

N49RF ERROR SUMMARY
AR-2023 09WSC IOP10

Flight ID: 20230109N1

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/2023/MET/20230109N1

Local Met Data	Takeoff PHNL (1924Z)	Landing PHNL (0305Z)
Dynamic Corrections		Yes
AttackAngleIntercept		6.4652
AttackAngleSlope		7.59375
SlipAngleIntercept	0.925	
SlipAngleSlope		6.56381
AttackAngleIntercept2		5.01255
AttackAngleSlope2	5.40932	
SlipAngleIntercept2		0.72
SlipAngleSlope2		7.0494

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.

Neither dew point sensor (TDM.1 or TDM.2) performed reliably during the mission, therefore all flight level humidity data should be considered suspect.

Drop point #17 was missed (no observation there due to multiple sonde failures)

Expendable Type	# deployed	# good	# transmitted
Dropsondes	36	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: Henning
Phone #: (863) 500-3982

ACAT-4 Version = 7.4

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

FLIGHT INFORMATION				CREW MANIFEST			MISSION INFORMATION				
FLT ID:	20230109N1	FLT #:		AC:	NARD 1	Scientists:	Pressure		Dropsondes		
From:	PHNL	ETD:	1915 z	CP(s):	deTRIQUET		A/C Takeoff		Good	Bad	Sent
To:	PHNL	ETA:	0330 z						29	7	29
Block Time		Flight Time		NAV:			ASOS Takeoff		BTs		
In:	0310	Land:	0305	FE(s):			A/C Land		Good	Bad	Sent
Out:	1909	T/O:	1924	FD(s):	HENNING deSOLO		ASOS Land				
Total:	8.0	Total:	7.7	SSA:	DEFE O	Visitors:					
Sponsoring Org:		CW3E		AVAPS:	HARTBERGER		Storm Number ID:		09WSC 10P10		
Program:		PAR		SEB:	SANTON 1		(ie: AL072012)				
Purpose:		Atmospheric Rivers		MX:			TCPDD/WSPDD Mission (ie: NOAA2 2418A SANDY)				
AS REQUIRED BY ORM			Y	N	REMARKS		Fix Number	Obs Number	Fix Time	SLP	
VOLCANIC ASH							1				
SCIENCE MISSION WITHIN BDRY LAYER							2				
LACK OF PRECIPITATION							3				
RELATIVE HUMIDITY ≥ 80%							4				
LARGE AIR-SEA TEMP GRADIENT											
HIGH SURFACE WINDS											
LONG FETCH / DURATION OF SFC WND											
SEA SALT ACCRETION FORECAST											
SEA SALT ACCRETION OBSERVED							Pennies:				

*Highlighted items must be completed before departure.

Remarks:

7 BAD SONDES (however 2 were operator error) 1 POINT WAS MISSED (#17 no OBS)
 FOR ONE DROP THE CHANNEL WAS ACCIDENTALLY TERMINATED
 IN THE OTHER, ACS INTERRUPTED THE DATA TO AVAPS AND IT WAS UNUSABLE

G-IV QC Checklist

Flight ID:	20230109N1
Flight Director(s)	Henning / de Solo
UWZ.d mean:	0.23

Pressure Comparison		
	T/O	Land
Aircraft	1020.6	1017.2
Tower	1020.5	1017.5

	Raw 1Hz Mean File Parameters					C File Parameters	
✓ Accelerometer	✓ AccAXI.1	✓ AccAYI.1	✓ AccAZI.1			✓ AccZref	
	✓ AccAXI.2	✓ AccAYI.2	✓ AccAZI.2				
	✓ AccAXI.3	✓ AccAYI.3	✓ AccAZI.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	✓ GsGPS.3		✓ GSZref	
	✓ GsXGPS.1	✓ GsYGPS.1	✓ GsZGPS.1				
	✓ GsXGPS.2	✓ GsYGPS.2	✓ GsZGPS.2				
	✓ GsXGPS.3	✓ GsYGPS.3	✓ GsZGPS.3				
✓ Lat / Lon	✓ LatGPS.1	✓ LatI.1	✓ LonGPS.1	✓ LonI.1		✓ LATref	
	✓ LatGPS.2	✓ LatI.2	✓ LonGPS.2	✓ LonI.2		✓ LONref	
	✓ LatGPS.3		✓ LonGPS.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	✓ TasADDU.1				✓ IAS.d	✓ TAS.d
✓ Pitch / Roll	✓ PitchI.1	✓ PitchRateI.1	✓ RolI.1	RollRateI.1		✓ PITCHref	
	✓ PitchI.2	✓ PitchRateI.2	✓ RolI.2	✓ RollRateI.2		✓ ROLLref	
	✓ PitchI.3	✓ PitchRateI.3	✓ RolI.3	✓ RollRateI.3			
x Temp / Dewpt	✓ TTM.1	✓ TTM.4	x TDM.1			x TD.c	✓ TTMref
	✓ TTM.2		x TDM.2			x TDMref	✓ TA.d
	✓ TTM.3						
x 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:
Numerous Radar Altitude dropouts on climb to operational alt but stabilized during science mission Both dew point sensors unreliable. Consider all FL humidity data suspect

AOC GPS Dropwindsonde Log (updated Mar 2019)

Flight ID: 20230109N1ASPEN Operator/Flight Director(s): Henning / de SoloMission ID: 09WSC IOPIOStorm Name/Track: AR IOPIOPG 1 of 1

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 SURFACE WINDS	KWBC #	Sonde Issues?
1	1	205620	50702	1	29.5	-162.0	SCT	1015.0	215° @ 30 kts	2120	✓✓
2	2	210756	30141	2	30.6	-162.6	SCT	1011.9	210° @ 28 kts	2131	✓✓
3	3	212117	60127	3	31.7	-163.1	SCT	1008.3	225° @ 29 kts	2140	✓✓
4	4	213155	10154	4	32.7	-163.7	SCT	1004.2	220° @ 34 kts	2154	✓✓
5	5	214355	60130	1	33.7	-164.2	SCT	1000.1	NO SURFACE WINDS	2206	✓✓
6	6	215605	60399	2	34.8	-164.9	SCT	994.7	220° @ 32 kts	2225	✓✓
7	7	220757	60398	3	35.8	-165.5	SCT	991.8	235° @ 34 kts	2231	✓✓
8	8	221941	30144	4	36.9	-166.0	SCT	987.7	245° @ 30 kts	2242	✓✓
9	9	223015	60107	1	37.9	-166.7	SCT	984.1	235° @ 46 kts	2254	✓✓
10	10	224043	60397	2	38.9	-167.4	SCT	977.0	225° @ 44 kts	2302	✓✓
11	11	225049	60413	3	40.0	-168.0	SCT	971.3	230° @ 62 kts	2311	✓✓
12	12	230031	40103	4	41.0	-168.8	SCT	964.5	215° @ 34 kts	2326	✓✓
13	13	230910	60109	1	41.9	-169.3	SCT	961.4	210° @ 26 kts	2330	✓✓
14	14	231709	60120	2	42.4	-167.9	SCT	965.0	190° @ 22 kts	2337	✓✓
15	15	232544	60119	3	42.7	-166.3	SCT	968.1	220° @ 15 kts	2344	✓✓
16		2334		4					NO TEMP & HUM		
17	16	233440	60116	1	43.0	-164.6	SCT	970.1	165° @ 12 kts	2355	✓✓
18		2342		2					FREQUENCY USER ERROR		
19	17	236037	60400	3	43.4	-161.6	SCT	979.7	120° @ 48 kts	0020	✓✓
20	18	236932	10108	4	42.4	-160.9	SCT	978.8	125° @ 36 kts	0023	✓✓
21		0008		1					NO PTH		
22		0009		2					FREQUENCY ERROR		
23	19	001206	60177	2	41.0	-160.0	SCT	979.7	135° @ 26 kts	0033	✓✓
24	20	001810	20379	3	40.3	-159.6	SCT	981.2	155° @ 30 kts	0036	✓✓
25	21	002732	30200	4	39.2	-159.1	SCT	985.5	NO SURFACE WINDS	0064	✓✓
26		0036		1					MISSING PTH		
27		0037		2					MISSING PTH, BAD BACKUP		
28	22	003902	40300	1	37.8	-158.3	SCT	989.1	175° @ 28 kts	0058	✓✓
29	23	004513	10147	2	37.0	-158.0	SCT	993.2	170° @ 27 kts	0105	✓✓
30	24	005344	10154	3	36.0	-157.4	SCT	997.4	195° @ 29 kts	0121	✓✓
31	25	010214	30028	4	34.9	-156.9	SCT	1000.6	220° @ 31 kts	0126	✓✓
32		0110		1					NO PTH		
33	26	011104	40768	2	33.7	-156.4	SCT	1004.1	215° @ 27 kts	0133	✓✓
34	27	011902	30294	3	32.7	-155.9	SCT	1007.3	230° @ 31 kts	0148	✓✓
35	28	012723	40809	4	31.6	-155.5	SCT	1009.0	220° @ 39 kts	0161	✓✓
36	29	013536	70201	1	30.5	-155.0	SCT	1012.7	230° @ 25 kts	0158	✓✓
37											
38											

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

COMMENTS:

Obs

Xmitted

29/30

Obs

Missed

1

of sondes

launched

36

of bad

sondes

7

AVAPS Drop Log

Project: ARR 2023

Mission: _____

Flight ID: 20230109N1

Take Off: _____

Landing: _____

Flt Dir: Hennings

Launcher S/N: _____

Drop #	Sonde Serial #	Rcvr #	Press Offset	Launch Time	Operator	Charge \$\$ To	Comments	Good ?
1	220480702	1	Ø	2056	ASR	AR		
2	221030141	2	Ø	2107	ASR			
3	221060127	3	Ø	2121	JZH			
4	221010154	4	Ø	2131				
5	210060130	1	-0.5	2143				
6	221060399	2	Ø	2156	ASR			
7	221060398	3	-0.9	2207	ASR			
8	221030144	4	Ø	2219	ASR			
9	221060107	1	Ø	2230	ASR			
10	221060397	2	Ø	2240	ASR			
11	221060413	3	Ø	2250	ASR			
12	221030144	4	Ø	2300	ASR			
13	221060109	1	Ø	2309	GPD			
14	221060120	2	-0.7	2317				
15	221060119	3	-0.5	2352				
16	221060414	4	0	2334			NO PTH	
17	221060116	1	-0.7	2334			BACKUP	
18	221060115	2	0	2342			ACCIDENTLY KILLED	
19	221060400	3	0	2350				
20	220910108	4	-0.4	2359				
21	221060110	1	-0.4	0008			NO PTH	
22	220860177	2	0	0012			BACKUP	
23	221220379	3	0	0018				
24	221030200	4	0	0027				
25	221150709	1	-0.4	0038			NO PTH	
26	221020218	2	-0.6	0038			NO PTH	
27	210540300	1	0	0039			BACKUP	
28	220910147	2	-0.3	0045				
29	220910154	3	-0.2	0053				
30	221030028	4	-0.6	0102				
31	221030330	1	-0.4	0110			NO PTH	

Drop #	Sonde Serial #	Rcvr #	Press Offset	Launch Time	Operator	Charge \$\$ To	Comments	Good ?
32	220 840 768	2	-4	0111	GPD		BACKUP	
33	221 030 294	3	0	0119				
34	220 840 809	4	-5	0127				
35	220 970 201	1	-4	0135				
36								
37								
38	(DROP 22 FREQ MISMATCH.						DEAD ON RS DUE	
39	220 860 164						WRONG FREQ ON ACS	
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

01/09/2023, 19:24:33-27:05:57

