

NOAA G-IV N49RF ERROR SUMMARY
HURRICANE 2010
1 Sept 2010 Hurricane Earl (NHC Surveillance)

Flight ID: 100901N

<u>Sensor or system</u>	<u>Number or Name</u>
Accelerometer	ACINS
Altitude	PALT
Attack Angle	AKRD2
Dew Point Probe	DPR
Dynamic Pressure	QC2M
Geopotential Altitude	GPGALT
Inertial Selected	VEW, VNS
Static Pressure	PS2M
Slip Angle	SSRD1
Temperature Probe	AT3/TT3
True Airspeed	TAS2
Constants File	49cal093
Project Directory	acdata/2010/MET

Local Met Data	Takeoff (171335z)	Landing (012200z)
Aircraft Static Pressure	1012.1 mb	1010.5 mb
Tower Pressure (corrected)	1013.8 mb	1012.1 mb

Notes:

DADC Pressure Altitude (ADCPALT) was consistently approx 100 meters higher than NACA Pressure Altitude (PALT) during cruise. The APN-232 Radar derived Geopotential Altitude (HGALT) was 100 meters or more lower than Collins GPS derived Geopotential Altitude (GPALT) during cruise. HGALT also spiked occasionally with 300-500 meter downward spikes (that gradually worked back to level). There was at least one such downward spike of 5000 meters around 1809z.

The Left Dew Point sensor (DPLC) again read far too high through the entire flight. At times it read 15C or more higher than AT3, and 20-25C or more higher than DPRC (which compared favorably to rawinsonde data).

The Air Data Computer Attack Angle (ADCAOA) was again consistently 0.5 degrees higher than the Left and Right Attack Angle sensors (AKRD1 and AKRD2).

All other flight level instruments worked optimally during the flight.

Thirty six AVAPS I dropsondes (36) were deployed during the mission. Of those 36 drops, 31 were good (there were 4 fast falls and one that never picked up GPS winds). There were 2 of the 33 assigned drop points that were not covered (3 of the sonde failures occurred at Pt 3 and another at Pt 29).

Of the 31 good sondes, 16 coded surface winds and 15 coded a "LAST WIND" remark of 20 meters or less above the surface, one of those lost winds between 340 and 650 mb but then regained them. All 31 good sondes were transmitted for ingestion into the 02/0000z model runs.

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

7+22
46
68

U.S. Dept. of Commerce / NMAO / NOAA / Aircraft Operations Center

Flt ID: 100901N	From: KMCF	To: KMCF
Flt No: 10 - 100	Blk In: 0132 Z	Time On: 0122 Z
ETD: 1730Z	Blk Out: 1703 Z	Time Off: 1714 Z
ETE: 8.5	Blk Time: 8.5 Hrs	Flt Time: 8.1 Hrs
Sponsoring Org: NHC	Program: Surveillance	Purpose: H. Earl 002

AOC Flight Crew

Aircraft Commander: Glower	Data System: DeFeo
Co-Pilot: Twining	AVAPS: Miller
Navigator:	System Eng: Goldstein
Flight Eng:	AA:
Flight Director: Parrish / Henning	AA:
Avionics:	Crew Chief: Barron

Participating Scientists / Visitors

Name (Last, First)	Activity on Aircraft	Affiliation
Barron, Todd	Visitor - Aspen	NWS Austin
36 SONDES (AVAPS I) 31 GOOD 4 FF 1 failed GPS winds		

marks (Storm Name, Mission ID, Recco Times, Fix Times)	
Storm Name: Earl H.D. Mission ID: 1107A Earl Notes: 29.94 31/21 060/04	Recco Times: 29.89 landing altim Fix # 25 342 7238W Fix Time 040/8 27/20

(See reverse for additional remarks)

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Flight ID:		Time Off: Z		Time On: Z	
A/C Takeoff		Wx Station Takeoff		A/C Land	
Wx Station Land		A/C Land		Wx Station Land	
Pressure					
Number		Data Disposition / Date / Quality			
Flight Level Tapes					
Radar Tapes					
Cloud Physics Tapes / CDs					
Video Tapes					
Dropsondes		Good: Bad:			
AXBT					
AXCP					
AXCTD					
Remarks:		TAKE OFF WEATHER:			
		LANDING WEATHER:			

1 Sept

FLIGHT ID/Storm 1167A EARL AVAPS OPERATOR DEFE0/MILLER FLIGHT DIRECTOR Henning/Parrish

Drop#	Ob #	Launch Time	Sonde ID	Sig Wx	Splash Pressure	Transmission Time	Notes
1	—	174616	9051	set cu	—	—	FAST FALL
2	1	174739	9073	set cu	1014.0	181732	bone dry 050/20
3	2	180132	9029	few cu	1015.8	183141	LST WND 005 065/21
4	—	181448	9018	few cu	—	—	FAST FALL
5	—	181607	9143	few cu	BAD SONDE	—	NO WINDS
6	—	181902	9073	few cu	—	—	FAST FALL
7	3	182918	9032	set cu	1016.8	185557	very dry 080/15
8	4	185014	9015	few cu	1018.3	191002	LST WND 018 110/12
9	5	190731	9001	few cu	1016.5	193015	DRY 075/15
10	6	192126	9155	broken	1014.7	194307	more moist 075/19
11	7	193906	9027	undercast	1010.8	195750	lots of layers 045/32
12	8	194810	9024	undercast	1012.8	200727	LST WND 013 075/37
13	9	195800	9087	undercast	1011.7	203211	Not storm 070/23
14	10	201054	9147	undercast	1015.5	203727	LST WND 012 100/22
15	11	202552	9124	few cu	1018.2	204825	dry 095/15
16	12	203918	9004	few cu	1019.2	210829	2 big dry slots 100/7
17	13	205605	9070	broken	1016.8	211741	dry below 1st 095/15
18	14	210657	9052	undercast	1016.5	213011	LST WND 012 095/21
19	15	211935	9077	undercast	1017.9	214158	dry below 1st 110/23
20	—	212939	9124	undercast	1015.9	215041	101/11.2 m/s L5
PT 18 21	17	214049	3031	"	1012.7	220053	LST WND 020
PT 19 22	18	215031	9123	"	1013.4	220903	85/28 kt
PT 20 23	19	220235	9102	Most thin cirrus	1009.2	222101	No SE wind (016)
PT 21 24	20	221328	9028	undercast	1008.2	223407	LST WND (013)
PT 22 25	21	223011	9024	Thin undercast, set cu low	1012.1	225025	LST WND 014
23 26	22	224523	9030	Thin undercast, set cu low	1010.9	231316	Round 340-650 Brian Pitt
24 27	23	225953	9035	BKD below	1005.1	231815	135/44
25 28	24	231100	9148	Thin cirrus, set cu below	1005.1	233015	LST WND 015
26 29	25	232155	9039	Thin cirrus, set cu low	1005	234123	185/26
27 30	26	233222	9014	set cu b/w	1004.7	235105	LST WND 015
28 31	27	234227	9045	set cu	1003.4	000441	LST WND 012
PT 29 32	—	235245	9030	Dark	BAD SONDE	-FAST FALL	LOW
30 33	28	000240	9026	"	1002.8	002407	339/28
31 34	29	001258	9066	"	1004.5	003206	005/34
32 35	30	002222	9031	"	1005.9	004313	Last wind 017
33 36	31	004024	9074	"	1008.7	005954	Last wind 016 last rep

N49RF AVAPS DROP LOG

Lead Tech: Gabe Defeo

Project: Hurricane '10 Mission: EarlFlight ID: 100901N

Take Off: _____

Landing: _____

Flt Dir: Partish

Drop #	Sonde Serial #	Rcvr #	Press Offset	Launch Time	Winds Time	Operator	Charge \$\$ To	Comments	Good ?
1	092349051	1	Ø	1746		LM		Fast fall	
2	092819673	2	Ø	1747	26			bk up	✓
3	092819029	4	Ø	1801	13				✓
4	091849018	1	Ø	1814				fast fall	
5	092429143	2	Ø	1816				bk up No winds	
6	092429073	4	Ø	1819				bk up No winds	
7	092349032	1	Ø	1829	15				✓
8	092329015	2	Ø	1850	9				✓
9	091849001	1	Ø	1907	3				✓
10	092819155	2	Ø	1921	4				✓
11	092439027	1	Ø	1939	8				✓
12	092349024	2	Ø	1948	5				✓
13	092819087	4	Ø	1958	4				✓
14	092819147	1	Ø	2010	4				✓
15	092819124	2	Ø	2026	5				✓
16	092349004	1	Ø	2039	6				✓
17	092429070	2	Ø	2056	4				✓
18	092439056	1	Ø	2106	5				✓
19	092819077	2	Ø	2119	5				✓
20	092429124	1	Ø	2129	14			from LS	✓
21	092439031	4	Ø	2140	18				✓
22	092429123	1	Ø	2150	10				✓
23	092329102	2	Ø	2202	4				✓
24	092819028	1	Ø	2213	4				✓
25	092819024	2	Ø	2230	5				✓
26	092819030	1	Ø	2245	13				✓
27	092819035	2	Ø	2259	4				✓
28	092819148	1	Ø	2311	4				✓
29	092819039	2	Ø	2321	5				✓
30	092819014	1	Ø	2332	4				✓
31	092819045	2	Ø	2342	4				✓
32	092429030	1	Ø	2352	18			Vert Speed Prob	
33	092819026	4	Ø	0002	4				✓
34	092429066	1	Ø	0012	5				✓

100901n	Log	Latitude	Longitude	Press	Temp	DP	WD	100901n WS	MSL Alt	G Alt	Heading	Track	TAS	GS	V Vel	Event	Comments
17:11:08	27	50.61'N	82 31.46'W	1012.0	32.7	18.4	199.9	3.8	7.5	7.5	219.5	221.2	12.6	8.8	0.01	block	out
1703Z																	
17:13:35	27	50.69'N	82 31.53'W	1011.8	31.0	18.2	50.5	8.3	7.9	7.8	39.6	40.3	81.4	73.1	0.36	take off	
17:32:45	28	15.65'N	80 47.07'W	294.2	-34.2	-40.6	290.6	5.6	9836.9	9813.5	63.7	64.7	219.7	223.5	5.35	climb	
17:46:17	28	59.13'N	79 05.31'W	179.3	-54.4	-61.3	185.1	5.5	13152.0	13114.7	44.3	44.1	230.1	234.3	0.35	Sonde 1	
17:47:50	29	09.81'N	78 59.94'W	179.5	-54.1	-62.0	201.1	9.4	13146.7	13109.5	2.3	3.6	228.5	237.4	0.33	Sonde 1 backup	
(first was a FF)																	
18:01:31	30	56.08'N	78 56.05'W	179.4	-54.2	-64.1	182.8	10.3	13141.5	13106.2	45.9	43.2	229.5	237.3	0.04	Sonde 2	
18:14:49	31	04.13'N	77 03.73'W	179.3	-54.9	-64.6	194.7	15.1	13169.6	13134.4	43.3	42.4	231.3	244.5	-0.09	Sonde 3	
18:16:16	31	14.92'N	76 59.87'W	179.3	-55.0	-64.6	200.3	19.2	13171.4	13136.4	357.8	359.4	229.8	247.7	0.45	Sonde 3 backup	
(Sonde 3 was a FF)																	
18:19:08	31	37.95'N	76 59.98'W	179.2	-56.2	-64.9	198.6	23.9	13172.8	13138.2	357.9	359.7	228.8	251.2	-0.16	Sonde 3	
backup, backup (sonde 3a no winds)																	
18:20:13	31	46.80'N	76 59.99'W	179.1	-56.0	-65.1	198.5	23.0	13175.2	13140.7	358.2	359.8	231.2	252.8	0.09	Sonde 3	
backup, backup, backup (sonde 3b FF)																	
18:29:18	32	59.84'N	76 57.47'W	179.4	-56.0	-65.5	197.6	18.3	13159.4	13126.3	25.7	24.4	229.6	247.8	0.85	Sonde 4	
18:50:13	34	48.42'N	74 31.35'W	179.5	-57.7	-66.6	206.8	28.0	13174.8	13143.7	156.6	148.8	229.4	213.3	-0.03	Sonde 5	
19:07:36	32	58.92'N	74 59.98'W	171.2	-58.4	-67.1	184.0	27.0	13492.4	13457.8	183.5	183.7	230.5	203.3	-0.08	Sonde 6	
19:21:27	31	29.93'N	75 00.16'W	171.1	-57.8	-66.4	177.1	31.1	13506.8	13470.4	186.1	186.9	228.4	197.7	-0.30	Sonde 7	
19:39:06	29	38.79'N	75 23.47'W	171.3	-54.9	-65.3	166.4	29.1	13499.6	13461.2	129.7	126.2	229.6	206.7	0.21	Sonde 8	
19:48:00	30	11.88'N	74 14.90'W	171.3	-54.2	-65.0	182.2	21.5	13496.3	13458.5	78.5	73.0	228.8	235.0	0.08	Sonde 9	
19:58:00	30	16.80'N	72 54.50'W	171.3	-58.3	-66.3	160.9	14.5	13520.0	13482.0	45.4	43.0	227.8	234.1	-0.18	Sonde 10	
20:10:51	31	59.72'N	72 59.89'W	163.4	-58.1	-66.6	227.0	26.3	13814.0	13776.7	353.3	358.0	226.4	242.7	0.35	Sonde 11	
20:25:52	33	59.24'N	72 56.76'W	163.4	-61.4	-68.2	223.1	26.8	13802.3	13767.4	30.0	30.7	226.6	252.4	0.14	Sonde 12	
20:39:20	34	52.87'N	71 04.14'W	163.3	-60.9	-68.7	224.1	19.9	13814.8	13780.8	130.5	123.9	229.0	229.3	-0.21	Sonde 13	
20:56:09	32	59.95'N	70 58.41'W	163.3	-59.3	-67.4	209.3	19.4	13831.6	13795.4	162.4	159.2	225.4	231.2	-0.65	Sonde 14	
21:06:56	32	01.87'N	68 58.37'W	155.8	-59.5	-67.5	225.1	17.6	14135.7	14096.9	117.4	113.7	225.4	231.2	-0.65	Sonde 15	
21:19:34	31	52.57'N	68 09.39'W	155.9	-60.2	-68.4	248.7	16.7	14159.3	14120.2	189.8	184.6	228.3	220.5	-0.25	Sonde 16	
21:29:39	31	00.03'N	68 59.98'W	155.7	-62.7	-67.9	222.7	20.3	14156.5	14106.4	220.0	219.6	226.3	206.0	-0.25	Sonde 17	
21:40:46	30	05.80'N	69 59.97'W	155.9	-61.6	-68.4	220.3	21.2	14148.0	14106.9	267.1	270.8	225.3	211.0	-0.39	Sonde 18	
21:50:31	30	52.73'N	70 59.12'W	155.9	-62.0	-69.4	198.1	26.3	14144.7	14104.5	251.1	257.8	225.5	211.0	-0.46	Sonde 19	
22:02:34	29	38.92'N	71 34.92'W	155.8	-59.8	-68.2	155.9	16.7	14137.9	14096.3	171.6	173.1	225.4	209.4	0.46	Sonde 20	
22:13:30	28	37.67'N	70 46.31'W	155.5	-61.1	-68.6	116.0	14.3	14160.0	14117.2	113.3	113.2	226.3	212.0	-0.95	Sonde 21	
22:30:12	28	25.98'N	68 33.40'W	148.7	-64.0	-70.1	135.3	9.7	14458.6	14414.0	141.6	141.0	225.2	215.5	0.31	Sonde 22	
22:45:27	26	41.11'N	68 35.19'W	148.6	-63.1	-70.3	167.5	9.8	14462.2	14415.6	240.6	241.7	225.1	222.2	0.22	Sonde 23	
23:00:01	27	11.88'N	70 28.62'W	148.3	-61.2	-70.1	176.3	15.5	14462.8	14416.8	227.2	231.2	229.5	220.2	-0.25	Sonde 24	
23:11:01	25	58.04'N	70 49.65'W	148.6	-60.5	-70.2	154.4	18.2	14436.7	14389.5	207.1	210.2	226.4	215.6	0.53	Sonde 25	
23:21:55	24	57.18'N	71 38.78'W	148.3	-61.9	-71.6	181.8	19.1	14404.5	14356.4	228.1	231.1	226.2	213.2	0.25	Sonde 26	
23:32:22	24	23.54'N	72 50.65'W	148.2	-62.3	-72.2	174.9	17.3	14445.1	14396.3	254.1	257.9	227.8	225.0	-0.31	Sonde 27	
23:42:30	24	23.79'N	74 10.58'W	148.2	-61.8	-72.1	178.5	13.4	14428.8	14380.1	282.3	285.0	226.1	229.6	-0.51	Sonde 28	
23:52:48	24	59.91'N	75 24.17'W	148.1	-61.4	-72.0	199.7	9.6	14437.6	14389.5	317.1	318.6	227.8	232.2	0.59	Sonde 29	
sonde bad																	
00:02:43	26	01.01'N	76 11.86'W	148.1	-62.0	-71.8	200.3	9.7	14430.8	14383.7	336.9	338.1	226.2	233.2	-0.32	Sonde 30	
00:13:01	27	18.81'N	76 29.40'W	148.1	-62.2	-71.0	191.2	11.7	14418.0	14372.4	2.7	2.5	226.4	237.9	0.08	Sonde 31	
00:22:43	28	29.00'N	76 23.34'W	148.3	-62.2	-70.5	186.7	24.7	14407.0	14362.7	259.2	266.7	226.1	220.4	0.20	Sonde 32	
00:40:27	27	11.42'N	78 06.20'W	148.1	-63.6	-71.2	177.4	30.7	14407.6	14361.9	262.9	270.2	225.5	224.8	-0.41	Sonde 33	
01:22:00																	
01:31:50																	

Landing
Block in

HURRICANE SYNOPSIS SURVEILLANCE MISSION PLAN: EARL

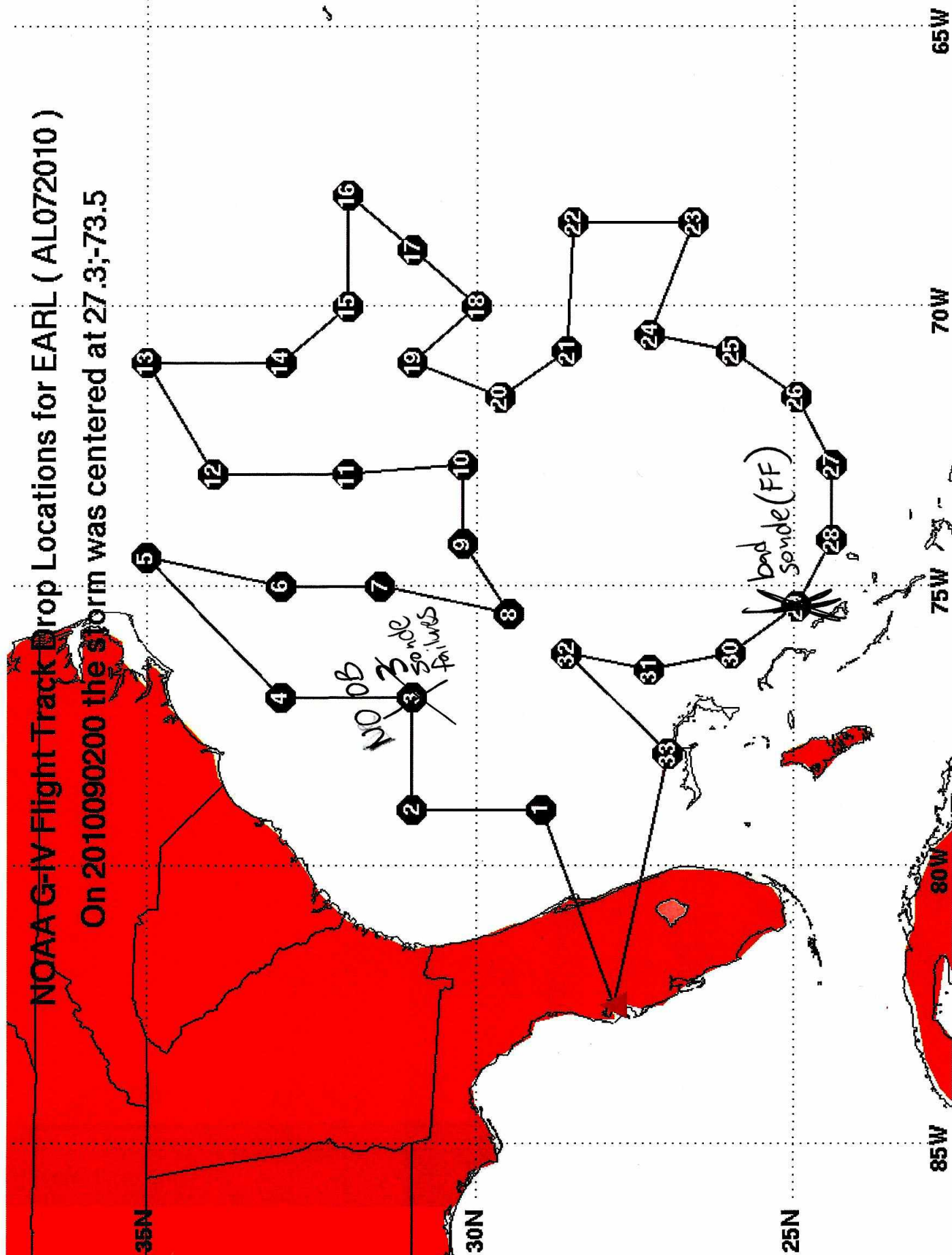
National Hurricane Center: August 31, 2010 10:37:48 AM
 Aircraft: N49RF Proposed takeoff: 01/1730Z

DROP LOCATIONS

#	LAT (d m)	ION (d m)	TIME (h:mm)
1	29 00	-79 00	0:29
2	31 00	-79 00	0:45
3	31 00	-77 00	1:00
4	33 00	-77 00	1:16
5	35 00	-74 30	1:41
6	33 00	-75 00	1:58
7	31 30	-75 00	2:10
8	29 30	-75 30	2:27
9	30 13	-74 15	2:38
10	30 13	-72 50	2:49
11	32 00	-73 00	3:04
12	34 00	-73 00	3:20
13	35 00	-71 00	3:37
14	33 00	-71 00	3:53
15	32 00	-70 00	4:04
16	32 00	-68 00	4:20
17	31 00	-69 00	4:31
18	30 00	-70 00	4:42
19	31 00	-71 00	4:53
20	29 39	-71 38	5:05
21	28 36	-70 48	5:16
22	28 30	-68 30	5:33
23	26 36	-68 30	5:49
24	27 18	-70 30	6:05
25	26 00	-70 48	6:16
26	24 57	-71 38	6:27
27	24 23	-72 50	6:38
28	24 23	-74 10	6:48
29	24 57	-75 22	6:58
30	26 00	-76 12	7:09
31	27 18	-76 30	7:20
32	28 36	-76 12	7:31
33	27 00	-78 00	7:50

NOAA G-IV Flight Track Drop Locations for EARL (AL072010)

On 2010090200 the storm was centered at 27.3;-73.5



weather.msfc.nasa.gov

1 Sep 2010
13:32 UTC

