø	0042	DAN	NWS	Center drop	✓
23	112 065 005	4	Ø	0054	DAN	NWS		✓
24	111 925 032	1/8	Ø	0103	DAN	HRD		✓
25	111 925 084	4	Ø	0109	DAN	NWS	EP	✓
26	111 925 010	1/8	Ø	0118	DAN	HRD		✓
27	111 925 029	4	0	0121	DAN	NWS		✓
28	112 065 003	2	Ø	0132	DAN	NWS		✓
29	111 945 377	1/8	Ø	0142	DAN	NWS		✓
30	122 215 134	2	Ø	0153	DAN	NWS		✓
31	111 925 046	1/8	Ø	0216	DAN	NWS		✓
32	111 925 028	2	Ø	0220	DAN	NWS	NO Launch Det - FAB FAIL	X
33	112 065 004	1	Ø	0231	DAN	NWS		✓
34	122 455 150	2	Ø	0251	DAN	NWS		✓

Drop #	Sonde Serial #	Rcvr #	Press Offset	Launch Time	Operator	Charge $$ To	Comments	Good ?
35	122 455013	3	Ø	0301	DAN	NWS		✓
36	111 945379	1	NO	DRO	P		Back up	
37								
38								
39								
40								
41								
42								
43								
44								
45								
46								
47								
48								
49								
50								
51								
52								
53								
54								
55								
56								
57								

Drop Station Operator Notes

Charge $$ To Options: AOC, NWS, HFIP, NESDIS, or HRD ONLY – Do not use accounting codes!!!

AVAPS Pre-Flight Check:

- If time-premits, verify cabin pressure sensor w/ lab standard
- Start AVAPS., then start Soundings and set the Project Name and full Flight ID (example 20110823h2).
- Update the Frequency band allocation as required:
  Band A - W53rd, Band B - N42RF, Band C - N43RF, Band D - N49RF, Band E - not allocated
- Perform a prelaunch check on each channel, look for reasonable data and no CRC error status lights. Verify data is available on Remote AVAPS at the FD Station, then terminate the sonde by selecting **Abort** to cancel the sonde initialization. Verify the AVAPS Data mission folder has been created.

AVAPS Launch:

- Select a sonde frequency in the Green band and away from other sondes
- Enter sonde pressure error offset if 0.4mB or greater
- Select "begin data collection" and verify good data (including Winds) prior to putting sonde in launch tube
- Below 10,000', cut off about ½ of ribbon
- Loosen ribbon and extend end of ribbon to near, but not over, the sensor end of the sonde
- Place the sonde in the launch tube, sensor arm up, with the power pin socket facing starboard
- Verify the sonde is actively tracking GPS data prior to launch and no Early Launch detect

DATE		SCHEDULED FIX TIME	AIRCRAFT NUMBER	ARWO	
WX MISSION IDENTIFICATION		STORM NUMBER IDENTIFIER			OB
VORTEX DATA MESSAGE					
A	28/1234Z36	DATE AND TIME OF FIX			
B	29 DEG 02 MIN N S	LATITUDE OF VORTEX FIX			
	89 DEG 25 MIN E W	LONGITUDE OF VORTEX FIX			
C	700 7898	MINIMUM HEIGHT AT STANDARD LEVEL			
D	62	ESTIMATE OF MAXIMUM SURFACE WIND OBSERVED			
E	214 53	BEARING AND RANGE FROM CENTER OF MAXIMUM SURFACE WIND			
F	333 66	MAXIMUM FLIGHT LEVEL WIND NEAR CENTER			
G	215 57	BEARING AND RANGE FROM CENTER OF MAXIMUM FLIGHT LEVEL WIND			
H	EXTRAP 970	MINIMUM SEA LEVEL PRESSURE COMPUTED FROM DROPSONDE OR EXTRAPOLATED FROM FLIGHT LEVEL. IF EXTRAPOLATED, CLARIFY IN REMARKS.			
I	42 / 3062	MAXIMUM FLIGHT LEVEL TEMP/PRESSURE ALTITUDE OUTSIDE EYE			
J	18 / 3048	MAXIMUM FLIGHT LEVEL TEMP/PRESSURE ALTITUDE INSIDE EYE			
K	13 / NA	DEWPOINT TEMP/SEA SURFACE TEMP INSIDE EYE			
L	N	EYE CHARACTER: Closed wall, poorly defined, open SW, etc.			
M		EYE SHAPE/ORIENTATION/DIAMETER. **CODE EYE SHAPE AS:** C -Circular; CO - Concentric; E- Elliptical. **TRANSMIT ORIENTATION OF MAJOR AXIS IN TENS OF DEGREE** (i.e., 01-010 to 190; 17-170 to 350). **TRANSMIT DIAMETER IN NAUTICAL MILES.** Examples: C8 - Circular eye 8 miles in diameter. EO9/15/5 - Elliptical eye, major axis 090-270, length of major axis 15 NM, length of minor axis 5NM. CO8-14 - Concentric eye, diameter inner eye 8 NM, outer eye 14 NM.			
N		FIX DETERMINED BY/FIX LEVEL. **FIX DETERMINED BY:** 1 - Penetration; 2 - Radar; 3 - Wind; 4 - Pressure; 5 - Temperature. **FIX LEVEL:** Indicate surface center if visible; indicate both surface and flight level centers only when same: 0 - Surface; 1 - 1500ft; 9-925mb; 8 - 850 mb; 7 - 700 mb; 5 - 500 mb; 4 - 400 mb; 3 - 300 mb; 2 - 200 mb; NA - Other.			
O		NAVIGATION FIX ACCURACY/METEOROLOGICAL ACCURACY			
P	REMARKS MAX FL WIND_____KT_____QUAD_____Z MAX OUTBOUND FL WIND_____KT_____QUAD_____Z SLP EXTRAP FROM (Below 1500 FT/ 925 MB/ 850 MB/ DROPSONDE) SFC CNTR_____/_____NM FROM FL CNTR MAX FL TEMP _____C_____/_____NM FROM FL CNTR SURFACE WIND OBSERVED VISUALLY				
INSTRUCTIONS: Items A through G (and H when extrapolated) are transmitted from the aircraft immediately following the fix. The remainder of the message is transmitted as soon as available.					

Figure 5-4. Vortex Data Message Worksheet

045 - 60

E05/60/40

DATE		SCHEDULED FIX TIME	AIRCRAFT NUMBER	ARWO	
WX MISSION IDENTIFICATION		STORM NUMBER IDENTIFIER			OB
VORTEX DATA MESSAGE					
A	~~28 59~~ 28/2240Z	DATE AND TIME OF FIX			
B	~~28~~ DEG ~~59~~ MIN N S	LATITUDE OF VORTEX FIX			
	89 DEG 07 MIN E W	LONGITUDE OF VORTEX FIX			
C	900 2901	MINIMUM HEIGHT AT STANDARD LEVEL			
D	NA	ESTIMATE OF MAXIMUM SURFACE WIND OBSERVED			
E	NA	BEARING AND RANGE FROM CENTER OF MAXIMUM SURFACE WIND			
F	91 76	MAXIMUM FLIGHT LEVEL WIND NEAR CENTER			
G	356 42	BEARING AND RANGE FROM CENTER OF MAXIMUM FLIGHT LEVEL WIND			
H		MINIMUM SEA LEVEL PRESSURE COMPUTED FROM DROPSONDE OR EXTRAPOLATED FROM FLIGHT LEVEL. IF EXTRAPOLATED, CLARIFY IN REMARKS.			
I		MAXIMUM FLIGHT LEVEL TEMP/PRESSURE ALTITUDE OUTSIDE EYE			
J		MAXIMUM FLIGHT LEVEL TEMP/PRESSURE ALTITUDE INSIDE EYE			
K		DEWPOINT TEMP/SEA SURFACE TEMP INSIDE EYE			
L		EYE CHARACTER: Closed wall, poorly defined, open SW, etc.			
M		EYE SHAPE/ORIENTATION/DIAMETER. **CODE EYE SHAPE AS:** C -Circular; CO - Concentric; E- Elliptical. **TRANSMIT ORIENTATION OF MAJOR AXIS IN TENS OF DEGREE** (i.e., 01-010 to 190; 17-170 to 350). **TRANSMIT DIAMETER IN NAUTICAL MILES.** Examples: C8 - Circular eye 8 miles in diameter. EO9/15/5 - Elliptical eye, major axis 090-270, length of major axis 15 NM, length of minor axis 5NM. CO8-14 - Concentric eye, diameter inner eye 8 NM, outer eye 14 NM.			
N		FIX DETERMINED BY/FIX LEVEL. **FIX DETERMINED BY:** 1 - Penetration; 2 - Radar; 3 - Wind; 4 - Pressure; 5 - Temperature. **FIX LEVEL:** Indicate surface center if visible; indicate both surface and flight level centers only when same: 0 - Surface; 1 - 1500ft; 9-925mb; 8 - 850 mb; 7 - 700 mb; 5 - 500 mb; 4 - 400 mb; 3 - 300 mb; 2 - 200 mb; NA - Other.			
O		NAVIGATION FIX ACCURACY/METEOROLOGICAL ACCURACY			
P	REMARKS MAX FL WIND_____KT_____QUAD_____Z MAX OUTBOUND FL WIND_____KT_____QUAD_____Z SLP EXTRAP FROM (Below 1500 FT/ 925 MB/ 850 MB/ DROPSONDE) SFC CNTR_____/_____NM FROM FL CNTR MAX FL TEMP _____C_____/_____NM FROM FL CNTR SURFACE WIND OBSERVED VISUALLY				
INSTRUCTIONS: Items A through G (and H when extrapolated) are transmitted from the aircraft immediately following the fix. The remainder of the message is transmitted as soon as available.					

Figure 5-4. Vortex Data Message Worksheet

9,207 24

open

2253Z
28 59
089 09

C25

OPEN NW

DATE		SCHEDULED FIX TIME	AIRCRAFT NUMBER	ARWO
WX MISSION IDENTIFICATION		STORM NUMBER IDENTIFIER		OB 09
VORTEX DATA MESSAGE				
A	28 / 2159 55	DATE AND TIME OF FIX		
B	28 DEG 46 MIN N S	LATITUDE OF VORTEX FIX		
	089 DEG 03 MIN E W	LONGITUDE OF VORTEX FIX		
C	706 2917	MINIMUM HEIGHT AT STANDARD LEVEL		
D	NA	ESTIMATE OF MAXIMUM SURFACE WIND OBSERVED —		
E	301 1	BEARING AND RANGE FROM CENTER OF MAXIMUM SURFACE WIND		
F	083 80	MAXIMUM FLIGHT LEVEL WIND NEAR CENTER		
G	343 45	BEARING AND RANGE FROM CENTER OF MAXIMUM FLIGHT LEVEL WIND		
H	971	MINIMUM SEA LEVEL PRESSURE COMPUTED FROM DROPSONDE OR EXTRAPOLATED FROM FLIGHT LEVEL. IF EXTRAPOLATED, CLARIFY IN REMARKS.		
I	12 3041	MAXIMUM FLIGHT LEVEL TEMP/PRESSURE ALTITUDE OUTSIDE EYE		
J	17 3066	MAXIMUM FLIGHT LEVEL TEMP/PRESSURE ALTITUDE INSIDE EYE		
K	13 / NA	DEWPOINT TEMP/SEA SURFACE TEMP INSIDE EYE		
L	OPEN SW	EYE CHARACTER: Closed wall, poorly defined, open SW, etc.		
M	C40	EYE SHAPE/ORIENTATION/DIAMETER. **CODE EYE SHAPE AS:** C -Circular; CO - Concentric; E- Elliptical. **TRANSMIT ORIENTATION OF MAJOR AXIS IN TENS OF DEGREE** (i.e., 01-010 to 190; 17-170 to 350). **TRANSMIT DIAMETER IN NAUTICAL MILES.** Examples: C8 - Circular eye 8 miles in diameter. EO9/15/5 - Elliptical eye, major axis 090-270, length of major axis 15 NM, length of minor axis 5NM. CO8-14 - Concentric eye, diameter inner eye 8 NM, outer eye 14 NM.		
N	12345 / 7	FIX DETERMINED BY/FIX LEVEL. **FIX DETERMINED BY:** 1 - Penetration; 2 - Radar; 3 - Wind; 4 - Pressure; 5 - Temperature. **FIX LEVEL:** Indicate surface center if visible; indicate both surface and flight level centers only when same: 0 - Surface; 1 - 1500ft; 9-925mb; 8 - 850 mb; 7 - 700 mb; 5 - 500 mb; 4 - 400 mb; 3 - 300 mb; 2 - 200 mb; NA - Other.		
O		NAVIGATION FIX ACCURACY/METEOROLOGICAL ACCURACY		
P	REMARKS C MAX FL WIND 91 KT NE QUAD 221020 Z MAX OUTBOUND FL WIND _____ KT _____ QUAD _____ Z SLP EXTRAP FROM (Below 1500 FT/ 925 MB/ 850 MB/ DROPSONDE) SFC CNTR _____ / _____ NM FROM FL CNTR MAX FL TEMP _____ C _____ / _____ NM FROM FL CNTR SURFACE WIND OBSERVED VISUALLY			
INSTRUCTIONS: Items A through G (and H when extrapolated) are transmitted from the aircraft immediately following the fix. The remainder of the message is transmitted as soon as available.				

Figure 5-4. Vortex Data Message Worksheet

970.5
5kts

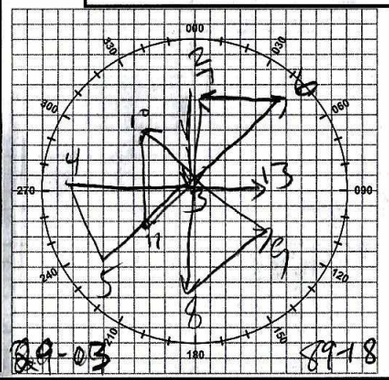
2345L 813-883-0060 828-2929 1445 88K 69TRA

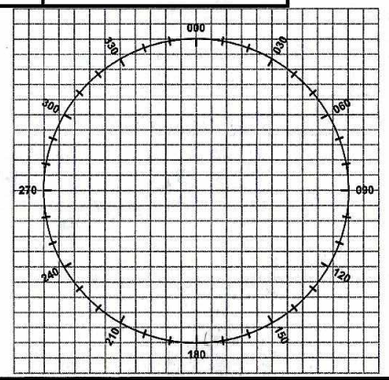
MISSION LOG

PAGE 1 OF 2

CLEARANCES

FREQ	ALT	HDG	OTHER
127.0	3K	RV	MCF TAY AF
125.37			12K T10 SQ 2641
135.92			





89-18

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 42

- 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 13 SOULS ON BOARD
- NATURE OF EMERGENCY
- ASSISTANCE DESIRED
- PILOT INTENTIONS
- WE HAVE _____ ENDURANCE REMAINING

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
1930	ENG	N	N		N																NYR HF2 5/5
1935	BLK	W	W		W																SELCAL ✓ 11342
1935	TAXI																				
1942	T/O																				
1947	W	30-27 82-00	30-27 82-00	0 0	30-27 82-00	0 0					268	222	225	14	5K	228					TAY 100/29 N 25 W 00
2033	Δ	30-18 86-03	30-18 86-03	0 0	30-18 86-03	0 0					263	298	151	40	12K	285					
2123	Δ	30-09 90-17	30-09 90-16	0 +1	30-09 90-17	0 0					130	228	036	52	10K	247					
2233	Δ	29-39 89-10	29-39 89-10	0 0	29-42 89-09	-3 +1		W			181	242	090	70	10K	246					
2322	Δ	27-56 90-24	27-56 90-24	0 0	27-59 90-23	-3 +1		0			045	228	325	45	10K	241					
0024	Δ	29-59 89-33	29-59 89-33	0 0	30-06 89-31	-7 +2		0			172	238	088	63	10K	255					
0122	Δ	27-43 88-33	27-42 88-33	+1 0	27-52 88-29	-9 +4		W			308	249	219	52	10K	252					
0221	Δ	28-40 90-15	28-08 90-16	+2 +1	28-21 90-12	-11 +3		0			046	243	304	55	10K	249					
0243	C	TACAN	TO	SET	7	AT		ASK		CTA		001	0L								
0323	Δ	28-32 85-54	28-33 85-54	-1 0	28-48 85-47	-16 +7		W			102	310	193	45	170	313					
0413	LAND																				
0426	BLK																				

100/45

MISSION LOG	PAGE ___ OF ___

FIX TYPES
(G) - GPS (I) - INS (R) - RADIO (V) - VISUAL (C) - CELESTIAL (D) - DR

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
2200	G	28-46 89-09	320/8																		
2245	E	28-55 89-07	340/9																		
2344	E	29-02 89-25	295/17																		
0042	E	28-51 89-89-40	230/17																		
0145	E	28-46 89-36	145/6																		
0234	E	28-54 89-37	350/10																		