

These spikes/dropouts in TDM.1 (which was TDMref) also led to dropouts in HUM, 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	21	21	21
Test sondes	0	0	0
AXBTS	0	0	0
AXCPs	0	0	0
AXCTDs	0	0	0
UAS	0	0	0

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

ACAT-4 Version = 7.4

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

FLIGHT INFORMATION				CREW MANIFEST			MISSION INFORMATION				
FLT ID:	20240703H1	FLT #:	FY24-	AC:	Copare	Scientists:	Pressure		Dropsondes		
From:	TISX	ETD:	1530L / 1930Z	CP(s):	Palmer	Sim Aberson (HRD)	A/C Takeoff	1012.6	Good	Bad	Sent
To:	KLAL	ETA:	0000L / 0400Z		Ellis	Paul Chang (NESDIS)			21	0	21
Block Time		Flight Time		NAV:	Utama	ASOS Takeoff	1011.3	BTs			
Out:	19:20	T/O:	19:27	FE(s):	Stokes			A/C Land	-	Good	Bad
In:	03:15	Land:	03:04	FD(s):	Zawislak	ASOS Land	1010.1	0	0	0	
Total:	7.9	Total:	7.6	SSA:	McAlister			Visitors:			
Sponsoring Org:		NHC		AVAPS:	Lynch	Storm Number ID:		AL022024			
Program:		PRX		SEB:	Underwood (Programs)	(ie: AL072012)		NOAA2 1602A BERYL			
Purpose:		TDR Mission + Repo to LAL			MX:	McGuire / Diaz / Olney	TCPOD/WSPOD Mission		(ie: NOAA2 2418A SANDY)		
AS REQUIRED BY ORM				Y	N	REMARKS	Fix Number	Obs Number	Fix Time	SLP	
VOLCANIC ASH					X	First pennies: Diaz	1	OB03 17.72N/77.96W	22:32:54	961 mb 070/07 kt	
SCIENCE MISSION WITHIN BDRY LAYER					X	21 NWS sondes					
LACK OF PRECIPITATION					X		2	OB# 17.82N/78.32W	23:42:14	962 mb 300/07 kt	
RELATIVE HUMIDITY ≥ 80%				X							
LARGE AIR-SEA TEMP GRADIENT					X		3	OB20 17.90N/78.60W	00:52:27	964 mb 170/23 kt	
HIGH SURFACE WINDS				X							
LONG FETCH / DURATION OF SFC WND				X			4				
SEA SALT ACCRETION FORECAST					X						
SEA SALT ACCRETION OBSERVED					X		Pennies:	3 x CAT 4			

*Highlighted items must be completed before departure.

Remarks:

P-3 QC Checklist

Overall Assessment	Minor instrument issue(s) - minimal mission impact.
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Flight ID:	20240703H1
Flight Director(s):	Zawislak / Englert
Mission:	Tasked/Operational
UWZ.d mean:	0.16

Pressure Comparison		
	Pre-flight	Post-flight
Aircraft	1012.6	Not reported
Airfield	1011.3	1010.1

This form uses:	
_A.nc	

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

FLID_Mission_Documents.pdf:
<input checked="" type="checkbox"/> Error Summary
<input checked="" type="checkbox"/> Crew Manifest
<input checked="" type="checkbox"/> QC Checklist
<input checked="" type="checkbox"/> Dropwindsonde Log(s) - AVAPS and FD, if completed
<input checked="" type="checkbox"/> Flight Track

QC Key:	
Valid	<input checked="" type="checkbox"/>
Errors (see NOTES)	<input checked="" type="checkbox"/>
Sensor Inoperative	<input checked="" type="checkbox"/>

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 spikes between ~2120-2123 UTC and between ~2217-2220 UTC (TDM.2 ok in this period); TDM.2 spikes between ~2230-2234 UTC (TDM.1 ok in this period)
 TDM.2 also erroneous (flatlined) from ~1944-2057 UTC, which was the transit to the storm from TISX
 As TDMref set to TDM.1 for this flight, TD.c also spikes and even drops out ~22:18:18-22:19:20 UTC (TA.d also drops out during this brief period)
 These spikes/dropouts in TDM.1 (which was TDMref) also led to dropouts in HUM, 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 #4

Flight ID: 20240703H1

Take Off: _____

Landing: _____

Flt Dir: SZ

Launcher S/N: _____

	Drop #	Sonde Serial #	Rcvr #	Press Offset	Launch Time	Operator	Charge \$\$ To	Comments	Good ?
IP	1	221 530 951	1	-0.8	2206	CFC	NWS		
MID	2	221 430 439	2	-0.9	2216	↓	↓		
RMU	3	221 410 032	3	-0.6	2231	↓	↓		
CTR	4	221 460 158	4	-1.1	2233				
RMU	5	221 030 272	5	-1.2	2234				
MID	6	221 450 316	6	-1.0	2247				
END	7	221 470 781	7	-1.1	2259				
IP	8	221 830 574	8	-1.4	2320				
MID	9	221 830 745	1	-1.8	2329				
RMU	10	221 430 463	2	-1.2	2339				
CTR	11	221 830 566	3	-1.2	2342				
RMU	12	221 460 160	4	-1.0	2343				
MID	13	221 430 449	5	-1.1	2356				
END	14	221 410 039	6	-0.9	0005				
IP	15	221 420 389	7	-1.3	0028				
MID	16	221 220 354	8	-0.5	0039				
RMU	17	221 410 192	1	-1.0	0051			late winds	
CTR	18	221 450 318	2	-0.9	0052				
RMU	19	221 450 320	3	-0.9	0054				
MID	20	221 450 321	4	-1.1	0104				
END	21	221 470 778	5	-0.9	0117				
	22	230 351 468	6	-0.8					
	23								
	24								
	25								
	26								
	27								
	28								
	29								
	30								
	31								

ONBOARD! POST-FLIGHT

51 NRD415
~~1 BAD RDU1~~
 1 NRD94



Dropwindsonde Scientist Log

Storm:	BERYL	Flight ID:	20240703H1	Mission ID:	1602A	Takeoff:	1927Z	Landing:	0304Z
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Dropsonde Scientist(s):	Dahl/Dunion	AVAPS Operator:	Lynch
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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: BERYL

Flight ID: 20240703H1

Mission ID: 1602A

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	221530951	220641	19.06	-78.93	1009	065/40	10	-	-	01
Comments: IP, Endpoint NW. Set end t=229.75 s.										
2	221430439	221640	18.50	-78.58	1005	070/47	10	-	-	02
Comments: Midpoint NW. Good sonde.										
3	221410032	223129	17.80	-78.02	969	275/73	10	-	Eyewall NW	04
Comments: RMW NW. Flagged everything from t=2.50 - 5.00 s, 297.25-300.50s to be safe. Crazy updraft/downdraft! (VDM is OB 03) ** fix text file for records										
4	221460158	223259	17.71	-77.96	961	070/07	10	-	Eye	05
Comments: Center. Post splash detected. Set end t=199.25 s.										
5	221030272	223454	17.60	-77.89	979	190/90	10	-	Eyewall SE	06
Comments: RMW SE. Bad T equilibrium. Set ignore T/RH up to t = 6.00 s.										
6	221450316	224726	16.94	-77.50	1006	170/35	10	-	-	07
Comments: Midpoint SE. Set end t=215.75 s. Dz/dt jump top of sonde, flagged all data up to t=6.00 s.										
7	221470781	225953	16.28	-77.07	1008	160/14	10	-	-	08
Comments: Endpoint SE. Post-splash detected. Set end t = 234.75 s. Bit of a jump in dz/dt at top with sat dropout, flagged everything through t=6.50 s.										
8	221830570	232040	17.57	-76.74	1009	145/29	10	-	-	09
Comments: Endpoint E. Late launch detect. Spike in dz/dt at launch, flagged all data up through t=4.00 s. Post-splash data detected, set end t=228.50 s.										
9	221830745	232934	17.69	-77.43	1006	130/33	10	-	-	10
Comments: Midpoint E. Set end t=208.25 s.										
10	221430463	233913	17.78	-78.13	978	150/62	10	-	Eyewall E	11
Comments: RMW E. Bad T equilibration, flagged T/RH through t=9.50 s. Set end t = 215.75 s. Had to CCA for missing eyewall tag.										

Storm: BERYL

Flight ID: 20240703H1

Mission ID: 1602A

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		2342	17.82	-78.33	962	300/07	10	-	Eye	12
Comments: Center drop. Bad sats near top, flagged all data through t = 18.50 s. Set end t = 193.25 s.										
12		234350	17.821	78.427	978	290/81	10	-	Eyewall W	13
Comments: RMW: center-W.										
13	221430449	235559	17.852	79.332	1005	030/49	10	-	-	14
Comments: midpoint: center-W. Bad sats near top, flagged all data through t=10.00 s. Strong downdraft ~900 mb.										
14	221410039	000523	17.853	80.066	1008	050/32	10	-	-	15
Comments: West waypoint (WP 4). Post splash detected, set end t=231.50 s. Jump in dz/dt at top, flagged all data through t = 3.00 s.										
15	22140389	002834	16.529	-79.520	1008	010/13	10	-	-	16
Comments: SW IP (WP 5). Set end t = 236.25 s. Bad t equilibration, flagged T/RH through t = 6.50 s.										
16	221220354	003932	17.166	-79.139	1006	345/12	10	-	-	17
Comments: midpoint (SW-center). Post splash detected, set end t = 219.25 s. Flagged data up to t =32.50 s for dz/dt weirdness.										
17	221410192	005119	17.821	-78.611	970	200/47	10	-	Eyewall SW	18
Comments: RMW SW. Flagged data through t = 1.50 s due to sat dropout. Set end t = 219.50 s.										
18	221450318	005241	17.920	-78.604	964	170/23	10	-	Eye	19
Comments: Center. Set end t = 224.75 s. Flagged data through t = 3.50 s due to jump in dz/dt.										
19	221450320	005457	18.085	-76.622	973	010/107	10	-	Eyewall NE	21
Comments: RMW NE. Good sonde. ** VDM ob = 20, edit WMO.txt										
20	221450321	010452	18.716	-78.502	1007	060/48	10	-	-	22

Storm: BERYL

Flight ID: 20240703H1

Mission ID: 1602A

Comments: Midpoint NE. Set end t = 226.00 s.

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	221470778	011714	19.411	-78.138	1011	100/40	10	-	-	23

Comments: Endpoint NE. Set end t = 221.00 s. Mark last report.

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Comments:

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Comments:

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Comments:

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Comments:

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Comments:

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Comments:

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Comments:

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Comments:

Storm: BERYL

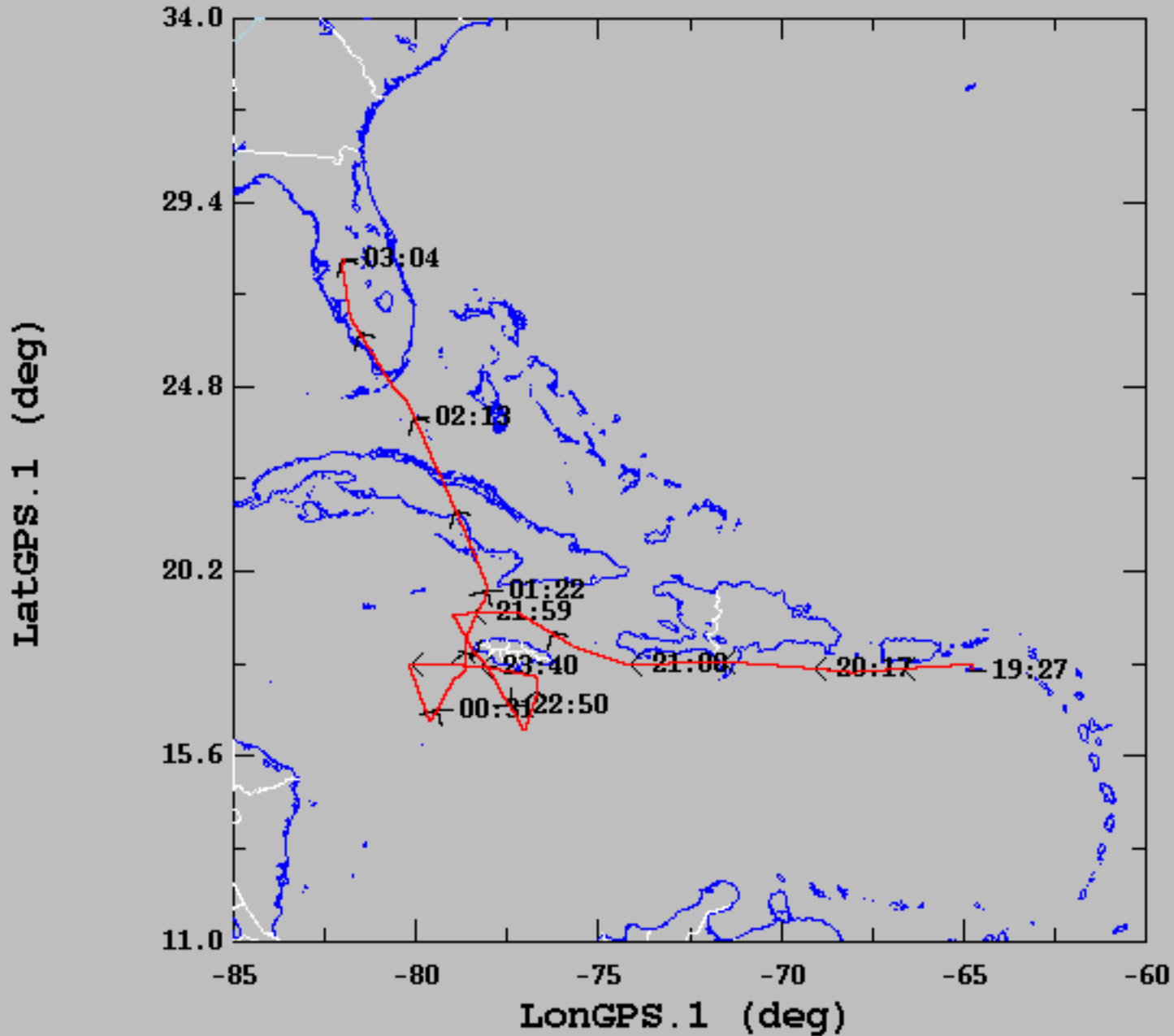
Flight ID: 20240703H1

Mission ID: 1602A

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Comments:

07/03/2024, 19:27:00-03:04:00



	mean	sigma	min	max
— LatGPS.1 (deg), 1 s/sec	19.23	2.86	16.23	27.99
— LongGPS.1 (deg), 1 s/sec	-76.48	4.40	-82.01	-64.71