N49RF ERROR SUMMARY
20200918N1

Flight ID: 20200918N1

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/2020/MET/20200918N1

Local Met Data	Takeoff TISX (1600Z)	Landing KLAL (0000Z)
Dynamic Corrections		Yes
AttackAngleIntercept		3.97801
AttackAngleSlope		3.86172
SlipAngleIntercept		1.258
SlipAngleSlope		6.69941
AttackAngleIntercept2		5.05753
AttackAngleSlope2		5.52397
SlipAngleIntercept2		0.931
SlipAngleSlope2		6.57562

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	29	29	
Test sondes	0	0	0	
AXBTs	0	0	0	
AXCPs	0	0	0	
AXCTDs	0	0	0	
UAS	0	0	0	

Flight Director: Hathaway / Flaherty
Phone #: 863-500-3911

ACAT-4 Version = 7.3

U.S. Department of Commerce / NOAA / OMAO / Aircraft Operations Center - N49RF Manifest

FLIGHT INFORMATION

FLT ID:	20200918N1	FLT #:	
From:	TISX	ETD:	1600Z
To:	KLAL	ETA:	0000Z

Block Time		Flight Time	
In:	2349Z	Land:	2342Z
Out:	1552Z	T/O:	1600Z
Total:	7.9	Total:	7.7

Sponsoring Org:	HRD/ONR
Program:	Hurricane 2020-PRX
Purpose:	Hurricane Teddy

CREW MANIFEST

AC:	Mansour	Scientists:
CP(s):	Nardi	
	Varwig	
Nav(s):		
FE(s)		
FD(s):	Hathaway	
	Flaherty	Visitors:
SEB:		
SSA:	Defeo	
	Lawrence	
AVAPS:	Hartberger	

MISSION INFORMATION

Pressure		Dropsondes ~30 - 35		
		Good	Bad	Sent
A/C Takeoff		29	4	29
ASOS Takeoff		BTs		
		Good	Bad	Sent
A/C Land		0	0	0
ASOS Land				

Storm Number ID: (ie: AL072012)	AL 202020
TCPOD/WSPOD Mission (ie: NOAA2 2418A SANDY)	NOAA9 WF20A TEDDY

OBSERVATIONS

Fix Number	Obs Number	Fix Time	SLP

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

Gmax: **Gmin:** *Highlighted items must be completed before departure.

Remarks:

G-IV QC Checklist

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

Flight ID:	20200918N1
Flight Director(s):	Hathaway / Flaherty
Mission:	Non-tasked Science Collection/Research
UWZ.d mean:	0.04

Pressure Comparison		
	T/O	Land
Aircraft	1011.6	1007.2
Tower	1008.9	1007.6

	Raw 1Hz Mean File Parameters				C File Parameters	
☐ Accelerometer	☑ 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	X 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			
☐ Lat / Lon	☑ 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	☑ PDALPHA.1	☑ PQALPHA.1	☑ PQM.1	☑ PSM.1	☑ PDLAPHAref	☑ PQMref
	☑ PDALPHA.2	☑ PQALPHA.2	☑ PQM.2	☑ PSM.2	☑ PDBETAref	☑ PQ.c
	☑ PDBETA.1	X PQBETA.1			☑ PQALPHAref	☑ PSMref
	☑ PDBETA.2	X PQBETA.2			X PQBETAref	☑ PS.c
☐ Air Speed	☑ CasADDU.1	☑ CasADDU.2	☑ TasADDU.1	☑ TasADDU.2	☑ 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		
☐ Temp / Dewpt	☑ TTM.1	☑ TTM.4	X TDM.1		X TD.c	☑ TTMref
	☐ TTM.2		X TDM.2		X TDMref	☑ TA.d
	☑ TTM.3					
☐ Misc. (Must check)					☑ UWZ.d	☑ WS.d
					☑ DPJ_WSZ	☑ WD.d
					X HUM	

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

QC Key	
Not checked	☐
Valid	☑
Errors (note)	X

NOTES:

AltRA.1 has multiple significant dropouts and should not be used as absolute altitude.
Occasional spikes in multiple sensors in CDO due to turbulence.
PQBeta.1 and PQBeta.2 are unrepresentative with unusual drop outs.
When examined at high resolution, data from the three inertials shows "stairstepping" for all parameters for brief intervals (generally less than 15 seconds).
TDM.1 & TDM.2 were unrepresentative for the cruise portion of the mission above 41K and also for intervals at low altitudes.
Consider all relative humidity values to be considered suspect.
TTM.3 has a small amplitude (magnitude 0.2 – 0.3 deg C) unnatural oscillation with a period of roughly 30 seconds.
TTM.1 was used for calculation of Ambient Temperature (TA) and other derived parameters.
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.

AOC GPS Dropwindsonde Log (updated Mar 2019)

29/33

Flight ID: 20200918N1 ASPEN Operator/Flight Director(s): FLAHERTY / HATHAWAY

Mission ID: NOAA9 WF20A TEDDY Storm Name/Track: HURR TEDDY RESEARCH PG ___ of ___

Sonde #	Ob #	Launch Time HHMMSS (Z)	Sonde ID (m-n last 5)	Ch # used	Lat (°N)	Lon (°E)	Prominent Wx Cond.	SFC Prs (mb)	Comments / Issues / QC / ASPEN Edits	KWBC #	Sonde Issues?
1	1	1628	20826	1	19.0	-62.0	SCTBLW	1010.7		1653	
2	2	1639	30052	2	19.7	-60.6	"	1008.1		1705	
3	3	1650	30150	3	20.4	-59.3	"	1006.3		1712	
4	4	1702	30143	4	21.0	-58.0	OVC BLW	1000.9		1723	
5	5	1710	30186	1	21.0	-56.8	"	997.5		1738	
6	X	1717	26805	2	—	—	"	—	BAD	—	(Y)
7	6	1718	30147	3	20.1	-56.3	"	1003.1	BACK UP	1748	
8	7	1723	20825	4	19.6	-55.9	"	1005.8		1750	
9	X	1729	—	5	—	—	"	—	BAD - NO BACKUP - FAST FALL	—	(Y)
10	8	1736	70280	6	21.0	-55.1	"	1001.5		1801	
11	X	1743	—	7	—	—	—	—	BAD NEAR SURFACE	—	(Y)
12	9	1751	30010	1	20.8	-53.2	"		NO SFC WINDS	1858	
13	10	1802	50418	2	21.6	-53.7	"	1007.4		1852	
14	X	1808	40537	3	22.4	-54.0	"	—	BAD - TERM AT 950MB	1902	(Y)
15	X	1820	—	4	—	—	SCTBLW	—	BAD	—	(Y)
16	11	1824	26809	1	23.3	-52.6	"		BACK UP	1909	
17	X	1834	—	2	—	—	"	1010.2	BAD	—	(Y)
18	12	1836	43014	3	24.4	-50.7	"	1012.9	BACKUP	1913	
19	13	1847	30148	4	25.2	-49.5	"	1013.9		1925	
20	14	1906	20928	1	27.1	-50.7	"	1016.0		1935	
21	15	1922	21310	2	28.1	-52.3	"	1016.3		1952	
22	16	1937	40433	3	28.8	-54.1	"	1015.6		2000	
23	17	1952	40266	4	29.0	-56.0	"	1013.4		2022	
24	18	2000	40419	1	28.9	-57.0	"	1014.5		2025	
25	19	2006	20837	2	28.8	-57.8	"	1014.1		2045	
26	20	2014	20248	3	28.5	-58.7	"	1013.3		2047	
27	21	2022	20835	5	28.1	-59.7	"	1011.8		2058	
28	22	2031	20799	4	27.4	-60.6	"	1011.8		2111	
29	23	2040	40407	1	26.6	-60.0	OVC BLW	1011.6		2123	
30	24	2047	30012	2	25.9	-59.4	OVC BLW	1008.8		2135	
31	25	2056	20810	3	26.0	-60.5	SCT BLW	1009.8		2153	
32	26	2104	20824	5	26.1	-61.5	"	1010.0		2155	
33	27	2112	40435	4	26.4	-62.5	"	1011.2	LAST RPT	2158	
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
27	1	33	6

AVAPS Drop Log

Project: _____ Mission: Hum Teddy Flight ID: 20200918N1

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

Drop #	Sonde Serial #	Rcvr #	Press Offset	Launch Time	Operator	Charge $$ To	Comments	Good ?
1	194 820 826	1	Ø	1628	JEH	STAN		✓
2	201 430 052	2	Ø	1634		↑		✓
3	201 430 150	3	-0.4	1650				✓
4	201 430 143	4	Ø	1702				✓
5	194 830 186	1	Ø	1710		↓		✓
6	194 820 805	2	Ø	1717		STAN	No Temp Hum	
7	194 830 147	3	Ø	1718		HRD	Backup 1	✓
8	194 820 825	4	Ø	1723		↕		✓
9	201 450 416	5	-0.6	1729		HRD	fast fall No Backup	
10	194 320 280	6	Ø	1736		STAN		✓
11	201 440 406	7	Ø	1743		↑		✓
12	194 830 010	1	Ø	1751				✓
13	201 450 418	2	-0.9	1801				✓
14	201 440 537	3	-0.6	1808				✓
15	194 920 535	4	Ø	1820			No temp Hum 2	
16	194 820 809	1	Ø	1821			Backup	✓
17	201 440 418	2	Ø				NO LAUNCH D.	
18	201 430 145	3	Ø	1836			BACK UP 3	✓
19	201 143 148	4	0	1847				✓
20	194 480 828	1	.1	1906				
21	201 421 310	2	-.5	1922				
22	201 440 433	3	0	1937				
23	201 440 266	4	0	1952				
24	201 440 419	1	0	2006				
25	194 820 837	2	.1	2006				
26	194 320 248	3	.1	2014				
27	194 820 835	5	.4	2022				
28	194 820 799	4	.3	2031				
29	201 440 407	1	0	2040				
30	194 820 012	2	.2	2047				
31	194 820 810	3	0	2056				

Drop #	Sonde Serial #	Rcvr #	Press Offset	Launch Time	Operator	Charge $$ To	Comments	Good ?
32	194 820 824	5	0	2104	↓			
33	201 440 435	4	.2	2112	STAN			
34			.1					
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, STAN (Stanford), SAT (JPSS/NESDIS/HRD)

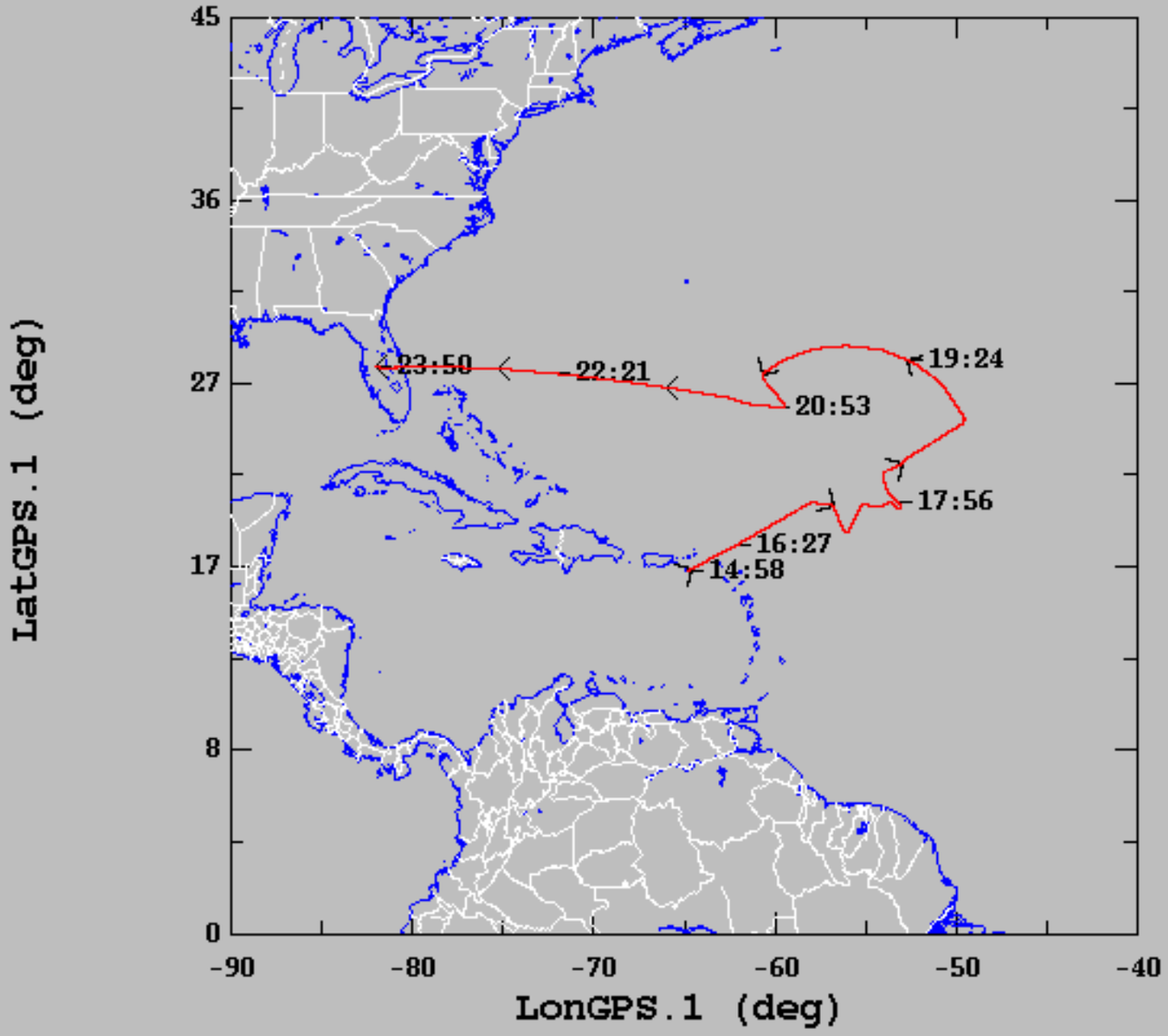
AVAPS Pre-Flight Check:

- 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 RD41 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 0.4mB or greater using cabin pressure sensor – warning, this can not be used during a climb
- If the Cal lab pressure standard and the cabin pressure standard match, apply pressure offset +/- 0.1 mB
- 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
- 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.
- Place the sonde in the launch tube, sensor arm up, with the power pin socket facing right
- Verify the sonde is actively tracking GPS data prior to launch and no early launch detect

2020-09-18, 14:58:52-23:50:30



	mean	sigma	min	max
LatGPS.1 (deg), 1 s/sec	24.41	3.97	17.70	29.02
LonGPS.1 (deg), 1 s/sec	-62.45	8.84	-82.03	-49.49