

AD-A137 295

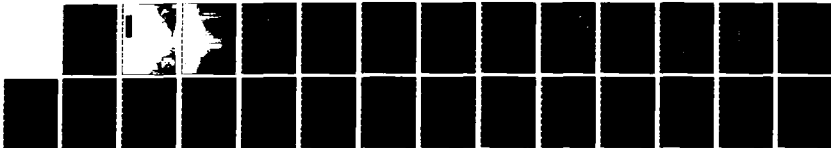
19313AT MLRS MISSILE NUMBER 4682 3726 3615 3693 4685
ROUND NUMBER 510 THRU 514(U) ARMY ELECTRONICS RESEARCH
AND DEVELOPMENT COMMAND WSMR NM ATM. D C KELLER
NOV 83 ERADCOM/ASL-DR-1323

1/1

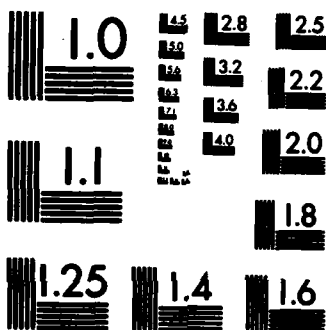
UNCLASSIFIED

F/G 4/2

NL

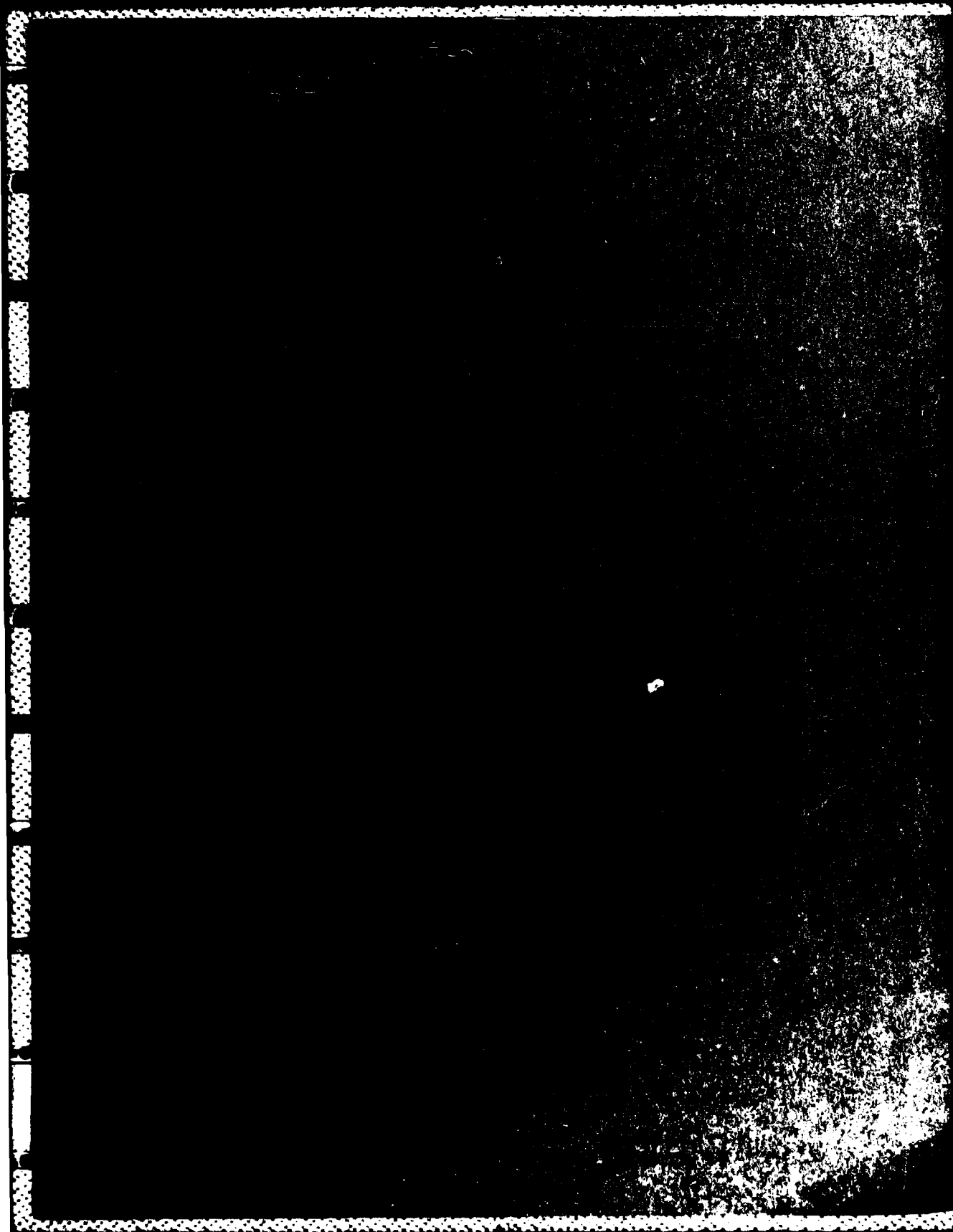


END
FILMED
DATE



MICROCOPY RESOLUTION TEST CHART
 NATIONAL BUREAU OF STANDARDS-1963-A

AD A 137295



DISCLAIMER NOTICE

THIS DOCUMENT IS BEST QUALITY PRACTICABLE. THE COPY FURNISHED TO DTIC CONTAINED A SIGNIFICANT NUMBER OF PAGES WHICH DO NOT REPRODUCE LEGIBLY.

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER DR-1323	2. GOVT ACCESSION NO. A137293	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) 19313AT MLRS Missile Number 4682, 3726, 3615, 3693, 4685 Round Number 510 thru 514	5. TYPE OF REPORT & PERIOD COVERED	
	6. PERFORMING ORG. REPORT NUMBER	
7. AUTHOR(s) White Sands Meteorological Team	8. CONTRACT OR GRANT NUMBER(s) DA Task 1F665702D127-02	
9. PERFORMING ORGANIZATION NAME AND ADDRESS	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS	
11. CONTROLLING OFFICE NAME AND ADDRESS US Army Electronics Research & Development Cmd Atmospheric Sciences Laboratory White Sands Missile Range, New Mexico 88002	12. REPORT DATE 9 November 1983	
	13. NUMBER OF PAGES 24	
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) US Army Electronics Research and Development Cmd Adelphi, MD 20783	15. SECURITY CLASS. (of this report) UNCLASSIFIED	
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
16. DISTRIBUTION STATEMENT (of this Report)		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report) Approved for public release; distribution unlimited.		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of the 19313AT MLRS, Missile Number 4682, 3726, 3615, 3693, 4685, Round Number 510 thru 514 are presented in tabular form.		

CONTENTS

PAGE

INTRODUCTION-----	1
DISCUSSION-----	1
GENERAL AREA MAP-----	2
LAUNCH AREA DIAGRAM-----	3
TABLES:	
1. Surface Observation taken at 1221 MST at Tula Gate-----	4
2. Anemometer Measured Wind Data at 30 ft. AGL-----	5
3. Anemometer Measured Wind Data at 60 ft. AGL-----	6
4. Anemometer Measured Wind Data at 90 ft. AGL-----	7
5. T-Time Pilot-Balloon Measured Wind Data-----	8
6. Aiming and T-Time Met Messages-----	9
7. RITA Significant Level Data at 0800 MST-----	10
8. RITA Upper Air Data at 0800 MST-----	11
9. RITA Mandatory Levels at 0800 MST-----	13
10. RITA Significant Level Data at 1100 MST-----	14
11. RITA Upper Air Data at 1100 MST-----	15
12. RITA Mandatory Levels at 1100 MST-----	17
13. RITA Significant Level Data at 1215 MST-----	18
14. RITA Upper Air Data at 1215 MST-----	19
15. RITA Mandatory Levels at 1215 MST-----	21

INTRODUCTION

19313AT MLRS, Missile Numbers 4682, 3726, 3615, 3693, and 4685. Round Numbers 510 thru 514, were launched from Tula Gate, White Sands Missile Range (WSMR), New Mexico, at 1221:18, 1221:22, 1221:27, 1221:31, and 1221:36 MST, 9 Nov 1983. The scheduled launch times were 1130 MST with a 4.5 second separation.

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 direction and speed, and cloud cover were made at the Tula Gate Met Site at T-0 minutes.

(2) Anemometer data were provided from existing tower-mounted anemometers at Tula Gate. 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

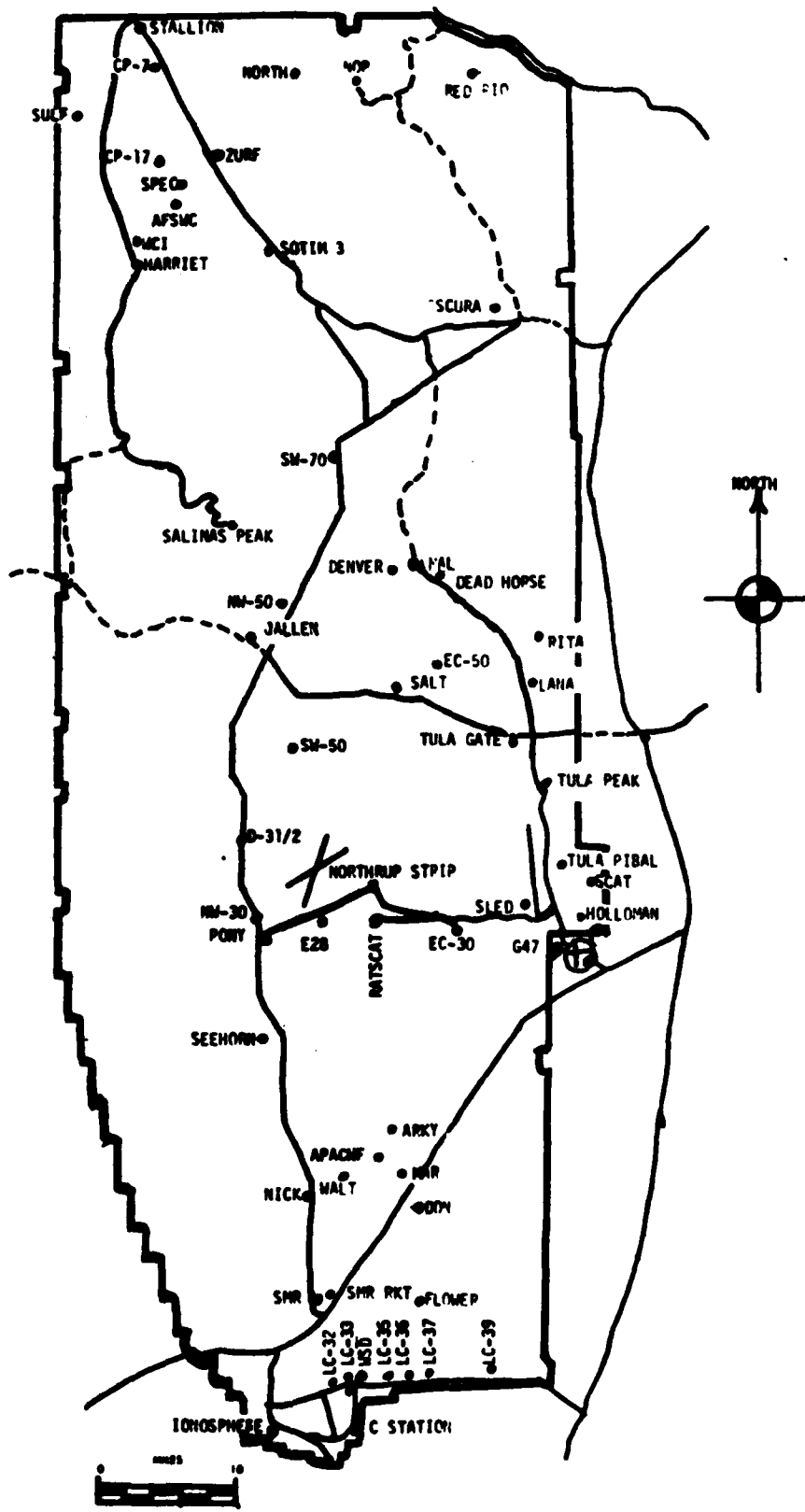
Tula Gate 2 km
MAL 2 km

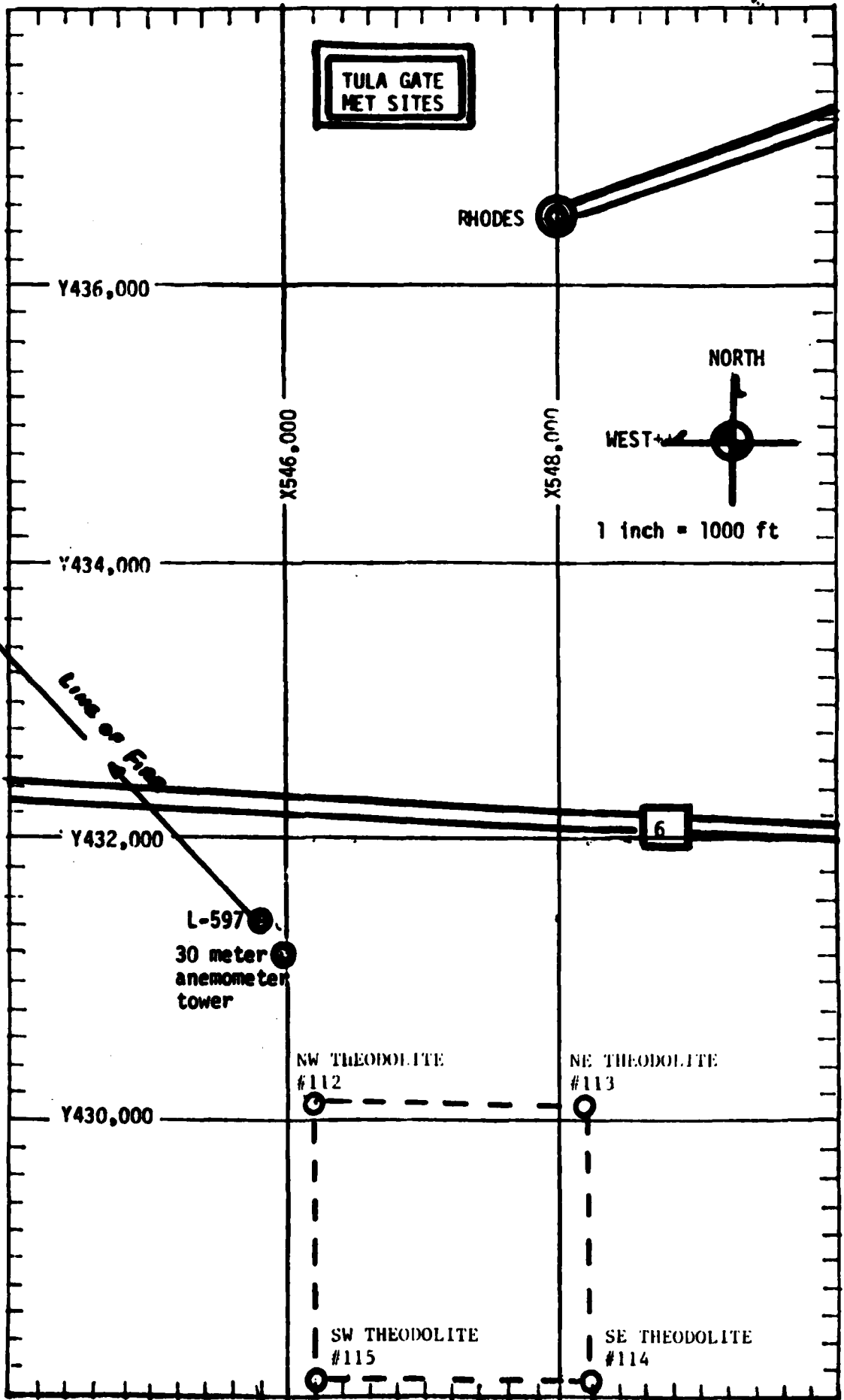
(2) Air structure data (rawinsonde) were collected at the following Met Sites.

SITE AND TIME
RITA 0800 MST
RITA 1100 MST
RITA 1215 MST

Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By _____	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	D

WSMR METEOROLOGICAL SITES





PROJECT SURFACE OBSERVATION

STATION: Tula Gate													
TABLE 1		DATE 09		11		83		X= 545,785.2		Y= 431,459.0		H= 4103.3	
DAY		MONTH		YEAR									
TIME M S T	PRESSURE mbs	TEMPERATURE OF	TEMPERATURE OC	DEW POINT OF	DEW POINT OC	RELATIVE HUMIDITY %	DENSITY gm/m ³	DIRECTION degs In	WIND SPEED kts	CHARACTER kts	VISIBIL- ITY		
1221	881.1		14.0		-2.6	31	1068.2	350	9		30		

OBSTRUCTIONS TO VISIBILITY	CLOUDS						REMARKS	
	1st LAYER		2nd LAYER		3rd LAYER			
	AMT	HGT	AMT	HGT	AMT	HGT		
	2	ci	25,000					

PSYCHROMETRIC COMPUTATION

TIME: MST	1221
DRY BULB TEMP.	14.0
WET BULB TEMP.	6.2
WET BULB DEPR.	7.8
DEW POINT	-2.6
RELATIVE HUMID.	31

TABLE 2

ANEMOMETER DATA - 30 Ft Level of 30 Meter Tower
X= 545,944.89 Y= 431,158.70 H= 4102.47 (BASE)

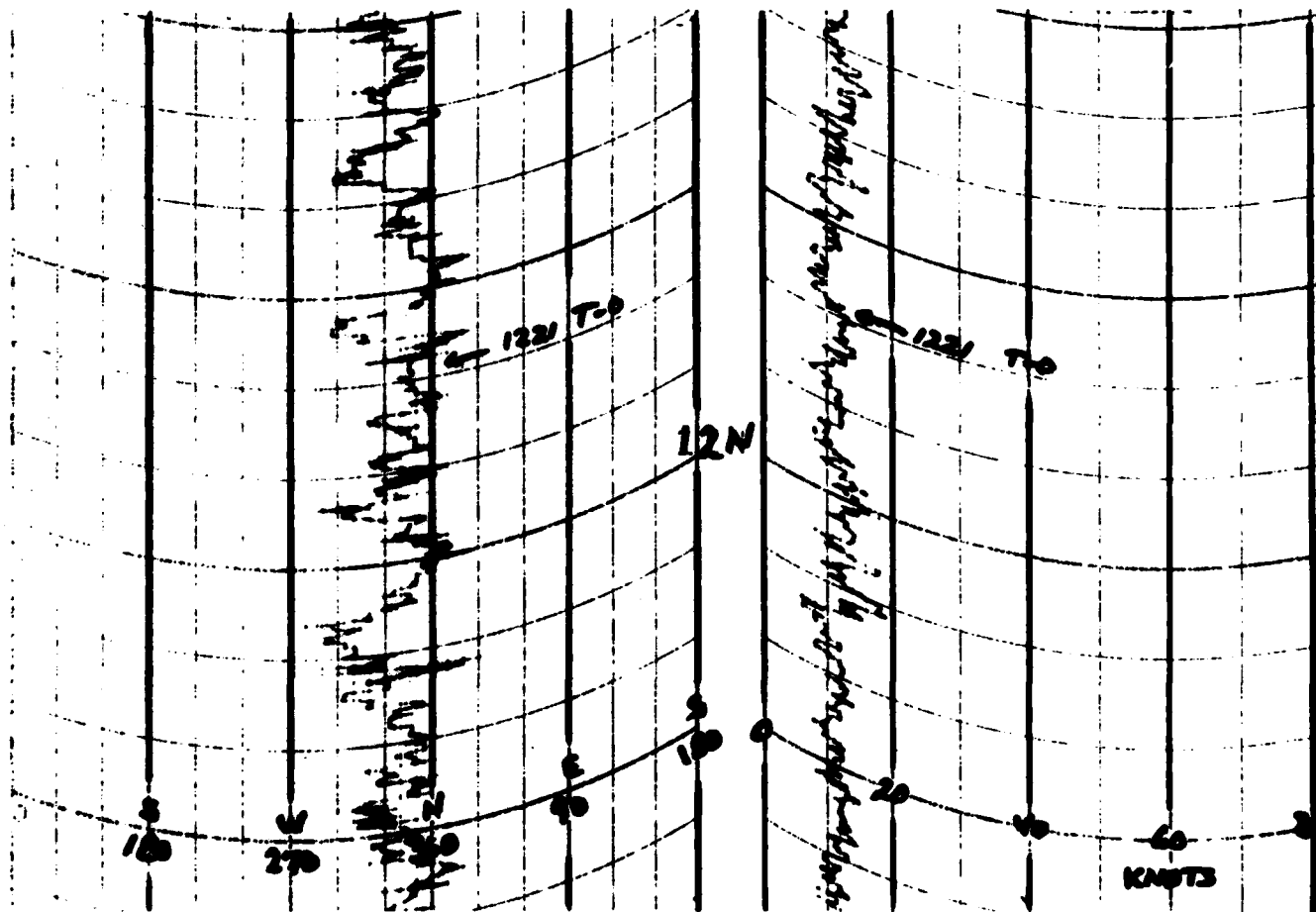


TABLE 3

ANEMOMETER DATA - 60 Ft Level of 30 Meter Tower
X= 545,944.89 Y= 431,158.70 H= 4102.47 (BASE)

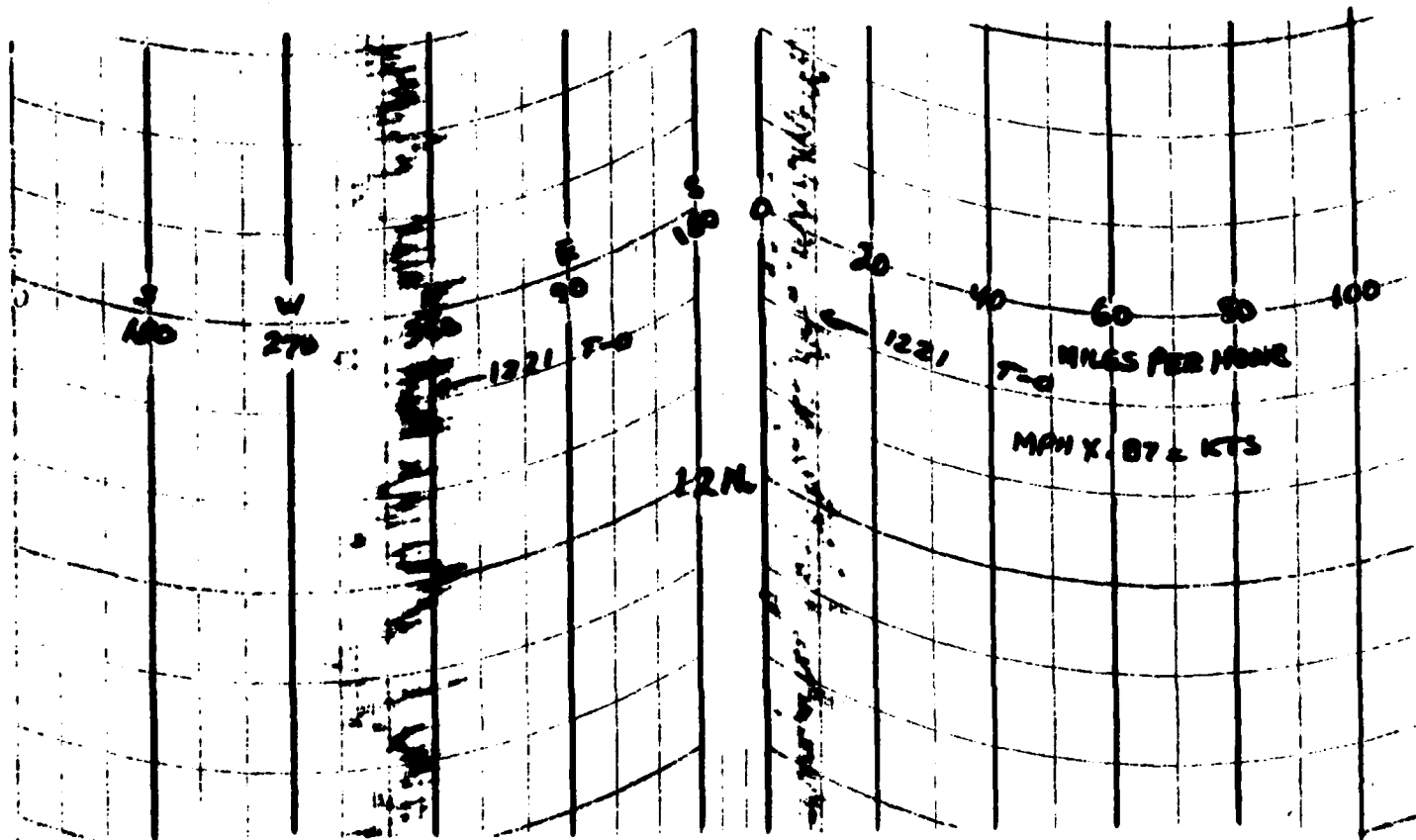
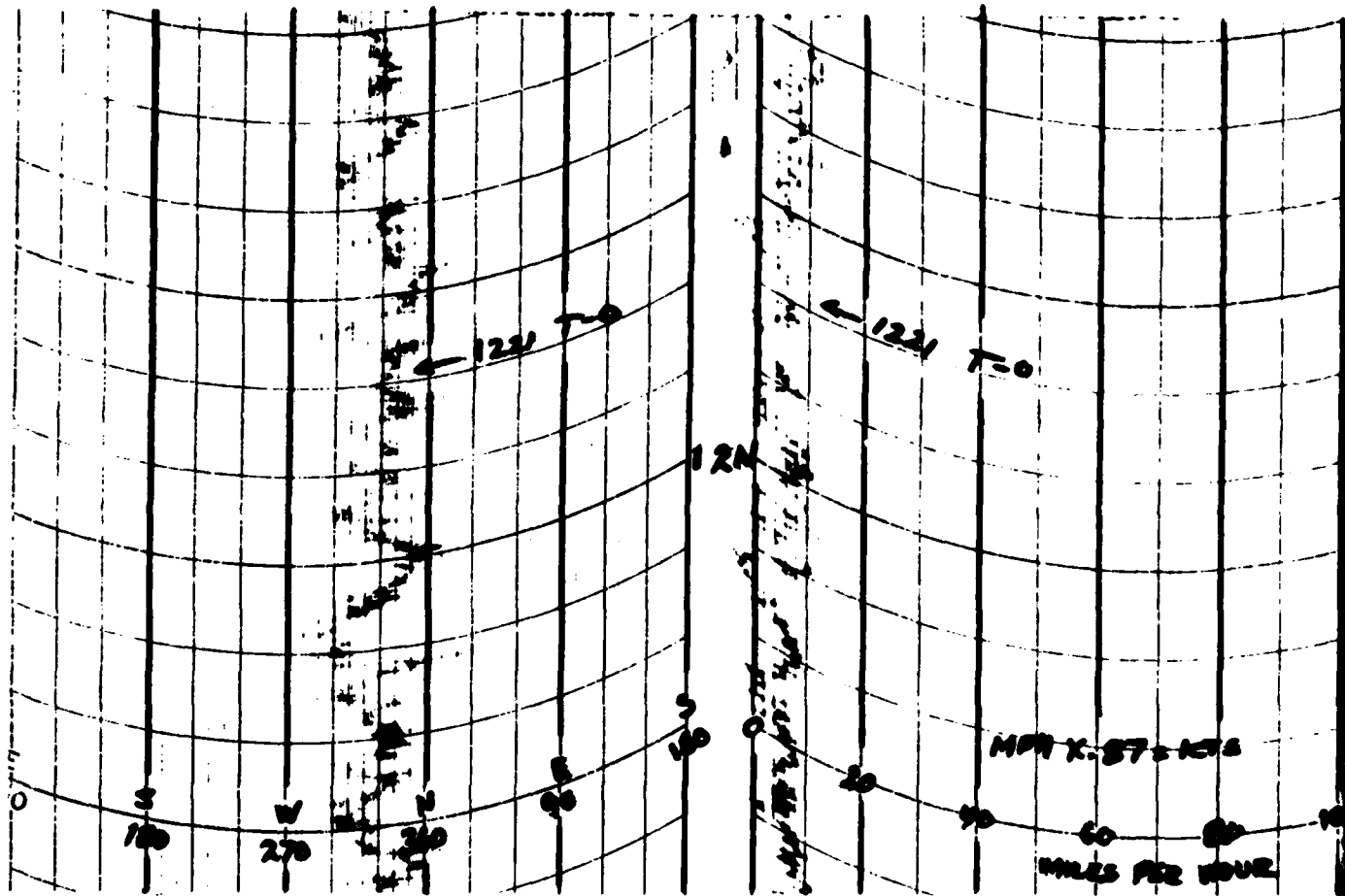


TABLE 4

ANEMOMETER DATA - 90 Ft Level of 30 Meter Tower
X= 545,944.89 Y= 431,158.70 H= 4102.47 (BASE)



T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 9 November 1983

SITE: Tula Gate
 TIME: 1221 MST
 WSTM COORDINATES:
 X= 546,204.20
 Y= 430,125.39
 H= 4,108.59

SITE: MAL
 TIME 1221 MST
 WSTM COORDINATES:
 X= 509,421.05
 Y= 497,563.78
 H= 4,133.09

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	350	09
150	355	10
210	002	12
270	354	12
330	347	11
390	339	10
500	330	09
650	333	11
800	338	12
950	003	08
1150	025	05
1350	339	08
1550	309	09
1750	287	14
2000	286	22

Data obtained from a Double
 Theodolite Tracked pilot-balloon
 observation.

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	350	08
150	348	13
210	344	13
270	342	13
330	341	12
390	347	12
500	003	12
650	011	12
800	003	14
950	353	15
1150	331	14
1350	326	21
1550	313	19
1750	288	15
2000	309	13

Data obtained from a Single
 Theodolite Tracked pilot-balloon
 observation.

TABLE 6

AIMING AND T-TIME COMPUTER M.I.T MESSAGE DATA
09 November 1983

RITA 0800 MST		RITA 1100 MST		RITA 1215 MST	
METCM1332062		METCM1332062		METCM1332062	
0911500128880		091800128882		091930128881	
00640015	28090880	00622009	28590882	00604006	28640881
01628020	28090870	01621012	28360872	01535010	28510870
02007022	27930843	02624012	28010846	02615005	28220844
03627018	27650803	03626011	27630805	03008009	27840804
04582018	27500755	04593012	27540757	04570009	27630756
05539012	27540710	05540013	27720712	05535016	27670711
06603020	27560667	06580016	27680669	06567017	27710669
07573025	27410627	07582025	27270629	07571026	27370629
08553033	27050589	08554029	26980591	08551028	27050590
09537028	26690553	09541028	26780554	09548027	26880554
10563028	26340518	10546026	26360520	10544027	26480520
11559032	25990486	11542028	25950487	11536028	26070487
12548032	25420440	12542032	25350441	12541032	25500441
13545034	24650384	13534030	24580385	13542036	24740385
14555035	23770333	14553029	23750334	14548032	23950335
15577040	22920288	15567034	22820289	15556035	23110290
16580033	22000248	16574037	21970248	16573034	22260250

STATION ALTITUDE 4186.74 FEET MSL
 9 NOV. 83
 ASCENSION NO. 9

SIGNIFICANT LEVEL DATA
 3130210009
 RITA

GEOMETRIC COORDINATES
 33.1829, LAT DEG
 106.1511, LONG DEG

Table 7

PRESSURE GEOMETRIC ALTITUDE MILLIBARS MSL FEET	TEMPERATURE AIR DEWPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT
880.2	7.0	52.0
860.8	7.5	49.0
850.0	5.9	39.0
816.2	4.0	37.0
786.6	1.9	32.0
767.0	.8	34.0
754.3	2.0	34.0
703.0	2.0	24.0
690.5	2.4	24.0
644.6	2.1	26.0
617.1	-0.3	27.0
547.8	-6.9	27.0
536.8	-8.3	39.0
500.0	-11.9	55.0
443.0	-18.7	41.0
427.9	-20.5	36.0
400.0	-25.1	39.0
384.1	-26.4	34.0
317.5	-38.9	34.0
300.0	-41.7	38.0
250.0	-52.8	
200.6	-62.5	
202.0	-62.8	
200.0	-64.9	

OPTICAL COMPANIES
 33-1829, LAI LES
 100-1511, LOI LES

100-1511, LOI LES
 33-1829, LAI LES
 PITA

Table 8

GEODETIC ALTIMETER MSL FEET	TEMPERATURE AIR MILLIGRADES DEGREES CELSIUS	RELATIVE HUMIDITY PERCENT	WIND DIRECTION, DEGREES (TD)	WIND DATA SPEED, KNOTS	INDEX OF REFRACTION
4186.7	88.0	52.0	300.0	15.0	1.000208
4500.0	87.0	46.7	0.3	15.6	1.000203
5000.0	85.0	39.2	0.0	16.7	1.000204
5500.0	83.0	36.3	1.0	17.7	1.000249
6000.0	82.0	36.8	1.3	18.8	1.000245
6500.0	80.0	35.0	350.2	19.3	1.000240
7000.0	79.0	31.4	343.4	20.0	1.000234
7500.0	77.0	31.8	340.5	19.7	1.000230
8000.0	75.0	34.0	330.0	18.1	1.000227
8500.0	73.0	33.0	320.0	16.7	1.000223
9000.0	73.0	30.5	312.1	14.4	1.000218
9500.0	72.0	28.0	307.3	13.0	1.000213
10000.0	70.0	25.5	313.3	12.5	1.000208
10500.0	68.0	24.0	320.7	12.9	1.000204
11000.0	68.0	24.4	329.2	15.9	1.000201
11500.0	66.0	24.9	334.9	17.1	1.000197
12000.0	65.0	25.5	332.8	22.7	1.000194
12500.0	64.0	26.0	330.5	26.8	1.000191
13000.0	63.0	26.5	325.0	28.5	1.000187
13500.0	62.0	26.9	319.1	29.7	1.000184
14000.0	60.0	27.0	314.0	30.5	1.000181
14500.0	58.0	27.0	303.8	30.2	1.000178
15000.0	56.0	27.0	300.4	29.8	1.000175
15500.0	54.0	27.0	304.8	28.7	1.000172
16000.0	53.0	27.0	303.5	27.7	1.000169
16500.0	52.0	27.0	305.5	27.0	1.000166
17000.0	51.0	31.9	307.0	26.4	1.000164
17500.0	51.0	35.9	310.6	27.5	1.000162
18000.0	51.0	35.6	310.6	28.7	1.000159
18500.0	50.0	35.3	315.1	30.0	1.000156
19000.0	49.0	35.0	315.4	31.2	1.000153
19500.0	48.0	35.9	315.3	32.7	1.000151
20000.0	48.0	36.9	314.4	32.7	1.000148
20500.0	47.0	37.0	313.4	33.1	1.000146
21000.0	46.0	38.0	311.0	32.8	1.000143
21500.0	45.0	39.0	309.9	32.6	1.000141
22000.0	44.0	40.0	308.0	31.2	1.000139
22500.0	43.0	39.3	305.0	29.7	1.000136
23000.0	42.0	36.0	303.7	29.6	1.000133
23500.0	41.0	36.0	300.2	29.0	1.000131

OPTIC COMMERCIALS
33-1020, LAI 116
106-15116, LOI 116

REFRACTIVE INDEX
1.000127
1.000125
1.000122
1.000120
1.000118
1.000116
1.000114
1.000112
1.000111
1.000109
1.000107
1.000103
1.000101
1.000099
1.000098
1.000096
1.000095
1.000093
1.000091
1.000090
1.000088
1.000087
1.000085
1.000084
1.000082
1.000081
1.000079
1.000077
1.000075

30.0
32.2
33.3
34.2
34.7
34.7
34.6
34.0
33.8
34.9
36.0
38.3
40.6
41.7
42.0
42.4
41.3
39.9
38.5
37.4
36.2
35.0
33.4
31.8
29.8
29.0
30.2
32.1
34.0

506.4
500.4
500.1
505.0
505.7
500.3
507.3
500.9
510.0
512.0
513.9
510.2
519.0
521.3
522.0
523.0
524.3
525.0
525.4
525.9
526.3
520.7
527.1
524.0
523.0
524.1
528.5
528.0
527.7

770.5
615.1
615.0
615.7
612.9
612.0
612.0
616.2
600.5
600.7
600.9
600.9
603.1
601.3
599.5
597.7
590.0
590.0
593.2
591.5
599.7
597.4
590.1
594.3
592.5
590.7
590.6
577.1
575.4
573.7
572.0
570.3
560.7
560.7
565.1
565.4
565.1

36.0
36.0
35.0
34.0
34.5
34.9
35.4
35.8
36.3
36.7
37.2
37.6
35.2
20.2
5.3

-30.4
-35.7
-36.0
-37.2
-38.7
-41.0
-42.1
-43.3
-44.3
-45.0
-46.0
-46.0
-46.0
-44.3
-65.4

-23.6
-25.0
-25.7
-26.4
-27.4
-29.3
-30.7
-32.1
-33.5
-34.9
-35.3
-37.0
-39.1
-40.2
-41.3
-42.6
-44.0
-45.4
-46.0
-46.0
-49.6
-51.0
-52.4
-53.7
-55.0
-56.3
-57.6
-58.9
-60.1
-61.4
-62.8
-62.8

400.0
400.4
392.1
393.9
373.7
367.0
359.9
352.2
344.7
337.3
330.1
323.1
316.2
309.2
302.4
295.6
288.9
282.9
275.9
273.9
267.7
260.0
251.7
245.0
240.0
234.3
228.7
223.3
218.0
212.8
207.7
202.7

24000.0
24500.0
25000.0
25500.0
26000.0
26500.0
27000.0
27500.0
28000.0
28500.0
29000.0
29500.0
30000.0
30500.0
31000.0
31500.0
32000.0
32500.0
33000.0
33500.0
34000.0
34500.0
35000.0
35500.0
36000.0
36500.0
37000.0
37500.0
38000.0
38500.0
39000.0
39500.0

GROUND
ALTITUDE
MSL FEET

PRESSURE
MILLIBARS

TEMPERATURE
DEGREES CELSIUS

RELATIVE
HUMIDITY
PERCENT

WIND
DIRECTION
DEGREES TRUE

WIND
SPEED
KNOTS

WIND
SPEED
KNOTS

WIND
DIRECTION
DEGREES TRUE

WIND
SPEED
KNOTS

WIND
DIRECTION
DEGREES TRUE

WIND
SPEED
KNOTS

WIND
DIRECTION
DEGREES TRUE

WIND
SPEED
KNOTS

WIND
DIRECTION
DEGREES TRUE

WIND
SPEED
KNOTS

WIND
DIRECTION
DEGREES TRUE

WIND
SPEED
KNOTS

WIND
DIRECTION
DEGREES TRUE

WIND
SPEED
KNOTS

WIND
DIRECTION
DEGREES TRUE

WIND
SPEED
KNOTS

WIND
DIRECTION
DEGREES TRUE

WIND
SPEED
KNOTS

WIND
DIRECTION
DEGREES TRUE

WIND
SPEED
KNOTS

WIND
DIRECTION
DEGREES TRUE

WIND
SPEED
KNOTS

WIND
DIRECTION
DEGREES TRUE

INDEX
OF
REFRACTION

Table 8 (cont'd)

AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATIONS.

STATION ALTITUDE 1106.74 FEET MSL
 4 NOV. 63
 ASULSISJJI 110.

TEMPERATURE LEVELS
 3130210009
 PITA

GEOLITIC COORDINATE:
 33-1629, LAT DEG
 106-15114 LONG DEG

Table 9

PRESSURE (GEOPOTENTIAL)	AIR TEMPERATURE	REL. HUMID.	WIND DATA
MILLIBARS	DEGREES CENTIGRADE	PERCENT	DIRECTION (TH) SPEED (KNOTS)
850.0	5.9	36.	07
800.0	2.0	33.	352.3
750.0	2.0	33.	321.3
700.0	2.0	24.	310.8
650.0	2.1	20.	331.6
600.0	-1.9	27.	311.0
550.0	-6.7	27.	305.3
500.0	-11.9	35.	315.4
450.0	-17.8	40.	309.3
400.0	-25.1	36.	300.4
350.0	-32.5	36.	309.5
300.0	-41.7		321.0
250.0	-52.8		320.0
200.0	-64.9		

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

GEOMETRIC COORDINATES
 33.1629. LAT DEG
 106.1511. LONG DEG

SIGNIFICANT LEVEL DATA
 1100210010
 DATA

STATION: ALTITUDE 4140.74 FEET ASL
 4.029. 2.3
 1100 INCH. PST
 1100

Table 10

PRESSURE	GEOMETRIC ALTITUDE	TEMPERATURE AIR	TEMPERATURE DEW POINT	REL. HUM. PERCENT
MILLIBARS	FEET	DEGREES	DEGREES	
88.2	4130.7	11.7	2.7	59.0
86.7	4700.2	8.5	-11.1	24.0
85.0	5197.6	7.1	-11.1	26.0
83.5	5703.4	2.5	-13.7	29.0
79.3	7099.0	2.5	-13.2	29.0
78.6	7401.6	1.0	-17.0	23.0
76.8	8113.0	1.3	-19.1	20.0
74.0	8730.1	2.6	-17.5	21.0
72.9	9082.3	3.0	-17.7	19.0
715.1	9703.5	3.5	-10.5	18.0
700.0	10364.7	4.1	-10.0	18.0
671.7	11460.8	4.1	-17.4	19.0
621.7	13511.4	-1.6	-21.6	20.0
587.2	14993.0	-4.1	-24.8	18.0
574.4	15389.7	-3.6	-24.4	18.0
565.9	15950.5	-4.2	-19.9	28.0
500.0	19117.1	-12.3	-20.3	30.0
475.1	20394.1	-15.2	-27.2	35.0
444.1	22057.9	-19.5	-25.6	57.0
437.8	22400.5	-20.5	-20.0	51.0
432.9	22680.4	-20.9	-30.4	42.0
400.0	24587.5	-24.8	-35.2	37.0
396.7	24785.6	-25.3	-30.2	35.0
370.9	25875.6	-28.4	-34.0	58.0
353.1	27225.4	-32.6	-41.3	41.0
340.7	28351.7	-34.2	-45.1	32.0
317.3	29975.3	-38.8	-49.2	32.0
300.0	31730.9	-43.0		
250.0	35190.0	-53.0		
234.3	36550.5	-56.5		
220.1	37482.2	-58.7		
200.0	39000.5	-64.2		

POLYETHYLENE COMPOUNDS
 33-1020, 1A1 LEG
 106-15114 107 LEG

1070000000
 1070000000
 1070000000

1070000000
 1070000000
 1070000000

Table 11

DEPTH FEET	PRESSURE MILLIBARS	TEMPERATURE °C	DENSITY G/CM ³	SOUND VELOCITY M/SEC	REFRACTION INDEX
4100.0	482.2	11.7	2.7	1075.0	1.001274
4500.0	472.1	9.9	37.4	1071.4	1.001210
5000.0	450.2	7.6	25.1	1061.0	1.001249
5500.0	440.5	6.2	26.6	1047.0	1.001245
6000.0	434.0	4.6	27.6	1033.5	1.001242
6500.0	429.0	3.1	28.6	1019.9	1.001238
7000.0	424.0	2.3	28.1	1004.0	1.001233
7500.0	419.7	1.0	27.6	989.9	1.001228
8000.0	415.1	1.5	20.5	970.6	1.001223
8500.0	410.8	2.5	20.4	946.0	1.001219
9000.0	406.8	3.5	19.0	927.5	1.001214
9500.0	403.1	3.7	18.6	909.2	1.001210
10000.0	400.6	3.7	18.0	892.2	1.001206
10500.0	398.5	4.1	19.1	874.4	1.001202
11000.0	396.5	4.1	18.6	858.2	1.001199
11500.0	394.9	4.0	19.0	842.5	1.001195
12000.0	393.5	2.6	19.3	830.9	1.001192
12500.0	392.0	1.2	19.5	819.5	1.001189
13000.0	390.8	-0.2	19.7	808.3	1.001186
13500.0	389.0	-1.6	20.0	797.3	1.001183
14000.0	387.1	-2.4	19.3	784.6	1.001180
14500.0	385.5	-3.5	18.7	772.1	1.001177
15000.0	384.2	-4.1	18.0	759.8	1.001174
15500.0	383.4	-5.7	19.0	744.2	1.001171
16000.0	382.9	-4.5	20.0	731.4	1.001169
16500.0	382.0	-5.6	20.3	720.7	1.001167
17000.0	381.2	-6.9	20.7	710.2	1.001164
17500.0	380.7	-8.2	20.0	699.8	1.001161
18000.0	380.4	-9.4	20.3	689.6	1.001158
18500.0	380.2	-10.7	20.6	679.6	1.001156
19000.0	380.3	-12.0	20.0	669.7	1.001153
19500.0	380.4	-13.2	31.5	659.4	1.001151
20000.0	380.0	-14.5	33.5	649.2	1.001148
20500.0	379.1	-15.5	36.4	639.2	1.001146
21000.0	378.0	-16.8	43.0	629.5	1.001144
21500.0	377.0	-18.1	49.0	620.0	1.001142
22000.0	376.1	-19.4	56.2	610.6	1.001140
22500.0	375.1	-20.6	47.0	601.4	1.001137
23000.0	374.2	-21.6	41.2	591.5	1.001134
23500.0	373.4	-22.6	39.0	581.5	1.001132

OPTIC COMPUTATIONS
 33.1220, LAT DEG
 106.1511, LONG DEG

TEMP AIR DATA
 31302100110
 DATA

STATION ALTITUDE 1316.74 FT. T. L. L.
 WINDV. P.S. 1100 INT. 1.1
 ASL: 1110.10. IN

Table 11 (cont'd)

GEOMETRIC ALTITUDE	TEMPERATURE	WIND VELOCITY	WIND DIRECTION	RELATIVE HUMIDITY	WIND SPEED	WIND DIRECTION	INDEX OF REFRACTION
FEET	HILLIAMS DEGREES	DEGREES	DEGREES	PERCENT	KT/MPH	KT/MPH	
24000.0	407.0	-23.6	-37.7	38.5	372.0	613.5	1.000130
24500.0	401.5	-24.0	-35.0	37.2	362.0	614.5	1.000127
25000.0	395.1	-25.0	-35.0	37.5	353.0	612.7	1.000125
25500.0	388.4	-27.3	-34.5	38.1	345.0	610.9	1.000124
26000.0	381.4	-28.7	-34.0	38.7	337.0	609.2	1.000122
26500.0	373.4	-30.0	-33.7	39.6	328.4	607.6	1.000119
27000.0	364.1	-31.3	-33.2	40.4	320.0	606.0	1.000117
27500.0	353.9	-32.5	-41.2	41.3	311.7	604.4	1.000115
28000.0	343.9	-33.5	-43.4	38.4	302.6	603.1	1.000113
28500.0	333.9	-34.6	-45.4	37.0	294.3	601.7	1.000111
29000.0	331.2	-36.0	-46.7	32.0	286.5	599.9	1.000109
29500.0	324.0	-37.5	-48.0	32.0	278.8	598.1	1.000107
30000.0	317.0	-38.9	-49.4	31.4	271.3	596.5	1.000105
30500.0	310.0	-40.6	-55.2	18.0**	264.2	594.2	1.000104
31000.0	303.1	-42.2	-65.4	5.0**	257.3	592.0	1.000102
31500.0	296.3	-43.7			249.8	590.1	1.000100
32000.0	289.6	-44.4			242.0	588.5	1.000098
32500.0	283.0	-45.2			234.4	586.9	1.000097
33000.0	276.5	-47.5			226.9	585.3	1.000095
33500.0	270.2	-48.7			219.5	583.6	1.000093
34000.0	264.1	-50.0			212.3	582.0	1.000092
34500.0	258.1	-51.3			205.2	580.5	1.000090
35000.0	252.2	-52.5			198.2	578.7	1.000089
35500.0	246.3	-53.8			191.2	577.0	1.000087
36000.0	240.4	-55.1			184.3	575.3	1.000086
36500.0	234.4	-56.4			177.5	573.6	1.000084
37000.0	228.4	-57.6			170.8	572.0	1.000083
37500.0	222.4	-58.7			164.0	570.4	1.000081
38000.0	216.5	-59.9			157.0	568.9	1.000080
38500.0	210.7	-61.1			150.3	567.3	1.000078
39000.0	205.1	-62.3			143.7	565.7	1.000077
39500.0	200.0	-63.5			137.3	564.1	1.000075

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION: ALTITUDE 9146.74 FEET
 TIME: 09:00:00
 ALTITUDE: 9146.74
 ACCELERATION: 10

LABORATORY LEVELS
 110210010
 DATA

GEOGRAPHIC COORDINATE:
 33-1429, LAT 060
 106-1511, LONG 060

Table 12

PRESSURE GEOPHYSICAL MILLIBARS	DEPTH FEET	TEMPERATURE AT CENTIGRADE	TEMPERATURE DIFFERENCE PERCENT	ALSO DATA	
				DIRECTION (DEGREES)	SPEED (KNOTS)
690.0	5174.	7.1	-11.1	26.	352.3
600.0	5416.	2.0	-14.2	28.	347.4
750.0	8519.	2.6	-17.5	21.	327.6
700.0	10355.	4.1	-18.0	10.	300.0
650.0	12327.	1.7	-19.2	19.	320.4
600.0	14422.	-3.2	-23.0	19.	315.9
550.0	16672.	-5.1	-21.4	28.	305.3
500.0	19071.	-12.3	-26.3	30.	304.0
450.0	21703.	-18.7	-25.9	53.	304.9
400.0	24508.	-24.8	-35.2	37.	303.1
350.0	27671.	-33.0	-42.2	39.	308.0
300.0	31171.	-43.0			310.9
250.0	35116.	-53.0			325.3
200.0	39714.	-64.2			30.1

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE HAS BEEN USED IN THE INTERPOLATION.

GEODETIC COORDINATES
 33.10295 LAT DEG
 106.15114 LONG DEG

SIGNIFICANT LEVEL DATA
 1130210011
 PITA

STATION ALTITUDE TIME.74 FLY MSL
 4 NOV. 63 1215 MST
 PULLER IN NO.

Table 13

PRESSURE MILLIBARS	GEOGRAPHIC ALTITUDE MFL FEET	TEMPERATURE		H. L. WIND PERCENT
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE	
487.7	4180.7	12.7	-4.4	30.0
461.4	4794.4	10.4	-11.0	20.0
450.0	5157.4	9.3	-12.5	20.0
476.4	7509.7	2.2	-15.7	25.0
457.4	7895.5	3.1	-20.2	10.0
423.6	9062.1	3.0	-21.1	15.0
415.2	9772.9	3.5	-20.7	15.0
400.0	10345.0	3.4	-20.7	15.0
381.0	11079.6	4.7	-14.7	15.0
354.6	12093.7	3.0	-21.1	15.0
305.6	14175.9	-2.0	-25.1	15.0
270.4	15336.4	-3.5	-26.3	15.0
265.9	15949.3	-3.1	-22.3	21.0
200.0	19123.0	-11.1	-23.5	35.0
474.2	20453.8	-14.3	-21.5	54.0
434.3	22340.2	-18.5	-24.3	60.0
431.4	22790.7	-19.7	-26.0	57.0
411.5	23930.5	-22.4	-26.4	50.0
400.0	24622.1	-23.6	-30.4	53.0
377.9	25079.0	-27.1	-30.1	42.0
345.9	28059.2	-31.7	-43.7	29.0
306.7	30810.5	-39.1	-50.0	30.0
300.0	31314.0	-40.0		
250.0	35322.4	-50.4		
224.3	37620.7	-56.7		
204.2	39162.7	-60.5		
204.0	39085.6	-61.4		

OFFICIAL COMMODITIES
 33-1029- LAL (L)
 106-15110 LO (L)G

ALL DATA
 1120210011
 1118

STATION ALTITUDE 1106.74 FEET ASL
 4 NOV. 63 1215 MST
 ANALYST: J. B. 11

Table 14

GEOMETRIC ALTITUDE MSL FEET	WINDS MILES PER HOUR	TEMPERATURE BY DEW POINT DRY-BULB CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CM ³	SPEED KNOTS	DIRECTION DEGREES (T)	WIND SHEAR KNOTS	INDEX OF REFRACTION
4180.7	880.7	12.7	-0.4	30.0	1071.3	059.5	340.0	1.000250
4500.0	870.7	11.5	-7.9	24.8	1064.0	057.0	342.0	1.000253
5000.0	854.4	9.8	-12.1	20.0	1051.5	055.0	346.5	1.000246
5000.0	839.2	8.5	-12.9	20.7	1037.7	053.9	349.4	1.000242
5000.0	823.7	6.4	-12.5	21.7	1023.9	052.2	352.1	1.000234
6500.0	800.0	5.4	-14.2	22.6	1010.3	050.5	354.0	1.000235
7000.0	793.0	3.9	-14.9	23.8	995.9	048.0	346.2	1.000232
7500.0	779.0	2.5	-15.0	24.8	983.8	047.0	339.5	1.000228
8000.0	764.5	3.1	-20.0	15.9	963.5	047.7	331.0	1.000221
8500.0	750.5	3.1	-20.0	15.6	945.7	047.7	320.5	1.000217
9000.0	730.5	3.0	-20.0	15.3	928.2	047.0	312.0	1.000213
9500.0	722.0	3.1	-21.0	15.0	910.8	047.7	306.0	1.000209
10000.0	709.1	3.5	-20.7	15.0	892.5	046.1	302.1	1.000205
10500.0	693.4	3.7	-20.5	15.0	875.2	046.4	303.0	1.000201
11000.0	683.0	4.6	-10.0	15.0	856.2	049.4	300.4	1.000197
11500.0	670.4	4.0	-20.3	15.0	842.0	048.8	314.9	1.000194
12000.0	657.4	3.2	-20.9	15.0	828.9	047.0	323.7	1.000190
12500.0	643.0	2.0	-21.3	15.0	816.8	046.4	324.0	1.000187
13000.0	633.4	2.4	-22.0	15.0	805.0	045.0	324.4	1.000184
13500.0	621.5	2.4	-23.0	15.0	793.4	043.0	318.7	1.000181
14000.0	607.9	-1.6	-24.8	15.0	781.9	042.2	314.4	1.000178
14500.0	593.5	-2.4	-25.5	15.0	769.5	041.2	311.5	1.000175
15000.0	580.4	-3.1	-26.0	15.0	756.7	040.4	309.5	1.000172
15500.0	573.4	-3.4	-25.1	16.6	743.2	040.0	308.7	1.000170
16000.0	564.0	-3.2	-27.3	21.2	729.4	040.3	308.2	1.000168
16500.0	553.4	-4.5	-27.2	23.4	717.7	038.8	307.9	1.000165
17000.0	543.2	-5.7	-27.3	25.6	707.1	037.3	307.5	1.000163
17500.0	532.7	-7.0	-27.4	27.8	696.0	035.0	306.7	1.000161
18000.0	522.4	-8.5	-27.7	30.0	686.0	034.5	305.8	1.000158
18500.0	512.5	-9.5	-23.0	32.2	676.5	032.0	304.0	1.000156
19000.0	502.4	-10.8	-23.4	34.5	668.0	031.2	303.0	1.000154
19500.0	492.4	-12.0	-23.7	40.4	660.0	029.8	303.4	1.000152
20000.0	482.4	-13.2	-23.0	47.5	648.0	028.4	303.2	1.000150
20500.0	473.0	-14.4	-21.0	54.1	636.7	028.9	303.4	1.000148
21000.0	463.0	-15.5	-22.0	55.7	626.7	025.0	303.5	1.000145
21500.0	454.0	-16.0	-23.0	57.3	616.6	024.2	303.5	1.000143
22000.0	443.5	-17.7	-23.0	58.0	607.1	022.4	303.0	1.000140
22500.0	433.5	-19.9	-24.0	58.0	597.6	021.4	304.2	1.000138
23000.0	427.7	-20.2	-24.4	57.2	588.7	019.0	304.9	1.000135
23500.0	417.0	-21.4	-27.5	57.0	579.4	018.0	304.7	1.000133

GEOMETRIC CORRECTIONS
 33.4029, 147 DEG
 106.1511, 107 DEG

TIME AIR DATA
 3130210011
 PITA

STATION ALTITUDE 4106876 FT UTL
 9 NOV. 63 1215 MST
 ABLUSJLJ. 13. 11

Table 14 (cont'd)

GEOMETRIC ALTITUDE FT	GEOMETRIC ALTITUDE METERS	AIR TEMPERATURE DEGREES CENTIGRADE	RELATIVE HUMIDITY PERCENT	WIND DIRECTION DEGREES TRUE	WIND SPEED KNOTS	WIND SPEED METERS PER SECOND	INDEX OF REFRACTION
24000.0	4100.0	-22.5	57.6	370.2	610.9	304.5	1.000130
24500.0	4020.0	-23.4	53.0	360.5	615.0	304.2	1.000128
25000.0	3950.0	-24.6	48.9	351.0	614.5	304.0	1.000125
25500.0	3880.0	-25.4	45.9	343.0	612.7	304.7	1.000123
26000.0	3770.0	-26.1	41.9	334.5	611.1	305.7	1.000121
26500.0	3690.0	-26.5	38.7	325.7	609.7	306.0	1.000119
27000.0	3610.0	-26.4	35.6	317.0	608.5	307.2	1.000116
27500.0	3540.0	-26.5	32.5	308.4	607.0	307.7	1.000114
28000.0	3480.0	-26.6	29.4	300.0	605.0	308.2	1.000112
28500.0	3420.0	-26.9	26.2	291.9	603.9	308.4	1.000110
29000.0	3360.0	-27.2	23.3	284.0	602.2	308.4	1.000108
29500.0	3300.0	-27.6	20.5	276.2	600.5	307.9	1.000107
30000.0	3240.0	-28.0	20.7	268.0	598.8	307.0	1.000105
30500.0	3180.0	-28.3	20.9	260.1	597.1	308.0	1.000103
31000.0	3120.0	-28.4	18.9	253.4	595.0	308.5	1.000101
31500.0	3060.0	-28.7		245.4	592.2	311.0	1.000099
32000.0	3000.0	-28.8		237.8	592.0	315.0	1.000098
32500.0	2940.0	-29.1		230.4	590.9	315.6	1.000096
33000.0	2880.0	-29.4		223.1	589.3	317.4	1.000094
33500.0	2820.0	-29.7		215.9	587.0	318.9	1.000093
34000.0	2760.0	-29.8		208.9	585.9	320.1	1.000091
34500.0	2700.0	-30.0		202.0	584.2	321.4	1.000090
35000.0	2640.0	-30.0		195.3	582.5	322.0	1.000088
35500.0	2580.0	-30.3		188.6	580.6	323.4	1.000087
36000.0	2520.0	-30.6		181.4	579.0	323.4	1.000085
36500.0	2460.0	-30.6		175.3	577.2	324.5	1.000084
37000.0	2400.0	-30.8		168.8	575.4	325.0	1.000082
37500.0	2340.0	-30.8		162.5	573.0	325.5	1.000081
38000.0	2280.0	-30.6		156.0	571.9	324.1	1.000079
38500.0	2220.0	-30.9		149.5	570.5	324.1	1.000078
39000.0	2160.0	-30.1		143.1	568.0	323.7	1.000076
39500.0	2100.0	-30.9		136.1	566.0	323.7	1.000075
40000.0	2040.0	-30.9		130.1	567.0	324.1	1.000075

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION: ALBUQUERQUE 11 1215 MST
 11 NOV. 63
 ASCENDING 10. 11

MAXIMUM LEVELS
 5130210011
 RITA

GEOMETRIC COORDINATES
 33.1629, LAT DEG
 106.1511, LONG DEG

Table 15

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	WIND DIRECTION DEGREES (TR)	WIND SPEED KNOTS
850.0	5176.	9.3	20.	347.3	7.1
800.0	6707.	4.5	20.	349.3	9.1
750.0	8502.	3.1	10.	320.4	11.9
700.0	10335.	3.4	15.	302.6	16.1
650.0	12300.	2.5	15.	324.5	20.0
600.0	14411.	-2.3	15.	312.0	27.5
550.0	16668.	-4.0	24.	307.8	27.5
500.0	19078.	-11.1	35.	303.5	27.2
450.0	21722.	-17.2	58.	303.0	31.4
400.0	24593.	-23.6	53.	304.2	34.5
350.0	27736.	-31.1	31.	308.1	32.4
300.0	31254.	-40.0		310.0	32.9
250.0	35248.	-50.4		322.4	34.7
200.0	39802.	-61.4			

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

FILMED

02 - 84