N42RF ERROR SUMMARY
20240701H1

Flight ID: 20240701H1

Sensor or System	Number or Name
Static Pressure Probe	PSM.2
Dynamic Pressure Probe	PQM.2
Total Temperature Probe	TTM.1
Dewpoint Temp. Probe	TDM.2
Vertical Accelerometer	AccZfilterI-GPS.1
Altimeter	AltGPS.3
INE Selection	1
Differential Attack Pressure Probe	PDALPHA.1
Differential Sideslip Pressure Probe	PDBETA.1
Dynamic Attack Pressure Probe	PQALPHA.1
Dynamic Sideslip Pressure Probe	PQBETA.1

Flight Directory acdata/2024/MET/20240701H1

Local Met Data	Takeoff TISX (2204Z)	Landing TISX (0609Z)
Dynamic Corrections		Yes
AttackAngleIntercept		2.32804
AttackAngleSlope		6.09319
SlipAngleIntercept		0.25
SlipAngleSlope		6.641
AttackAngleIntercept2		2.06219
AttackAngleSlope2		5.99068
SlipAngleIntercept2		0.125
SlipAngleSlope2		6.9873

Notes:
There were no edits made in the measured parameters used to calculate meteorological and navigational parameters.

Takeoff/Landing data: Data during landing and takeoff are potentially suspect. It is recommended that ground data not be used for scientific analysis.

PDALPHA.2, PDBETA.2, and PQM.4 (all radome) sensors erroneous throughout the flight and should not be used
PTM.1 erroneous and should not be used
TDM.1 and TDM.2 spike 00:32:36-00:33:40 UTC and 04:56:36-04:56:52 UTC (inbound eyewalls), but otherwise appear reasonable
These spikes/dropouts in TDM.2 (which was TDMref) also led to dropouts in TD.c, TDMref, TA.d, HUM, TAS.d, UWZ.d, WS.d, WD.d, and PSURF
SFMR TB, WS SFMR, and RAIN RATE SFMR needs further assessment and data should be used with caution

Expendable Type	# deployed	# good	# transmitted
Dropsondes	37	36	34

Test sondes	0	0	0
AXBTs	0	0	0
AXCPs	0	0	0
AXCTDs	0	0	0
UAS	0	0	0

Flight Director: Zawislak
Phone #: 305-707-4359

ACAT-4 Version = 7.4

U.S. Department of Commerce / NOAA / OMAO / Aircraft Operations Center - N42RF Manifest

FLIGHT INFORMATION

FLT ID:	20240701H1	**FLT #:**	FY24-
From:	TISX	**ETD:**	1800L / 2200Z
To:	TISX	**ETA:**	0200L / 0600Z
Block Time		**Flight Time**	
Out:	21:57	T/O:	22:04
In:	06:14	Land:	06:09
Total:	8.3	Total:	8.1
Sponsoring Org:	NHC		
Program:	PRX		
Purpose:	FIX (2330, 0530Z) + TDR Mission		

CREW MANIFEST

AC:	Copare	**Scientists:**
CP(s):	Palmer	Sim Aberson (HRD)
	Ellis	Paul Chang (NESDIS)
NAV:	Utama	
FE(s):	Stokes	
	Dittoe	
FD(s):	Zawislak	
SSA:	McAlister	**Visitors:**
AVAPS:	Lynch	
SEB:		
MX:	McGuire	

MISSION INFORMATION

Pressure		Dropsondes		
		Good	Bad	Sent
A/C Takeoff	1012.4	36	1	34
ASOS Takeoff	1012.3	**BTs**		
		Good	Bad	Sent
A/C Land	-	0	0	0
ASOS Land	1011.6			
Storm Number ID: (ie: AL072012)		AL022024		
TCPOD/WSPOD Mission (ie: NOAA2 2418A SANDY)		NOAA2 0702A BERYL		

AS REQUIRED BY ORM

	Y	N
VOLCANIC ASH		X
SCIENCE MISSION WITHIN BDRY LAYER		X
LACK OF PRECIPITATION		X
RELATIVE HUMIDITY ≥ 80%	X	
LARGE AIR-SEA TEMP GRADIENT		X
HIGH SURFACE WINDS	X	
LONG FETCH / DURATION OF SFC WND	X	
SEA SALT ACCRETION FORECAST		X
SEA SALT ACCRETION OBSERVED		X

REMARKS

First pennies: McGuire

37 NWS sondes

OBSERVATIONS

Fix Number	Obs Number	Fix Time	SLP
1	OB06 13.41N/63.95W	23:30:26	940 mb 250/23 kt
2	OB14 13.53N/64.22W	00:33:34	939 mb 065/12 kt
3	OB20 13.71N/64.59W	01:51:02	940 mb 170/20 kt
4	OB28 13.95N/65.06W	03:18:06	939 mb 130/27 kt
Pennies:	5 x CAT 5		

*Highlighted items must be completed before departure.

Remarks: OB38: 14.17N/65.56W at 04:58:11Z, dropsonde had 939 mb, winds 225/05 kt

P-3 QC Checklist

Overall Assessment	Minor instrument issue(s) - minimal mission impact.

Flight ID:	20240701H1
Flight Director(s):	Zawislak
Mission:	Tasked/Operational
UWZ.d mean:	0.34

Pressure Comparison		
	Pre-flight	Post-flight
Aircraft	1012.4	Not reported
Airfield	1012.3	1011.6

This form uses:
_A.nc

SFMR Serial Unit	2

Parameters	Raw				Derived, Corrected & Reference	
✓ Acceleration	✓ AccAXI.1	✓ AccAYI.1	✓ AccAZI.1	✓ AccZfilter-GPS.1	✓ AccZref	
	✓ AccAXI.2	✓ AccAYI.2	✓ AccAZI.2	✓ AccZfilter-GPS.2		
	✓ AccAXI-GPS.1	✓ AccAYI-GPS.1	✓ AccAZI-GPS.1			
	✓ AccAXI-GPS.2	✓ AccAYI-GPS.2	✓ AccAZI-GPS.2			
✓ Altitude	✓ AltGPS.1	✓ AltI-GPS.1	✓ AltPaADDU.1	✓ AltRA.1	✓ ALTref	✓ AltRA1.c
	✓ AltGPS.2	✓ AltI-GPS.2	✓ AltBCADDU.1	✓ AltRA.2	✓ ALTPA.d	✓ AltRA2.c
	✓ AltGPS.3				✓ ALTGA.d	
	✓ AltGPS.4					
✓ Ground Speed	✓ GsXI-GPS.1	✓ GsYI-GPS.1	✓ GsZI-GPS.1		✓ GSXref	
	✓ GsXI-GPS.2	✓ GsYI-GPS.2	✓ GsZI-GPS.2		✓ GSYref	
					✓ GSZref	
✓ Location	✓ LatGPS.1	✓ LatI-GPS.1	✓ LonGPS.1	✓ LonI-GPS.1	✓ LATref	
	✓ LatGPS.2	✓ LatI-GPS.2	✓ LonGPS.2	✓ LonI-GPS.2	✓ LONref	
	✓ LatGPS.3		✓ LonGPS.3			
	✓ LatGPS.4		✓ LonGPS.4			
✓ Pressure Sensors	✓ PDALPHA.1	✓ PQALPHA.1	✓ PQM.1	✓ PSM.1	✓ PQMref	
	X PDALPHA.2	✓ PQBETA.1	✓ PQM.2	✓ PSM.2	✓ PQ.c	
	✓ PDBETA.1		✓ PQM.3	X PTM.1	✓ PSMref	
	X PDBETA.2		X PQM.4		✓ PS.c	
✓ Air Speed	✓ CasADDU.1	✓ TasADDU.1	✓ IasADDU.1		✓ IAS.d	X TAS.d
✓ Pitch / Roll	✓ PitchI.1	✓ PitchRateI.1	✓ RollI.1	✓ RollRateI.1	✓ PITCHref	
	✓ PitchI.2	✓ PitchRateI.2	✓ RollI.2	✓ RollRateI.2	✓ ROLLref	
	inop PitchI.3	inop PitchRateI.3	inop RollI.3	inop RollRateI.3		
✓ Temperature, Dewpoint,	✓ TTM.1	X TDM.1	✓ TRadD.1		X TD.c	✓ TTMref
Radiometers	✓ TTM.2	X TDM.2	✓ TRadS.1		X TDMref	X TA.d
	inop TTM.3	inop TDM.3	inop TRadU.1		X HUM	
✓ Wind and Pressure		X CH 1 TB	X CH 4 TB		X UWZ.d	X WS.d
✓ SFMR	SFMR	X CH 2 TB	X CH 5 TB		X PSURF	X WD.d
		X CH 3 TB	X CH 6 TB		X WS SFMR	X RAIN RATE SFMR

FLID_Mission_Documents.pdf:
✓ Error Summary
✓ Crew Manifest
✓ QC Checklist
✓ Dropwindsonde Log(s) - AVAPS and FD, if completed
✓ Flight Track

QC Key:	
Valid	✓
Errors (see NOTES)	X
Sensor Inoperative	inop

NOTES:

PDALPHA.2, PDBETA.2, and PQM.4 (all radome) sensors erroneous throughout the flight and should not be used

PTM.1 erroneous and should not be used

TDM.1 and TDM.2 spike 00:32:36-00:33:40 UTC and 04:56:36-04:56:52 UTC (inbound eyewalls), but otherwise appear reasonable

These spikes/dropouts in TDM.2 (which was TDMref) also led to dropouts in TD.c, TDMref, TA.d, HUM, TAS.d, UWZ.d, WS.d, WD.d, and PSURF

SFMR TB, WS SFMR, and RAIN RATE SFMR needs further assessment and data should be used with caution

AVAPS Drop Log

Project: HURR 24 Mission: BERYL #2 Flight ID: 20240701H1

Take Off: _____ Landing: _____ Flt Dir: JZ Launcher S/N: _____

	Drop #	Sonde Serial #	Rcvr #	Press Offset	Launch Time	Operator	Charge $$ To	Comments	Good ?
IP	1	221 210 160	1	-1.3	2304	CFL	NWS		
MP	2	221 210 162	2	-1.0	2316				
RMW1	3	221 210 157	3	-1.1	2326				
RMW2	4	221 450 324	4	-1.5	2326				
RMW3	5	221 210 163	5	-1.2	2327				
CTR	6	221 470 784	6	-1.3	2330				
RMW	7	221 460 149	7	-1.2	?			LOST ALL DATA AT LAUNCH	X
MP	8	221 470 785	8	-1.0	2341				
END	9	221 450 319	1	-1.1	2351				
IP	10	221 470 620	2	-1.2	0016				
MP	11	221 460 157	3	-1.2	0027				
RMW	12	221 220 367	4	-1.1	0031				
CTR	13	221 420 388	5	-1.1	0034				
RMW	14	221 810 088	6	-1.1	0036				
MP	15	221 210 039	7	-1.1	0046				
END	16	221 420 390	8	-0.8	0057				
IP	17	221 470 684	1	-0.6	0131				
MID	18	221 210 158	2	-1.3	0140				
RMW	19	221 830 357	3	-1.0	0150				
CTR	20	221 810 059	4	-1.1	0150				
RMW	21	221 410 016	5	-1.0	0153			STOPPED AT 900	X
MP	22	221 430 155	6	-0.8	0203				
END	23	221 810 079	7	-1.0	0215				
IP	24	221 010 351	8	-1.4	0254				
MID	25	221 420 514	1	-0.4	0305				
RMW	26	221 830 437	2	-1.2	0316				
CTR	27	221 420 387	3	-0.8	0318				
RMW	28	214 210 393	4	-0.6	0320				
MP	29	222 520 391	5	-0.1	0329				
END	30	221 470 779	6	-0.7	0344				
IP	31	221 470 780	7	-0.3	0433				

128
-37
91 sondes remain

41
~~34~~ 51 RD41 MAD41

	Drop #	Sonde Serial #	Rcvr #	Press Offset	Launch Time	Operator	Charge $$ To	Comments	Good ?
MID	32	222 350 117	8	-0.4	0443				
RMW	33	221 810 074	1	-0.9	0456				
CTR	34	221 830 436	2	-0.8	0458				
RMW	35	221 830 355	3	-1.0	0500				
MID	36	221 830 430	4	-0.8	0510				
END	37	221 830 358	5	-1.0	0522				
	~~38~~	~~221 830 520~~	~~6~~	~~-1.6~~					
	39								
	40								
	41								
	42								
	43								
	44								
	45								
	46								
	47								
	48								
	49								
	50								

Drop Station Operator Notes

Charge $$ To Options (DO NOT USE FUNDING CODES):
AOC, NWS, HRD, NESDIS, IR/SST, AR, GOMO, NASA, ONR, SAT (JPSS/NESDIS/HRD), NGI (Northern Gulf Institute – NOAA and Mississippi State University/APHEX collab), MS (old NRD94 sondes)

AVAPS Pre-Flight Check:

- If time-permits, verify cabin pressure sensor w/ lab standard
- Start AVAPS, then start Soundings and set the Project Name and Full Flight ID (example: 20120823N2).
- Verify the Frequency band allocation as required:
  Band A: 53rd WRS - Band B: N42RF - Band C: N43RF - Band D: N49RF - Band E: Unallocated
- Select the **GPS Reference** tab from the **Soundings Displays** page and verify good GPS data
- Perform a prelaunch check on each channel, look for reasonable data and no CRC error status lights.
- Verify data is available on Remote AVAPS, then terminate the sonde.
- Verify the AVAPS Data mission folder has been created
- Verify AVAPS PC Time is correct – if time is off by >4sec, no data will display
- Early launch detects are caused usually by remanufactured sondes with the chute riser line not properly coiled below the PCB ear. This may also cause fast falls. If this is suspected, repack the riser line as time permits
- Perform RH Regeneration on all sondes – Multiple sondes may be processed at once

AVAPS Launch:

- Select a sonde frequency in the Green band and away from other sondes
- Enter sonde pressure error offset if **0.1 mbar or greater** using cabin pressure sensor – warning, this cannot be used during a climb
- Wait until GPS available (green) on the pre-launch screen before continuing.
- Select "begin data collection" and verify good data with winds prior to putting sonde in launch tube
- RD41 ONLY: On N42 & N43, remove about ½ of the ribbon. Do not shorten the ribbon on N49. Loosen ribbon and extend end of ribbon to near, but not over, the sensor end of the sonde. Place excess orange tape on end of ribbon to form a pocket.
- RD41: Place the sonde in the launch tube, sensor arm up, with the power pin socket facing right
- NRD41: Place the sonde in the launch tube, sensor arm down
- Verify the sonde is actively tracking GPS data prior to launch and no early launch detect

Dropwindsonde Scientist Log

Storm:	AL02/Beryl	**Flight ID:**	20240701H1	**Mission ID:**	0702A	**Takeoff:**	2204Z	**Landing:**	0609Z

Dropsonde Scientist(s):	Dahl/Hazelton	**AVAPS Operator:**	Lynch

Pre-flight

✓ Discuss the pattern with the Lead Project Scientist (LPS) and ensure that enough dropsondes are onboard.
✓ Complete the appropriate pre-flight set-up of your workstation and ASPEN (see Dropsonde Processing Guide).

In-flight

✓ Ensure the Flight Director is aware of upcoming drops and whether a backup is requested in case of failure.
✓ Ensure the AVAPS operator has determined that the dropsonde is (or is not) transmitting a good signal.
✓ Prioritize processing of center drops and report MSLP and surface wind speed and direction to the Flight Director.
✓ Fill in the Dropwindsonde Scientist log as drops are released and processed.
✓ Copy completed ASPEN files (e.g., FRD, netCDF, Skew-t, WMO txt, BUFR) into the "FRD" folder on the workstation desktop for automated transmission to the ground for archival.

Once "science is complete"...

✓ Make synoptic map plots in ASPEN and copy them to the "FRD" folder on the workstation desktop for automated transmission to the ground for archival.
✓ Ensure ASPEN files have been sent to the ground by locating and verifying all files in the "FLIGHTID" folder within the "FRD" folder on the workstation desktop.
✓ Archive ASPEN_DATA and RAW_DATA into a folder named with the FLIGHTID within the "Season Dropsonde Archive" folder on the workstation desktop and upload the same directories into StormName/FLIGHTID/Dropsonde/ folder on Drive.
✓ Download this Dropwindsonde Scientist Log as "PDF" and upload completed PDF and Google Doc to the StormName/FLIGHTID/Dropsonde/ folder within the "Mission Reports" directory in the HFP Google Drive.

Storm: AL02/BERYL **Flight ID: 20240701H1** **Mission ID: 0702A BERYL**

Drop #	Sonde ID	Time UTC	Lat (°N/S)	Lon (°E/W)	Sfc Pressure (mb)	Lowest Wind Direction/Speed (deg/kt)	Lowest Wind Height (m)	AXBT SST (°C)	Eye, Eyewall, Rainband, etc.	Ob #
1	221210160	2305	14.60N	62.68W	1008.5	105/41	10	-	-	1
Comments: Endpoint NE, 5-8 m/s updraft										
2	221210162	2316	14.07N	63.24W	1005.2	110/50	10	-	-	2
Comments: Midpoint NE, Post Splash, 272.5 Time										
3		2326								X
Comments: RMW NE,										
4		2326								X
Comments:										
5	22121063	2327	13.54	63.80W	963.5	80/140	10		Eyewall NE	3
Comments: RMW NE,										
6	221470784	2330	13.40	63.96	939.8	250/23	10	-	Center	4
Comments: Post Splash, 235.5										
7		-							Eyewall SW	X
Comments: Lost Data, RMW SW										
8	221470785	2341	12.83N	64.42W	1003.6	255/32	10	-	-	5
Comments: Midpoint SW, Post Splash Data										
9	221450319	2351	12.29N	64.81W	1007.8	295/17	10	-	-	7
Comments: Endpoint SW, Post Splash Data, 286.00 EOD										
10	221470620	0016	12.56N	63.35W	1007.5	170/28	10	-	-	8
Comments: Endpoint inbound SE										

Storm: AL02/BERYL **Flight ID: 20240701H1** **Mission ID: 0702A BERYL**

Drop #	Sonde ID	Time UTC	Lat (°N/S)	Lon (°E/W)	Sfc Pressure (mb)	Lowest Wind Direction/Speed (deg/kt)	Lowest Wind Height (m)	AXBT SST (°C)	Eye, Eyewall, Rainband, etc.	Ob #
11	221460157	0027	13.19N	63.92W	998	170/49	10	-	-	9
Comments: Midpoint SE										
12	22120367	0031	13.43N	64.13W	964	140/114	10	-	Eyewall SE	10
Comments: RMW SE, post splash, 296.25										
13	221420388	0034	13.56N	64.24W	938.8	065/12	10	-	Center	11
Comments: Center										
14	221810088	0036	13.69N	64.37W	964.4	320/102	10	-	Eyewall NW	12
Comments: RMW NW										
15	221210039	0046	14.29N	64.74W	1005.3	045/37	10	-	-	13
Comments: Mid NW										
16	221420390	0057	14.96N	65.21W	1009.2	070/31	10	-	-	15
Comments: End NW										
17	221470684	0131	12.71N	65.54W	1008.0	320/17	10	-	-	16
Comments: Endpoint SW										
18	221210158	0140	13.13N	65.11W	1005.6	300/27	10	-	-	17
Comments: Midpoint SW, Post Splash Data, 288.5 EOD										
19	221830357	0150	13.65N	64.62W	943.7	225/34	10	-	-	18
Comments: RMW SW, splashed in the eye										
20	221810059	0150	13.69N	64.60W	939.5	170/20				19

Storm: AL02/BERYL **Flight ID: 20240701H1** **Mission ID: 0702A BERYL**

Comments: Center, Post Splash, 222.0 EOD

Drop #	Sonde ID	Time UTC	Lat (°N/S)	Lon (°E/W)	Sfc Pressure (mb)	Lowest Wind Direction/Speed (deg/kt)	Lowest Wind Height (m)	AXBT SST (°C)	Eye, Eyewall, Rainband, etc.	Ob #
21	221410016	0153	13.83N	64.47W	-	-	622		Eyewall NE	21
Comments: RMW NE, did not hit surface, 90 m/s in PBL. Switched from TAG to aircraft-based processing at this point due to TAG data transmission problem.										
22	221430155	0203	14.27N	63.92W	1006	105/53	10	-		22
Comments: Midpoint NE										
23	221810079	0215	14.78N	63.30W	1010	100/35	10	-	-	23
Comments: Endpoint NE										
24	221010351	0254	14.99N	66.15W	1010	055/31	10	-	-	24
Comments: Endpoint NW										
25	221420514	0305	14.47N	65.62W	1006	050/42	10	-	-	25
Comments: Midpoint NW										
26	221830437	0316	14.01N	65.12W	956	285/97	10	-	Eyewall	26
Comments: RMW NW, 13 m/s updraft										
27	221420387	0318	13.95N	65.05W	939	130/27	10	-	Eye	27
Comments: Center										
28	214210393	0320	13.83N	64.93W	963	121/19	10	-	Eyewall	29
Comments: RMW SE, ASPEN incorrectly said there was post-splash data. 88 m/s at 180 m altitude.										
29	222520391	0329	13.54N	64.47W	1006	175/45	10	-	-	30

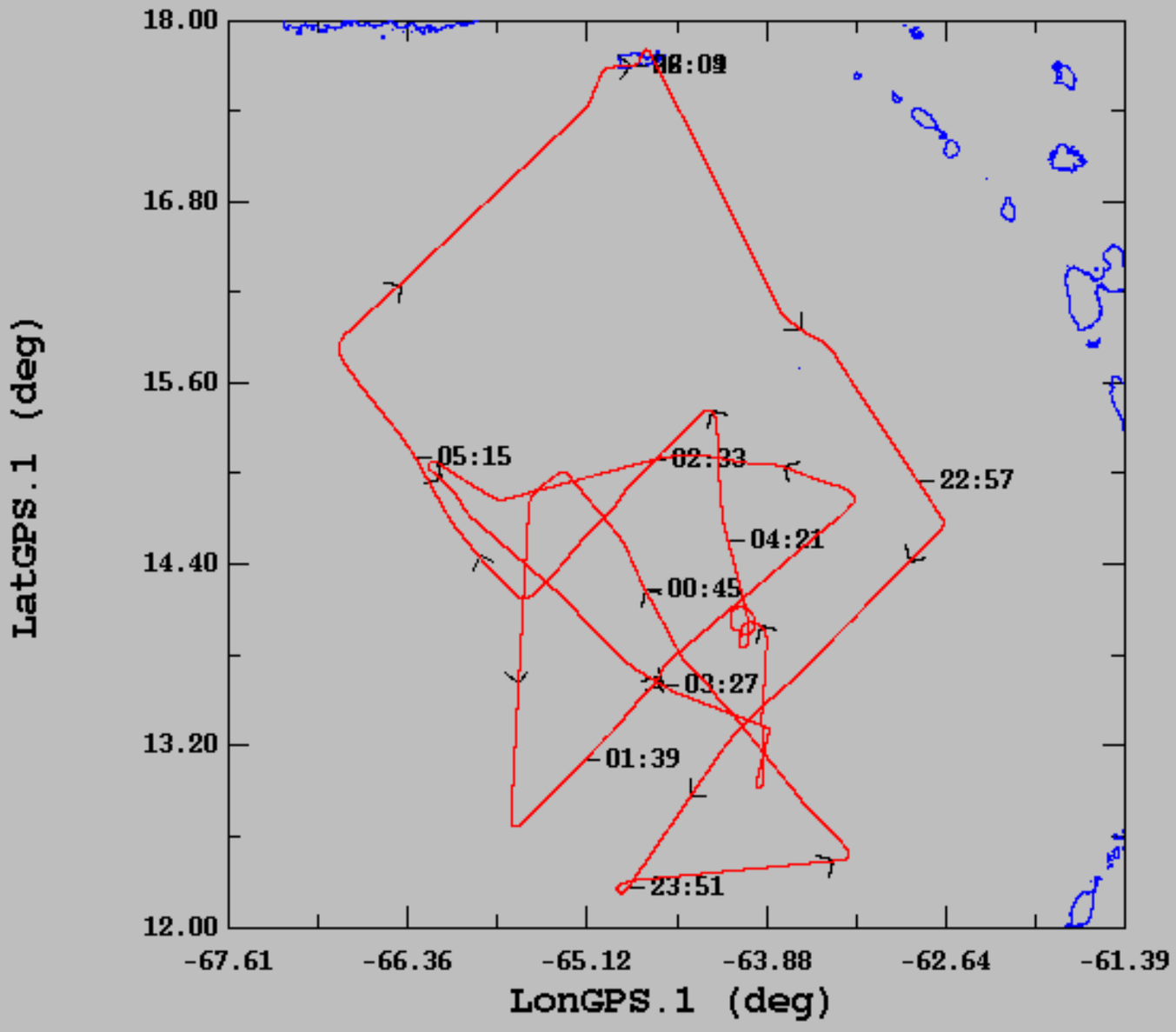
Comments: Midpoint SE										
30	221470779	0344	13.01N	63.93W	1011	155/19	10	-	-	31
Comments: Endpoint SE										

Drop #	Sonde ID	Time UTC	Lat (°N/S)	Lon (°E/W)	Sfc Pressure (mb)	Lowest Wind Direction/Speed (deg/kt)	Lowest Wind Height (m)	AXBT SST (°C)	Eye, Eyewall, Rainband, etc.	Ob #
31	221470780	0433	15.36N	64.37W	1009	080/37	10	-	-	32
Comments: Endpoint NE, removed post-splash data										
32	222350117	0443	14.85N	64.88W	1006	095/57	10	-	-	33
Comments: Midpoint NE										
33	221810074	0456	14.24N	65.45W	946	051/07	10	-	Eyewall	34
Comments: RMW NE										
34	221830436	0458	14.17N	65.56W	939	225/05	10	-	Eye	35
Comments: Center										
35	221830355	0500	14.28N	65.70W	959	306/07	10	-	Eyewall	36
Comments: RMW NW										
36	221830430	0510	14.81N	66.13W	1005	055/33	10	-	-	37
Comments: Midpoint NW										
37	221830358	0522	15.53N	66.64W	1009	065/34	10	-	-	39
Comments: Endpoint NW										
Comments:										

Storm: AL02/BERYL **Flight ID: 20240701H1** **Mission ID: 0702A BERYL**

Comments:										
Comments:										

07/01/2024, 22:04:00-06:09:00



	mean	sigma	min	max
LatGPS.1 (deg), 1 s/sec	14.52	1.33	12.22	17.80
LonGPS.1 (deg), 1 s/sec	-64.63	0.96	-66.83	-62.64