

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

FLT ID: 100201n	From: RSTY	To: RSTY
FLT #: 10-	Blk In: 1539 Z	Lnd Time(on): 1533 Z
ETD: 0800 Z	Blk Out: 0742 Z	T/O Time (off): 0802 Z
ETE: 7.5	Total Blk: ^{7hr 5min} (8.0)	Total Flt: ^{7hr 31min} (7.5)
Sponsoring Org: NCEP	Program: WSR10	Purpose: Recon

AOC Flight Crew	
Aircraft Commander: Longenecker	Data System: Rogers
Co-Pilot: Glover / Toth	Avaps: D. Carpenter
Navigator: /	System Engineer:
Flight Eng: /	AA: S. Paul
Flt Director: Williams	AA: J. Greene
Avionics:	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	4008mb 994.6	994 = 2986	991mb	

ATIS - Takeoff	0655 040000T SEM RA 06010 05/03 2986
ATIS - Land	

Data Source	Number	Data Disposition / Date / Quality / File Name(s)
Flight Level Tapes	1	
Radar Tapes		
Dropsondes	19	Good: 17 Bad: 2 Sent: 17
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: NCAT9 10WSW TRACK99			

NOAA G-IV N49RF
WSR-10
02 Feb 2010 NOAA9 10WSW



Flight ID: 100201n

<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	PS1M
Slip Angle	SSRD2
Temperature Probe	AT3/TT3
True Air Speed	TAS1
Constants File	49cal092
Project Directory	/proj/1001

<u>Local Met Data:</u>	<u>Takeoff (0802Z)</u>	<u>Landing (1533Z)</u>
Aircraft Static Pressure	994.6 mb	991 mb
Tower Pressure (corrected)	994 mb	991 mb

Notes:

PS1 stair steps +/- 1mb from 084438Z-084604Z. PS2 steps down ~2mb and becomes noisy from 085108Z-085640Z and again from 104958Z-111242Z but 5-10mb off. PS1 is the better of the two, and is selected for the default. Due to PS1 stair steps PALT/PALTF spikes 30 meters between same time.

DAP1 drops 30mb @ 083435Z and is off remainder of flight. Effects AKRD1, AKRD2 is default.

DBP2 deviates 20mb from DBP1 from 082900Z-090500Z. DBP1 spikes with erroneous data from 145043Z-150853Z. Effects SSRD. DBP2 is the better choice so SSRD2 is selected for default.

DPL starts out 5C colder, still slow to respond and doesn't get colder than -35-40C. DPR is default. RH > 100% (up to 130%) in climb through frozen precip.

A spike occurred in the following variables from 145511Z – 145532Z: WD,WS,VI,UI,UX,VY,WI, and SSRD1.

All other instruments worked optimally during the flight.

19 dropsondes launched: 17 good, 2 bad.

All 17 good drops successfully sent to NCEP and ingested into the 02/12Z model run.

Flight Director:
Phone #:

Jess Williams
(813) 828-3310 ext. 3140

Flight: 100201n

Inertial Altitude

ALT (m)
IRS Baro-Inertial
Altitude
ALT_PITR (m)
IRS Baro-Inertial
Altitude
ADCBAL (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
Geopotential Alt Source - PALT)

Geopotential Altitude

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

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

Select the following variable references:

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

Print Trackline

Note: IRS = Inertial Reference System.

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

Flight: 100201n

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

☒ GHLONGF_SG1 (deg)
Honeywell GPS
☒ Longitude, Fine
 GHLONGF_SG2 (deg)
Honeywell GPS
Longitude, Fine
☒ GHLONG_SG1 (deg)
Honeywell GPS
Longitude
☒ GHLONG_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 Precision
 GHHDOP_SG2 (none)
Honeywell GPS Horiz.
Dilution of Precision

VDOP

☒ GHVDOP_SG1 (none)
Honeywell GPS Vertical
☒ Dilution of Precision
 GHVDOP_SG2 (none)
Honeywell GPS Vertical
Dilution of Precision

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: 100201n

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
☒ 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
☒ 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: 100201n

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)
Crct'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) use
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
2 SSLIP (deg)
Sideslip Angle,
Reference

Surface Pressure

✓ PSURF (mb)
Calculated Surface
Pressure

Cabin Pressure

PCAB (mb)
Cabin Pressure spikes + noisy

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: 100201n

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)
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) *due to PS2 spikes*
Aircraft True Airspeed,
Reference

Mach

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

☒ GPVNS (m/s)
Clins 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

RH > 100 (up to 130%) on climb. IN precip + 100% on desc in precip - snow.

PS1 str steps $\uparrow \downarrow$ ± 1 mb 084438Z - 084604Z, remains...
↳ Part #1 - 30 meters

PS2 steps down @ 085108Z + becomes noisy, backup 085640Z
1.5mb

+ again 104958Z - 111242Z
but 5mb

DBP1 goes down @ 083435Z + remains off
30mb

DBP2 deviates 20mb $\downarrow$ DBP1 from 0829 - 0905Z

DBP1 goes ~~from 10mb to~~ -20mb 145043Z - 150853Z
↳ affects SSDF1 + SSR01 (spike 145515 - 145525Z)

Spikes in the following @ 145511 - 145532Z

WD, WS, VI, UI, UX, VP, WI, SSR01

HGARI spikes 081728 - 081923

NOAA G-IV flight request for Monday 02/01/2010

Radio Call Sign: NOAA49

Planned take off: 02/01/2010 0800Z

Planned landing time: 02/01/2010 1600Z

Route of flight:

RJTY	35.75	139.35
KOGAR	36.12	139.69
TLE	36.02	140.21
CVC	35.73	140.8
2 32 00N 142 23E	32.0	142.38
3 34 54N 148 00E	35.9	148
4 39 07N 155 24E	39.12	155.4
5 40 28N 159 15E	40.47	159.25
6 42 50N 164 53E	42.83	164.53
7 47 03N 164 32E	47.05	164.53
8 48 42N 158 33E	48.7	158.55
9 46 49N 154 41E	46.82	154.68
10 43 36N 149 25E	43.6	149.42
11 41 00N 144 30E	41	144.5
NIKON	38.33	142.47
JD	36.49	139.86
HATAR	36.34	139.86
RJTY	35.75	139.35

Planned Altitudes: FL390-450

NOAA9 10WSW TRACK99

begin drops soon as we can stop
end @ 145° E on return C.P.

164.5E 47N

710

CALM -RA 6000 0VCO20 05/03 A2987 Lgt Ice 020-100

Flight

Min 100nm of
Jet core entrance
exit

Winds

W ~~110-130kt~~ J to S
gra decrg 130-150kt
to 20-40kt FL380
in NW
WSW 100kt

Turb

Lgt
270-370
NE ptr
S point

Ice

ON
Climb +
desc

C.T

300 -
~~350~~
BA
S emb
350

VA
NO

LAND

01012618KT 1600M 1SM SCT005 BKN008 Lgt Ice 008-100
Lgt Turb
Sfc - 060

N49RF AOC GPS Dropwindsonde Log

Flight ID: 100201n

Flight Director: Williams

Mission ID: N04A9 100201n

Storm/Track: TRACK 99

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	15038	082636	34.8	141.7	OK CS	PS	1009	1	SE 073	1009	085341
2	2	36199	084905	32.1	142.8	DARIC	RS	1004.2	2	SE 228	1004.2	091309
3	3	10174	091004	33.9	146.1		RS	1004.4	13	SFC 195	1004.4	093147
4	4	15080	093600	35.6	149.1		RS	1007.6	4	SFC 118	1007.6	095143
5	5	55163	095608	37.3	152.1		RS	1012.3	5	SFC 022	1012.3	101331
6	6	55011	101006	39.0	155.2		RS	1012.7	6	SFC 356	1012.7	103112
7	7	36270	103004	40.2	158.6		LS	1011.2	7	SFC 294	1011.2	105214
8	8	20145	105004	41.6	161.8		LS	1011.2	8	SFC	1011.2	105556
9	9	20068	111000	43.1	164.9		RS	1008	9	SFC	1008	100554
10	10	55157	113007	45.6	167.7		RS	1004.5	10	SFC 300	1004.5	101906
11	11	10175	115813	47.5	173.1		RS	1009	11	SFC 341	1009	101750
12	12	120071	121004	48.4	174.9		RS	1008	12	SFC 114	1008	124138
13	13	10163	1230	47.9	176.8		RS	1003	13	SFC 093	1003	130213
14	14		1250		FA 8	FA 8						
15	15	110191	125141	46.4	184		RS	1005.8	14	SFC 284	1005.8	132655
16	16	15003	131002	45.1	181.8		RS	1016.8	15	SFC 302	1016.8	133743
17	17	36193	1330	43.7	179.5		RS	1003.1	16	SFC 319	1003.1	135534
18	18	55004	135003			FA 8	FA 8					
19	19	26111	135141	42.4	177.0		RS	1012.6	17	SFC	1012.6	141217
20	20											

NO 04A9
with
1255

M.8000 - RJSM R00N - Kadena