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ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS--ETC F/6 4/2
19304D MLRS, MISSILE NUMBER V38-002; ROUND NUMBER V-183/IW-2. 1--ETC(U)
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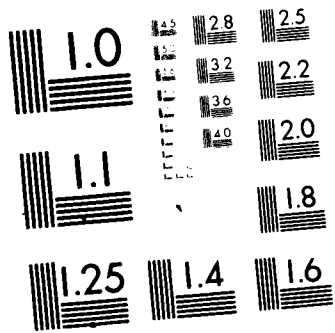
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AD A107415

METEOROLOGICAL DATA REPORT

19304D MLRS
Missile Number V-38-002
Round Number V-183/IW-2
13 Aug 1981

by

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Program Support Coordinator
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AVN Number 349-9568

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of the 19304D MLRS, Missile No. V-38-002, Round No. V-183/IW-2 presented in tabular form. a		

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CONTENTS

	PAGE
INTRODUCTION-----	1
DISCUSSION-----	1
GENERAL AREA MAP-----	2
LAUNCH AREA DIAGRAM-----	3
TABLES:	
1. Surface Observations taken at 0900 MDT at LC-33-----	4
2. Anemometer-Measured Wind Speed and Direction, LC-33 Fixed Pole, taken at 0900 MDT-----	5
3. Anemometer-Measured Wind Speed and Direction, Tower Levels 1, 2, 3, and 4, taken at 0900 MDT-----	5
4. T-Time Launch and Impact Area Pilot-Balloon Wind Data-----	6
5. Aiming and T-Time Computer Met Messages-----	7
6. WSD Significant Level Data at 0600 MDT-----	8
7. WSD Upper Air Data at 0600 MDT-----	9
8. WSD Mandatory Levels at 0600 MDT-----	11
9. WSD Significant Level Data at 0737 MDT-----	12
10. WSD Upper Air Data at 0737 MDT-----	13
11. WSD Mandatory Levels at 0737 MDT-----	14
12. WSD Significant Level Data at 0900 MDT-----	15
13. WSD Upper Air Data at 0900 MDT-----	16
14. WSD Mandatory Levels at 0900 MDT-----	17

INTRODUCTION

19304D MLRS, Missile Number V-38-002, Round Number V-183/IW-2, was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 0900 MDT, 13 Aug 1981. The scheduled launch time was 0900 MDT.

DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

1. Observations.

a. Surface:

(1) Standard surface observations to include pressure, temperature ($^{\circ}\text{C}$), relative humidity, dew point ($^{\circ}\text{C}$), density (gm/m^3), wind speed and direction, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

b. Upper Air:

(1) Low level wind data were obtained from Pilot-Balloon observations at:

SITE AND ALTITUDE

LC-33	1550 Meters
NICK	2000 Meters

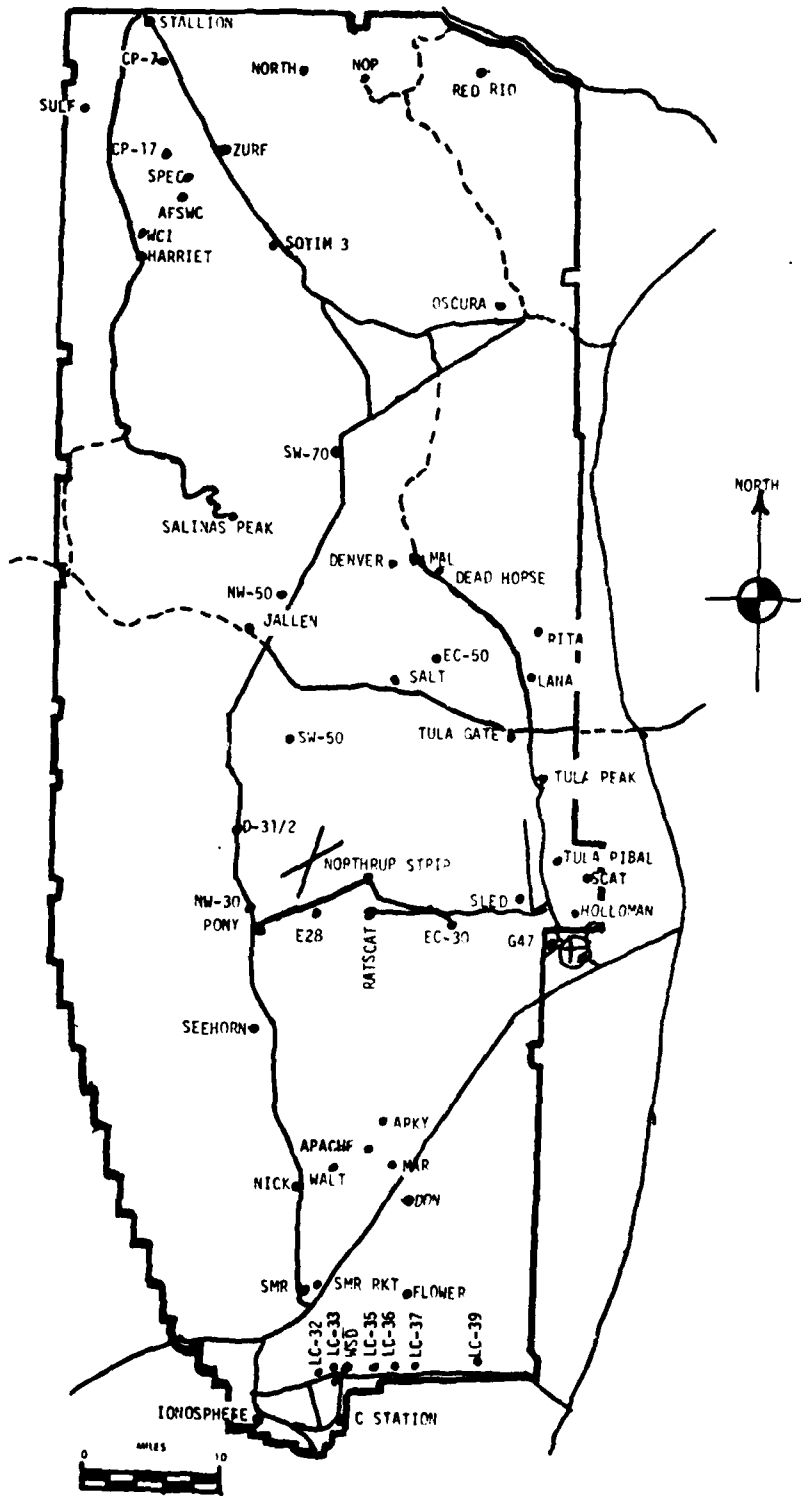
(2) Air structure data (rawinsonde) were collected at the following Met Sites:

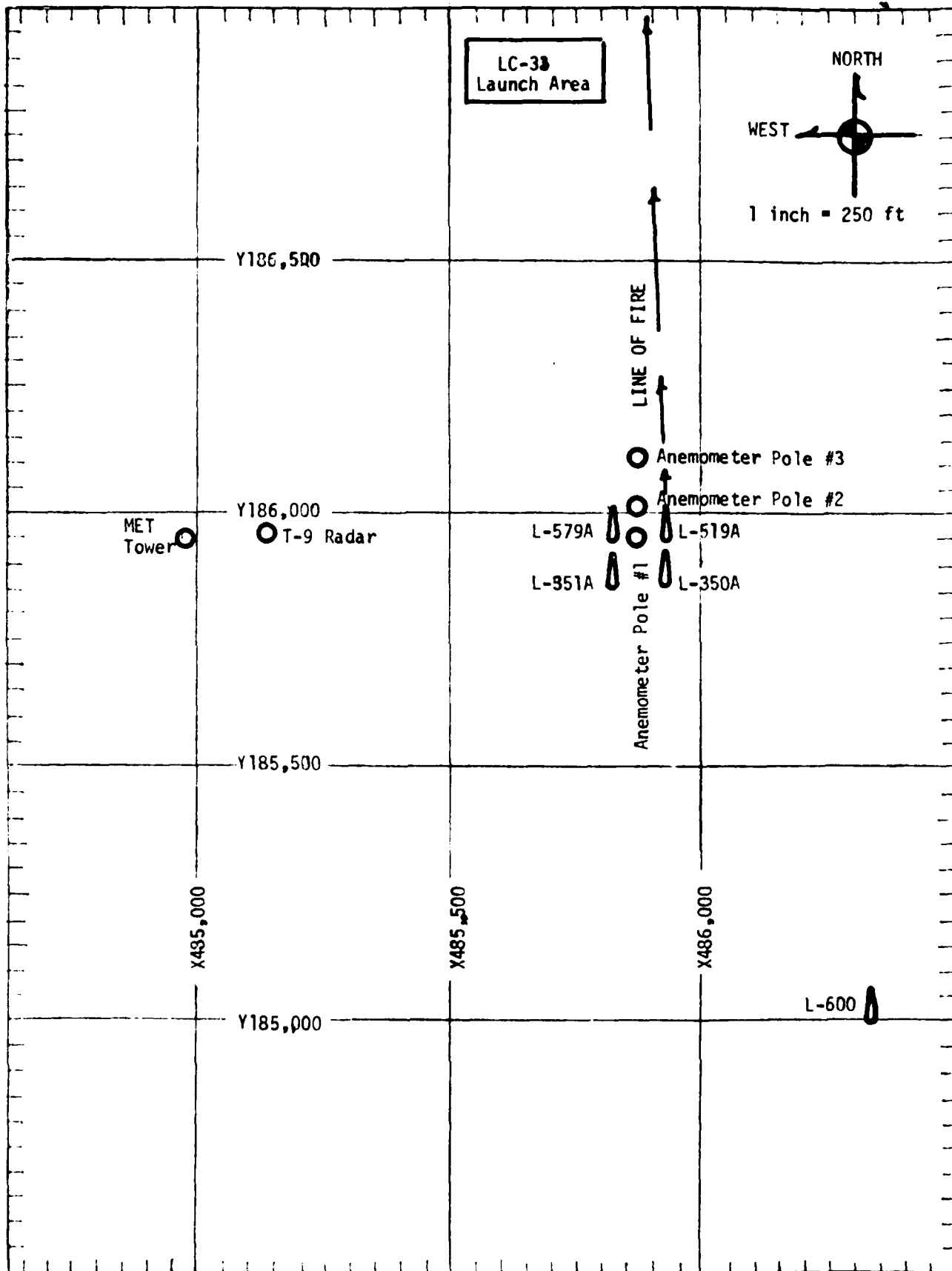
SITE AND TIME

WSD	0600 MDT
WSD	0737 MDT
WSD	0900 MDT

Collection Codes	
Full and/or	
Special	
A	13

WSMR METEOROLOGICAL SITES





PROJECT SURFACE OBSERVATION

STATION LC-33											
DATE		13	AUG		1981	X = 485,135.76		Y = 185,919.24		H = 3988.57	
TIME		M		D		Y		M		S	
0900		882.2		20.1		16.7		81		1048	
										04	
										350	
										20	

OBSTRUCTIONS TO VISIBILITY	CLOUDS						REMARKS
	1st LAYER		2nd LAYER		3rd LAYER		
	AMT	HGT	AMT	HGT	AMT	HGT	
	3	AC 12,000	7	CS 25,000			

PSYCHROMETRIC COMPUTATION

TIME: MDT	0900
DRY BULB TEMP.	20.1
WET BULB TEMP.	17.8
WET BULB DEPR.	2.3
DEN POINT	16.7
RELATIVE HUMID.	81%

TABLE 2

LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1 X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL			POLE #2 X485,874.93 Y186,012.00 H4033.57 53.0 ft. AGL			POLE #3 X485,877.29 Y186,116.06 H4063.92 82.6 ft. AGL		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T -30	017	05	T -30	352	04	T -30	001	07
T -20	017	05	T -20	354	04	T -20	001	07
T -10	017	05	T -10	353	04	T -10	002	07
T 0.0	016	06	T 0.0	353	05	T 0.0	002	06
T +10	016	06	T +10	356	05	T +10	003	06

TABLE 3

LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T -30	354	03	T -30	346	05
T -20	011	04	T -20	347	06
T -10	343	03	T -10	346	05
T 0.0	347	04	T 0.0	348	05
T +10	353	06	T +10	346	05

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
T -30	345	05	T -30	018	06
T -20	344	05	T -20	019	06
T -10	345	05	T -10	018	06
T 0.0	345	05	T 0.0	017	06
T +10	347	04	T +10	017	06

TABLE 4

T-TIME PILOT-BALLOON MEASURED WIND DATA
 DATE 13 Aug 1981

SITE: LC-33
 TIME: 0900 MDT
 WSTM COORDINATES:
 X= 484,837.34
 Y= 184,124.44
 H= 3,975.57

SITE: NICK
 TIME: 0900 MDT
 WSTM COORDINATES:
 X= 470,734.56
 Y= 255,775.64
 H= 4,126.57

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	350	04
150	356	05
210	358	06
270	353	05
330	345	04
390	332	02
500	199	02
650	164	06
800	157	09
950	161	10
1150	192	09
1350	195	08
1550	200	06
1750	M I S G	
2000	M I S G	

Data obtained from Double Theodolite
 Tracked Pilot-Balloon Observations.

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	350	02
150	350	05
210	349	04
270	340	02
330	225	01
390	184	03
500	175	07
650	172	09
800	172	10
950	184	08
1150	220	07
1350	235	08
1550	237	08
1750	217	06
2000	192	05

Data obtained from Single Theodolite
 Tracked Pilot-Balloon Observations.

TABLE 5

AIMING AND T-TIME COMPUTER MET MESSAGES
13 Aug 1981

WSD 0600 MDT
METCM1324064
131200122880
00027004 29360880
01640004 29420870
02209005 29460845
03304006 29250807
04330010 28980761
05412005 28570717
06409005 28140675
07401009 27750635
08462008 27370597
09412010 27030561

WSD 0737 MDT
METCM1324064
131360122881
00027004 29500881
01006007 29430871
02229003 29490846
03296007 29320808
04385007 29080762
05397004 28650718
06387004 28250677
07423008 27860637
08437005 27450599
09385007 27060562

WSD 0900 MDT
METCM1324064
131500122882
00631004 29700882
01626004 29510872
02220001 29430847
03313006 29320808
04344006 28980762
05347004 28570719
06363006 28180677
07477007 27810637
08378005 27410599
09387009 27070562

STATION ALTITUDE 3989.0 FEET MSL
 IS NO. 01
 ASSEMBLY NO. 019

SIGNIFICANT LEVEL DATA

22500, 0.009
 WHITE 30105

GEODETIC COORDINATES
 32-40043 LAT DEG
 106-37033 LONG DEG

TABLE 6

PRESSURE (BAR)	GEOMETRIC ALTITUDE (FEET)	TEMPERATURE (DEGREES CELSIUS)	RELATIVE HUMIDITY (%)
379.9	3989.0	17.5	92.0
377.0	4102.0	16.6	95.0
364.1	4303.1	19.5	75.0
350.0	4486.1	19.0	67.0
337.0	4681.7	19.8	67.0
328.6	4775.2	16.7	94.0
298.6	5724.2	15.3	98.0
279.8	7091.0	16.0	75.0
266.8	8079.8	14.6	71.0
252.4	9134.8	12.0	64.0
200.0	10375.7	9.0	60.0
187.8	11154.5	6.0	76.0
154.0	12524.2	5.1	82.0
149.2	12814.2	4.5	85.0
113.6	15018.5	2.0	56.0
96.0	16037.7	-1	43.0
79.2	17044.5	-2.4	65.0
53.4	19271.1	-4.3	62.0
51.8	19245.3	-6.7	95.0
51.0	19734.2	-7.3	62.0
50.0	19241.7	-7.7	77.0
471.6	20723.3	-10.3	19.0
453.1	21742.0	-12.0	64.0
430.9	23002.5	-14.1	56.0
410.6	24002.2	-16.5	53.0
400.0	24047.6	-18.2	74.0

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.57033 LONG DEG

UPPER AIR DATA
 24000 FT
 DATE 3/19/59

STATION ALTITUDE 3002.0 FEET SL
 13 DEG 41' 56" NRS (DI)
 ASCENDING NO. 543

TABLE 7 CON'T

GEODETIC ALTITUDE ASL FEET	PRESSURE MILLIBARS	TEMPERATURE DEGREES CELSIUS	RELATIVE HUMIDITY PERCENT	WIND VELOCITY METERS PER SECOND	WIND DIRECTION DEGREES (TN)	WIND SPEED KNOTS	INDEX OF REFRACTION
2950.0	42.4	-15.1	43.1	50.0			1.000122
2900.0	41.6	-16.1	50.1	50.0			1.000130
2850.0	40.7	-17.3	52.7	51.0			1.000129

STATION NUMBER 3090.00 FULTON
 13 AUG 61 0601RS MD
 ACCESSION NO. 349

WIND DIRECTION
 2000
 WIND SPEED

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.37033 LONG DEG

TABLE 8

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
		AIR DEGREES CENTIGRADE	WET BULB DEGREES CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
1000.0	472.	14.0	12.7	67.	104.0	1.9
990.0	6070.	15.5	15.1	67.	173.0	7.5
750.0	8970.	13.0	9.9	70.	193.9	8.5
700.0	10300.	11.	5.7	60.	233.5	4.5
650.0	12300.	9.6	-1.1	60.	225.4	7.1
600.0	14400.	8.	-11.2	41.	233.4	8.6
550.0	16750.	-0.5	-10.9	35.	232.5	11.7
500.0	19240.	-7.7	-14.7	37.	210.2	10.1
450.0	21311.	-12.3	-18.9	60.	194.5	15.9
400.0	24000.	-17.2	-21.7	74.		

STATION ALTITUDE 5000 FEET MSL
 25 AUGUST 1951
 0737 HRS EDT
 ACRES 100.00

SIGNIFICANT LEVEL DATA

22500.0 HPa
 WHITE SANDS

GEODETIC COORDINATES
 32.40043 LAT DEG
 106.57033 LONG DEG

TABLE 9

PRESSURE MILLIBARS	GEODETIC ALTITUDE FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES CELSIUS	WET BULB DEGREES CELSIUS	
331.4	5000.0	19.0	15.2	34.0
377.4	4117.5	18.0	15.7	76.0
467.6	4054.4	19.0	14.5	74.0
550.0	5415.3	19.5	15.4	69.0
428.6	5737.3	18.8	15.9	73.0
793.6	6736.6	16.4	15.0	95.0
786.6	7702.3	17.0	15.5	74.0
761.8	8100.2	15.5	16.5	71.0
733.8	9141.4	12.5	9.5	92.0
700.0	10030.1	10.0	5.0	71.0
609.4	11520.2	7.0	2.7	74.0
600.0	12430.6	6.4	2.6	60.0
606.0	14322.9	1.9	-10.9	38.0
597.0	14719.0	.7	-9.0	45.0
562.6	16270.6	-3.0	-6.1	68.0
551.5	16794.7	-4.0	-5.7	92.0
545.6	17473.3	-5.1	-6.5	77.0
534.4	17603.9	-6.2	-6.9	75.0
500.0	1817.2	-8.1	-14.1	62.0

UPPER AIR DATA
 2.3600000
 2.40043 LAT DEG
 100.37053 Lon DEG

UPPER AIR DATA
 2.3600000
 2.40043 LAT DEG
 100.37053 Lon DEG

TABLE 10

GEOMETRIC ALTITUDE FEET	PRESSURE MILLIBARS	TEMPERATURE DEGREES CELSIUS	REL. HUM. PERCENT	GEOMETRIC ALTITUDE METERS	WIND DIRECTION DEGREES (TD)	WIND SPEED KNOTS	INDEX OF REFRACTION
3000.0	601.04	19.0	80.0	1042.7	19.0	4.1	1.000314
4000.0	531.41	10.9	83.5	1042.7	15.4	4.0	1.000313
4500.0	462.66	19.0	75.5	1029.7	47.0	2.3	1.000310
5000.0	393.5	19.5	68.2	1009.5	109.1	2.4	1.000293
5500.0	325.0	19.0	71.4	989.2	137.5	4.2	1.000290
6000.0	256.9	18.2	70.8	974.2	134.4	6.0	1.000291
6500.0	187.5	17.5	69.6	966.5	130.1	7.0	1.000292
7000.0	118.3	16.7	63.1	944.3	170.9	7.6	1.000262
7500.0	77.0	16.5	73.0	924.6	196.2	6.9	1.000269
8000.0	70.5	15.7	71.5	910.4	210.5	6.4	1.000262
8500.0	75.0	14.5	75.2	904.5	214.4	5.2	1.000256
9000.0	73.5	12.0	80.5	892.7	210.9	4.2	1.000255
9500.0	72.5	11.8	79.0	880.4	219.9	4.0	1.000247
10000.0	71.5	10.8	74.7	860.0	222.4	3.9	1.000239
10500.0	69.5	9.8	71.2	855.7	222.2	4.2	1.000232
11000.0	60.7	8.0	72.4	849.0	230.2	4.7	1.000227
11500.0	67.5	7.4	73.0	832.5	233.8	5.1	1.000222
12000.0	66.9	6.5	61.9	826.7	239.0	5.6	1.000212
12500.0	64.7	5.5	55.6	808.7	239.0	6.3	1.000205
13000.0	63.0	4.5	50.7	796.8	241.1	6.6	1.000199
13500.0	62.4	3.5	45.9	785.1	241.5	6.3	1.000193
14000.0	61.2	2.5	41.1	773.0	240.8	6.0	1.000187
14500.0	60.2	1.4	41.1	762.0	239.5	5.6	1.000184
15000.0	59.6	0	47.1	751.7	232.4	5.4	1.000183
15500.0	57.5	-1.2	56.5	740.7	221.5	5.4	1.000181
16000.0	56.6	-2.3	63.9	729.0	217.1	6.6	1.000180
16500.0	55.4	-3.7	70.5	719.3	210.5	6.2	1.000179
17000.0	54.7	-5.0	80.9	707.1	210.5	10.1	1.000176
17500.0	53.0	-6.9	91.5	696.0	219.0	12.2	1.000174
18000.0	52.5	-8.6	97.4	680.4	210.7	1.000170	
18500.0	51.2	-7.2	77.8	674.7	210.5	1.000165	
19000.0	50.2	-7.7	68.1	663.0	210.5	1.000160	

STATION ALTITUDE 5084.00 FEET ASL
 13 AUG 61
 ASCENDING NO. 000

LOADS TOBT 0000
 2500Z 0000
 WHITE 00000

COLLECTIVE COORDINATES
 30.40043 LAT DEG
 100.37033 LONG DEG

TABLE 11

PRESSURE MILLIBARS	GEOMETRICAL FEET	TEMPERATURE AIR DEG FES	TEMPERATURE DE POINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	WIND DATA DIRECTION SPEED GUSTS(MPH)	WIND DATA DIRECTION SPEED GUSTS
850.0	5012.	10.5	13.4	00.	110.4	7.4
800.0	6722.	10.6	15.0	05.	171.7	7.5
750.0	8320.	14.7	16.0	70.	214.7	9.1
700.0	10029.	10.6	5.0	71.	231.1	4.2
650.0	12037.	0.6	-2.5	50.	230.5	0.2
600.0	14009.	1.1	-10.2	40.	259.1	5.5
550.0	16013.	-0.7	-6.4	00.	217.0	9.6
500.0	19000.	-0.1	-14.1	00.		

STATION ALTITUDE 5000 FEET
 13 AUG. 51
 ASCENDING 10. 501

TEMPERATURE LEVEL DATA
 22500, 1000
 05.11 00.00

of GALILEO COORDINATES
 52.40043 LAT DEG
 100.57033 LONG DEG

TABLE 12

PRESSURE MILLIBARS	GALILEO ALTITUDE FEET	TEMPERATURE		RELATIVE PERCENT
		AIR DEGREES CENTIGRADE	WET BULB DEGREES CENTIGRADE	
641.7	5089.0	21.5	16.5	75.0
670.6	4472.1	18.8	15.0	72.0
652.6	5026.0	19.8	12.5	67.0
642.2	5286.7	18.6	15.7	78.0
619.2	6241.6	17.7	15.1	65.0
604.8	6568.8	17.5	12.0	73.0
780.0	7233.0	16.5	11.5	69.0
730.0	6049.8	12.5	8.4	76.0
721.0	9529.7	11.5	5.2	66.0
700.0	10459.4	9.1	5.5	66.0
676.4	11371.5	7.1	1.0	68.0
632.6	13171.6	3.0	-0.9	40.0
606.6	14287.9	1.5	-10.5	91.0
587.1	15149.7	-0.9	-7.9	59.0
581.2	15414.9	-1.2	-11.0	47.0
564.6	16172.7	-2.8	-12.5	47.0
539.6	17340.5	-4.0	-5.0	77.0
506.0	19411.1	-8.5	-13.7	66.0

STATION ALTITUDE 5983.00 FEET
 13 APR 51 0900 HRS MDT
 ASCENSION NO. 001

UPPER AIR DATA
 25000 FT
 WIND 0000

GEODETIC COORDINATES
 32.40043 LAT N
 116.57033 LONG W

TABLE 13

STATION ALTITUDE FEET	PRESSURE MILLIBARS	AIR DENSITY GRAMS PER CUBIC CENTIMETER	REL. HUM. PERCENT	WIND DIRECTION DEGREES	WIND SPEED KNOTS	WIND GUSTS KNOTS	WIND VELOCITY KNOTS	REFRACTIVE INDEX
5983.0	661.7	0.105	73.0	103.0	0.714	350.0	4.1	1.000312
4000.0	831.1	0.104	73.0	103.0	0.714	350.1	4.0	1.000312
3500.0	860.0	0.104	73.9	102.0	0.714	2.4	1.9	1.000247
3000.0	890.0	0.104	73.2	100.0	0.714	11.0	2.5	1.000290
2500.0	920.0	0.104	73.6	99.1	0.714	13.4	2.5	1.000295
2000.0	950.0	0.104	73.2	97.1	0.714	15.0	4.4	1.000294
1500.0	980.0	0.104	73.0	96.0	0.714	17.0	6.1	1.000282
1000.0	1010.0	0.104	73.0	95.0	0.714	19.0	6.7	1.000272
750.0	1040.0	0.104	73.1	93.0	0.714	14.4	7.0	1.000265
500.0	1070.0	0.104	73.1	91.0	0.714	13.0	6.1	1.000260
250.0	1100.0	0.104	74.7	90.0	0.714	20.0	5.1	1.000255
0.0	1130.0	0.104	75.3	89.0	0.714	19.0	4.9	1.000250
9000.0	737.7	0.105	67.9	82.0	0.714	15.0	4.7	1.000240
8500.0	724.4	0.105	67.9	82.0	0.714	15.0	5.1	1.000234
8000.0	711.1	0.105	66.9	81.0	0.714	15.0	5.4	1.000228
7500.0	697.8	0.105	66.0	80.0	0.714	15.0	5.6	1.000223
7000.0	684.5	0.105	65.6	79.0	0.714	15.0	5.8	1.000218
6500.0	671.2	0.105	65.6	78.0	0.714	15.0	5.9	1.000210
6000.0	657.9	0.105	65.6	77.0	0.714	15.0	6.1	1.000204
5500.0	644.6	0.105	65.6	76.0	0.714	15.0	6.1	1.000197
5000.0	631.3	0.105	65.6	75.0	0.714	15.0	5.6	1.000192
4500.0	618.0	0.105	65.6	74.0	0.714	15.0	5.4	1.000188
4000.0	604.7	0.105	65.6	73.0	0.714	15.0	5.4	1.000185
3500.0	591.4	0.105	65.6	72.0	0.714	15.0	7.2	1.000178
3000.0	578.1	0.105	65.6	71.0	0.714	15.0	7.6	1.000175
2500.0	564.8	0.105	65.6	70.0	0.714	15.0	8.1	1.000174
2000.0	551.5	0.105	65.6	69.0	0.714	15.0	8.2	1.000172
1500.0	538.2	0.105	65.6	68.0	0.714	15.0	6.5	1.000163
1000.0	524.9	0.105	65.6	67.0	0.714	15.0	6.5	1.000164
500.0	511.6	0.105	65.6	66.0	0.714	15.0	6.5	1.000160

STATION ALTITUDE 2930.0 FEET LSL
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GEODETIC COORDINATES
 02.40093 LAT (EN)
 106.57033 LONG (EN)

TABLE 74

DEPTH (M)	DEPTH (FEET)	PRESSURE (GEOPHYSICAL)	TEMPERATURE (AIR)	TEMPERATURE (SURFACE)	SALINITY (PERCENT)	WIND DATA (DIRECTION DEGREES (TN))	WIND DATA (SPEED KNOTS)
100.0	500.0	5002.0	17.0	12.0	76	121.0	0.6
190.0	673.2	6732.0	17.2	12.2	72	177.9	0.6
290.0	853.5	8535.0	17.5	9.0	74	200.9	0.4
390.0	1042.9	10429.0	17.1	3.5	63	190.1	0.1
490.0	1241.1	12411.0	17.0	-3.5	52	252.4	0.5
590.0	1440.0	14400.0	17	-6.0	47	211.0	0.5
690.0	1640.0	16400.0	17	-9.0	44	223.1	0.2
790.0	1930.4	19304.0	17	-13.7	43		

81