

U.S. Dep't. of Commerce / NMAO / NOAA / Aircraft Operations Center				
FLT ID: 090108N	From: PANC	To: RSTY		
FLT #: 09-026	Blk In: 0416 Z (7.4)	Lnd Time: 0410 Z (7.1)		
ETD: 21Z Z	Blk Out: 2055 Z	T/O Time: 2105 Z		
ETE: 7hrs	Total Blk: 7hrs 21mins	Total Flt: 7hrs 5mins		
Sponsoring Org: PWT	Program: TPARC	Purpose: TRANSIT		
AOC Flight Crew				
Aircraft Commander: HAGAN		Data System:		
Co-Pilot: LONGENECKER TWINING		Avaps: HILL		
Navigator: /		System Engineer:		
Flight Eng: /		AA: ROGERS		
Flt Director: ALMEIDA		AA: CARPENTER		
Avionics:		Crew Chief: ROTTEVEEL		
Participating Scientists, Visitors, & Add'l Aircrew on back.				# of people listed on back:
	A/C - Takeoff	Wx Station - Takeoff	A/C - Land	Wx Station - Land
Pressure	1002.6mb	n/a	999.7mb	n/a
ATIS - Takeoff	2053 Z 07005KT 10SM M23/M27 29.72			
ATIS - Land	0355 Z 01009KT -RA 04/02 30.04			
Data Source	Number	Data Disposition / Date / Quality		
Flight Level Tapes	/			
Radar Tapes	/			
Dropsondes	8	Good: 8	Bad:	Sent: 1 (TEST)
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: _____				
Mission ID: WXWXE TRAIN				

GPS Time is incorrect

~~NO Collins for Entire Flight~~



NOAA G-IV N49RF
Ferry Flight (PANC – RJTY)
08 January 2009



Flight ID: 090108N

Sensor or system

Altitude
Attack Angle
Dew Point Probe
Dynamic Pressure
Geopotential Altitude
Inertial Selected
Static Pressure
Slip Angle
Temperature Probe
True Air Speed
Calibration File
Project Directory

Number or Name

PALT
AKRD1
DPR
QC2M
HGALT
INE 2 (_PITR)
PS2M
SSRD1
AT3 / TT3
TAS2
49cal082
/proj/901

Local Met Data:

Aircraft Static Pressure
Tower Pressure (corrected)

Takeoff (2105Z)

1002.6 mb
n/a

Landing (0410Z)

999.7 mb
n/a

Notes:

There is no Collins GPS data for this entire flight.

The time in the file is incorrect. Our takeoff time of 2105z approximately corresponds to the time of 1633z in the netCDF file. The incorrect time is due to the data system not receiving time from the Collins GPS. The times of spikes quoted in the error summary are according to the times on the netCDF (not actual UTC).

There is a spike in ALT at 183004z-183006z. Unknown cause.

There is a small spike at 221935 in PITCH(_PITR), AKRD1 (& 2), AP1 (& 2), and WI that is probably due to turbulence.

There is a step spike in PS1M at 171608z.

Drop in dewpoint and THETA E at 233902z-234101z that is probably due to weather at landing.

There is about a 2mb difference between PS1M and PS2M. From test flights comparing aircraft data to dropsonde data PS2M has been closer to representing the actual atmosphere.

Flight Director:
Phone #:

LTJG Jackie Almeida
(813) 828-3310



NOAA G-IV N49RF
Ferry Flight (PANC – RJTY)
08 January 2009



There were periods where the dewpoint temperature 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

08 dropsondes launched: 08 good, 00 bad

01 drops successfully sent to NCEP as a test message.

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✓ Inertial Altitude
✓ ALT (m)
IRS Baro-Inertial
Altitude
✓ ALT_PITR (m)
IRS Baro-Inertial
Altitude
✓ ADCBCALT (m)
DADC Baro Corrected
Altitude

✓ GPS Altitude
✓ GHALT_SG1 (m)
Honeywell GPS Altitude
(MSL)
✓ GHALT_SG2 (m)
Honeywell GPS Altitude
(MSL)
N/A GPALT (m)
Collins GPS Altitude
(MSL)

✓ Pressure Altitude
✓ PALT (m)
NACA Pressure Altitude
✓ PALTf (feet)
NACA Pressure Altitude
✓ ADCPALT (m)
DADC Pressure Altitude

✓ Radar Altitude
✓ HGM232 (m)
Geometric (Radar)
Altitude

HG D-Value
HG DVALU (m)
D-VALUE
(HGME - PALT)

✓ Geopotential Altitude
N/A GPGALT (m)
Collins GPS
Geopotential Altitude
✓ HGALT (m)
APN-232 Radar
Geopotential Altitude

✓ Pitch vs Alt
✓ PITCH (deg)
Aircraft Pitch Angle
✓ PITCH_PITR (deg)
Aircraft Pitch Angle

✓ Roll vs Hdg
✓ ROLL (deg)
Aircraft Roll Angle
✓ ROLL_PITR (deg)
Aircraft Roll Angle

✓ Heading vs Trk
✓ THDG (deg)
IRS1
✓ THDG_PITR (deg)
IRS2

✓ Drift Angles
✓ AOCD (deg)
Computed Drift Angle
✓ AOCD_PITR (deg)
Computed Drift Angle
✓ DRFTA (deg)
IRS1 Drift Angle
✓ DRFTA_PITR (deg)
IRS2 Drift Angle

✓ Track vs DA
✓ AOCTK (deg)
Computed Aircraft Track
Angle from IRS1
✓ AOCTK_PITR (deg)
Computed Aircraft Track
Angle from IRS2
N/A TKAT (deg)
IRS1 Track Angle
N/A TKAT_PITR (deg)
IRS2 Track Angle

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

Select the following variable references:

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

✓ Print Trackline
x2 crossed date line

Note: IRS = Inertial Reference System.
Equivalent to INS on P-3's. _PITR denotes IRS#2.

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Latitudes

N/A GHLATF_SG1 (deg)
Honeywell GPS
Latitude, Fine
N/A GHLATF_SG2 (deg)
Honeywell GPS
Latitude, Fine
✓ GHLAT_SG1 (deg)
Honeywell GPS Latitude
✓ GHLAT_SG2 (deg)
Honeywell GPS Latitude

N/A GPLAT (deg)
Collins GPS Latitude
✓ LAT (deg)
IRS1 Latitude
✓ LAT_PITR (deg)
IRS2 Latitude

2 XLATC (deg)
GPS-Corrected Inertial
Latitude

GPS Differences
N/A GDIF1
Position Difference
(Collins - IRS1)
N/A GDIF2
Position Difference
(Collins - IRS2)

Longitudes

N/A GHLONF_SG1 (deg)
Honeywell GPS
Longitude, Fine
N/A GHLONF_SG2 (deg)
Honeywell GPS
Longitude, Fine
✓ GHLONF_SG1 (deg)
Honeywell GPS
Longitude
✓ GHLONF_SG2 (deg)
Honeywell GPS
Longitude

N/A GPLON (deg)
Collins GPS Longitude
✓ LON (deg)
IRS1 Longitude
✓ LON_PITR (deg)
IRS2 Longitude

2 XLONC (deg)
GPS-Corrected Inertial
Longitude

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

No Colling
for entire
flight.

Chose #2 b/c

Inc Alt 1
has spike

0.71 → 1.39

0.9 → 2.36

1.61 → 3.10

6.05 → 16.15
6.08

drop in DP + Theta E ~ 233902-234101.
probably due to weather @ landing

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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
R ☒ DPXC (degC)
Dew Point Temperature,
Reference
☒ DPL (degC)
Left Dew/Frost Point
Temperature
☒ DPR (degC)
Right Dew/Frost Point
Temperature
R ☒ 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
☒ THETA E (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

Spike@ 221935 in Pitch AKRD1/2 AP1/2 WI
probably related to turb.
~~SSRD1/2 BP1/2 SSDF1/2~~

PS1C ^{step} Spike @ 171608

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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

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

Surface Pressure
☒ PSURF (mb)
 Calculated Surface Pressure

Cabin Pressure
☒ PCAB (mb) *-7 Avg 812 mb @ F.L.*
 Cabin Pressure

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

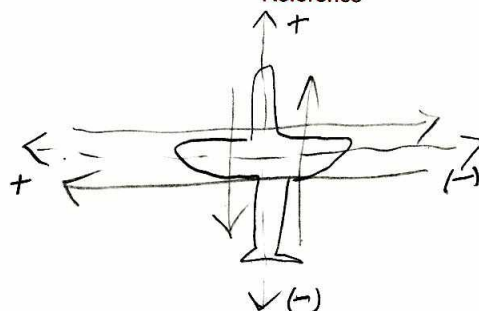
Attack (compare to pitch)
☒ AP1 (mb)
 Left Vertical Differential Pressure
☒ AP2 (mb)
 Right Vertical Differential Pressure
☒ DAP1 (mb)
 Left Raw Dynamic Attack Pressure
☒ DAP2 (mb)
 Right Raw Dynamic Attack Pressure
☒ ADCAOA (deg)
 Air Data Computer Attack Angle
☒ AKRD1 (deg)
 Attack Angle, Left Side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

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

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

11 to fuselage axis



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Groundspeeds

- ☒ GHGSF_SG1 (m/s)
Honeywell GPS Ground Speed
- ☒ GHGSF_SG2 (m/s)
Honeywell GPS Ground Speed
- N/A GPGSPD (m/s)
Collins GPS Ground Speed
- ☒ GSF (m/s)
Inertial Ground Speed
- ☒ GSF_PITR (m/s)
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

N/A GPVEW (m/s)

- Collins GPS Ground Speed Vector E/W
- VEW (m/s)
- Inertial Ground Speed Vector E/W
- VEW_PITR (m/s)
- Inertial Ground Speed Vector E/W

- ☒ XVEWC (m/s)
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)
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)
HnyWll GPS Comp'd aircraft Vert. Velocity

N/A GPVSPD (m/s)

- Collins 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
- 2 TASX (m/s)
Aircraft True Airspeed, Reference

Mach

- ☒ ADCMACH (none)
DADC Mach Number
- ☒ MACH (none)
Aircraft Mach Number
- ☒ XMACH2 (none)
Aircraft Mach Number Squared

N/A GPVNS (m/s)

- Collins GPS Grnd Spd Vector, Nrth/Sth Component
- ☒ VNS (m/s)
Inertial Ground Speed Vector, North/South Component
- ☒ VNS_PITR (m/s)
Inertial Ground Speed Vector, North/South Component

Time on file is incorrect, probably due to incorrect time
on GPS

GPG ALT Not Available

Spike ALT1 @ 183004 - 183006

T-PARC/WSR09, Flight #tf02

01/08/2009, 17:14:14-17:20:07

17:14:14 13:27:41 2009

