

N49RF ERROR SUMMARY
20200825N2

Flight ID: 20200825N2

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/20200825N2

Local Met Data	Takeoff KLAL (1730Z)	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	36	30	30
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				CREW MANIFEST			MISSION INFORMATION				
FLT ID:	20200825 N2	FLT #:		AC:	Mansour	Scientists:	Pressure		Dropsondes		
From:	KLAL	ETD:	1730	CP(s):	Nardi		A/C Takeoff		Good	Bad	Sent
To:	KLAL	ETA:	2330						30	6	30
Block Time		Flight Time		Nav(s):			ASOS Takeoff		BTs		
In:	0033Z	Land:	0027	FE(s):			A/C Land		Good	Bad	Sent
Out:	1721Z	T/O:	1730Z	FD(s):	Mathaway Flaherty	Visitors:	ASOS Land		0	0	0
Total:	7.2	Total:	7.0	SEB:			Storm Number ID: (ie: AL072012)		AL 13 2020		
Sponsoring Org:	NHC			SSA:	Defeo		TCPOD/WSPOD Mission (ie: NOAA2 2418A SANDY)		NOAA9 1813A LAURA		
Program:	PHS			AVAPS:	Patel		OBSERVATIONS				
Purpose:	Surveillance Laura						Fix Number	Obs Number	Fix Time	SLP	
AS REQUIRED BY ORM				Y	N	REMARKS	Fix Number	Obs Number	Fix Time	SLP	
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											
Gmax:				Gmin:			*Highlighted items must be completed before departure.				
Remarks:											

G-IV QC Checklist

Flight ID:	20200825N2
Flight Director(s):	Hathaway/Flaherty

Pressure Comparison		
	T/O	Land
Aircraft	1011.2	1010.8
Tower	1011.4	1011.0

UWZ.d mean:	0.16
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	Raw 1Hz Mean File Parameters				C File Parameters	
<input type="checkbox"/> Accelerometer	<input checked="" type="checkbox"/> AccAXI.1	<input checked="" type="checkbox"/> AccAYI.1	<input checked="" type="checkbox"/> AccAZI.1	<input checked="" type="checkbox"/> AccZI.1	<input checked="" type="checkbox"/> AccZref	
	<input checked="" type="checkbox"/> AccAXI.2	<input checked="" type="checkbox"/> AccAYI.2	<input checked="" type="checkbox"/> AccAZI.2	<input checked="" type="checkbox"/> AccZI.2		
	<input checked="" type="checkbox"/> AccAXI.3	<input checked="" type="checkbox"/> AccAYI.3	<input checked="" type="checkbox"/> AccAZI.3	<input checked="" type="checkbox"/> AccZI.3		
<input type="checkbox"/> Altitude	<input checked="" type="checkbox"/> AltGPS.1	<input checked="" type="checkbox"/> AltI.1	<input checked="" type="checkbox"/> AltPaADDU.1	<input checked="" type="checkbox"/> AltBCADDU.1	<input checked="" type="checkbox"/> ALTref	
	<input checked="" type="checkbox"/> AltGPS.2	<input checked="" type="checkbox"/> AltI.2	<input checked="" type="checkbox"/> AltPaADDU.2	<input checked="" type="checkbox"/> AltBCADDU.2	<input checked="" type="checkbox"/> ALTPA.d	
	<input checked="" type="checkbox"/> AltGPS.3	<input checked="" type="checkbox"/> AltI.3	<input checked="" type="checkbox"/> AltRA.1		<input checked="" type="checkbox"/> ALTGA.d	
<input type="checkbox"/> Ground Speed	<input checked="" type="checkbox"/> GsXI.1	<input checked="" type="checkbox"/> GsYI.1	<input checked="" type="checkbox"/> GsZI.1	<input checked="" type="checkbox"/> GsGPS.1	<input checked="" type="checkbox"/> GSXref	
	<input checked="" type="checkbox"/> GsXI.2	<input checked="" type="checkbox"/> GsYI.2	<input checked="" type="checkbox"/> GsZI.2	<input checked="" type="checkbox"/> GsGPS.2	<input checked="" type="checkbox"/> GSYref	
	<input checked="" type="checkbox"/> GsXI.3	<input checked="" type="checkbox"/> GsYI.3	<input checked="" type="checkbox"/> GsZI.3		<input checked="" type="checkbox"/> GSZref	
	<input checked="" type="checkbox"/> GsXGPS.1	<input checked="" type="checkbox"/> GsYGPS.1	<input checked="" type="checkbox"/> GsZGPS.1			
	<input checked="" type="checkbox"/> GsXGPS.2	<input checked="" type="checkbox"/> GsYGPS.2	<input checked="" type="checkbox"/> GsZGPS.2			
<input type="checkbox"/> Lat / Lon	<input checked="" type="checkbox"/> LatGPS.1	<input checked="" type="checkbox"/> LatI.1	<input checked="" type="checkbox"/> LonGPS.1	<input checked="" type="checkbox"/> LonI.1	<input checked="" type="checkbox"/> LATref	
	<input checked="" type="checkbox"/> LatGPS.2	<input checked="" type="checkbox"/> LatI.2	<input checked="" type="checkbox"/> LonGPS.2	<input checked="" type="checkbox"/> LonI.2	<input checked="" type="checkbox"/> LONref	
	<input checked="" type="checkbox"/> LatGPS.3	<input checked="" type="checkbox"/> LatI.3	<input checked="" type="checkbox"/> LonGPS.3	<input checked="" type="checkbox"/> LonI.3		
<input type="checkbox"/> Pressure	<input checked="" type="checkbox"/> PDALPHA.1	<input checked="" type="checkbox"/> PQALPHA.1	<input checked="" type="checkbox"/> PQM.1	<input checked="" type="checkbox"/> PSM.1	<input checked="" type="checkbox"/> PDALPHaref	<input checked="" type="checkbox"/> PQMref
	<input checked="" type="checkbox"/> PDALPHA.2	<input checked="" type="checkbox"/> PQALPHA.2	<input checked="" type="checkbox"/> PQM.2	<input checked="" type="checkbox"/> PSM.2	<input checked="" type="checkbox"/> PDBETAref	<input checked="" type="checkbox"/> PQ.c
	<input checked="" type="checkbox"/> PDBETA.1	<input checked="" type="checkbox"/> PQBETA.1			<input checked="" type="checkbox"/> PQALPHaref	<input checked="" type="checkbox"/> PSMref
	<input checked="" type="checkbox"/> PDBETA.2	<input checked="" type="checkbox"/> PQBETA.2			<input checked="" type="checkbox"/> PQBETAref	<input checked="" type="checkbox"/> PS.c
<input type="checkbox"/> Air Speed	<input checked="" type="checkbox"/> CasADDU.1	<input checked="" type="checkbox"/> CasADDU.2	<input checked="" type="checkbox"/> TasADDU.1	<input checked="" type="checkbox"/> TasADDU.2	<input checked="" type="checkbox"/> IAS.d	<input checked="" type="checkbox"/> TAS.d
<input type="checkbox"/> Pitch / Roll	<input checked="" type="checkbox"/> PitchI.1	<input checked="" type="checkbox"/> PitchRateI.1	<input checked="" type="checkbox"/> RollI.1	<input checked="" type="checkbox"/> RollRateI.1	<input checked="" type="checkbox"/> PITCHref	
	<input checked="" type="checkbox"/> PitchI.2	<input checked="" type="checkbox"/> PitchRateI.2	<input checked="" type="checkbox"/> RollI.2	<input checked="" type="checkbox"/> RollRateI.2	<input checked="" type="checkbox"/> ROLLref	
	<input checked="" type="checkbox"/> PitchI.3	<input checked="" type="checkbox"/> PitchRateI.3	<input checked="" type="checkbox"/> RollI.3	<input checked="" type="checkbox"/> RollRateI.3		
<input type="checkbox"/> Temp / Dewpt	<input checked="" type="checkbox"/> TTM.1	<input checked="" type="checkbox"/> TTM.4	<input checked="" type="checkbox"/> TDM.1		<input checked="" type="checkbox"/> TD.c	<input checked="" type="checkbox"/> TTMref
	<input type="checkbox"/> TTM.2		<input checked="" type="checkbox"/> TDM.2		<input checked="" type="checkbox"/> TDMref	<input checked="" type="checkbox"/> TA.d
	<input checked="" type="checkbox"/> TTM.3					
<input type="checkbox"/> Misc. (Must check)					<input checked="" type="checkbox"/> UWZ.d	<input checked="" type="checkbox"/> WS.d
					<input checked="" type="checkbox"/> DPJ_WSZ	<input checked="" type="checkbox"/> WD.d
					<input checked="" type="checkbox"/> HUM	

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
<input checked="" type="checkbox"/>	Miscellaneous FD Notes

QC Key	
Not checked	<input type="checkbox"/>
Valid	<input checked="" type="checkbox"/>
Errors (note)	<input checked="" type="checkbox"/>

NOTES:

PQBeta.1 may have gotten iced over towards the end of the flight 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.

Consider all relative humidity values to be considered suspect.

TTM.4 which is usually the TTM reference had a transient anomaly between hours 4 and 5, and therefore made

TTM.1 the reference.

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: 20200825 N2

ASPEN Operator/Flight Director(s): FLAHERTY / HATHAWAY

30/36

Mission ID: NCAA9 1813A LAURA

Storm Name/Track: HURRICANE LAURA SERV

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	175932	40008	1			BLU BLW	1012.1		1835	
2	2	181231	30538	2			BLU BLW	1006.7		1848	
3	3	182349	30713	3			"	1004.2		1913	
4	4	183503	40003	4			"	1006.7		1921	
5	5	184521	30015	1			"	1007.3		1923	
6	6	185854	20548	2			BLU BLW	1006.5		1926	
7	7	191156	51118	3			BLU BLW	1006.4		1935	
8	8	192216	40009	4			BLU BLW	1007.3		2006	
9	9	193213	30548	1			"	1006.1		2020	
10	X	195302		2					NO PTH		✓
11	10	195357	30148	3			"	1007.6	BACK UP	2012	
12	11	200426	30716	4			"	1008.6		2035	
13	X	201644		1			"		NO PTH		✓
14	12	201750	51062	2			"	1008.8	BACK UP	2038	
15	X	202803		3			"		NO PTH		✓
16	13	202944	58088	4			"	1008.7	BACK UP	2106	
17	14	204130	30183	1			"	1008.2		2113	
18	15	205450	20813	2			"	1008.0		2115	
19	X	210704	40015	3					LLD		✓
20	16	210577	30719	4			"	1007.3	BACK UP	2159	
21	17	210027	211425	1			"	1007.3		2201	
22	18	212424	30145	2			"	1007.8		2206	
23	19	214450	40006	3			BLU-IN	1000.4		2211	
24	20	215224	40018	4			"	1000.1		2215	
25	21	220347	20493	1			"	1002.6		2231	
26	X			2			"		NLD		✓
27	22	221524	4007	3			BLU BLW	1004.7	BACK UP	2237	
28	23	222803	40232	4			"	1002.9		2259	
29	24	223629	21214	1			"		EARLY DEATH 814 MB	2302	
30	25	224401	2493	2			"	1000.7		2314	
31	26	225346	40383	3			"	1003.5		2323	
32	27	230352	30143	4			"	1008.8		2330	
33	28	231322	30192	1			"	1007.2		2347	
34	29	233234	40058	2			"	1012.5		2355	
35	X			3					NO LAUNCH DETECT		✓
36	30	234727	10043	4			BLU BLW	1013.5	BACK UP - LAST REPORT	0007	
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

30

1

36

6

AVAPS Drop Log

 Project: Hurricane

 Mission: Laura

 Flight ID: 20200825N2

Take Off: _____

Landing: _____

 Flt Dir: Nike/Paul

Launcher S/N: _____

Drop #	Sonde Serial #	Rcvr #	Press Offset	Launch Time	Operator	Charge \$\$ To	Comments	Good ?
1	194840008	1	0	1759	AJP	nws		✓
2	195130538	2	0	1812				✓
3	194830713	3	0	1823				✓
4	194840003	4	0	1835				✓
5	194830015	1	0	1845				✓
6	194820548	2	0	1858				✓
7	195051118	3	0	1911				✓
8	194840009	4	0	1922				✓
9	195130548	1	0	1932				✓
10	194830149	2	0	1953			No temp No Temp, Hum.	✗
11	194830148	3	0	1953			Back up	✓
12	194830716	4	0	2004				✓
13	194920534	1	0	2016			No temp No Temp, Hum.	✗
14	201651062	2	0	2017			Back up	✓
15	201440019	3	0	2028			late GPS 32kft	✓
16	200250088	4	0	2029			Back up	✓
17	194830183	1	0	2041				✓
18	194820813	2	0	2054	GD			✓
19	194 840 015	3	0	—			NO LAUNCH	DETRET
20	194 830 719	4	0	2105				—
21	200 240 027	1	-2	2114				—
22	194 830 145	2	.1	2124				—
23	194 840 006	3	-1	2144				—
24	194 840 018	4	0	2152				✓
25	194 920 493	1	.2	2203				✓
26	201 651 057	2	-2	—			NO LAUNCH	DETRET
27	194 840 007	3	.1	2215				—
28	201 440 232	4	0	2228				✓
29	192 221 214	1	0	2236			half way dead	✓
30	200 52 493	2	-4	2244				✓
31	200 240 383	3	-2	2254	AJP			✓

Drop #	Sonde Serial #	Rcvr #	Press Offset	Launch Time	Operator	Charge \$\$ To	Comments	Good ?
32	200230949	4	0	2303	ASP	NWS		
33	194830192	1	0	2313				
34	200240058	2	0	2332				
35	200240380	3	0	—			No launch detect	x
36	195110043	4	0	2347				
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)

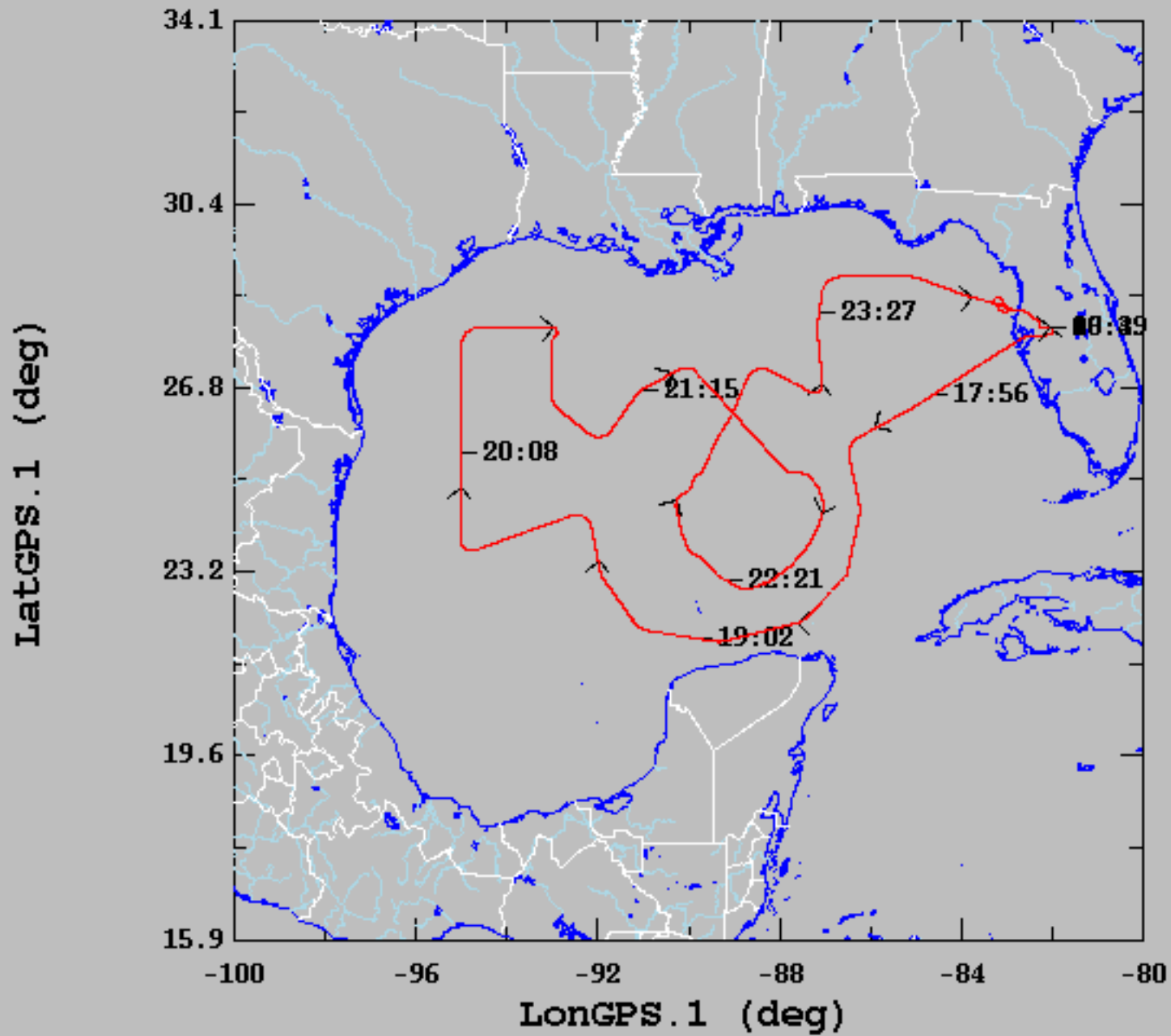
AVAPS Pre-Flight Check:

- 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 1/2 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

2020-08-25, 16:49:55-24:33:50



	mean	sigma	min	max
— LatGPS.1 (deg), 1 s/sec	25.94	2.08	21.81	29.00
— LongGPS.1 (deg), 1 s/sec	-88.14	4.05	-95.00	-81.98