Flight ID: 20200914N2

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/20200914N2

Local Met Data   Takeoff KLAL (1728Z)   Landing TISX (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	21	20	20
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:	20200914N2	FLT #:	
From:	K LAL	ETD:	1730 ~ 6.5 hrs
To:	TISX	ETA:	0130

Block Time		Flight Time	
In:	2354Z	Land:	2350Z
Out:	1722Z	T/O:	1728Z
Total:	6.5	Total:	6.4

Sponsoring Org:	HRD/ONR
Program:	Hurricane 2020 - PRx
Purpose:	Hurricane Sally Research

CREW MANIFEST

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

MISSION INFORMATION

Pressure		Dropsondes ~ 21		
		Good	Bad	Sent
A/C Takeoff		20	1	20
ASOS Takeoff		BTs		
		Good	Bad	Sent
A/C Land		0	0	0
ASOS Land				

Storm Number ID: (ie: AL072012)	AL 19 2020
TCPOD/WSPOD Mission (ie: NOAA2 2418A SANDY)	NOAA9 WC19A SALLY

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:	20200914N2
Flight Director(s):	Hathaway / Flaherty
Mission:	Non-tasked Science Collection/Research
UWZ.d mean:	0.19

Pressure Comparison		
	T/O	Land
Aircraft	1011.4	1014.2
Tower	1011.0	1012.6

	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	✅ 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	❌ PQBETA.1			✅ PQALPHAref	✅ PSMref
	✅ PDBETA.2	❌ PQBETA.2			❌ 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	❌ TDM.1		❌ TD.c	✅ TTMref
	☐ TTM.2		❌ TDM.2		❌ TDMref	✅ TA.d
	✅ TTM.3					
☐ Misc. (Must check)					✅ UWZ.d	✅ WS.d
					✅ DPJ_WSZ	✅ WD.d
					❌ 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:

Occasional Spikes in multiple sensors in CDO due to turbulence.

PQAlpha.1 failed about two hours into flight and is unrepresentative for the remainder of the flight.

PQBeta.1 and PQBeta.2 are unrepresentative with unusual drop outs.

AltRA.1 has multiple significant dropouts and should not be used as absolute altitude.

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.1 has a peak around hour three in flight that TTM.3 and TTM.4 did not respond to that corresponds with turbulence.

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)

Flight ID: 20200914N2
ASPEN Operator/Flight Director(s): FLAHERTY / HATHAWAY

Mission ID: NOAA9 WC19A SALLY
Storm Name/Track: HURR SALLY RESEARCH
PG ___ of ___

Sonde #	Ob #	Launch Time HHMMSS (Z)	Sonde ID (min last 5)	Ch # used	Lat (°N)	Lon (°E)	Prominent Wx Cond.	SFC Prs (mb)	Comments / Issues / QC / ASPEN Edits	KWBC #	Sonde Issues?
1	1	1803	7002	1	29.3	84.3	OVCBLW	1011.7	NO SFC WINDS	1844	Y
2	2	1817	10267	2	29.5	-86.0	"	1008.8		1859	Y
3	3	1820	20833	3	29.2	-85.5	"	1009.1	RH DROPOUT	1902	Y
4		182805		4			"		BAD NED		Y
5	4	82857		1			"	1005.4	NO RH BACK UP	1908	Y
6	5	1909	30539	2	27.2	-87.5	"	1004.3		2000	N
7	6	1903	20769	5	27.2	-86.6	"	1005.0		2003	N
8	7	1915	10600	3	27.2	-88.3	"	1005.5		2007	N
9	8	1921	20830	6	27.9	-88.8	"	1005.6		2009	N
10	9	1927	70131	4	28.3	-89.2	"	1006.6		2011	N
11	10	1933	70086	1	28.0	-90.0	"	1007.3		2013	N
12	11	1939	40047	2	27.5	-90.5	"	1007.8		2036	N
13	12	1948	40074	3	26.8	-89.6	"	1006.8		2037	N
14	13	1957	10759	7	26.1	-88.6	"	1006.6		2042	N
15	14	2007	10766	4	25.6	-87.5	"	1007.8		2046	N
16	15	2013	30709	1	25.9	-86.8	"	1007.9		2048	N
17	16	2019	20775	2	26.2	-86.1	"	1007.8		2050	N
18	17	2034	70133	8	26.1	-84.3	"	1010.8		2053	N
19	18	2043	30150	3	27.1	-84.5	"	1010.7		2131	N
20	19	2049	10812	4	27.8	-84.4	"	1009.2	LAST	2142	N
21	20	2055	10752	1	28.5	-84.2	FP	100.6	LAST REPORT	2150	N
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											

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

COMMENTS:

Obs Xmitted: 20
Obs Missed: 1
# of sondes launched: 21
# of bad sondes: 1

AVAPS Drop Log

Project: _____ Mission: _Hurr Sally_ Flight ID: _20200914N2_

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

Drop #	Sonde Serial #	Rcvr #	Press Offset	Launch Time	Operator	Charge $$ To	Comments	Good ?
1	200 370 102	1	Ø	1803	JEH	ONR		L
2	195 110 267	2	Ø	1817		↑		L
3	194 820 833	3	Ø	1820				L
4	200 370 114	4	Ø	1828			No temp hum	
5	195 120 815	1	Ø	1828			Lost hum early Backup	
6	195 120 769	5	Ø	1903				L
7	195 130 539	2	Ø	1909				L
8	195 110 600	3	Ø	1915				L
9	195 120 830	6	Ø	1921		↓		L
10	200 370 131	4	Ø	1927		ONR		L
11	200 370 086	1	Ø	1933		HRD		L
12	200 240 047	2	Ø	1939		↑		L
13	200 240 294	3	Ø	1948				L
14	200 410 759	7	Ø	1957				L
15	200 410 766	4	Ø	2007				L
16	194 830 709	1	Ø	2013				L
17	195 120 775	2	Ø	2019				L
18	200 370 133	8	Ø	2034				L
19	194 830 150	3	Ø	2043				L
20	200 410 812	4	Ø	2049		↓		L
21	200 410 752	1	Ø	2055		HRD		L
22								
23								
24								
25								
26								
27								
28								
29								
30								
31								

Drop #	Sonde Serial #	Rcvr #	Press Offset	Launch Time	Operator	Charge $$ To	Comments	Good ?
32								
33								
34								
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):
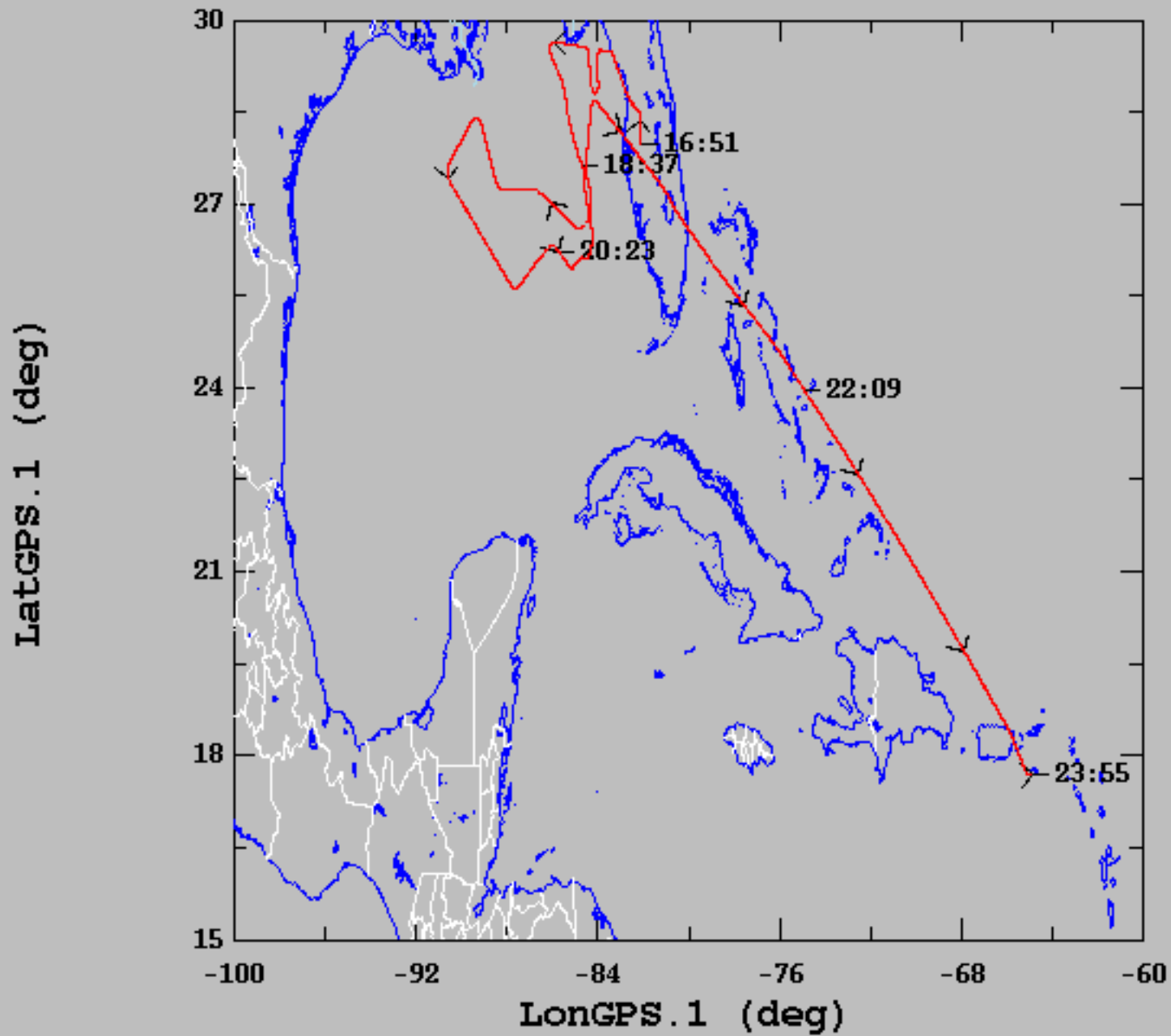AOC, NWS, HRD, NESDIS, IR/SST, AR, STAN (Stanford), SAT (JPSS/NESDIS/HRD)

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

2020-09-14, 16:51:25–23:55:01

LatGPS.1 (deg)

LonGPS.1 (deg)

16:51
18:37
20:23
22:09
23:55

30

27

24

21

18

15

-100   -92   -84   -76   -68   -60

	mean	sigma	min	max
LatGPS.1 (deg), 1 s/sec	25.63	3.35	17.68	29.64
LonGPS.1 (deg), 1 s/sec	-80.31	7.35	-90.54	-64.79