N49RF ERROR SUMMARY
20240924N2

Flight ID: 20240924N2

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	AccZI.1
Altimeter	AltGPS.3
INE Selection	1
Differential Attack Pressure Probe	PDALPHA.2
Differential Sideslip Pressure Probe	PDBETA.2
Dynamic Attack Pressure Probe	PQALPHA.2
Dynamic Sideslip Pressure Probe	PQBETA.2

Flight Directory acdata/2024/MET/20240924N2

Local Met Data	Takeoff KLAL (1729Z)	Landing KLAL (0040Z)
Dynamic Corrections		Yes
AttackAngleIntercept		6.4652
AttackAngleSlope		7.59375
SlipAngleIntercept		0.925
SlipAngleSlope		6.56381
AttackAngleIntercept2		4.97461
AttackAngleSlope2		5.40351
SlipAngleIntercept2		0.71
SlipAngleSlope2		6.22549

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.

Expendable Type	# deployed	# good	# transmitted
Dropsondes	33	31	31
Test sondes	0	0	0
AXBTs	0	0	0
AXCPs	0	0	0
AXCTDs	0	0	0
UAS	0	0	0

Flight Director: Flaherty
Phone #: 8635003980

ACAT-4 Version = 7.4

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

FLIGHT INFORMATION			
FLT ID:	20240924N2	FLT #:	
From:	KLAL	ETD:	
To:	KLAL	ETA:	
Block Time		Flight Time	
Out:	17:18	T/O:	17:30
In:	00:46	Land:	00:40
Total:	7.5	Total:	7.2
Sponsoring Org:	NWS		
Program:	PHS		
Purpose:	Tropical Storm Helene		

CREW MANIFEST		
AC:	Bhatnagar	Other Crew:
CP(s):	Cozart	
NAV(s):		
FE(s):		
FD(s):	Flaherty	
	de Solo	
SSA:	Mascaro	
IFT(s):	Kotz	
	Brannigan	
MX:		

MISSION INFORMATION				
sUAS		Dropsondes		
Type	Released	Good	Bad	Sent
		33	2	31
Other Expendables		Dropsonde Charge Codes		
Type	Released	NWS		
		AXBTs		
		Good	Bad	Sent
Pennies				
Storm ID: (i.e., AL072012)		AL092024		
Mission ID: (i.e., NOAA2 2418A SANDY)		NOAA9 0609A HELENE		

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

REMARKS

OBSERVATIONS			
Fix Number	Obs Number	Fix Time	SLP
1			
2			
3			
4			

*Highlighted items must be completed before departure.

G-IV QC Checklist

Overall Assessment	Minor instrument issue(s) - no mission impact.

Flight ID:	20240924N2
Flight Director(s):	Flaherty/de Solo
Mission:	Tasked/Operational
UWZ.d mean:	

Pressure Comparison		
	Pre-flight	Post-flight
Aircraft		
Airfield	1007.9	1009.0

This form uses:
_A.nc

Parameters	Raw				Derived, Corrected & Reference	
✓ Acceleration	✓ AccAXI.1	✓ AccAYI.1	✓ AccAZI.1	✓ AccZI.1	✓ AccZref	
	✓ AccAXI.2	✓ AccAYI.2	✓ AccAZI.2	✓ AccZI.2		
	✓ AccAXI.3	✓ AccAYI.3	✓ AccAZI.3	✓ AccZI.3		
✓ Altitude	✓ AltGPS.1	✓ AltI.1	✓ AltPaADDU.1	✓ AltBCADDU.1	✓ ALTref	
	✓ AltGPS.2	✓ AltI.2	✓ AltPaADDU.2	✓ AltBCADDU.2	✓ ALTPA.d	
	✓ AltGPS.3	✓ AltI.3	INOP AltRA.1		✓ ALTGA.d	
✓ Ground Speed	✓ GsXI.1	✓ GsYI.1	✓ GsZI.1	✓ GsGPS.1	✓ GSXref	
	✓ GsXI.2	✓ GsYI.2	✓ GsZI.2	✓ GsGPS.2	✓ GSYref	
	✓ GsXI.3	✓ GsYI.3	✓ GsZI.3		✓ GSZref	
	✓ GsXGPS.1	✓ GsYGPS.1	✓ GsZGPS.1			
	✓ GsXGPS.2	✓ GsYGPS.2	✓ GsZGPS.2			
✓ Location	✓ LatGPS.1	✓ LatI.1	✓ LonGPS.1	✓ LonI.1	✓ LATref	
	✓ LatGPS.2	✓ LatI.2	✓ LonGPS.2	✓ LonI.2	✓ LONref	
	✓ LatGPS.3	✓ LatI.3	✓ LonGPS.3	✓ LonI.3		
✓ Pressure Sensors	✓ PDALPHA.1	X PQALPHA.1	✓ PQM.1	✓ PSM.1	✓ PQMref	
	✓ PDALPHA.2	X PQALPHA.2	✓ PQM.2	✓ PSM.2	✓ PQ.c	
	X PDBETA.1	X PQBETA.1			✓ PSMref	
	✓ PDBETA.2	X PQBETA.2			✓ PS.c	
✓ Air Speed	✓ CasADDU.1	✓ TasADDU.1			✓ IAS.d	✓ TAS.d
✓ Pitch / Roll	✓ PitchI.1	✓ PitchRateI.1	✓ RollI.1	✓ RollRateI.1	✓ PITCHref	
	✓ PitchI.2	✓ PitchRateI.2	✓ RollI.2	✓ RollRateI.2	✓ ROLLref	
	✓ PitchI.3	✓ PitchRateI.3	✓ RollI.3	✓ RollRateI.3		
✓ Temperature / Dewpoint	✓ TTM.1	✓ TTM.4	X TDM.1		✓ TD.c	✓ TTMref
	INOP TTM.2		✓ TDM.2		✓ TDMref	✓ TA.d
	✓ TTM.3				X HUM	
X Wind					✓ UWZ.d	X WS.d
						X WD.d

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:
Flight level winds are removed due to known inconsistancies.
PQBeta.1 and PQBeta.2 are inoperable due to use of spare radome.
PQAlpha.1 diverges from PDAlpha.2 about 6 hours into the flight.

AOC GPS Dropwindsonde Log (updated June 2023)

Flight ID: 20240924N2 ASPEN Operator/Flight Director(s): Flaherty / de Solo

Mission ID: 0609A HELENE Storm Name/Track: TS HELENE SURV PG ___ of ___

Sonde #	Ob #	Launch Time HHMMSS (Z)	Sonde ID (min last 5)	Ch # used	Lat (ºN)	Lon (ºW)	Prominent Wx Cond.	SFC Prs (mb)	Comments / Issues / QC / ASPEN Edits	KWBC #	Sonde Issues?
1	1	1750	20155	1	27.5	-84.1	SCT BLW	1012.4		1804	N
2	2	1800	50072	2	27.7	-85.5	SCT BLW	1011.9		1826	N
3	X	1811	20172	3	28.0	-87.0	SCT BLW	N/A	FAST FALL	N/A	Y
4	3	1812	20176	4	28.0	-87.0	SCT BLW	1012.0	BACK UP	1830	N
5	4	1823	54140	1	28.0	-88.5	FEW BLW	1012.3		1843	N
6	5	1833	14953	2	27.9	-89.9	FEW BLW	1012.0		1850	N
7	6	1846	51116	3	26.2	-89.9	SCT BLW	1009.9		1922	N
8	7	1857	10879	4	26.2	-88.4	SCT BLW	1009.8		1933	N
9	8	1908	20781	1	26.2	-86.9	SCT BLW	1009.6		1942	N
10	9	1919	20486	2	26.2	-85.4	SCT BLW	1009.8		1944	N
11	10	1929	21010	3	26.2	-84.1	BKN BLW	1010.1		1947	N
12	11	1943	20825	4	24.5	-84.1	BKN BLW	1008.4		2022	N
13	12	1955	20174	1	24.4	-85.5	SCT BLW	1007.6		2024	N
14	13	2006	20156	2	24.4	-87.0	FEW BLW	1007.6		2026	N
15	14	2017	10787	3	24.3	-88.5	FEW BLW	1008.0		2045	N
16	15	2028	54064	4	24.3	-89.9	FEW BLW	1007.6		2051	N
17	16	2043	10361	1	22.4	-90.0	BKN BLW	1007.2		2104	N
18	17	2057	14539	2	22.5	-88.4	BKN BLW	1006.0		2137	N
19	18	2109	20178	3	22.5	-87.0	OVC BLW	1005.3		2140	N
20	19	2121	51076	4	22.0	-85.4	OVC	1004.1		2141	N
21	XX	2135	10537	1	21.5	-84.0	OVC	N/A	NO HUMIDITY	N/A	Y
22	20	2136	20157	2	21.4	-83.8	OVC	1003.0	BACK UP	2159	N
23	21	2144	20759	3	20.5	-83.4	OVC	1002.8		2207	N
24	22	2154	40065	4	19.5	-83.8	OVC	998.8		2211	N
25	23	2203	20401	1	19.1	-84.9	OVC	995.9		2225	N
26	24	2211	54015	2	19.5	-86.0	OVC	999.2		2231	N
27	25	2221	20486	3	19.0	-87.0	OVC	1001.2		2248	N
28	26	2238	50175	4	17.7	-85.5	OVC	1001.9		2258	N
29	27	2249	20290	1	17.7	-84.2	OVC	1001.7		2308	N
30	28	2300	14461	2	18.2	-83.0	OVC	1001.5		2322	N
31	29	2308	60349	3	19.1	-82.4	OVC BLW	1003.7		2332	N
32	30	2321	10402	4	20.6	-81.9	OVC BLW	1005.1		2345	N
33	31	2357	20175	1	24.8	-82.7	BKN BLW	1009.3	LAST REPORT	0015	N
34											
35											
36											
37											
38											

ASPEN Operator will ensure this form is delivered to the AOC Flight Director to be archived

COMMENTS:

Obs Xmitted | Obs Missed | # of sondes launched | # of bad sondes

AVAPS Drop Log

Project: Hx 2024 Mission: HELENE Flight ID: 4

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

Drop #	Sonde Serial #	Rcvr #	Press Offset	Launch Time	Operator	Charge $$ To	Comments	Good ?
1	23462055	1	0.0	1750	HK	NWS		✓
2	2406500 72	2	-0.2	1800	HK	NWS		✓
3	234220172	3	-0.4	1811	HK	NWS	FAST FALL	X
4	234220176	4	-0.7	1812	HK	NWS	#3 Backup	✓
5	2404541 40	1	-0.2	1823	HK	NWS		✓
6	23511 49 53	2	-0.1	1833	HK	NWS		✓
7	235051116	3	-0.3	1846	HK	NWS		✓
8	23431 0879	4	-0.2	1857	HK	NWS		✓
9	240620781	1	-0.2	1908	HK	NWS		✓
10	233920486	2	-0.3	1919	HK	NWS		✓
11	233221010	3	-0.6	1929	HK	NWS		✓
12	23452 0825	4	-0.2	1943	HK	NWS		✓
13	234220174	1	-1.0	1955	HK	NWS		✓
14	234220156	2	-0.5	2006	HK	NWS		✓
15	2347 10787	3	-0.2	2017	HK	NWS		✓
16	240 454 064	4	-0.1	2028	HK	NWS		✓
17	234610361	1	-0.1	2043	HK	NWS		✓
18	233 814 539	2	0.0	2057	HK	NWS		✓
19	234220178	3	-0.6	2109	HK	NWS		✓
20	233251076	4	-0.5	2121	HK	NWS		✓
21	240610537	1	-0.1	2135	HK	NWS	No Dewpoint/Humidity	X
22	234220 157	2	-0.5	2136	HK	NWS	#21 Back up	✓
23	234220759	3	-0.5	2144	HK	NWS		✓
24	240640 065	4	-0.2	2154	HK	NWS		✓
25	241020401	1	-0.1	2203	HK	NWS		✓
26	240454015	2	-0.2	2211	HK	NWS		✓
27	234220486	3	-0.1	2221	HK	NWS		✓
28	233350175	4	+0.9	2238	HK	NWS		✓
29	232320 290	1	+0.2	2249	HK	NWS		✓
30	233 814 461	2	-0.2	2300	HK	NWS		✓
31	233 560 349	3	-0.3	2308	HK	NWS		✓

Drop #	Sonde Serial #	Rcvr #	Press Offset	Launch Time	Operator	Charge $$ To	Comments	Good ?
32	2342104Q2	4	-0.2	2321	HK	NWS		✓
33	2342220175	1	-1.0	2357	HK	NWS		✓
~~34~~	~~2350512~~	~~2~~	~~0.0~~					
35								
36								
37								
38								
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/Miss St/APHEX collab), MS (old NRD94 sondes)

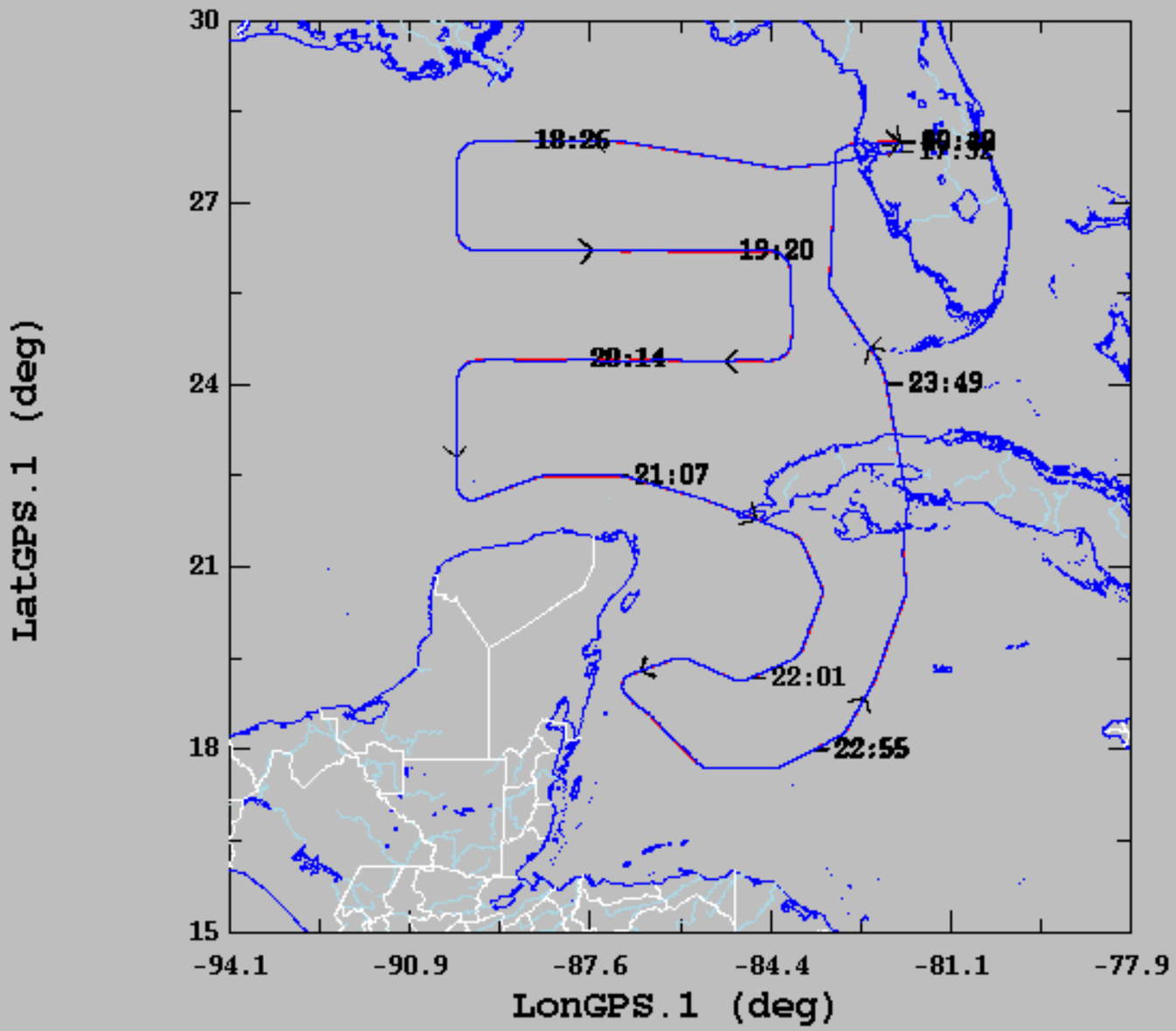
AVAPS Pre-Flight Check:

- 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

09/24/2024, 16:39:10-24:42:45



	mean	sigma	min	max
LatGPS.1 (deg), 1 s/sec	24.18	3.38	17.68	28.00
LonGPS.1 (deg), 1 s/sec	-85.08	2.62	-90.00	-81.89
LatI.1 (deg), 1 s/sec	24.18	3.38	17.68	28.00
LonI.1 (deg), 1 s/sec	-85.08	2.63	-90.01	-81.88