Aeronomy Lab
Clouds and Radiation
Alabama Sortie

Flight #7: 000519H

Sensor or system	Number or Name
INE	1
Accelerometer	1
Temperature Probe	2
Dew Point Probe	1
Altitude (for vertical wind)	RA-159
Static Pressure	Rosemount Fuselage
Dynamic Pressure	Rosemount Fuselage
Time Source	Micro 99
Constants File	CO2003.CON

Notes:

The Dewpoint Temperature occasionally rises above the Ambient Temperature when the aircraft is flown through precipitation near the 0 C isotherm. This is mostly attributed to the Dewpoint heater overcompensating for precipitation on the cooled mirror, but can also occasionally involve wetbulbing of the Temperature Probe.

Radar altitude (RA-159) was replaced by RA-232 prior to takeoff due to spikes (154811Z - 155956Z). RA-159 was replaced by RA-232 just prior to landing due to spikes (220415Z - 221030Z).

This data set was terminated slightly before the aircraft blocked in and parked, due to excessive noise in most of the data sources. Block In time was 221500Z.

The INE1 positions were renavigated (corrected) using periodic valid GPS positions.

J/W Liquid Water instrument was operated, but could not be zeroed, during the flight.

	Takeoff	Landing
Aircraft static pressure	1021.6	1017.5
Corrected tower pressure	1021.5	1018.4

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: Jack Parrish, (813) 828-3310 ext. 3077

U.S. Dept. of Commerce/NOAA/Aircraft Operations Center

AOCWF1

Flt ID: 000519H	From: KMCF	To: KMLF
Flt No.: 00-50	Blk In: 2215	ATA: 2205
ETD: 16Z	Blk Out: 1548	ATD: 1600
ETE: 6	Blk Time: 6:28 (6.5)	Flt Time: 6:05 (6.1)
Sponsor Org: ~~AS~~ Clouds, Rad	Program: Front NW Jackson	Purpose:

AOC Personnel

AC: Taggart	Sys Eng: Barr ✓
CP: O'Mara ✓	Data Sys: Hornsrood ✓
Nav: Newman / Adler ✓	Radar:
FE: Bast ✓	GPS/BT:
Avionics:	Cld Phys:
FD: Parrish ✓	

Participating Scientists/Visitors/AOC

Name (Last, First)	Activity on Aircraft	Affiliation
Solomon, S. ✓	PI	
Henry Miller ✓	Inst	
Chuck Enbank ✓	Inst	

Proposed/Actual Mission/Remarks (Recco, Fixes, Storm, PENET, NHOP #)

~~MOB~~ KJAN
30 37 32 18
88 04 90 04

25 01 7 Fly to Jackson & fly wx NW of Jackson (frontal).
28/16
30.18 R&I problem w/ cloud probe before T.O. → Fly anyway.
1021.7
25 01 6 Flew one cloud line NW of Mobile. 1725 – 1843Z.
26.2/16.2 Flew second cloud line (fewer showers) N of New Orleans 1928Z-2008Z.
1021.4 Then RTB.
23 0/10
30 020.7 Fm. 31K ~2037 - Shut down #3 for EDC servicing.

~~30 01 7~~
25 01
30.08
1018.1
SR 106.5
30 0/10.6
28.3/17.3
28.4/18.5

000519H

U.S. Dept. of Commerce/NOAA/Aircraft Operations Center

Form 413-50

Time	LAT	LON	TK	WD	WS	PA	GA	TA	TD	SP	PS	
1548	2751	8229.6				-67		31.2	14.8		1021.3	BLK
1601	2752	8227	76	120	5.8	414	500	22.5	13.1	1020.6	963.4	↑
160530	2801	8219	329	71	16.8	1626	1761	15.0	-1.4	1020	827	↑
1611	2820	8230.4	334	118	20	3431	3664	7.8	-28	1014.8	653.9	↑
162030	2857	8251.5	320	153	10.5	4825	5140	-2.8	-25.7	1020	553	-16K Edge of CS
163030	2934.5	8326.7	322	183	14.2	4824	5134	-3.4	-25.5	1020.7	553	Over shallow SC, sct CS
1647	3036	8429	291	198	22	4825	5058	-3.7	-22.7	1011.6	552.9	Now at Thk OVC cs, iso sc
1700	3053	8537	278	207	20.6	4825	5096	-3.1	-26.8	1015	553	Thin alt cs
171545	3122	8659	289	220	18.6	4824	5052	-4.5	-18.2	1011.4	553	
1725	↓ to 2K - below		CB									
173000	First 2K leg											
173535	3121	8802	10	224	25	866						
1739	Missed pass 3K											
174300	4th leg		331	200	11	1159	1275	17.5	14.0	1020	882	
174850	3127	8759	295	21.9		1766	1269	16.8	16.3	1020	882	
175510	3116	8756	10	225	16	1776	1913	13.2	12.5	1020	817	6K LEG 3 cores
180210	3135	8751	183	240	21	2373	2445	9.5	10.0	1019	757	
181010	3127	8751	20	220	21	2975	3106	6.0	6.8	1017.5	704	
182136	3124	8747	12K LEG									
182855	3126	17K										
183700	3116	8749										
1843	3116	8749										
190420	→ JACKSON											
192830	3210	8942	242	145	7.1	1164	1155	18.7	14.7	1004	880	193145 End 4K LEG
193510	3159	8957	~	207	7.4	2064	2190	11.0	10.5	1007	789	7K Leg
194230	3212	8935	239	261	12	2716	2760	6.6	3.8	1007.6	726	9K Leg
194945	3201	8954	64	279	20.3	2995	3069	4.2	1.4	1008	702	10K Leg
195655	3211	8937	232	227	21	3618	3711	4.6	-23	1003.5	648	12K Leg
200615	3208	8938	66	226	9.0	1168	1126	19.0	13.9	1001.6	880.5	
200830	3212	8930	66	221	13.4	1169	1150	19.0	13.8	1004	880	↑
2018	3159	8849	101	229	28.8	4857	5052	-4.2	-26.4	1005.8	544.9	↑
202845	3139	8753	111	240	35	6408	6705	-13.4	-42.5	1006.4	446	-21K
2055	3045	8534	120	215	25.5	5144	5409	-5.4	-24.1	1008.1	529.9	-17K after #3 Eng stop
2113	2955	8418	137	231	15	5144	5457	-4.5	-25.3	1016.5	530	Over Panacea
213730	2827	8307	149	140	8.3	3321	3534	9.7	-22.8	1014	672	-11K
214645	2752	8300	181	98	23	2121	2260	14.0	12.8	1019.1	793	↓
215530	2736	8241	58	301	6.7	469	521	22.7	12.7	1017.2	960	↓ to land
2205	On											
2215	2751.5	82303	261									In

NOAA FORM 56-49
(2-95)

MISSION PREFLIGHT LOG

DESTINATION	MISSION	NAVIGATOR	AIRCRAFT COMMANDER	FLIGHT DIRECTOR	SCHEDULED / ACTUAL TAKEOFF Z	DATE OF TAKEOFF
MCF	FLORIDA BAY	NEWMAN ADLER	TAGGART	PARRISH	1600 / 1600	18 MAY 00

WP	LAT / LON	RTE	MH	VAR +E==>	TH	DR +R==>	TRK	GS	WD	WS	ALT	TAS	LEG / TOT DIST	LEG / TOT TIME	PROP ETA	ETA	ATA	REMARKS
9	MCF																	
1	PIE																	
2	SZW																	
3	MAF																	
4	MVC																	
5	JACKSON																	
6	YARBO																	
7	SZmmCS																	
8	31 20.4 087 44.3																	
												11						
												182						
												41						
												223						
												356	nm	from	MONROE			
																		1+18

11 SOB

INS PERFORMANCE	INS 1	INS 2
BEGIN ALIGN TIME	1426	1426
ALIGN STATUS (0-5)	1	1
END NAV TIME	2205	2205
START NAV TIME	1538	1538
DELTA T	6+27	6+27

TERMINAL ERRORS	INS 1	INS 2
DELTA LAT	+3.3	-3.7
DELTA LON	+.6	+.1
RGS	3	5
RADIAL ERROR	3	4

REMARKS

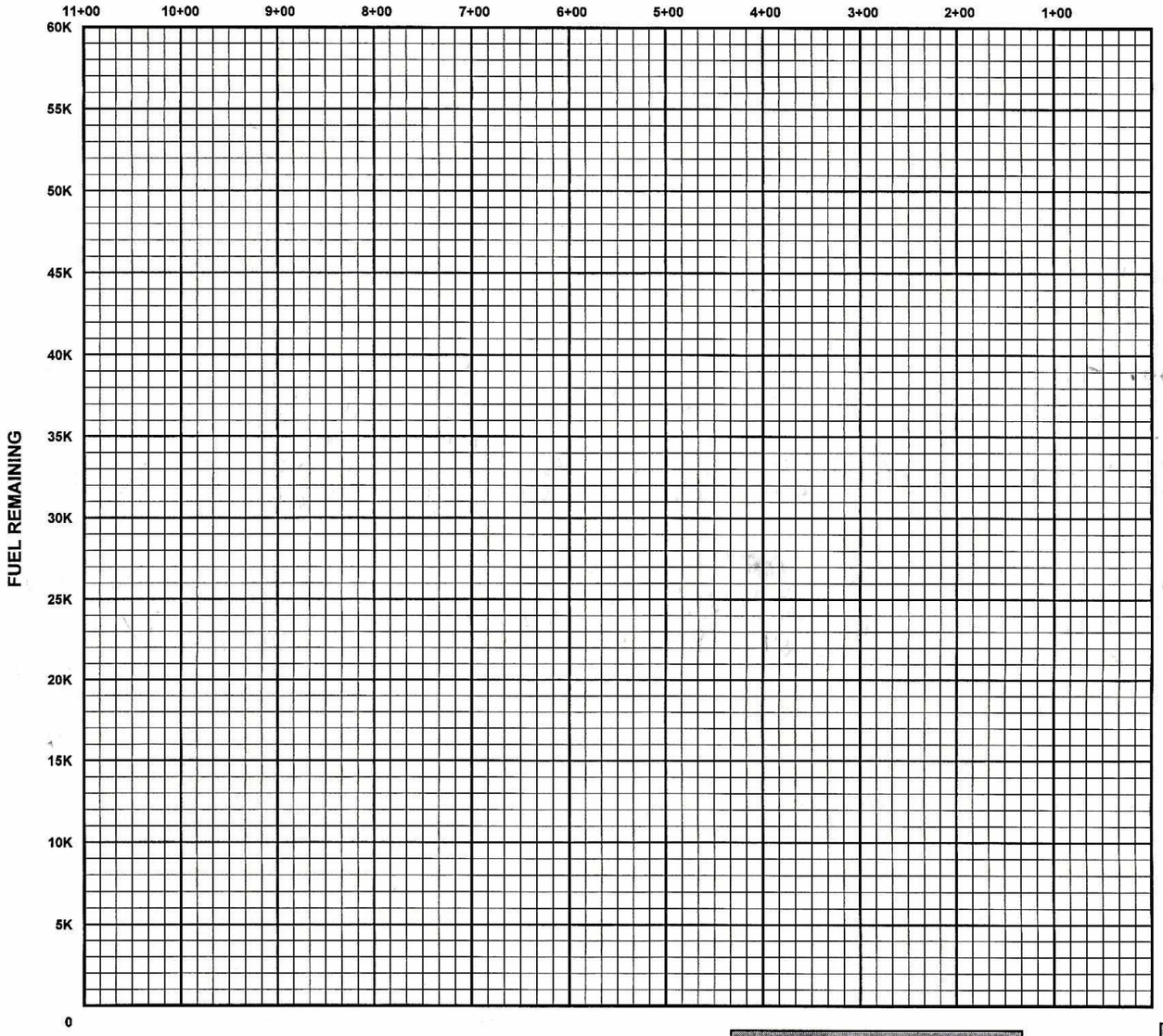
PIE V97
SZW V198 MAF
MVC JAN
MVC MAF V198
~~SZW V97 PIE~~

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
AIRCRAFT OPERATIONS CENTER

3119
088 02 10nm

MCALL

RANGE CONTROL GRAPH



ETP = .5(TOTAL DISTANCE x OUTBOUND WIND FACTOR)

WIND FACTOR		
WINDSPEED	HEADWIND	TAILWIND
10	1.03	.97
20	1.06	.94
30	1.10	.92
40	1.14	.89
50	1.18	.87
60	1.22	.85

ENROUTE FUEL	
ENROUTE TIME	
ENROUTE FUEL (6K .5K 4.5K RULE)	
RESERVE AT DESTINATION	
REQUIRED RAMP	
ACTUAL RAMP FUEL	

TACTICAL (OFFSTA TO DESTINATION)	4 ENG	3 ENG
DISTANCE (OFFSTA TO DEST)		
ENROUTE TIME (OFFSTA TO DEST)		
BURN RATE (LBS/HR)	4500	5500
ENROUTE FUEL REQUIRED		
RESERVE AT DESTINATION		
FUEL AT OFFSTA		

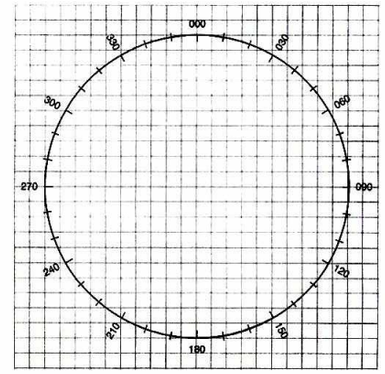
POINT OF SAFE RETURN	4 ENG	3 ENG
ETP DISTANCE (TO DEPARTURE)		
ENROUTE TIME (TO DEPARTURE)		
BURN RATE (LBS/HR)	4500	5500
FUEL REQUIRED		
RESERVE AT DEPARTURE		
PSR FUEL		

"F" FACTOR	PRESS ALT	200	250	300	350
	10,000	1.0	1.0	.99	.99
	20,000	.99	.98	.97	.97
	30,000	.97	.96	.95	.94
	40,000	.96	.94	.92	.90

CEX - TRUE BEARING METHOD			
COMPASS TYPE	INS1	INS2	WET
MCH (READING)			
- MTH (SEXTANT)			
CE			
- VAR			
DEV			

CEX - ERB METHOD			
COMPASS TYPE	INS1	INS2	WET
MERB (DIAL 000)			
+ ZN			
= MTH			
MCH (READING)			
CE			
- VAR			
= DEV			

CEX SIGHT	
GMT	
GHA	
CORR	
GHA	
LONG +W -E	
EXACT LHA	
LAT	
BODY	
DEC	
HC / D	
CORR	
HC	
Z	
ZN	



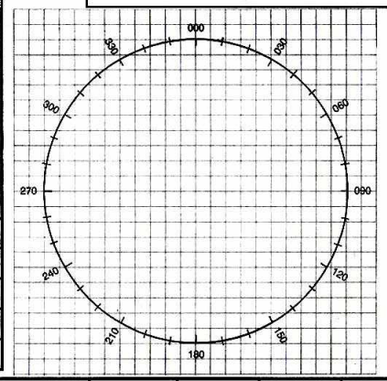
TRUE AIRSPEED CROSS-CHECK

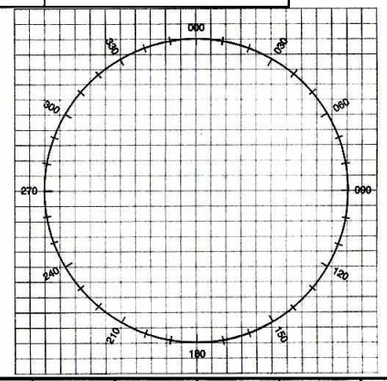
TIME	IAS	PRESS ALT	"F" FACTOR	EAS	OAT	TAS	ITAS
1619	225	160	/	/	+6	291	286

1+ Louisville 2 + 9 N 3 | 20.4 087 44.3

CLEARANCES			
FREQ	ALT	HDG	OTHER
			080° ↗ 1600 16K @ +10
			23279
			4000 L
			L 360
			L 340
			↗ 12K
			350
			7116K

MISSION LOG PAGE ___ OF ___





POSITION REPORT

1. POSITION 9 S 31
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:

113 087 501

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 _____ E / W AT _____ Z
- 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
- PILOT INTENTIONS
- WE HAVE _____ ENDURANCE REMAINING

A 31 19N 088 07

TIME	FIX TYPE	POSITION	INS 1 POSITION	K ERR	INS 2 POSITION	K ERR	MH	VAR +E==>	TH	DR +R==>	TRK	GS	WD	WS	ALT	TAS	NEXT PT	DIST	TIME	ETA	REMARKS
1543 1548	ENG TAXI																				
1548 1600	BLOCK T/O																				
1604	X✓1	27 50.9 082 29.6	27 52.9 082 25.4	-2 +4.2	27 52.8 082 25.5	-1.9 +4.1	084	2W	082	2L	080	197	L1	✓	↗16K	200	PIE				075 15
1618	△	28 45.2 082 40.0	28 45.4 082 40.1	-.2 -.1	28 45.0 082 39.9	+.2 +.1	322	2W	320	0	320	292	140	15	16K	281	SAW	142	+29	1647	40K Fuel @ 1630
1703	△	31 00.3 085 52.3	31 00.4 085 52.7	-.1 -.4	31 00.6 085 51.7	-.3 +.6	298	0	298	5R	303	290	210	20	16K	289	MVC	80	+16	1719	
1758	△	31 28.9 087 53.9	31 28.9 087 53.3	+0 +.6	31 27.9 087 53.9	+1.0 +0	007	0	007	3R	10	233	240	20	↗8K	219					~87 51 NEXT
1901	△	31 26.0 087 38.9	31 24.4 087 37.1	+1.6 +1.8	31 20.8 087 35.3	+5.2 +3.6	295	0	295	2R	297	238	200	5	3K	237	JAN	142	+35	1936	30K 1880
2010	△	32 12.2 089 22.1	32 10.2 089 21.7	+2.0 +.4	32 12.5 089 22.3	-.3 -.2	108	0	108	2L	106	235	250	15	↗10K	222	MVC	113	+29	2039	↗10K 21K Fuel ↗210
2037		Shut	down	#3																	
2043	△	31 10.1 086 32.8	31 08.2 086 32.5		31 12.2 086 33.7		130	0	130	8L	122	264	220	30	↗7K	276	HEWN	160	+36	2119	
2205		LAND	MCF																		
2205	BLOCK	27 50.9 082 31.3	27 47.6 082 31.9	+3.3 +.6	27 54.6 082 31.2	-3.7 +.1															
					HE																MAE

5340
194945

S/SW YARBO 1+50

MISSION LOG	PAGE ___ OF ___

FIX TYPES
(G) - GPS (I) - INS (R) - RADIO (V) - VISUAL (C) - CELESTIAL (D) - DR

TIME	FIX TYPE	POSITION	INS 1 POSITION	K ERR	INS 2 POSITION	K ERR	MH	VAR +E==>	TH	DR +R==>	TRK	GS	WD	WS	ALT	TAS	NEXT PT	DIST	TIME	ETA	REMARKS

32 06
089 11

30 NM (8)

32 04
089 49

~~22 10 N~~
~~089 32 W~~

32 09 N
089 40 W (9)

1+45