

NOAA G-IV N49RF
HUR-09
20 Aug 2009, NHC HUR BILL



Flight ID: 090820n2

<u>Sensor or system</u>	<u>Number or Name</u>
Accelerometer	ACINS
Altitude	PALT
Attack Angle	AKRD1
Dew Point Probe	DPR
Dynamic Pressure	QC2M
Geopotential Altitude	GPGALT
Inertial Selected	VEW, VNS
Static Pressure	PS2M
Slip Angle	SSRD1
Temperature Probe	AT3/TT3
True Air Speed	TAS2
Constants File	49cal092
Project Directory	/proj/905

<u>Local Met Data:</u>	<u>Takeoff (1719Z)</u>	<u>Landing (0137Z)</u>
Aircraft Static Pressure	1008.3 mb	1017 mb
Tower Pressure (corrected)	Q1012	1017 mb

Notes:

HGALT spikes from 174202-174315Z. GPGALT spike from 175742-175828Z.

Collins GPS spike from 175742-175852Z so all GP Values spiked at this time.

All Inertial Reference System 2 (IRS2) or PITR values go to zero from 205958-210001Z, 215958-220001Z, and 225958-230005Z. Chose IRS1.

PS1C/M steps down up and down again from 184536-184609Z and back up @ 194550Z with spikes throughout flight. Chose to stay with the default PS2C/M.

There was a period from 191539-192000Z where the dewpoints exceeded the ambient temperature resulting in RH values > 100%. This was likely due to passing through a cloud layer, a wet-bulb effect on the total temperature sensor, and/or an artificial warming of the dewpoint sensor as it tried to burn off excess moisture. Corrections were not made to the data.

All other instruments worked optimally during the flight

38 dropsondes launched: 32 good, 6 bad

33 drops successfully sent to NCEP and ingested into the 21/00Z model run.

Flight Director:
Phone #:

Jess Williams/Paul Flaherty
(813) 828-3310 ext. 3140

459

1659

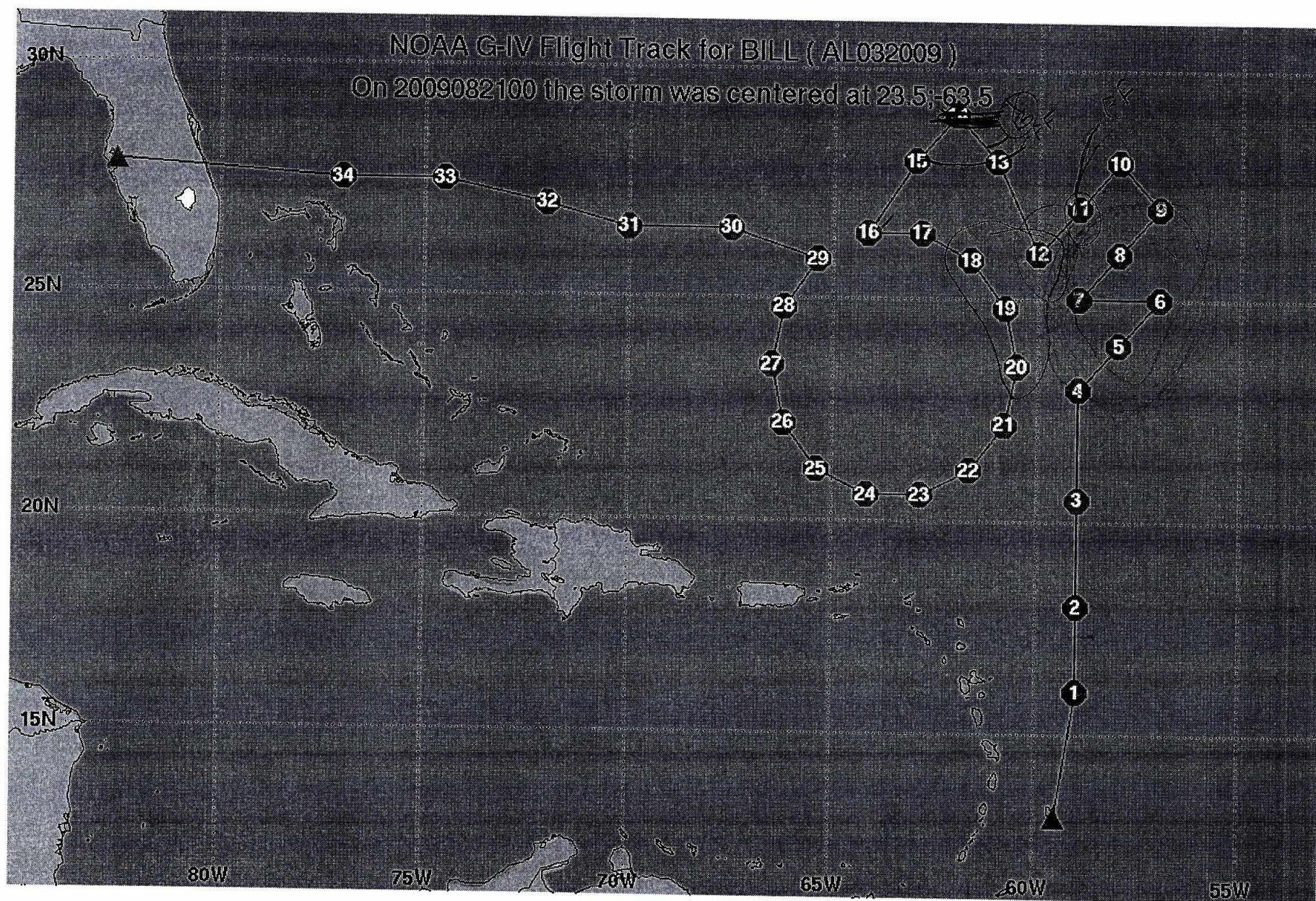
U.S. Dep't. of Commerce / NMAO / NOAA / Aircraft Operations Center				
FLT ID: 090820N2	From: TBFB		To: KMCF	
FLT #: 09-103	Blk In: 0146	Z	Lnd Time: 01 3145 Z	
ETD: 1730 Z	Blk Out: 1659	Z	T/O Time: 1719 Z	
ETE: 8.5	Total Blk: 8 hrs 45 min	(8.8)	Total Flt: 8 + 18 (8.3)	
Sponsoring Org: NHC	Program: Hurr 09		Purpose: Surv.	
AOC Flight Crew				
Aircraft Commander: Longenecker		Data System: J. Hall		
Co-Pilot: Twining 1		Avaps: C. Lynch		
Navigator: 1		System Engineer: L. Miller		
Flight Eng: Rotterveel 1		AA:		
Flt Director: Flaherty 1 Williams		AA:		
Avionics:		Crew Chief:		
Participating Scientists, Visitors, & Add'l Aircrew on back.		Total # of people on board:		# of people listed on back:
	A/C - Takeoff	Wx Station - Takeoff	A/C - Land	Wx Station - Land
Pressure		0102		
ATIS - Takeoff				
ATIS - Land		KMCF WIND CALM FEW032 A3003 SLP171 28/24		
Data Source	Number	Data Disposition / Date / Quality / File Name(s)		
Flight Level Tapes	1	905rP14a		
Radar Tapes				
Dropsondes	38	Good: 32	Bad: 6	Sent: 33
AXBT				
List other data sources on back in Remarks section.				
Remarks (Storm Name, Mission ID, Recco Times, Fix Times)		Recco Times:	Fix #	Fix Time
Storm Name: Hurr Bill				
Mission ID: NOAA9 0503A BILL				

xP12

U.S. Dep't. of Commerce / NMAO / NOAA / Aircraft Operations Center

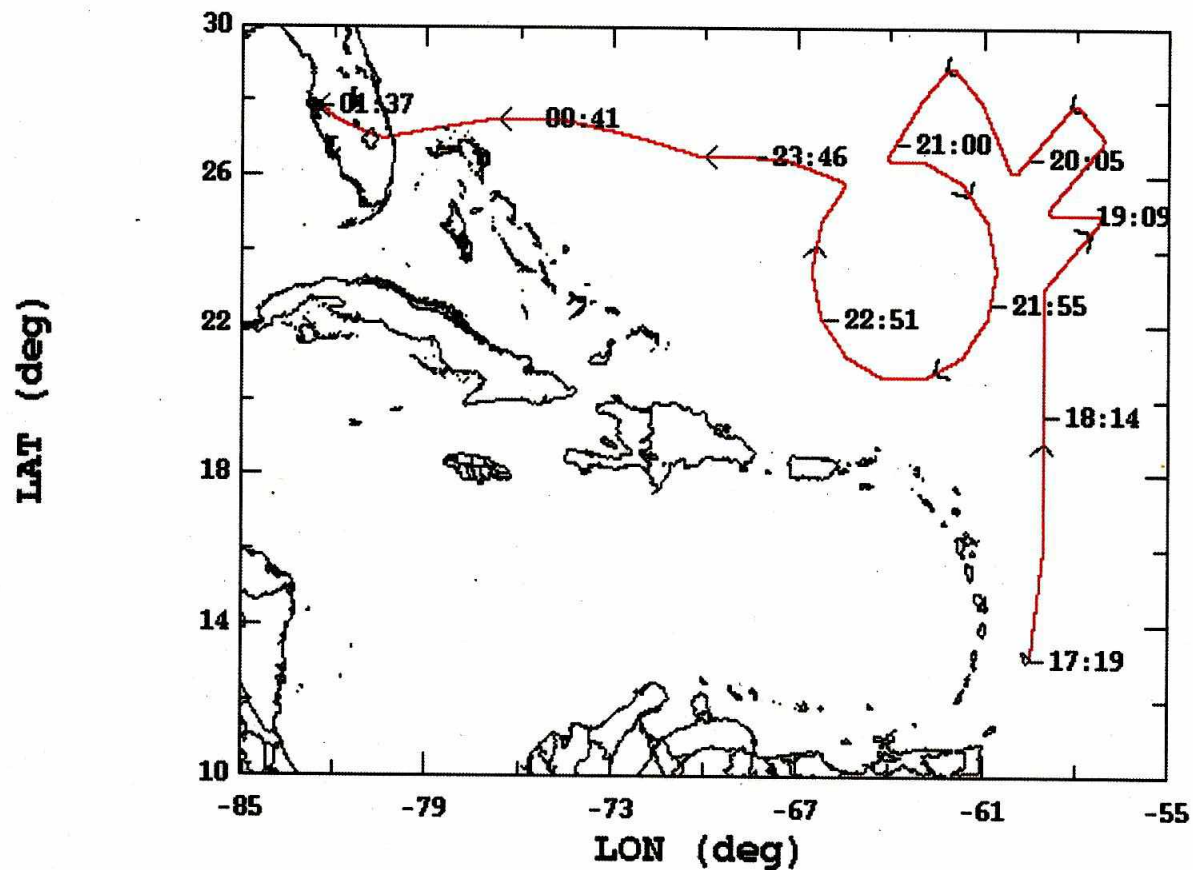
FLT ID:	T/O Time: Z	Lnd Time: Z
Name (Last, First)	Activity on Aircraft	Affiliation

Remarks:



Hurricane_2009, Flight #090820n2

HUR BILL, 20 Aug 09, 1719-0137Z



—	LAT (deg), 1 s/sec	mean	sigma	min	max
	LON (deg), 1 s/sec	24.31	3.72	13.07	28.90
		-64.54	6.90	-82.53	-57.08

1 16 00 -59 00 0:24
2 18 00 -59 00 0:41
3 20 30 -59 00 1:01
4 23 00 -59 00 1:22
5 24 00 -58 00 1:33
6 25 00 -57 00 1:44
7 25 00 -59 00 1:60
8 26 00 -58 00 2:11
9 27 00 -57 00 2:22
10 28 00 -58 00 2:34
11 27 00 -59 00 2:45
12 26 00 -60 00 2:56
13 28 00 -61 00 3:14
14 ***** not doing this
15 28 00 -63 00 3:37
16 26 25 -64 10 3:52
17 26 25 -62 50 4:03
18 25 51 -61 38 4:13
19 24 48 -60 48 4:24
20 23 30 -60 30 4:35
21 22 12 -60 48 4:46
22 21 09 -61 38 4:56
23 20 35 -62 50 5:07
24 20 35 -64 10 5:18
25 21 09 -65 22 5:28
26 22 12 -66 12 5:39
27 23 30 -66 30 5:50
28 24 48 -66 12 6:01
29 25 51 -65 22 6:12
30 26 30 -67 30 6:29
31 26 30 -70 00 6:48
32 27 00 -72 00 7:04
33 27 30 -74 30 7:24
34 27 30 -77 00 7:43

→ 29 62

24 16
63 47

base security
tell them its coming

828-3322

945
2045

N49RF AOC GPS Dropwindsonde Log

Flight ID: 09820N2

Flight Director: Flaherty / Williams

Mission ID: NOAA 1 0503A

Storm/Track: BILL

Pg ____ of ____

Ch. #	Drop #	Sonde ID	Drop Time (UTC)	Lat (°N)	Lon (°W)	Wx Cond.	SFC Prs (mb)	Ob #	L5/R5	Last Winds R5 (ht, ws, wd)	Last Winds L5 (ht, ws, wd)	Sent Time/KWBC (UTC)
06	1	9001	174520	13 04	59 30	ovc CS/CU	-0 FL330			1011.4		1835
	4	9037	180139	18 00	59 00	ovc CS/CU	1011.9					1840
	+	9091	182212	20 32	59 00	ovc CS	1011.1					1914
	4	9215	184157	28 00	58 00	ovc CS	1010.4					1924
	1	9023	185244	24 00	58 01	ovc CS	1013.6					1927
	4	9039	190306	25 00	57 11	ovc CS	1014.4					1951
	1	9073	191630	25 05	58 51	ovc CS	1009.21					2006
	4	9019	192614	26 01	58 00	ovc CS	1016.1					2012
	1	9149	193641	27 03	57 05	ovc CS	1018.1					2017
	4	9039	1947	27 03	57 05	ovc CS	1018.7		L5			2030
11	1	9010	1958				FAST FALL			1015.7		2040
12	4	9075	201009	26 07	60 00	ovc CS	1015.4					2047
X		13	202609				FAST FALL					
13	1	9159	202854	28 16	61 16	ovc CS	1016.4					2051
14	4	9058	203617	28 54	62	ovc CS	1014.4					2100
15	1	9089	204805	28 00	63 00	ovc CS	1013.9					2130
16	4	9036	210445	26 26	63 60	ovc CS	1010.9					2141
17	1	9078	211347	26 29	62 50	ovc CS	1010.8					2204
18	4	9259	212726	25 56	61 38	ovc CS						2224
19	1	9095	213554	24 48	60 48	ovc CS	1009.4					2231
20	4	9022	214731	23 30	60 31	ovc CS	1009.7					2243
21	1	9048	215858	22 12	60 48	ovc CS	1009.4					2248
22	4	9021	221000	21 09	61 39	ovc CS	1008.1					2250
23	1	9017	222019	21 09	61 39	ovc CS	1009.4					2220
24	4	9018	223045	2036	62 50	ovc CS	1008.3					2307
	1	9221	224050	21 10	65 22	BLN CS				FAST FALL		
25	4	9136	225119	22 12	66 12	ovc CS	1007.2					2315
26	1	9069	230157	23 30	66 30	ovc CS	1006.9					2339
27	4	9025	231232	24 48	66 12	ovc CS	1008.2					2347
	1	9053	232233				FAST FALL					
28	2	9046	232707	26 03	66 02	ovc CS	1010.5					2345
		32				FAST FALL						
29	1	9052	2341	26 30	67 50		1012.3					0016
30	4	9219	235702	27 00	28 30	69 59	1013.7					0020/0049

00 ch 900

31 1 35

9024

001247 2700 7200

1016.1

32 4 36

9061

003130 2730 7430

1016.8

33 1 37

9165

005109 FAST FALL 1016.6

0040

0056

- 238

9061

005422 -

Project: HURR 09 Flight ID: 090820n Flt Dir: WILLIAMS
 Mission: BILL Flight #: _____ Status: Sys 1 ☒ Sys 2 _____ Launcher S/N: 02

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Drop #	Sonde Serial Number	Chn. #	Time (Zulu)	Press. offset	Winds time	Operator Initials	Comments /Status/ Failure Reason	\$	GOOD ☒
1	084 429 001	1	1745	0	6	CL / LM		N	✓
2	084 439 037	4	1801	0	7				✓
3	084 919 091	1	1822	0	8				✓
4	082 119 315	4	1842	0	7				✓
5	085 119 023	1	1852	0	10				✓
6	084 919 039	4	1903	0	5				✓
7	084 439 023	1	1916	0	6				✓
8	084 429 019	4	1926	0	9				✓
9	091 459 149	1	1936	0	7				✓
10	091 849 039	4	1947	0	5		Terminio RS only, get off LS		✓
11	084 429 010	1	1958	0			Fast Fa /		✓
12	083 259 075	4	2010	0	7				✓
13	085 119 022	5	2026	0	5		LS only to sync time on RS FAST		✓
14	084 919 159	1	2028	0	5		RS only		✓
15	083 259 058	4	2036	0	7		RS only		✓
16	084 439 089	1	2048	0	5				✓
17	091 849 036	4	2104	0	7				✓
18	083 259 078	1	2113	0	6				✓
19	084 919 259	4	2124	0	7				✓
20	084 919 095	1	2135	0	13				✓
21	084 439 022	4	2147	0	4				✓
22	084 919 048	1	2158	0	7				✓
23	083 259 021	4	2210	0	6				✓
24	084 919 017	1	2220	0	8				✓
25	084 919 018	4	2238	0	10				✓
26	083 259 221	1	2240	0	4		Fast Fall		✓
27	084 419 136	4	2251	0	7				✓
28	084 419 069	1	2301	0	9				✓
29	084 919 025	4	2312	0	10		AS only		✓
30	091 959 053	1	2322	0	6		lost winds		✓
31	084 919 046	2	2327	0	7		RS only		✓
32	084 429 014	4	2338	0			no winds		✓
33	091 959 052	1	2341	0	8		RS only		✓

\$ Codes A=AOC N=NHC/NWS H=HRD OW=NESDIS

34 084 919 219 4 2357 0 10
 35 084 439 024 1 0012 0 10
 36 091 959 061 4 0031 0 5
 37 084 419 115 1 0051 0 10
 late winds

38

SEE REVERSE

✓

#	S/N	CH	TIME	WIND	
34	084 919 219	4	2357	10	✓
35	084 439 024	1	0012	10	✓
36	091 959 061	4	0031	5	✓
37	084 419 115	1	0051	late	✓
38	084 439 001	2	0054	48	X

PSI steps down up + down again 184536Z 184609Z + backup @ 194550
+ spikes thru out.

IRS2 goes to ϕ 205958-210001Z, 215958-220001Z, 225958-230005Z
21 22 23

[HGALT spikes 174204 - 174315

* GPG spike down from 175742 - 175828

↳ GPG spd 1757 spike - collins, GPVIEW,

t/o wx: wd:

11AM
CAT 4

WNW @16kt

ws:

WNW

115 - 140kt

couds:

18.7N 56.3W

turb:

950mb

eye 30NM

Outbound:

wd:

ws:

clouds:

turb:

tops to 45 on N side of storm

to 35-40 on all other sides

FL 110 S-SW on N side
& E side

30-35kt

Inbound:

wd:

ws:

clouds:

turb:

P.11 CAT 3

NW @16kts 951mb
22.6 61.7

ob: barb 140 013kt 5kt 018 300

land maddell:

MCF TS at 018 - die out
NSW 04005kt

landing wx:

wd:

ws:

clouds:

turb:

local conditions:

48 50 kts N side of storm
from South
NW side from E

Winds N side

Sea Salt:

Volcanic Ash:

upto FL 400-450
15

NOAA 0503A
BILL

Teal 73
for 00267

Flight: 090820n2

Inertial Altitude

☒ ALT (m)
IRS Baro-Inertial
☒ Altitude
ALT_PITR (m) *3x*
IRS Baro-Inertial
☒ Altitude
ADCBALT (m)
DADC Baro Corrected
Altitude

GPS Altitude

☒ GHALT_SG1 (m)
Honeywell GPS Altitude
(MSL)
☒ GHALT_SG2 (m) *3x to*
Honeywell GPS Altitude
(MSL)
☒ GPALT (m)
Collins GPS Altitude
(MSL)

Pressure Altitude

☒ PALT (m)
NACA Pressure Altitude
PALT (feet)
NACA Pressure Altitude
ADCPALT (m)
DADC Pressure Altitude

Radar Altitude

☒ HGM232 (m)
Geometric (Radar)
Altitude

D-Value

☒ DVALU (m)
D-VALUE
(HGME - PALT)

Geopotential Altitude

☒ GPGALT (m) *- 81,1757*
☒ Collins GPS
☒ Geopotential Altitude
HGALT (m)
APN-232 Radar
Geopotential Altitude

Pitch vs Alt

☒ PITCH (deg)
Aircraft Pitch Angle

☒ PITCH_PITR (deg) *3x to*
Aircraft Pitch Angle

Roll vs Hdg

☒ ROLL (deg)
Aircraft Roll Angle

☒ ROLL_PITR (deg) *3x to*
Aircraft Roll Angle

Heading vs Trk

☒ THDG (deg)
IRS1

☒ THDG_PITR (deg)
IRS2

Drift Angles

☒ AOCD (deg)
Computed Drift Angle

☒ AOCD_PITR (deg) *3*
Computed Drift Angle

☒ DRFTA (deg)
IRS1 Drift Angle

☒ DRFTA_PITR (deg) *3*
IRS2 Drift Angle

Track vs DA

☒ AOCTK (deg)
Computed Aircraft Track
Angle from IRS1
AOCTK_PITR (deg)
Computed Aircraft Track
Angle from IRS2
TKAT (deg)
IRS1 Track Angle

☒ TKAT_PITR (deg)
IRS2 Track Angle

☒ TKAR (deg/s)
IRS1 Aircraft Track
Angle Rate
TKAR_PITR (deg/s)
IRS2 Aircraft Track
Angle Rate

Select the following variable references:

☒ 1 ATTACK	AKRD(1, 2)	☒ 2 QCX	QC(1, 2)M
☒ 3 ATX	AT(1, 2, 3, 4)	☒ 2 QCXC	QC(1, 2)C
☒ 1 DPX	DP(L, R)	☒ 1 SSLIP	SSRD(1, 2)
☒ 2 DPXC	DP(L, R)C	☒ 2 TASX	TAS(1, 2)
☒ 2 DVALU	(HG, GPG)ALT	☒ 3 TTX	TT(1, 2, 3, 4)
☒ 2 PSX	PS(1, 2)M	☒ 1 WI	IRS 1 or 2
☒ 2 PSXC	PS(1, 2)C	☒ 1 XLATC	IRS 1 or 2

☒ Print Trackline

Note: IRS = Inertial Reference System.

Equivalent to INS on P-3's. _PITR denotes IRS#2.

Flight: 090820n2

Latitudes

____ GHLATF_SG1 (deg)
Honeywell GPS
Latitude, Fine
____ GHLATF_SG2 (deg)
Honeywell GPS
Latitude, Fine
____ GHLAT_SG1 (deg)
Honeywell GPS Latitude

____ GHLAT_SG2 (deg)
Honeywell GPS Latitude

____ GPLAT (deg)
Collins GPS Latitude

____ LAT (deg)
IRS1 Latitude

____ LAT_PITR (deg)
IRS2 Latitude

____ XLATC (deg)
GPS-Corrected Inertial
Latitude

Longitudes

____ GHLONF_SG1 (deg)
Honeywell GPS
Longitude, Fine
____ GHLONF_SG2 (deg)
Honeywell GPS
Longitude, Fine
____ GHLON_SG1 (deg)
Honeywell GPS
Longitude
____ GHLON_SG2 (deg)
Honeywell GPS
Longitude

____ GPLON (deg)
Collins GPS Longitude

____ LON (deg)
IRS1 Longitude

____ LON_PITR (deg)
IRS2 Longitude

____ XLONC (deg)
GPS-Corrected Inertial
Longitude

GPS Differences
____ GDIF1
Position Difference
(Collins - IRS1)
____ GDIF2
Position Difference
(Collins - IRS2)

Compare GPS lat/lon to
inertial lat/lon to see which
inertial did better during the
flight. Compare their
differences.

HDOP

____ GHHDOP_SG1 (none)
Honeywell GPS Horiz.
Dilution of Position
____ GHHDOP_SG2 (none)
Honeywell GPS Horiz.
Dilution of Position

VDOP

____ GHVDOP_SG1 (none)
Honeywell GPS Vertical
Dilution of Position
____ GHVDOP_SG2 (none)
Honeywell GPS Vertical
Dilution of Position

HFOM

____ GHHFOM_SG1 (m)
Honeywell GPS Horiz.
Figure of Merit
____ GHHFOM_SG2 (m)
Honeywell GPS Horiz.
Figure of Merit

VFOM

____ GHVFOM_SG1 (m)
Honeywell GPS Vertical
Figure of Merit
____ GHVFOM_SG2 (m)
Honeywell GPS Vertical
Figure of Merit

Flight: 090820n2

1915 - Super Sat
130% RH

191535 - 19202 -
during turb
in cloud

Temperatures

Ambient Temperature

☒ AT1 (degC)
Ambient Temperature,
Top Left
☐ AT2 (degC)
Ambient Temperature,
☒ Bottom Right
☐ AT3 (degC)
Ambient Temperature,
☒ Top Right
☐ AT4 (degC)
Ambient Temperature,
Bottom Left
3 ATX (degC)
Ambient Temperature,
Reference

Total Temperature

☒ TT1 (degC)
Total Temperature, Left
Top
☐ TT2 (degC)
Total Temperature,
☒ Right Bottom
☐ TT3 (degC)
Total Temperature, Left
☒ Bottom
☐ TT4 (degC)
Total Temperature,
Right Top
3 TTX (degC)
Total Temperature
Reference

Dewpoint Temperature

☒ DPLC (degC)
Dew Point Temperature,
Left
☒ DPRC (degC)
Dew Point Temperature,
Right
P DPXC (degC)
Dew Point Temperature,
Reference
☒ DPL (degC)
Left Dew/Frost Point
Temperature
☒ DPR (degC)
Right Dew/Frost Point
Temperature
P DPX (degC)
Dew/Frost Point
Temperature, Reference

Air Temperature

☒ ADCSAT (degC)
DADC Static Air
☒ Temperature
☐ ADCTAT (degC)
DADC Total Air
Temperature

Potential Temperature

☒ THETA (K)
Potential Temperature
☐ THETAE (K)
Equivalent Potential
Temperature
☒ THETA V (K)
Virtual Potential Temperature

Hygrometers

☒ BCRYO (volts)
CR-2 Hygrometer
☒ Balance
CRYO (degC)
CR-2 Hygrometer
☒ CRYOC (degC)
CR-2 Hygrometer,
corrected
☒ PCRYO (mb)
CR-2 Hygrometer
Pressure

Humidity

☒ RHODL (g/m3)
Absolute Humidity,
☒ T-Electric Left
☐ RHODR (g/m3)
Absolute Humidity,
☒ T-Electric Right
☒ RHUM (%)
Relative Humidity

Mixing Ratio

☒ MR (g/kg)
Mixing Ratio, T-Electric

Ambient Water Vapor Pressure

☒ EDPC (mb)
Ambient Water Vapor
Pressure, Reference

> dips when
RH > 100%

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Pressures

Dynamic Pressure

- ☒ QC1C (mb)
- ☐ Corrected Dynamic Pressure, Left
- ☐ QC1M (mb)
- ☐ Left Raw Dynamic Pressure
- ☒ QC2C (mb)
- ☐ Corrected Dynamic Pressure, Right
- ☐ QC2M (mb)
- ☐ Right Raw Dynamic Pressure
- ☐ QCX (mb)
- ☐ Raw Dynamic Pressure, Reference
- ☐ QCXC (mb)
- ☐ Corrected Dynamic Pressure, Reference

Attack (compare to pitch)

- ☐ AP1 (mb)
- ☐ Left Vertical Differential Pressure
- ☐ AP2 (mb)
- ☐ Right Vertical Differential Pressure
- ☐ DAP1 (mb)
- ☐ Left Raw Dynamic Attack Pressure
- ☐ DAP2 (mb)
- ☐ Right Raw Dynamic Attack Pressure
- ☒ ADCAOA (deg)
- ☒ Air Data Computer Attack Angle
- ☐ AKRD1 (deg)
- ☒ Attack Angle, Left Side
- ☐ AKRD2 (deg)
- ☐ Attack Angle, Right Side
- ☐ ATTACK (deg)
- ☐ Attack Angle, Reference

Static Pressures

- ☐ PS1C (mb)
- ☐ Corrected Static Pressure, Top Fuselage
- ☐ PS1M (mb)
- ☐ Raw Static Pressure, Top Fuselage
- ☒ PS2C (mb)
- ☐ Correct'd Static Pressure, Bottom Fuselage
- ☐ PS2M (mb)
- ☐ Raw Static Pressure, Bottom Fuselage
- ☐ PSX (mb)
- ☐ Raw Static Pressure, Reference
- ☐ PSXC (mb)
- ☐ Corrected Static Pressure, Reference

Sideslip (compare to roll)

- ☒ BP1 (mb)
- ☐ Top Horizontal Differential Pressure
- ☐ BP2 (mb)
- ☐ Bottom Horizontal Differential Pressure
- ☒ DBP1 (mb)
- ☐ Top Raw Dynamic Slip Pressure
- ☒ DBP2 (mb)
- ☐ Bottom Raw Dynamic Slip Pressure
- ☐ SSDF1 (deg)
- ☒ Sideslip Angle, Diff. Pressure, Top
- ☐ SSDF2 (deg)
- ☒ Sideslip Angle, Diff. Pressure, Bottom
- ☐ SSRD1 (deg)
- ☐ Sideslip Angle, Top
- ☒ SSRD2 (deg)
- ☐ Sideslip Angle, Bottom
- ☐ SSLIP (deg)
- ☐ Sideslip Angle, Reference

Surface Pressure

- ☐ PSURF (mb)
- ☐ Calculated Surface Pressure

Cabin Pressure

- ☐ PCAB (mb)
- ☐ Cabin Pressure

Horizontal Wind Direction

- ☒ IWD (deg)
- ☐ Horizontal Wind Direction (IRS)
- ☐ IWD_PITR (deg)
- ☒ Horizontal Wind Direction (IRS)
- ☐ WD (deg)
- ☐ Horizontal Wind Direction

Horizontal Wind Speed

- ☒ IWS (m/s)
- ☐ Horizontal Wind Speed (IRS)
- ☒ IWS_PITR (m/s)
- ☐ Horizontal Wind Speed (IRS)
- ☐ WS (m/s)
- ☐ Horizontal Wind Speed
- ☐ North/South Component
- ☒ VI (m/s)
- ☐ Wind Vector, North Component
- ☐ East/West Component
- ☒ UI (m/s)
- ☐ Wind Vector, East Component

Vertical Winds

- ☒ WI (m/s)
- ☐ Wind Vector, Vertical Gust Component

UTAN/URAD Winds

- ☐ UX (m/s)
- ☐ Wind Vector, UTAN
- ☒ Longitudinal Component
- ☐ VY (m/s)
- ☐ Wind Vector, Lateral Component URAD

DAP2 spike v 2mb @ 185218Z

Flight: 090820n2

Groundspeeds

- ☒ GHGSF_SG1 (m/s)
- Honeywell GPS Ground Speed
- ☒ GHGSF_SG2 (m/s) *34*
- Honeywell GPS Ground Speed
- ☒ GPGSPD (m/s) *1 sp. le*
- Collins GPS Ground Speed
- ☒ GSF (m/s)
- ☒ Inertial Ground Speed
- ☒ GSF_PITR (m/s) *34*
- Inertial Ground Speed

East/West Component

- ☒ GHVEW_SG1 (m/s)
- HoneyWell GPS Ground Speed Vector E/W
- ☒ GHVEW_SG2 (m/s)
- HoneyWell GPS Ground Speed Vector E/W
- ☒ GPVEW (m/s) *1 sp. le*
- Collins GPS Ground Speed Vector E/W
- ☒ VEW (m/s)
- Inertial Ground Speed Vector E/W
- ☒ VEW_PITR (m/s) *3 spikes*
- Inertial Ground Speed Vector E/W
- ☒ XVEWC (m/s) *3 spikes*
- GPS-Corrc't'd Inertial Ground Spd Vector E/W

North/South Component

- ☒ GHVNS_SG1 (m/s)
- HnyWll GPS Grnd Spd Vector, Nrth/Sth Component
- ☒ GHVNS_SG2 (m/s) *X3*
- Hnywll GPS Grnd Spd Vector, Nrth/Sth Component
- ☒ XVNSC (m/s)
- GPS-Corrc't'd Inertial Ground Spd Vector, North Component

Vertical Acceleration

- ☒ ACINS (m/s²)
- Aircraft Vertical Acceleration
- ☒ ACINS_PITR (m/s²)
- Aircraft Vertical Acceleration

Vertical Velocity

- ☒ GHVZI_SG1 (m/s)
- Hnywll GPS Comp'd aircraft Vert. Velocity
- ☒ GHVZI_SG2 (m/s) *34*
- Hnywll GPS Comp'd aircraft Vert. Velocity
- ☒ GPVSPD (m/s) *X*
- Clins GPS Comp'd Aircraft Vertical Velocity
- ☒ VSPD (m/s)
- IRS-Computed Aircraft Vertical Velocity
- ☒ VSPD_PITR (m/s)
- IRS-Computed Aircraft Vertical Velocity
- ☒ WP3 (m/s)
- Damped Aircraft Vertical Velocity
- ☒ WP3_PITR (m/s)
- Damped Aircraft Vertical Velocity

Airspeeds

- ☒ ADCCAS (m/s)
- DADC Computed Airspeed
- ☒ IAS (Kts)
- Aircraft Indicated Airspeed
- ☒ ADCTAS (m/s)
- DADC True Airspeed
- ☒ TAS1 (m/s)
- Aircraft True Airspeed #1
- ☒ TAS2 (m/s)
- Aircraft True Airspeed #2
- ☒ TASHC (m/s)
- Aircraft True Airspeed, Humidity Corrected
- ☒ TASX (m/s)
- Aircraft True Airspeed, Reference
- ☒ ADCMACH (none)
- DADC Mach Number
- ☒ MACH (none)
- Aircraft Mach Number
- ☒ XMACH2 (none)
- Aircraft Mach Number Squared

- ☒ GPVNS (m/s) *1 sp. le*
- Clins GPS Grnd Spd Vector, Nrth/Sth Component
- ☒ VNS (m/s)
- Inertial Ground Speed Vector, North/South Component
- ☒ VNS_PITR (m/s) *3 spikes*
- Inertial Ground Speed Vector, North/South Component