

U.S. DEPT. COMM./NOAA/OAO - DATA SECTION WORK FORM NO.1 OAOWF1 FILE

FLT ID: 960703H	FM: BKF	TO: BKF
FLT NO: 96-033	BLK IN: 0036	ATA: 0030
ETD: 120 1800	BLK OUT: 18 13	ATD: 1821
ETE: 0030	BLK TIME: 6.4	FLT TIME:
SPONSOR ORG: NOAA	PROGRAM: STERAO	PURPOSE: Air Chemistry

OAO PERSONNEL

AC KENNEDY, P ✓	SYS ENG ROLES
CP KENNEDY, TAGGART, B ✓	DATA SYS McMICLAN ✓
NAV KOZAK, S ✓	RADAR
FE WADE, S	BT/ODW
RADIO	CLD PHYS
FD WHITE, S ✓	DOPPLER

PARTICIPATING SCIENTIST/VISITORS/OAO

LAST, FIRST NAME	ACTIVITY ON A/C	AFFILIATION
31 MCFARLEN, S ✓	PM	AOC
<del>HUBBLER, RYERSON</del>	Air Chemistry	AC
SHERIDAN, MCINNES		CMDC
GOLDEN, ROBERTS		AC
STROUD, HOCOWAY		AC
JOHNSON, T		AC
WERT, B		NCAR

47 PROPOSED/ACTUAL MISSION/REMARKS (RECCO, FIXES, STORM, PENET, NHOP #)

~~PAUL LOCK WASHERS~~

30.11 ≈ 1019.7 310/8

30.03 ≈ 1016.5





STERAO 96

-----

FLIGHT #7 H960703

TYPE OF DATA -----	SENSOR OR OPTION -----
INE	1
Accelerometer	1
Temperature probe	1
Altitude change option (for vertical winds)	PA
Static pressure	Rosemount fuselage
Dynamic pressure	Rosemount fuselage
Time source	Micro 99
Constants file	CO2963.CON

Notes:

There were eleven time/data gaps: 1824:50 1824:51 1825:00  
 2033:08 2033:10 2033:13 2033:20 2241:09 2241:10  
 2241:13 2241:20

Dewpoint #1 (TD1) replaced with dewpoint #2 (TD2) from  
 181901-191500

The aircraft INE positions were renavigated with respect to GPS.

SPECIAL NOTE!!! Locations 80, 81 and 82 of record five on the  
 standard tape contain vertical ground, vertical air  
 and vertical speeds, respectively, computed using  
 Dave Jorgensen's vertical wind algorithm.  
 It is recommended that these values be used for  
 vertical wind analysis.

Flight Meteorologist: Sean White: (813) 828-3310 ext. 3072

```

      TITLE (MAX 21 CHARACTERS) -- EX  HURRICANE PAINE
STERAO FLIGHT 7
YYMMDDL  FLT I.D.
960703H
HHMMSS START TIME  -99999 DEFAULT TO START OF DATA FOR PRINTOUT ONLY
181901
HHMMSS END TIME      999999 DEFAULT TO END OF DATA FOR PRINTOUT ONLY
003200
HHMMSS TAKE OFF TIME
182100
* NUMBER OF TAPES (I2) ...FOR STANDARD TAPE OUTPUT ONLY
6
* -----LOGICAL UNIT OF INPUT DATA (I1)  5, 8 OR 9 FOR TAPE DRIVE
9
* -----LOGICAL UNIT OF OUTPUT TAPE DRIVE (I1) [FOR STANDARD TAPE ONLY]
9
* -----LOGICAL UNIT OF PRINTER (I1)
6
* -----DATE OF PROGRAM (MMDDY)
06094
* -----STATIC PRESSURE PROBE (I1)
* 1 = PSW (WINGTIP)
* 2 = PSF (CO-PILOT/FUSELAGE)
* 3 = FUTURE USE
2
* -----DYNAMIC PRESSURE PROBE (I1)
* 0 = PQW(WINGTIP)
* 1 = PQF1 (FUSELAGE 1281)
* 2 = PQF2 (FUSELAGE 1221)
* 3 =FUTURE US
1
* -----INE SELECTION  (I1)
* 1 = INE 1
* 2 = INE 2
1
* -----ACCELEROMETER (I1) - USUALLY THE SAME AS YOUR INE SELECTION
1
* ----- TOTAL TEMPERATURE PROBE (I1) [1 OR 2]
1
* ----- DEWPONT TEMPERATURE PROBE (I1) [1 OR 2]
1
* -----ALTIMETER OPTION (I1) - FOR VERTICAL WIND COMPUTATION
* 0 = PRESSURE ALTITUDE (OVER LAND)
* 1 = RADAR ALTITUDE APN-159 (OVER WATER)
* 2 = RADAR ALTITUDE APN-232 (OVER WATER)
0
* -----PRINTOUT RATE  SECONDS (I2)
30
* -----WINDSPEED/DIRECTION RUNNING AVERAGE TIME, SECONDS (I2)
10      ! FOR STANDARD TAPE OUTPUT ONLY
* -----TIME OPTION (I1)
* 1 = MICRO 29
* 2 = TIME BASED GENERATOR #1
* 3 = TIME BASED GENEATOR #2
1
* -----NAME OF CONSTANTS FILE EX CO3863.CON
CO2963.CON
*****

```

960703H

START: 181901

END: 003200

BAD Blocks

1824:50

:57

1825:00

2033:08

33:10

33:13

:20

2241:09

:10

:13

:20

INE1, AU1, TT1, TD1

Replace TD1 w TDD

181901-1940  
1500

---

190000	-0.1	-0.1
200000	-0.5	-0.2
210000	-0.2	-0.2
220000	+0.1	+0.5
230000	+0.3	-0.1
000000	+0.8	-0.7
<del>002430</del>	<del>+1.1</del>	<del>-0.7</del>
3200	+0.9	-0.2

## Flightplan Inflow from the West

Colorado

boundary-layer to free troposphere exchange

Doors closed: 11:45 *am*

Takeoff: 12:00 *noon 1821*

**Point A**, Buckley Air National Guard Field 39 42 N, 104 45W

Head direction of **Pt. B** (40 30N, 104 10W) at ~~8~~<sup>16</sup> kft MSL

Pt. A to Pt. B 100 km,

15 min

### Racetrack Profile up to 15 kft MSL near Pt. B

head east for 1 min 50 sec **descend to 500 ft AGL**, then climb at 1500 ft/min, reverse direction, head west for 1 min 50 sec, and continue climb etc **up to 15 kft MSL**) 6 min

⇒ Head direction of **Pt. C** (40 00N, 106 30W) at ~~15~~<sup>16</sup> kft MSL *1857 -*

**Calibration at constant altitude**, Observer calls

Arrive at Pt. C at 11 kft MSL

Pt. B to Pt. C 200 km,

30 min

### HC-Profile Pt. C to Pt. D (41 00N, 106 30W)

at 11 kft MSL (>1000 ft AGL), 14 kft MSL, 17 kft MSL, and 21 kft MSL

==> (Hydrocarbon cans filled parallel to in situ measurements) <==

**Adjust Time:** Start HC-leg at : 05, :20, :35, :50 so that the HC sample will be centered along this leg. Change altitude approximately 3 min after HC sample ends (**Observer calls**) 70 min

### Characterize power plants near Craig and near Hayden

Head direction of **Pt. E** (40 23 N, 107 W)

Fly Box around Craig and Hayden plants **within PBL** at 9 kft MSL (> 1000 ft AGL),

**Pt. E** (40 23N, 107 W) *2024/2027*

**Pt. F** (40 33N, 107 05W) *2030*

**Pt. G** (40 40N, 107 40W) *2036*

**Pt. H** (40 25, 107 40W) *2040*

**Pt. I** (40 25N, 107 20W) *2044*

(~ 190 km)

==> make sure to intercept Craig plume

30 min

{ Racetrack Profile near Pt. I up to 21 kft MSL

6 min }

### Power Plant Study in Wyoming:

Head direction of **Pt. J** (41 40N, 108 35 W)

Pt. I to Pt. J, 170 km

25 min

In route climb to ~~25~~<sup>23</sup> kft MSL according to HC sample schedule *21062*

**Racetrack Profile** near Pt. J, descend to 500 ft AGL *21182*

12 min

### Try to identify power plant plume from plant near Point of Rocks, WY (41 44N, 108 47W)

Visually, check wind direction (should be west but might be southwest) Estimate PBL height!

Intercept the power plant plume at 3 altitudes within the PBL 1) 500 ft AGL, 2) mid PBL, and 3)

0.9\* $\pm$ PBL within ~ 20 km of plant.

15 min



Not seen very well 80km

Intercept the power plant plume at mid PBL at ~~40~~ km, 60 km, ~~90~~ km, ~~120~~ km distance from plant.  
(Check PBL height with short race track profiles: Optional!!) 45-60 min  
If the wind is from the S or SW and/or if we are short of time, drop the 120 km plume intercept!!

{**Racetrack Profile** at the end of the power plant survey  
descend to 500 ft AGL, then climb to 21 kft AGL

dd have  
17,500' 10 min}

**Head direction of Pt. K (40 10N, 104 25W)**

In route climb to ~~25~~ kft MSL according to HC sample schedule 2251 - 2363 ~40 min

==> **Time for NOy Calibration in route** <==

**Hydrocarbon Profile between Pt. K and Pt. L (41 10N, 104 25W)**

Hydrocarbon profile between Pt. L and Pt. M at 21 kft, 17 kft, 13 kft MSL, and 1500 ft AGL

==> ( Hydrocarbon cans filled parallel to in situ measurements) <==

Start HC-leg at : 05, :20, :35, :50 so that the HC sample will be centered along this leg. Change altitude approximately 3 min after HC sample ends (**Observer calls**) 60 min

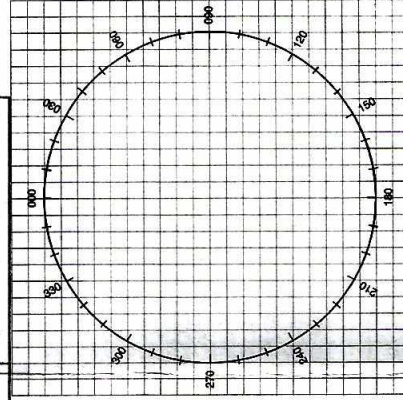
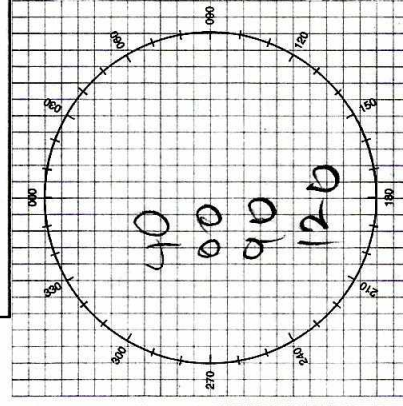
Head direction of Buckley (39 42N, 104 45W) **Pt. A**

Flight Duration : 6 hrs 20 min - 6 hrs 40 min



—

FREQ	ALT	HDG	OTHER
			307
			20 SS W
			24 Papid
			Cub



# POSITION REPORT

1. POSITION
2. TIME
3. ALTITUDE
4. NEXT POSITION
5. ETA
6. NEXT POSITION

**EMERGENCY MESSAGE**

TRANSMIT THE FOLLOWING MESSAGE TO ANY AGENCY ON THE AIR-GROUND  
FREQUENCY IN USE. IF UNABLE TO ESTABLISH COMMS, ATTEMPT CONTACT ON  
ANY OF THE FOLLOWING EMERGENCY FREQUENCIES:

UHF/VOICE	VHF/VOICE	MF/VOICE	HF/CW	MF/CW
243.0	121.5	2182 KHZ	8364 KHZ	500 KHZ

**MAYDAY, MAYDAY, MAYDAY**

THIS IS NOAA \_\_\_\_\_, NOAA \_\_\_\_\_, NOAA \_\_\_\_\_

- POSITION \_\_\_\_\_ N/S \_\_\_\_\_

- HEADING \_\_\_\_\_ TRUE/MAG \_\_\_\_\_

-AT \_\_\_\_\_ KTS TRUE/INDICATED

- FLIGHT LEVEL OR ALTITUDE \_\_\_\_\_

-WE ARE A P-3 AIRCRAFT WITH \_\_\_\_\_ SOULS ON BOARD

- NATURE OF EMERGENCY  
- ASSISTANCE DESIRED

- ASSISTANCE DESIR
- PILOT INTENTIONS

- FLEET INTENTIONS
- WE HAVE
- ENDURANCE REMAINING

[illegible]