N43RF ERROR SUMMARY

HURRICANE 2009
HURRICANE BILL

Flight ID: 090820I2

Sensor or system	Number or Name
INE (for wind derivation)	INE1
Accelerometer	ACC1
Temperature Probe	TT1
Dew Point Probe	TDM2X (EDGETECH)
Static Pressure	PSF
Dynamic Pressure	PQF1
Vert. Wind	ALTI1X
Constants File	n43_hur09v2.adc
Project Directory	/acdata/2009/hur09/P3

Notes:

There were 6 instances after takeoff of data gaps in the netCDF file:

00:52:01 – 00:52:11Z: no subsequent disruption resulted from this gap

01:09:11 – 01:09:19Z: during this interval, there were significant errors caused by the interface between the inertial navigation systems and the RAMS data collection system that generates High Density Observations in real time. As a result, the ASDL SATCOM system sent out greatly exaggerated flight level and SFMR wind speeds for HDOBS 01:09:00 and 01:09:30 Z. However, since in the creation of the netCDF file from the aircraft tape this nine second gap appears as missing data, no such errors are included in the research data. Fortunately also, no disruption of subsequent data occurred immediately following this gap in the netCDF file.

There were four more instances of one second gaps:

02:15:51Z
02:38:41Z
02:40:31Z
02:41:01Z

In each of these instances, there were significant spikes in the subsequent second resulting from errors in sampling inertial data output. This necessitated that the following variables be patched using statistical means: alti1, lati1, loni1. Two more: gsui1 and gsvi1 had very small data deviations not requiring patching.

Dewpoint sensor #2...TDM2 (EdgeTech) had several occurrences where its' value was greater than ambient temperature thus producing humidity values above 100%. For most of these occurrences TDM2 output was not modified. There were two instances where TDM2 had to be patched using statistical methods (data smoothing to remove anomalous spikes with weighting factors between 0.10 and 0.30) to avoid having RH values well in excess of 120% in the final RXC file: 23:20:00-23:20:33Z and 02:44:06 – 02:45:08Z.

The tail Doppler radar was not available for this mission. All other flight level instruments worked optimally during the flight. There was an abnormally long period of ground time between when the data system began collecting measurements and takeoff due to a maintenance delay (over 90 minutes from 1940z to 2122z).

Twenty dropsondes (20) were deployed during the mission. Two were bad (the 0022Z drop at the NW corner of the pattern was a fast fall and the 0143Z drop at the 060 degree radial out from eye along the arc pattern had no launch detect). No AXBT were deployed.

The RINU1550 GPS altitude output was used for extrapolating sea level pressure from flight altitude. An eye center dropsonde was conducted at 23:58:28Z. The extrapolated sea level pressure from flight altitude, 700 mb or 10,000 feet, at the time of this release was 940.3 mb with a splash sonde pressure (according to ASPEN, Editsonde was not run on this drop) of 943 mb (with 8 knots of wind at the surface).

SPECIAL NOTE!!! The variable names dpj wgs, dpj_was and dpj_wz in the netCDF file represent vertical ground, vertical air 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.

	Takeoff	**Landing**
	2122Z	0512Z
Aircraft Static Pressure	1004.5mb	1007.0mb
Corrected Tower Pressure	1003.7mb	1007.8mb

Flight Directors: Richard Henning and Jack Parrish (813) 828-3310 ext. 3086

2

U.S. Dept. of Commerce / NOAA / Aircraft Operations Center — AOCWF1

Flt ID: 090820IB	From: TBPB	To: TBPB
Flt No: 09-059	Blk In: 0515z	ATA: 0512
ETD: 2000z	Blk Out: 2019z (2112 2nd)	ATD: 2122
ETE: 8+00	Blk Time: (9.1)	Flt Time: (7.8)
Sponsor Org: HRD	Program: PHX	Purpose: ~~MODIFIED~~ Hurricane B.11

AOC Personnel

AC: CHOY	Sys Eng: BOSKO
CP: NELSON / MARTIN	Data Sys: NAEHER
Nav: GALLAGHER / KIDDER	Radar:
FE: BAST / KLIPPEL	GPS/BT: SAN SOUCI (16)
FD: HENNING / PARRISH	Cld Phys:
Avionics:	

Participating Scientists / Visitors / AOC

Name (Last, First)	Activity on Aircraft	Affiliation
BLACK, Mike	LPS	HRD
GAMACHE	SCI	HRD
ANNANE	SCI	HRD
DVORSKY	SCI	UMASS

Takeoff Ps 1004.5 Landing Ps 1007.0
STA PR 1003.7 ~~2888~~ STA PR 1007.8

Proposed/Actual Mission Remarks (Recco, Fixes, Storm, PENET, NHOP #)

TAKEOFF Altim 1010.0 TBPB (29.83) 1010.6 SLP
LANDING Altim 1014 TBPB

2 HR transmit

1218z (2663)
2210N 951mb
6111W 120kts NE
93 SFMR

00z → 24.2N 63.8W
305/16
23.36
22z → 63 15

MISSING OBS AT CARCAH:
3 8 13 14 15 18 20 22 23
(14 resent manually by Steve in MIAMI)
↑ 2nd vortex

1606z
22 52N 62 12W

U.S. Dept. of Commerce / NOAA / Aircraft Operations Center AOCW-2

Flt ID: 090820I2 | Time Off: 2122Z | Time On: 0512Z

	A/C (Take Off)	Wx Station (Take Off)	A/C (Land)	Wx Station (Land)
Pressure	1004.5	1003.7	1007.0	1007.8

	Number	Data Disposition / Date / Quality
Flt Lvl Tapes	2	
Radar Tapes	0	(TDR and LF radars INOP)
Cloud Physics Tapes		
Video Tapes		
AXBT	Ø	
AXCP		
AXCTD		
Dropsondes	20	2 bad (1 NO Launch Detect at 0143z + 1 FF at 0022z)

Video

	Forward	Left Side	Right Side	Down	Remarks
Time On					
Time Off					
Rate					

Remarks

NOAA • AOC • SEB

N43RF AVAPS DROP LOG

Project : Hurricane '09 Mission : BILL Flight ID : 090820iB

Take Off : 2122 Landing : _____ Flt Dir : PARRISH / HEWING Launcher S/N: _____

Drop #	Sonde Serial #	Rcvr #	Press Offset	Launch Time	Winds Time	Operator	Charge $$ To	Comments	Good ?
1	084 919 137	1	.4	2334		WSS		IP	✓
2	084 439 011	2	.6	2341				MOAT	✓
3	084 919 217	3	.6	2354				SE EYE WALL	✓
4	083 259 178	2	.6	2358				CENTER	✓
5	083 259 238	4	.6	0139				NW EYEWALL	✓
6	084 919 212	2	.5	0022		FIRST FULL		NW CORNER	✓
7	083 259 081	2	.7	0037				W POINT	✓
8	082 219 631	2	.3	0102				W EYEWALL	✓
9	083 259 233	4	.7	0108				E EYEWALL	✓
10	082 219 182	2	.1	0129				E POINT	✓
11	082 229 270	3	.8	0136				ARC 1	✓
12	082 229 265	2	1.0	0143?		NO LAUNCH DET		ARC 2	✓
13	083 259 169	3	.3	0149				ARC 3	✓
14	084 919 141	2	.6	0159				ARC 4	✓
15	083 219 824	4	.6	0209				ARC 5	✓
16	084 919 221	2	.5	0216				ARC 6	✓
17	083 259 873	4	.8	0224				ARC 7	✓
18	083 219 026	1	.5	0229				ARC 8	✓
19	083 259 051	2	.9	0235				ARC 9	✓
20	083 259 222	3	.9	0244				ARC 10	✓

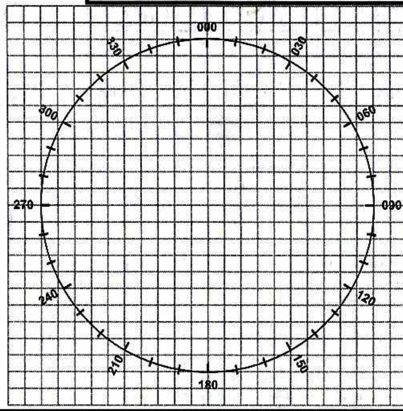
2330 2035 2212 6612 2109 6522

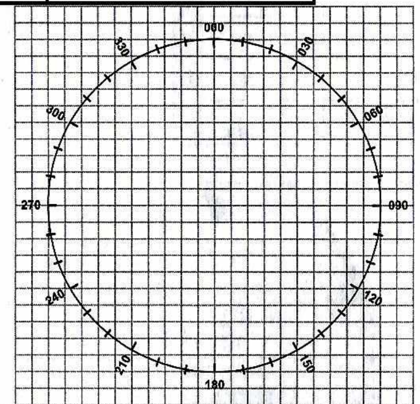
MISSION LOG

PAGE ___ OF ___

CLEARANCES

FREQ	ALT	HDG	OTHER
	FL160	150	160 SQK 1054
2140			N22-35 W062-05
			N23-50 W063-25
2305			2330N
			090 150





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	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
~~2018~~	~~ENG T41~~																				
~~2020~~	~~CLK~~																				
~~2111 2112~~	~~ENG T41~~																				
~~2112 2123~~	~~BLK~~																				
2125	A	13-05.3 059-26.0	13-05.3 059-26.0	=	13-05.3 059-26.0	=	006	15W	351	3L	348	254	133	10	FL160	229	1	96	+20	2145	
2225	A	18-00.9 060-40.7	18-00.9 060-40.7	—	18-00.6 060-40.5	+.3 +.2	000	15W	345	1L	344	303	170	20	FL160	283	1P	274	+54	2320	
2240	C	18-50 060-55	FL160 22-35N 062-05W	2330	23-50 063-25																
2325	A	22-25.9 062-05.4	22-24.4 062-02.6	-.2 +.8	22-26.3 062-01.8	-.4 +1.6	340	15W	331	9R	340	291	205	63	FL400	248	1P	44	+09	2334	
2325	C	22-35N 062-05	→ FL090	BLK FL150	23-50 063-25	23-58			331		340										
2350		23-50 063-25	FL 090 BLK FL150	OPERATIONAL	WITHIN 200NM																
2357	D	24-15.699 063-46.704																			
0025	A	25-17.6 065-19.6	25-16.2 065-28.0	+1.4 -.4	25-15.0 065-19.4	+2.2 +.2	215	14W	201	—	201	319	031	62	FL400	258	W	44	+08	0033	
0052	C	24-20 064-35																			
0104	A	24-29.633 063-58.899																			
0125	A	24-50.2 062-06.8	24-28.7 062-07.5		24-25.6 062-06.3		123	15W	108	18L	090	230	169	71	FL150	257	ARC 1	52	+17	0142	
0153	C	9-15 Block	W21 ✓ 6257																		

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

MISSION LOG

PAGE ___ OF ___

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
0226	△	24 50 / 065 14	24 49 / 065 13		24 45 / 65 14		170	14W	156	4R	160	320	357	55	150	267	LLOS7	18nm		0321	
0240	C	FL 210	23 48 / 064 32	NOT	LAMKN	0400	TBPB														
0306	C	SAN JUN	F210	TBPB	LAMKN	A		125.0				LAMKN -	ANU -	A		G22 / [illegible]					
0318	C	Rader Contact																			
0326	△	20 25 / 063 01	20 23 / 063 02	+2 / -1	20 18 / 063 03	+7 / -2	175	14W	161	4L	171	300	229	024	FL210	305	LAMKN	146		0358	
0357	C	6514 SQWK																			
0421	△	16 15 / 061 17	16 14 / 061 17	+1 / 0	16 04 / 61 19	+9 / -2	168	15W	153	2L	166	305	231	14	210	309	TASAR	40		0430	
0509	V	CLR LAND																			
0512	LAND	KBPB																			