N43RF ERROR SUMMARY

HURRICANE 2009
HURRICANE BILL

Flight ID: 090819I2

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 three instances after takeoff of erroneous or missing inertial data being skipped in the creation of the netCDF file resulting in data gaps:

01:07:21 - 01:07:26Z
01:53:41Z
02:29:41Z

The two second-long gaps did not cause any subsequent disruption to the data. However, for the six second gap, there was one second of erroneous data that followed resulting in the need for the following data to be patched using the substitution method with the following offsets: hdgi1 (0.6 offset), gsui1 (-1.15), alti1 (-27 using the altnvtl), lati1 and loni1 were both offset by 0.00015 using latnvl and lonnvl respectively.

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. The highest value for RH left in the RXC file (not corrected) was 133% at 00:26:17Z (there was a gradual rise of several seconds to this value so no obviously erroneous "spike" was available to be corrected). TDM2 values were modified to remove what would have been more extreme RH spikes. A raw dew point spike of 40.03C at 00:27:04Z was patched to 14.60C manually using statistical methods with a weighting factor of 0.35. Similar patching was performed during the interval from 00:26:19Z to 00:28:51Z to remove several spikes, replacing them with a curve with a beginning value of 14.53C to an ending value of 11.92C.

All other flight level instruments worked optimally during the flight. A 140 meter spike in absolute altitude at 23:42:36Z was deemed to be valid when correlated with a sudden rise in Pressure Altitude, along with a sharp peak in vertical acceleration associated with penetration of a strong outlying feeder band approximately 100 NM northeast of the center.

The RINU1550 GPS altitude output was used for extrapolating sea level pressure from flight altitude. An eye center dropsonde was conducted at 02:01:01Z. The extrapolated sea level pressure from flight altitude, 700 mb or 10,000 feet, at the time of this release was 946.2 mb with a splash sonde pressure of 949 mb (with 13 knots of wind at the surface).

Twenty three dropsondes (23) were deployed during the mission, all but one were good (the 2146Z inbound drop failed to acquire GPS winds). No AXBT were deployed.

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**
	1955Z	0357Z
Aircraft Static Pressure	1002.1mb	1004.9mb
Corrected Tower Pressure	1001.8mb	1004.7mb

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

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

Flt ID: 090819I B	From: TBPB	To: TBPB	
Flt No: 09-057	Blk In: 0402z	ATA: 0357	
ETD: 2000z	Blk Out: 1943z	ATD: 1955z	8.0
ETE: 8+00	Blk Time: 8.3	Flt Time: ~~8.3~~	
Sponsor Org: HRD	Program: PHX	Purpose: TDR / FIXES / Sondes HURRICANE BILL	

AOC Personnel

AC: CHOY	Sys Eng: Bosko
CP: NELSON / MARTIN	Data Sys: Naeher
Nav: Kidder / Gallagher	Radar:
FE: Bast / Klippel	GPS/BT: San Souci
FD: Henning / Parrish	Cld Phys:
Avionics:	

Participating Scientists / Visitors / AOC

Name (Last, First)	Activity on Aircraft	Affiliation
Cione, Joe	LPS	HRD
Gamache, John	Radar	HRD
Amnane, Bashir	~~Dr~~ Edtsonde	HRD
Dvorsky, Jason	IWRAP	UMASS

E 105 PT 20 31N 56 45W
eye 20 32N 58 36W
LAND 1011 mb TBPB (1004.7 STA)
1011.4 system SLP (1004.9 Ps)

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

1008 mb Takeoff
(29.77) (1001.8 STA)
1008.2 mb ~~SLP~~ (1002.1 Ps)

Recco1 2052z

2110
5816

2018
5814

1+15
IP 18 35.5
56 20.5

1950 1+50
57 38
2150z

Eyewall
0027

300/16
00z 19.9N 58.3W
1141z 18 13N
55 29W
952 129NE
SFMR 105
113 kts 120 meters

U.S. Dept of Commerce / NOAA / Aircraft Operations Center — AOCWF2

Flt ID: 090819I2 | Time Off: 19552 | Time On: 0357 Z

	A/C (Take Off)	Wx Station (Take Off)	A/C (Land)	Wx Station (Land)
Pressure	1002.1 mb	1001.8	1004.9	1004.7

	Number	Data Disposition / Date / Quality
Flt Lvl Tapes	2	
Radar Tapes	1	
Cloud Physics Tapes		
Video Tapes		
AXBT	0	
AXCP		
AXCTD		
Dropsondes	23	1 failed to get GPS winds (2146Z)

Video

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

Remarks

OBS 1 4 8 10 13 14 19 21 23 25 26

HD 11, 13, 19, 23, 35 39

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N43RF AVAPS DROP LOG

Project : Hurricane '09 Mission : BILL Flight ID : 090819iB

Take Off : 2000 Landing : _____ Flt Dir : PARRISH / HENNING Launcher S/N: _____

PENNIES
1111

Drop #	Sonde Serial #	Rcvr #	Press Offset	Launch Time	Winds Time	Operator	Charge $$ To	Comments	Good ?
1	084 919 119	4	.4	2136		DSS		IP	✓
2	084 919 050	3	.4	2146				NO GPS	X
3	091 849 040	4	.4	2148				INBOUND	✓
4	083 219 023	2	.6	2156				INNER EYES	✓
5	083 259 188	3	.2	2159				CENTER DROP	✓
6	084 439 809	4	.6	2206				OUTBOUND	✓
7	084 919 144	2	.4	2217				OUT MIDDLE	✓
8	084 419 074	2	0	2224				NW POINT	✓
9	084 429 033	2	0	2253				SW CORNER	✓
10	083 259 023	2	-.2	2305				SW INBOUND	✓
11	084 419 086	4	0	2316				SW INNER EYE	✓
12	084 919 135	3	-.3	2322				NE EYEWALL	✓
13	084 919 220	2	.5	2331				NE OUT	✓
14	084 919 117	1	.5	2343				NE CORNER	✓
15	084 919 211	2	.6	0002				N POINT	✓
16	084 919 223	2	.3	0016				N 52.5 PT.	✓
17	084 919 133	3	.5	0027				N INNER EYE	✓
18	084 919 103	1	.7	0047				S MIDDLE	✓
19	084 439 045	2	.6	0101				S POINT	✓
20	084 919 094	4	.2	0134				E POINT	✓
21	084 419 137	2	.3	0157				E EYEWALL	✓
22	084 419 048	3	0	0201				CENTER	✓
23	083 259 025	2	0	0223				W POINT	✓

CLEARANCES

FREQ	ALT	HDG	OTHER
		ATIS	1069 Info V 29.80
			Rwy 09 TL 045
			1950 5738 DR
			1835.5 56 20.5 IP
			1407 58 56 Ect 150
			Rt 3000' 10 DME 1054
			119.35

MISSION LOG

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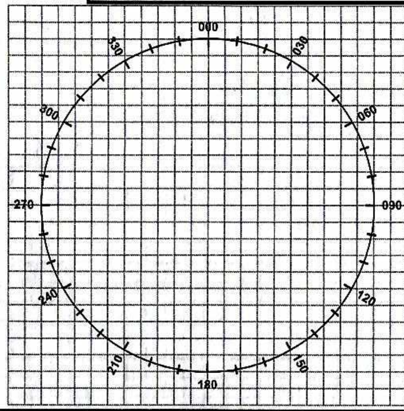

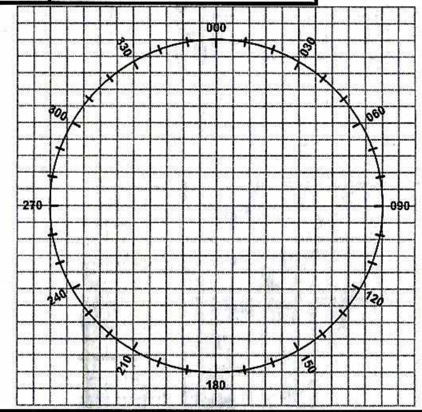

POSITION REPORT

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 43, NOAA 43, NOAA 43

- 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 16 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
1926	STRT									Info		MSA 3K	308/9	7+40	4 penne	105nm SE	FDFH 510nm	Antigua Fort De	VHF HF	MSA MAP	Intcpt View 2nd Flight
1943	TAXI	Foxtrot Rwy 27	Holding Pt																		
1954	T/O																				
1957	IV																				
1958	III/A	VOR 1310 310/11 5939	1309 5939	+1 0	1308 5939	+2 0	054	15W	039	1R	055	240	177	14	16.5	233	TCA	67		2017	VOR/DME FIX
2015	A	127.7	PIARCO																		
2022	C	HF 10096	13297	NY	11309 8825																
2033	C	Direct TB/PB																			
2050	C	PIARCO	POSIT	CONTACT NY																	
2059	A	16 N 5758	1601 5758	-1 0	1600 5758	0 0	047	17W	030	0	047	288	206	19	150	270	IP	182		2137	GPS FIX
2116	C	LMCE	8825 Hz Backup		NY RADIO	✓ IN															
2129	C	FL 090 110 200nm	1950 5738W	S400 UR																	
2134	IP	1837 N 5621 W																			
2146	C	1950 5736	1936 56		NY Radio Posit REP																
2150	A	1926 5707	1927 5706	-1 +1	1927 5706	-1 +1	308	16	292	19R	311	255	201	84	100	250	EYE	40		2200	
2159	E	1981 5742.5	310/14																		

8825

20-30 058-18
20.54 58.31

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
2213	C	NY RADIO POSIT	& REQ																		
2236	Δ	N 20 01 059 08	20 04 59 09	-1 -1	20 N 59 08	+1 0	181	15W	166	6R	172	306	019	65	100	249	SW	74		2252	
2310	C	POSIT REPORT	✓ 1936 N 058 28W																		
2317	[illegible]	2005 058 02	305																		
2331	Δ	2046 5720	20 47 5720	-3 0	20 44 5719	+2 +1	086	16W	070	25L	045	234	140	100	FL100	252	NE	40		2344	
20 0010	C	POSIT REPORT	21-28 058-15	090/110	20-18 058-15		0020														
0056	⊙	20-19.676 058-19.989																			
0031	Δ	18-55.4 058-19.5	18-57.3 058-19.2	-1.9 +.3	18-57.8 058-15.4	+3.6 +.1	209	16W	193	12L	181	236	257	45	1000	251	S	105	27	0058	
0110	C	POSIT REPORT	18-53 057-33	090/110	20-32 058-36	0205															
0120	Δ	20-19.7 058-48.9	20-17.4 058-46.5	+2.7 +.4	20-10.5 058-49.2	+4.2 -.5	013	15W	358	6L	352	325	158	80	1000	253	S	6	+02	0122	
0201	⊙	20-26.493 058-40.897																			
0210	C	POSIT REPORT	20-25 059-25	090/110	20-25 060-30																
0230	Δ	20-00.9 060-29.5	20-04.2 060-29.0	-3.3 +.5	19-55.5 060-30.8	+5.4 -1.3	189	15W	174	2L	172	307	344	41	↗FL190	262	BG1	410	1+28	0358	
0332	Δ	19-53.4 059-44.8	14-57.8 059-43.8	-4.4 +1.0	14-46.1 059-46.5	+7.3 -1.7	188	14W	174	2L	172	317	153	4	FL190	319	BG1	93	+22	0353	
0355		CLR TO LAND																			RWY 09 G 340/4 1018
0357	LAND	13-04.8 059-28.9	13-00.0 059-27.0	-5.2 +1.9	12-57.9 059-30.8	+6.9 -1.9															
0401	DR			020/5.54		195/7.11															

2025 6030 BG1 → 190 2025 6030 CBIL 18 123.7