

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

FLT ID: 100113n	From: RSTY	To: RSTY
FLT #: 10-24	Blk In: 1546 Z	Lnd Time(on): 1540 Z
ETD: 082 Z	Blk Out: 0748 Z	T/O Time (off): 0756 Z
ETE: 7.5	Total Blk: 7 hrs 58 min (8.0)	Total Flt: 7 hrs 44 min (7.7)
Sponsoring Org: NCEP	Program: INSRIU	Purpose: Recon

AOC Flight Crew

Aircraft Commander: Hagan	Data System: Rogers
Co-Pilot: Toth / Glover	Avaps: Roles
Navigator: /	System Engineer:
Flight Eng: /	AA: Greene
Flt Director: Flaherty / Williams	AA:
Avionics: PD Parrish	Crew Chief:

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	994mb	A2968 = 988mb	994mb	

ATIS - Takeoff	0655Z	28007	7SM	S/KC	C/M17	A2968
ATIS - Land						

Data Source	Number	Data Disposition / Date / Quality / File Name(s)		
Flight Level Tapes	NO TAPE			
Radar Tapes				
Dropsondes	22	Good: 19	Bad: 3	Sent: 19
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: NOAA9 02WSW TRACK99			

40

NOAA G-IV N49RF
WSR-10
13 Jan 2010 NOAA9 02WSW



Flight ID: 100113n

<u>Sensor or system</u>	<u>Number or Name</u>
Accelerometer	ACINS
Altitude	PALT
Attack Angle	AKRD2
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/1001

<u>Local Met Data:</u>	<u>Takeoff (0756Z)</u>	<u>Landing (1540Z)</u>
Aircraft Static Pressure	991 mb	994 mb
Tower Pressure (corrected)	988 mb	992 mb

Notes:

Data Gap due to Data system crash 1 second after takeoff 075607Z – 081326Z.

All IRS2 values (_PITR and _SG2 values) spike to zero @ 090000Z and 100000Z. IRS1 is default.

PS1 steps up and down 1mb from 082910Z – 083112Z. Was 2.5mb below PS2 after steps is 1.5mb below PS2. Stuck with PS2 as default.

AP1 spikes up from 7mb to 70mb from 103059Z – 103108Z. This causes erroneous spike in data for AKRD1. AKRD2 is default so no other values were effected.

DPL starts out 5C colder, still slow to respond and doesn't get any colder than -30 to -35C.

All other instruments worked optimally during the flight

22 dropsondes launched: 19 good, 3 bad.

All 19 good drops successfully sent to NCEP and ingested into the 13/12Z model run.

Flight Director:
Phone #:

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

Flight: 16013n

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)
✓ 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

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

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

Pitch vs Alt
✓ PITCH (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
✓ AOCDA (deg)
Computed Drift Angle
✓ AOCDA_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
TKAT (deg)
IRS1 Track Angle
TKAT_PITR (deg)
IRS2 Track Angle

9 → Starts
22750
whole flight

Select the following variable references:

2	ATTACK	AKRD(1, 2)	2	QCX	QC(1, 2)M
3	ATX	AT(1, 2, 3, 4)	2	QCXC	QC(1, 2)C
P	DPX	DP(L, R)	1	SSLIP	SSRD(1, 2)
P	DPXC	DP(L, R)C	2	TASX	TAS(1, 2)
GPG	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:

Dilution of Precision

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:

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
DPXC (degC)
Dew Point Temperature,
Reference
✓ DPL (degC)
Left Dew/Frost Point
Temperature
✓ DPR (degC)
Right Dew/Frost Point
Temperature
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

Flight:

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
2 QCX (mb)
Raw Dynamic Pressure,
Reference
2 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
2 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
2 PSX (mb)
Raw Static Pressure,
Reference
2 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
1 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

Flight:

Groundspeeds

☒ GHGSF_SG1 (m/s)
Honeywell GPS Ground
Speed
☒ GHGSF_SG2 (m/s)
Honeywell GPS Ground
Speed
☒ 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
☒ 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-Correc'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-Correc'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

☒ 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
☒ TASX (m/s)
Aircraft True Airspeed,
Reference
☒ Mach
ADCMACH (none)
DADC Mach Number
☒ MACH (none)
Aircraft Mach Number
☒ XMACH2 (none)
Aircraft Mach Number
Squared

CRASH
Data Sys ~~Rep~~ right aft +10 @ 075607Z, ~~h~~ was 065
up at 081326Z

PSI spikes $\uparrow$ $\downarrow$ 1mb from 080910-083112Z, then remains 1mb higher
was 2.5mb $\downarrow$ than PSI, now 1.5mb lower

API spikes $\uparrow$ from $\sim$ -7mb to 70mb from 103059 - 103108

$\rightarrow$ causes AKRDI spike from 40 to 120, pitch remains @ 4°

$\rightarrow$ causes spike in WI sometime from 0.6m/s to erroneous 30m/s
also spike in WD, WS

IRS2 spikes to zero!

085959 - 090006

095959 - 100005

~~ACT_PITR - starts @ 200m when actual elev is 140m, ALT is 135m~~

N49RF AOC GPS Dropwindsonde Log

Flight ID: 100131

Flight Director: Williams/Flaherty

Mission ID: N0449 02 WSW 784699

Storm/Track:

Pg 1 of 1

Ch. #	Drop #	Sonde ID	Drop Time (UTC)	Lat (°N)	Lon (°W)	Wx Cond.	L5/R5	SFC Pts (mb)	Ob #	R5 Lowest Winds (Ht, Ws, Wd)	L5 Lowest Winds (Ht, Ws, Wd)	Sent Time (UTC)
1	1	35651	082223	26.6	143.4	DATA	R5	101.3	1	SE	RTU	090443
2	2	35123	084113	27.8	147.4		R5	99.5	2	SE 292		091247
3	3	15081	090444	38.8	151.6		R5	98.7	3	SE 296		092421
4	4	35837	092605	39.8	155.6		R5	98.6	4	SE 253		094439
5	5	36004	0940	40.9	159.8		R5	98.6	5	SE 242	WINO	101310
6	6	35652	100053	40.7	164.0		R5	98.5	6	SE 223	WINO	103114
7	7	35858	1020			DATA	SOND					
8	8	36272	102400	40.2	168.7		R5	100.2	7	SE 172		
9	9	36045	104621	41.6	167.9		R5	99.7	8	SE 171	WINO	110907
10	10	36053	110010	43.6	166.9		R5	98.1	9	SE 159		113606
11	11	15135	112028	45.7	165.8	MISSING DATA	R5	97.8	10	SE 121		114903
12	12	55177	11410	47.2	163.7		R5	97.8	11	SE 076		120423
13	13	36043	120005	47.7	160.8		R5	97.4	12	SE 084		122114
14	14	15745	122014	47.0	158.0		R5	96.2	13	SE 070		124751
15	15	36005	124013	46.0	155.3		R5	95.1	14	SE 056		131444
16	16	15012	130025	44.6	153.1		R5	96.3	15	SE 328		132718
17	17	155192	132115	42.4	150.9		R5	98.6	16	SE 324		134345
18	18	15138				DATA	SOND					
19	19	36007	134209	41.9	148.6		R5	99.5	17	SE 301	MISSING DATA	142609
20	20	36050	140138	40.8	146.7		R5	99.8	18	SE 307		143550
21	21	DATA	SA	DATA								
22	22	86140	142343	39.6	144.6		R5	100.8	19	SE		144926

151105

13635

NOAA G-IV flight request for Wednesday 01/13/2010

Radio Call Sign: NOAA49

Planned take off: 01/13/2010 0800Z

Planned landing time: 01/13/2010 1600Z

Route of flight:

RJTY 35.75 139.35

KOGAR 36.12 139.69

TLE 36.02 140.21

CVC 35.73 140.8

5 39 22N 153 59E 39.37 153.98

6 41 07N 161 01E 41.12 161.02

7 39 55N 168 45E 39.92 168.75

8 42 42N 167 21E 42.7 167.35

9 46 56N 165 04E 46.93 165.07

10 47 46N 160 19E 47.77 160.32

11 45 58N 155 13E 45.97 155.22

12 43 05N 151 00E 43.08 151.00

NIKON 38.33 142.47

JD 36.49 139.86

HATAR 36.34 139.61

RJTY 35.75 139.35

0901
820

0901

Overview - sys NE 977mb
every 20min 7.5hr flight

T/O 280121kt 9999 Lgt Cncl Mod turb SE - 8kft
tempo 30015625kt
800-65mb

Ice	Turb	Jet	Cloud tops
NO	ERN	200-210kt	cirrus
	around	WSW	35-40
	Ridge	WNW	
		800-1000	
		70-90	coming back

Land W 10-15kt few030

NG VA

TFD

Atsugi
Misawa Okinawa