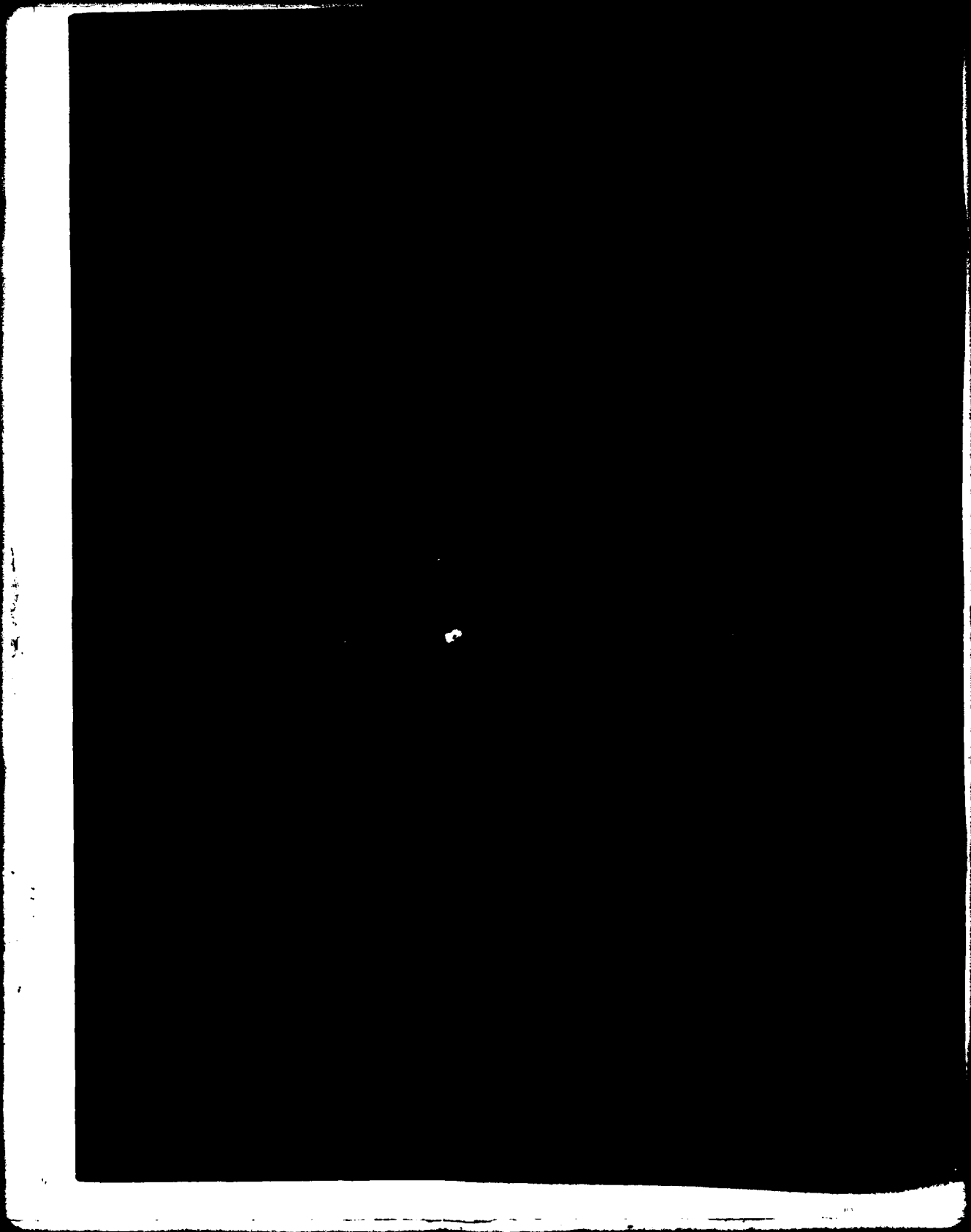


MICROCOPY RESOLUTION TEST CHART
 NATIONAL BUREAU OF STANDARDS-1963-A

ADA 124084



REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER DR 1231	2. GOVT ACCESSION NO. AIR4084	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) 19313A MLRS Missile Numbers BC-137, BC-123, BC-134, BC-119, BC-125, BC-115 Round Numbers V-334/OT-13 thru V-339/OT-13	5. TYPE OF REPORT & PERIOD COVERED	
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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 19313A MLRS, Missile Numbers BC-137, BC-123, BC-134, BC-134, BC-119, BC-125, BC-115, Round Numbers V-334/OT-13 thru V-339/OT-13 are presented in tabular form.		

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INTRODUCTION

19313A MILRS, Missile Numbers BC-137, BC-123, BC-134, BC-119, BC-125 and BC-115, Round Numbers V-334/OT-13 thru V-339/OT-18, were launched from Tula Gate, White Sands Missile Range (WSMR), New Mexico, at 1515:03, 1515:07, 1515:12, 1515:16, 1515:21 and 1515:25 MST, 08 Dec 82. The scheduled launch times were 1515 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 Wet 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 390 Meters

Deadhorse 950 Meters

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

SITE AND TIME

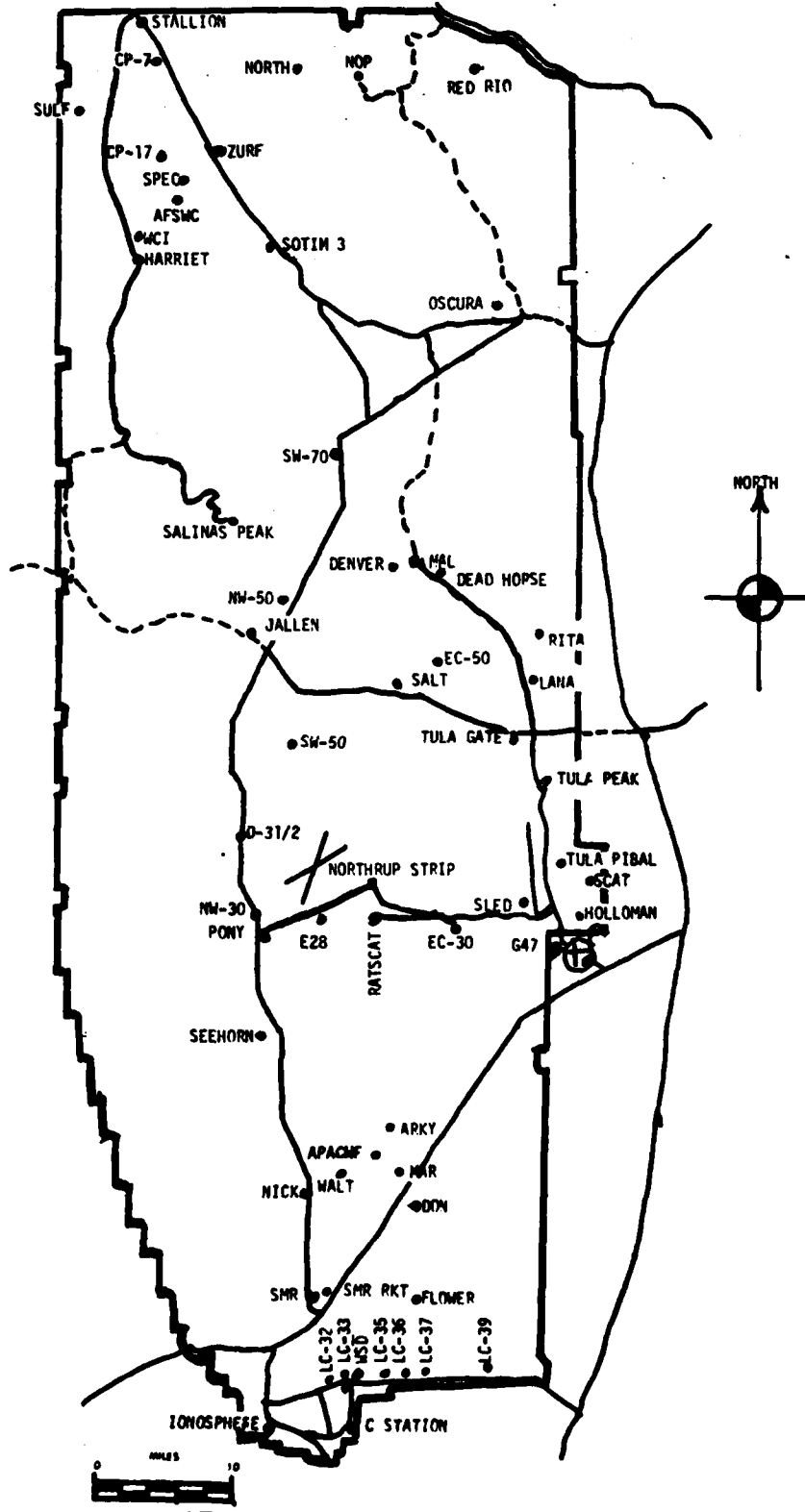
RITA 1230 MST

RITA 1415 MST

LANA 1440 MST

RITA 1515 MST

WSMR METEOROLOGICAL SITES



TULA GATE
MET SITES

RHODES

NORTH

WEST

1 inch = 1000 ft

LINE OF BARRIERS

Y436,000

X546,000

X548,000

Y434,000

Y432,000

BASE
Theodolite
#104

EAST
Theodolite
#103

L-597
30 meter
anemometer
tower

Y430,000

SOUTH
Theodolite
#105

6

PROJECT SURFACE OBSERVATION

TABLE 1 STATION TULA GATE

DATE 3 Dec 82 X= 545,944.89 Y=431,158.70 H= 4,102.37

TIME M S I	PRESSURE mbs	TEMPERATURE OF °C	DEW POINT OF °C	RELATIVE HUMIDITY %	DENSITY gm/m ³	WIND		VISIBIL- ITY
						DIRECTION degs Tn	SPEED kts	
1515	332.6	5.0	0.7	74	1104	345	04	40

OBSTRUCTIONS TO VISIBILITY	CLOUDS						REMARKS	
	1st LAYER		2nd LAYER		3rd LAYER			
	AMT	TYPE	AMT	TYPE	HGT	AMT	TYPE	HGT
	10	115	3000					

PSYCHROMETRIC COMPUTATION

TIME:	1515	
DRY BULB TEMP.	5.0	
WET BULB TEMP.	3.0	
WET BULB DEPR.	2.0	
DEW POINT	0.7	
RELATIVE HUMID.	74	

TABLE 2

Anemometer Data - 30 FT. Level of 30 Meter Tower
X = 545,944.89 Y = 431,153.70 H = 4102.47 (Base)

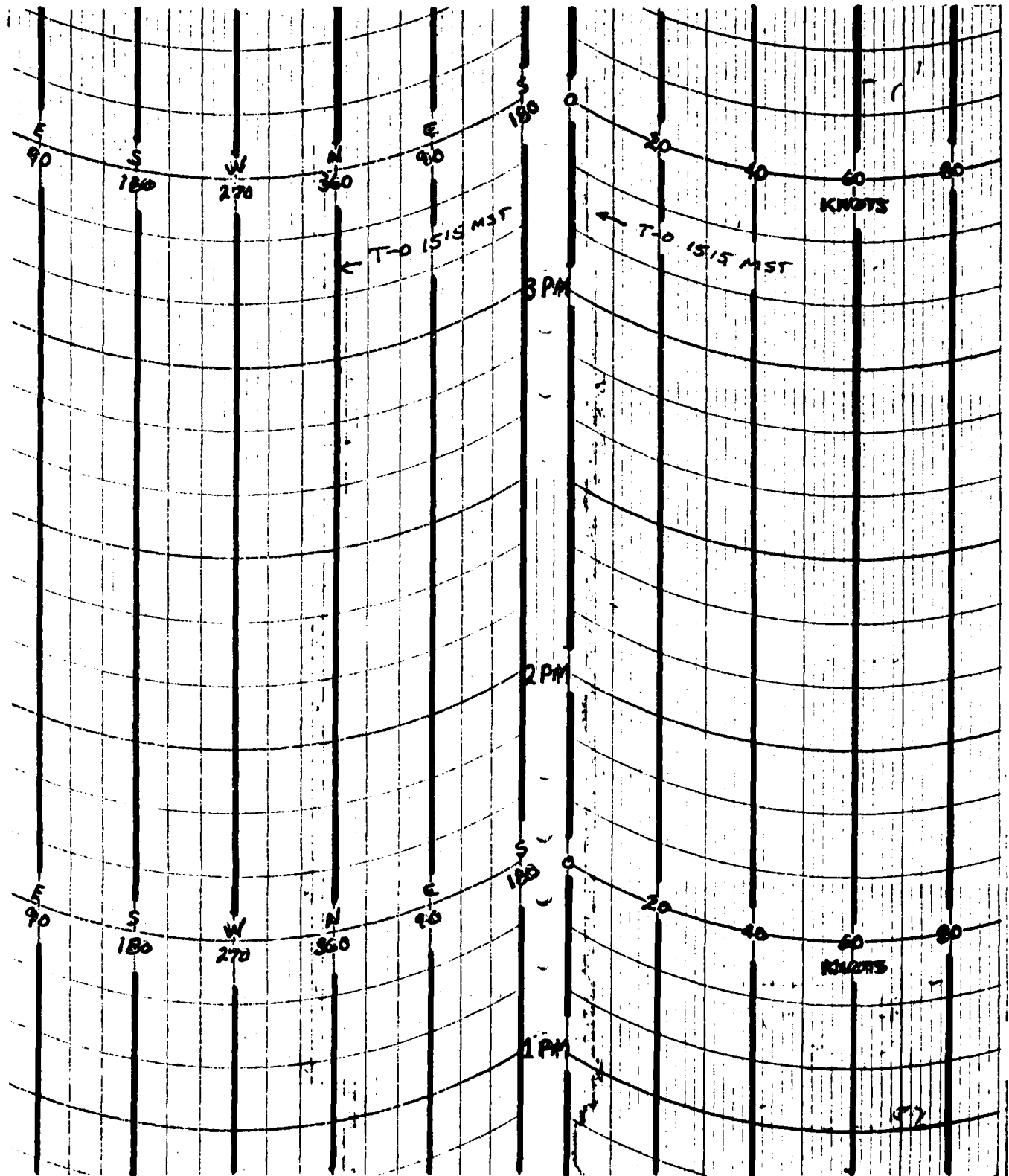


TABLE 3

Anemometer Data - 60 FT. Level of 30 Meter Tower
X = 545,944.39 Y = 431,153.70 H = 4102.47 (Base)

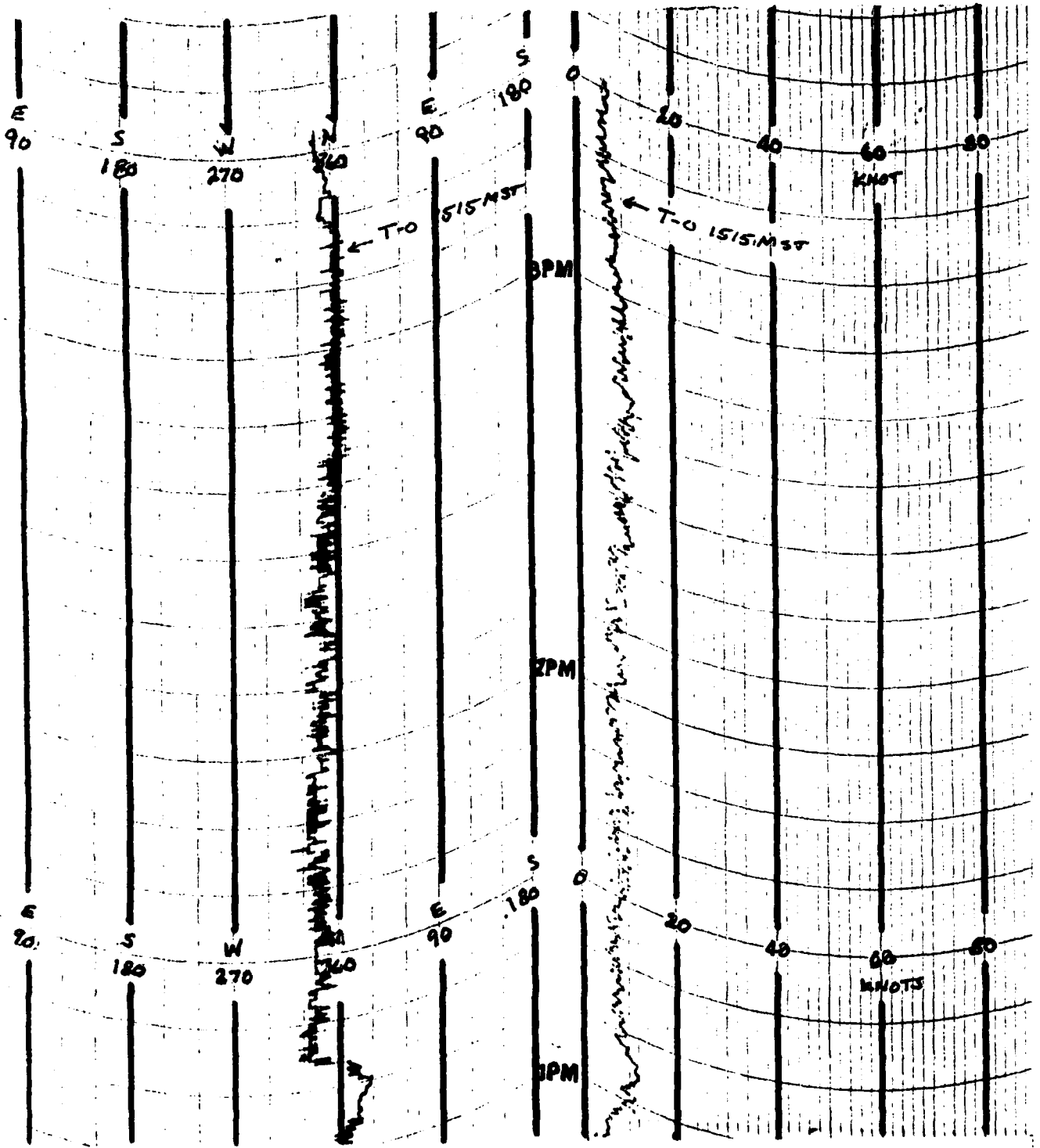
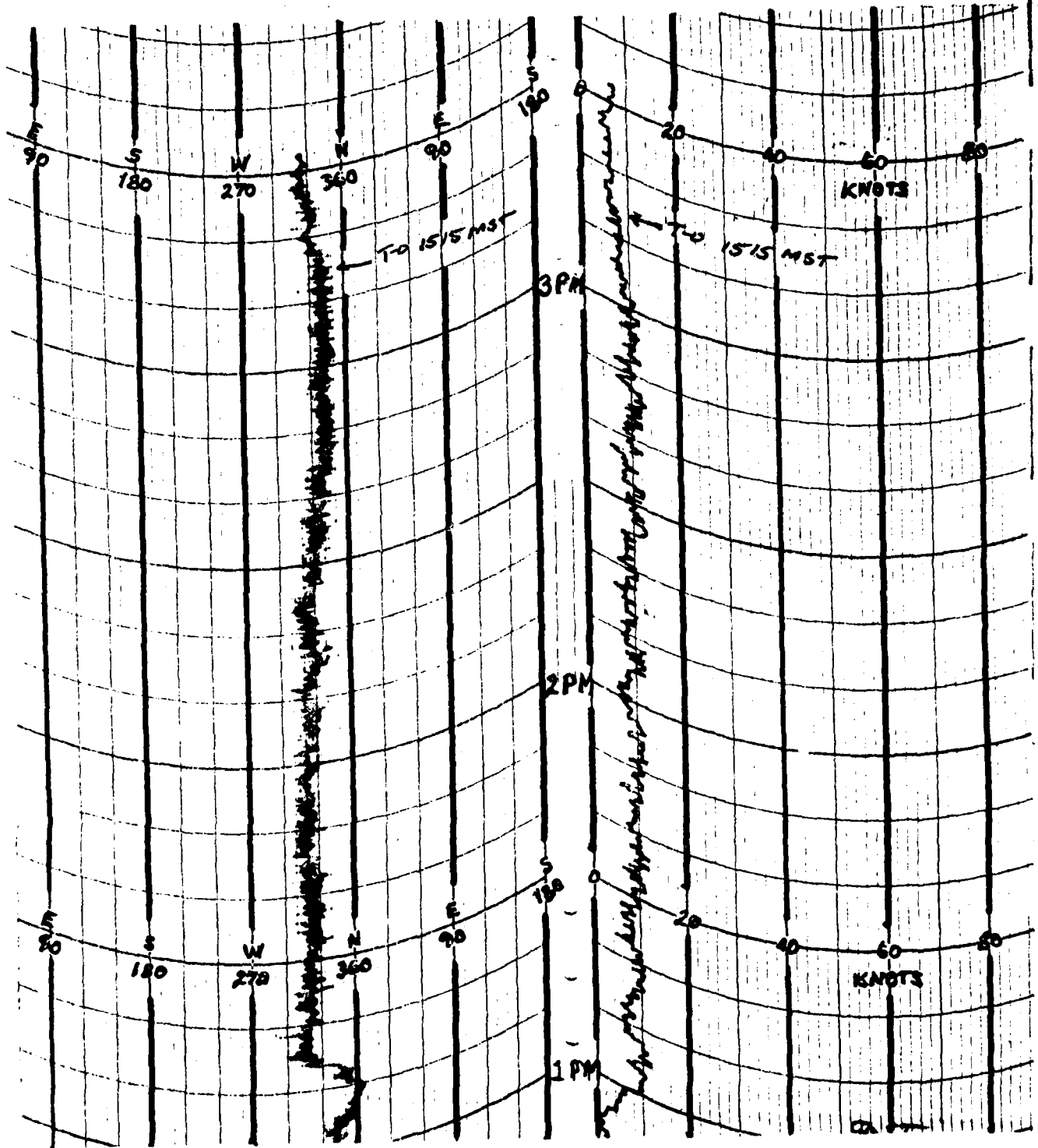


TABLE 4

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 3 December 1982

SITE: Tula Gate
 TIME: 1515 HST
 WSTM COORDINATES:
 X= 546,402.29
 Y= 431,426.23
 H= 4,105.86

SITE: Deadhorse
 TIME 1515 HST
 WSTM COORDINATES:
 X= 519,982.11
 Y= 490,249.23
 H= 4,133.72

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	345	03
150	345	03
210	345	03
270	345	03
330	356	06
390	013	05
500		
650		
800		
950		
1150		
1350		
1550		
1750		
2000		

LAYER MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE	340	03
150	353	14
210	001	16
270	005	16
330	010	14
390	020	12
500	051	03
650	095	11
800	111	11
950	131	09
1150		
1350		
1550		
1750		
2000		

TABLE 6

 AIMING AND T-TIME MET MESSAGES
 8 December 1982

RITA 1230 MST		RITA 1415 MST	
METCM1332062		METCM1332062	
081950128383		082130128383	
00213005	23120883	00604004	27920883
01085008	27930872	01040012	27900872
02129015	27730846	02155011	27760846
03161011	27610805	03202012	27630805
04263028	27630757	04272021	27640757
05300033	27470712	05303036	27570711
06320025	27290669	06311030	27260669
07324035	27060628	07309034	26950628
08327037	26740589	08296035	26640589
09323038	26390553	09311031	26190552
10318034	26070513	10331031	25910517
11325036	25890485	11338032	25620484
12352040	25260439	12350030	25050438

LANA 1440 MST		RITA 1515 MST	
METCM1331062		METCM1332062	
082170127983		082230128383	
00622005	27720883	00569004	27940883
01067009	27680872	01013012	27810872
02108013	27620845	02105006	27770846
03190004	27640805	03207013	27670805
04255022	27540756	04269023	27640757
05289037	27500711	05296031	27540711
06396027	27220668	06395029	27220668
07298035	26940627	07320032	26860628
08294034	26300588	08312033	26510589
09318035	26010551	09313035	26360552
10325032	25850516	10307025	26160517
11337027	25530483	11311024	25700485
12336029	24960437	12322024	25030433

STATION ALTITUDE 4186.74 FEET MSL
 8 DEC. 82 1230 HRS MST
 ASCENSION NO. 13

SIGNIFICANT LEVEL DATA
 3420210013
 RITA

TABLE 7

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT
882.9	4186.7	6.8	2.3	73.0
869.6	4595.7	5.5	.3	69.0
850.0	5206.9	4.2	-0.6	71.0
809.2	6516.6	1.7	-2.4	74.0
798.6	6806.4	2.2	-1.6	76.0
792.5	7070.0	2.0	-1.4	78.0
747.6	8620.0	2.4	2.1	98.0
700.0	10363.1	.1	-.2	98.0
657.1	12022.3	-2.8	-4.1	91.0
651.6	12241.7	-2.4	-7.5	68.0
637.9	12797.0	-2.1	-5.9	75.0
616.2	13698.1	-4.6	-5.3	95.0
589.6	14038.1	-6.2	-9.4	78.0
572.6	15588.7	-8.1	-11.1	79.0
547.8	16716.1	-9.9	-28.5	20.0
531.4	17484.1	-11.8	-32.5	16.0
515.4	18252.9	-12.4	-34.3	14.0
500.0	19012.0	-14.4	-35.9	14.0
492.6	19384.6	-13.1	-34.9	14.0
400.0	24466.1	-26.7	-44.3	17.0

GEODETIC COORDINATES
 33.18295 LAT DEG
 106.15114 LON DEG

STATION ALTITUDE 1186.74 FEET MSL
 8 DEC. 52
 ASCENSION NO. 13

UPPER AIR DATA
 3420210013
 RITA
 TABLE 3

GEODETIC COORDINATES
 33.16295 LAT DEG
 106.15114 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES	DEWPOINT DEGREES	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION (DEGREES(TN))	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
4100.7	882.9	6.8	2.3	73.0	1095.3	652.8	120.0	5.1	1.000279
4500.0	872.7	5.8	.8	69.9	1086.8	651.6	110.5	6.0	1.000274
5000.0	850.6	4.6	-1.3	70.3	1071.4	650.2	100.7	7.7	1.000268
5500.0	840.7	3.6	-1.0	71.7	1055.4	649.0	94.5	9.6	1.000263
6000.0	825.1	2.7	-1.7	72.8	1039.4	647.8	90.4	11.6	1.000258
6500.0	809.7	1.7	-2.4	74.0	1023.7	646.7	92.2	13.3	1.000254
7000.0	794.6	2.1	-1.5	77.3	1003.2	647.1	111.8	15.0	1.000251
7500.0	779.8	2.1	-.4	83.5	984.0	647.3	126.8	18.1	1.000249
8000.0	765.2	2.2	.8	90.0	964.9	647.5	144.0	24.0	1.000247
8500.0	751.0	2.4	1.9	96.5	946.2	647.8	153.5	29.9	1.000246
9000.0	737.0	1.9	1.6	98.0	930.1	647.2	159.7	33.1	1.000242
9500.0	723.2	1.2	1.0	98.0	915.0	646.4	164.1	34.1	1.000237
10000.0	709.7	.6	.3	98.0	900.1	645.6	167.8	32.2	1.000232
10500.0	696.4	-.1	-.5	97.4	885.7	644.7	171.3	30.5	1.000227
11000.0	683.2	-1.0	-1.7	95.3	872.0	643.6	174.4	28.7	1.000222
11500.0	670.3	-1.9	-2.8	93.2	858.4	642.5	177.4	27.9	1.000217
12000.0	657.7	-2.8	-4.0	91.1	845.1	641.4	180.0	28.2	1.000212
12500.0	645.2	-2.3	-6.7	71.3	827.9	641.9	182.2	29.2	1.000203
13000.0	632.9	-2.7	-5.7	79.5	813.2	641.5	183.6	31.3	1.000202
13500.0	620.9	-4.1	-5.4	90.6	801.8	639.9	184.3	33.4	1.000200
14000.0	609.0	-5.0	-6.3	90.5	789.4	638.7	184.3	35.5	1.000196
14500.0	597.4	-5.7	-8.1	83.0	776.5	637.8	183.9	36.9	1.000191
15000.0	585.9	-6.6	-9.0	78.2	764.3	636.6	183.3	37.9	1.000186
15500.0	574.6	-7.9	-10.9	78.9	753.2	635.1	182.3	38.5	1.000182
16000.0	563.4	-8.8	-15.6	57.5	741.5	633.8	181.2	39.0	1.000175
16500.0	552.5	-9.6	-23.4	31.3	729.7	632.7	181.3	37.9	1.000168
17000.0	541.7	-10.6	-29.9	18.5	718.5	631.4	181.6	36.4	1.000163
17500.0	531.1	-11.8	-32.5	16.0	707.7	629.9	180.9	34.0	1.000160
18000.0	520.6	-12.2	-33.7	14.7	694.8	629.4	180.0	31.5	1.000157
18500.0	510.3	-13.1	-34.8	14.0	683.4	628.4	179.4	32.4	1.000154
19000.0	500.2	-14.4	-35.9	14.0	673.3	626.8	179.0	33.7	1.000152
19500.0	490.3	-13.4	-35.1	14.1	657.4	627.9	181.4	35.5	1.000148
20000.0	480.3	-14.7	-36.0	14.4	647.4	626.3	183.6	37.4	1.000146
20500.0	470.6	-16.1	-36.9	14.7	637.6	624.7	185.9	39.2	1.000143
21000.0	461.0	-17.4	-37.8	15.0	627.9	623.1	189.6	39.8	1.000141
21500.0	451.7	-18.8	-38.7	15.2	618.5	621.4	194.6	39.6	1.000139
22000.0	442.5	-20.1	-39.6	15.5	609.1	619.8	198.2	39.3	1.000137
22500.0	433.6	-21.4	-40.5	15.8	600.0	618.1	201.2	39.4	1.000135
23000.0	424.8	-22.8	-41.5	16.1	590.9	616.5	202.9	40.0	1.000133
23500.0	416.2	-24.1	-42.4	16.4	582.1	614.8			1.000131

STATION ALTITUDE 4186.74 FEET MSL
 A DEC. 82 1230 HRS MST
 ASCENSION NO. 13

UPPER AIR DATA
 3420210013
 RITA
 TABLE 3
 CONT'D

GEODETIC COORDINATES
 33.18295 LAT DEG
 106.15114 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	AIR TEMPERATURE DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	DIRECTION (DEGREES(TN))	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
24000.0	407.7	-25.5	16.7	573.3	613.2			1.000128

STATION ALTITUDE 4180.74 FEET MSL
 8 DEC. 82 1230 HRS MST
 ASCENSION NO. 13

MANDATORY LLS 5
 3420210012
 RITA
 TABLE 9

GEODETIC COORDINATES
 33.18295 LAT DEG
 106.15114 LON DEG

PRESSURE GEOPOTENTIAL MILLIBARS	FEET	TEMPERATURE		REL. HUM. PERCENT	WIND DATA		
		AIR DEGREES CENTIGRADE	DEWPOINT INCHES		DIRECTION DEGREES(TN)	SPEED KNOTS	SPELL
850.0	5203.	4.2	-0.6	71.	97.8	8.5	
800.0	6015.	2.1	-1.7	76.	105.2	14.2	
750.0	6528.	2.4	1.9	97.	154.0	30.1	
700.0	10353.	.1	-2	94.	170.5	31.0	
650.0	12293.	-2.4	-7.3	69.	181.6	28.4	
600.0	14371.	-5.6	-7.7	85.	184.0	30.7	
550.0	16594.	-9.7	-25.9	25.	181.4	37.5	
500.0	18986.	-14.4	-35.9	14.	179.1	33.7	
450.0	21593.	-19.0	-38.9	15.	195.5	39.6	
400.0	24427.	-26.7	-44.3	17.			

STATION ALTITUDE 4186.74 FEET MSL
 8 DEC. 82 1415 HRS MST
 ASCENSION NO. 15

SIGNIFICANT LEVEL DATA
 3420210015
 NITA
 TABLE 1)

GEODETIC COORDINATES
 33.18295 LAT DEG
 106.15114 LON DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT
882.6	4186.7	4.6	81.0
868.4	4621.6	5.0	73.0
850.0	5195.0	3.9	73.0
830.4	5817.1	2.8	77.0
793.8	7015.4	2.0	92.0
775.4	7638.2	2.0	98.0
730.0	9243.3	2.7	98.0
700.0	10357.4	.8	98.0
617.2	13650.2	-5.2	99.0
576.0	15424.0	-8.8	72.0
573.0	15558.0	-5.2	72.0
571.6	15621.2	-5.7	68.0
560.6	15756.0	-9.3	63.0
559.6	16160.5	-10.9	44.0
555.8	16332.4	-11.9	21.0
552.0	16504.8	-12.5	14.0
509.3	18518.4	-14.5	13.0
500.0	18976.9	-15.2	14.0
430.2	22650.8	-23.9	18.0
400.0	24384.4	-28.1	26.0

STATION ALTITUDE 4186.74 FEET MSL
 R DEC. 82
 ASCENSION NO. 15

UPPER AIR DATA
 3420210015
 RITA

GEODETLIC COORDINATES
 33.16295 LAT DEG
 106.15114 LON DEG

TABLE 11

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DIRECTION DEGREES(TN)	WIND SPEED KNOTS	INDEX OF REFRACTION
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE						
4186.7	882.6	4.6	1.6	81.0	1103.7	650.2	340.0	4.1	1.000280
4500.0	872.3	4.9	.9	75.2	1089.9	650.5	12.1	2.9	1.000275
5000.0	856.2	4.3	-1	73.0	1072.3	649.8	71.3	4.0	1.000269
5500.0	840.3	3.4	-6	75.0	1055.9	648.7	92.1	7.0	1.000264
6000.0	824.7	2.7	-5	79.3	1038.8	647.9	100.1	10.4	1.000261
6500.0	809.3	2.3	.2	85.5	1020.5	647.6	109.8	12.2	1.000258
7000.0	794.5	2.0	.8	91.8	1002.5	647.2	126.5	12.5	1.000256
7500.0	779.4	2.0	1.5	96.7	983.6	647.3	141.3	14.0	1.000253
8000.0	764.9	2.2	1.9	98.0	964.6	647.5	150.2	19.2	1.000250
8500.0	750.7	2.4	2.1	98.0	945.7	647.8	155.3	24.6	1.000246
9000.0	736.7	2.6	2.3	98.0	927.3	648.1	160.5	29.1	1.000243
9500.0	723.0	2.3	2.0	98.0	911.1	647.7	164.7	33.5	1.000238
10000.0	709.5	1.4	1.1	98.0	897.0	646.7	168.2	34.6	1.000233
10500.0	696.2	.5	.3	98.0	883.1	645.6	171.9	33.7	1.000228
11000.0	683.0	-1.4	-6	98.2	869.5	644.5	174.3	32.8	1.000223
11500.0	670.1	-1.3	-1.5	98.3	856.0	643.3	174.9	31.8	1.000219
12000.0	657.4	-2.2	-2.4	98.5	842.7	642.2	175.3	31.0	1.000214
12500.0	644.9	-3.1	-3.3	98.7	829.7	641.1	174.9	31.5	1.000210
13000.0	632.7	-4.0	-4.2	98.8	816.8	640.0	174.5	32.0	1.000205
13500.0	620.8	-4.9	-5.1	99.0	804.2	638.8	172.2	32.8	1.000201
14000.0	608.8	-5.9	-6.8	93.7	791.9	637.6	169.9	33.6	1.000196
14500.0	597.1	-6.9	-8.9	86.1	779.8	636.3	168.5	33.7	1.000190
15000.0	585.6	-7.9	-11.0	78.5	767.9	635.0	167.2	33.6	1.000185
15500.0	574.3	-6.8	-10.9	72.0	749.7	636.4	169.0	33.4	1.000181
16000.0	563.2	-10.3	-18.3	51.5	745.5	632.0	171.2	33.0	1.000174
16500.0	552.1	-12.5	-34.2	14.2	737.7	629.1	175.6	32.1	1.000166
17000.0	541.2	-13.0	-35.0	13.8	724.5	628.4	179.8	31.4	1.000163
17500.0	530.5	-13.5	-35.5	13.5	711.5	627.8	183.0	31.1	1.000160
18000.0	520.0	-14.0	-36.1	13.3	698.8	627.2	185.3	31.2	1.000157
18500.0	509.7	-14.5	-36.7	13.0	686.3	626.6	186.2	31.7	1.000154
19000.0	499.5	-15.3	-36.6	14.0	674.6	625.7	188.0	31.6	1.000152
19500.0	489.4	-16.4	-37.2	14.6	664.0	624.2	190.0	31.3	1.000149
20000.0	479.5	-17.6	-37.8	15.1	653.6	622.8	191.7	30.6	1.000147
20500.0	469.8	-18.8	-38.5	15.7	643.3	621.4	192.9	30.6	1.000145
21000.0	460.3	-20.0	-39.1	16.2	633.3	619.9	193.7	31.0	1.000142
21500.0	450.9	-21.2	-39.8	16.7	623.4	618.5	194.3	31.3	1.000140
22000.0	441.8	-22.4	-40.5	17.3	613.6	617.0	195.5	30.9	1.000138
22500.0	432.9	-23.5	-41.2	17.8	604.0	615.5	198.6	28.6	1.000136
23000.0	423.9	-24.7	-41.3	19.6	594.5	614.1			1.000133
23500.0	415.1	-26.0	-41.3	21.9	585.0	612.6			1.000131

STATION ALTITUDE 4186.74 FEET MSL
 8 DEC. 62 1415 HRS MST
 ASCENSION NO. 15

UPPER AIR DATA
 3420210015
 RITA
 TABLE 11
 CONT'D

GEODETIC COORDINATES
 33.18295 LAT DEG
 106.15114 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA - DIRECTION (DEGREES(TN))	INDEX OF REFRACTION
24000.0	406.5	-27.2	24.2	575.6	611.1		1.000129

GEODETIC COORDINATES
 33.18295 LAT UEG
 106.15114 LON UEG

MANDATORY LEVELS
 3420210015
 RITA
 TABLE 12

STATION ALTITUDE 4186.74 FEET MSL
 R DEC. 82 1415 HRS MST
 ASCENSION NO. 15

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE		DIRECTION DEGREES (TN)	SPEED KNOTS
850.0	5191.	3.9	-0.5	73.	82.2	5.1
800.0	6604.	2.1	.0	89.	120.1	12.2
750.0	8516.	2.4	2.1	96.	125.5	24.8
700.0	10348.	.8	.5	98.	170.8	33.9
650.0	12292.	-2.7	-2.9	99.	175.0	31.3
600.0	14363.	-6.7	-8.3	88.	168.8	33.7
550.0	16576.	-12.6	-34.5	14.	176.3	31.9
500.0	18952.	-15.2	-36.0	14.	187.8	31.6
450.0	21533.	-21.3	-39.9	17.	194.4	31.3
400.0	24345.	-28.1	-41.6	26.		

STATION ALTITUDE 4173.44 FEET MSL
 A DEC. 02 1440 HRS MST
 ASCENSION NO. 12

SIGNIFICANT LEVEL DATA
 3420320012
 LANA

GEODETIC COORDINATES
 33.13510 LAT DEG
 106.15446 LON DEG

TABLE 13

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT
882.7	4173.4	3.4	84.0
850.0	5177.8	2.0	88.0
817.4	6217.3	2.7	94.0
742.6	8764.3	.9	99.0
722.2	9502.5	1.7	98.0
700.0	10329.0	.3	96.0
647.0	12393.7	-3.3	99.0
639.5	12694.6	-1.2	97.0
634.8	12892.2	-1.6	93.0
625.4	13280.0	-5.9	84.0
616.2	13661.4	-6.8	75.0
595.6	14520.7	-10.1	17.0
529.8	17468.1	-14.8	11.0
521.4	17866.3	-14.1	12.0
500.0	18909.3	-15.5	12.0
400.0	24305.8	-28.8	13.0
331.8	28615.7	-39.1	
300.0	30865.9	-43.9	
297.6	31043.5	-43.9	

STATION ALTITUDE 1173.44 FEET MSL
 8 DEC 52
 ASCENSION NO. 12

UPPER AIR DATA
 3420320012
 LANA

GEOMETRIC COORDINATES
 33.15510 LAT DEG
 106.15446 LON DEG

TABLE 13

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT DEGREES				DIRECTION DEGREES (TN)	SPEED KNOTS	
4173.4	882.7	3.4	1.0	84.0	1108.8	648.8	350.0	5.1	1.000280
4500.0	871.9	2.9	.7	85.3	1097.1	648.2	9.0	4.5	1.000276
5000.0	855.7	2.2	.4	87.3	1079.4	647.4	40.7	4.8	1.000272
5500.0	839.8	2.2	.7	89.9	1059.3	647.4	53.0	6.2	1.000268
6000.0	824.1	2.6	1.5	92.7	1038.0	647.9	76.0	8.1	1.000265
6500.0	808.7	2.5	1.7	94.6	1018.8	647.9	98.8	6.1	1.000262
7000.0	793.6	2.1	1.5	95.5	1001.0	647.4	129.8	6.4	1.000257
7500.0	778.8	1.8	1.3	96.5	983.6	647.0	139.1	11.6	1.000253
8000.0	764.3	1.4	1.1	97.5	966.5	646.6	144.7	17.5	1.000249
8500.0	750.0	1.1	.9	98.5	949.6	646.2	150.4	25.1	1.000244
9000.0	736.0	1.2	1.0	98.7	931.6	646.3	155.4	29.3	1.000241
9500.0	722.3	1.7	1.4	98.0	912.2	647.0	162.0	29.9	1.000237
10000.0	708.8	.9	.4	96.8	898.1	646.0	166.0	29.3	1.000232
10500.0	695.4	.0	.0	96.2	884.1	644.9	168.8	27.9	1.000227
11000.0	682.3	-1.7	-1.3	97.0	870.3	643.8	167.6	30.8	1.000222
11500.0	669.4	-1.7	-2.1	97.7	856.7	642.8	165.5	35.0	1.000218
12000.0	656.8	-2.6	-2.8	98.4	843.3	641.7	165.7	36.7	1.000214
12500.0	644.4	-2.6	-2.8	98.3	827.2	641.8	166.6	37.5	1.000210
13000.0	632.2	-2.8	-4.1	90.5	812.4	641.4	167.2	36.0	1.000204
13500.0	620.1	-6.4	-9.5	78.8	808.4	636.8	167.8	33.0	1.000196
14000.0	608.1	-8.1	-16.1	52.4	798.3	634.6	167.3	32.8	1.000187
14500.0	596.3	-10.0	-29.2	18.9	789.1	632.1	166.8	33.2	1.000179
15000.0	584.5	-10.9	-31.7	16.0	776.1	631.0	169.1	34.4	1.000175
15500.0	573.0	-11.7	-33.0	15.0	763.2	630.1	171.4	35.1	1.000172
16000.0	561.7	-12.5	-34.3	14.0	750.4	629.1	174.3	34.4	1.000169
16500.0	550.6	-13.3	-35.8	13.0	737.9	628.1	176.8	34.0	1.000166
17000.0	539.8	-14.1	-37.2	12.0	725.6	627.1	178.3	33.9	1.000163
17500.0	529.1	-14.7	-38.5	11.1	713.2	626.3	180.1	33.5	1.000160
18000.0	518.6	-14.3	-37.4	12.0	697.8	626.9	182.1	32.8	1.000157
18500.0	508.3	-15.0	-37.9	12.0	685.7	626.0	184.5	30.6	1.000154
19000.0	498.1	-15.7	-38.5	12.0	674.0	625.1	187.1	28.3	1.000151
19500.0	487.9	-17.0	-39.4	12.1	663.4	623.6	189.9	27.3	1.000144
20000.0	478.0	-18.2	-40.3	12.2	653.0	622.1	189.9	26.9	1.000146
20500.0	468.2	-19.4	-41.3	12.3	642.7	620.6	190.0	27.0	1.000144
21000.0	458.6	-20.7	-42.2	12.4	632.6	619.1	189.1	27.0	1.000142
21500.0	449.2	-21.9	-43.1	12.5	622.7	617.6	187.9	27.2	1.000139
22000.0	440.0	-23.1	-44.1	12.6	613.0	616.0	187.0	28.2	1.000137
22500.0	431.0	-24.3	-45.0	12.7	603.4	614.5	187.7	29.1	1.000135
23000.0	422.2	-25.6	-45.9	12.8	594.0	613.0	190.5	30.0	1.000133
23500.0	413.6	-26.8	-46.9	12.9	584.8	611.5	194.8	29.8	1.000131

STATION ALTITUDE 4173.44 F. I. I. MSL
 8 DEC. 62 1440 HRS MST
 ASCENSION NO. 12

UPPER AIR DATA
 3420320012
 LANA

GEODETIC COORDINATES
 33.13510 LAT DEG
 106.15446 LON DEG

TABLE 13
 CONT'D

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
24000.0	405.1	-28.0	12.9	575.7	609.9	200.0	29.5	1.000129
24500.0	396.6	-29.3	12.4**	566.5	608.4	202.7	30.3	1.000127
25000.0	388.1	-30.5	10.9**	557.1	606.9	204.9	31.3	1.000124
25500.0	379.8	-31.7	9.4**	547.9	605.4	205.7	32.5	1.000122
26000.0	371.7	-32.8	7.9**	538.8	603.9	206.6	33.5	1.000120
26500.0	363.7	-34.0	6.4**	529.9	602.4	207.9	33.3	1.000118
27000.0	355.9	-35.2	4.9**	521.1	600.9	209.2	33.0	1.000116
27500.0	348.3	-36.4	3.4**	512.5	599.4	210.1	32.6	1.000114
28000.0	340.8	-37.6	1.9**	504.1	597.9	211.2	32.6	1.000112
28500.0	333.5	-38.8	.3**	495.8	596.4	212.5	33.0	1.000110
29000.0	326.1	-39.9		487.1	595.0	218.0	34.1	1.000108
29500.0	318.9	-41.0		478.5	593.6	224.6	36.0	1.000107
30000.0	311.9	-42.1		470.1	592.2	231.5	39.9	1.000105
30500.0	305.0	-43.1		461.8	590.9			1.000103
31000.0	298.2	-43.9		453.1	589.9			1.000101

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

STATION ALTITUDE 4173.44 FEET MSL
 R DEC. 62 1440 HRS NST
 ASLMSION NO. 12

MANDATORY LEVELS
 3420320012
 LANA

TABLE 14

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE	PERCENT	DIRECTION (KNOTS)	SPEED	KNOTS
850.0	5174.	2.0	.2	80.	49.9	5.2	
800.0	6785.	2.3	1.6	95.	117.4	5.6	
750.0	8495.	1.1	.9	98.	150.4	25.1	
700.0	10319.	.3	-.3	96.	167.8	28.4	
650.0	12261.	-3.1	-3.2	99.	166.2	37.2	
600.0	14326.	-9.4	-23.9	30.	166.8	33.0	
550.0	16514.	-13.3	-35.8	13.	176.9	34.0	
500.0	18884.	-15.5	-38.3	12.	186.7	28.6	
450.0	21461.	-21.8	-43.0	12.	196.0	27.2	
400.0	24267.	-28.8	-48.4	13.	201.6	29.9	
350.0	27355.	-36.2	-64.1	4.**	209.9	32.7	
300.0	30807.	-43.9					

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

STATION ALTITUDE 4106.74 FEET MSL
 8 JUL 62 1515 HRS NST
 ASCENSION NO. 16

SIGNIFICANT LEVEL DATA
 3420210010

GEODETIC COORDINATES
 33.18295 LAT DEG
 106.15114 LON DEG

RITA
 TABLE 15

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE	
882.6	4186.7	5.0	.8	74.0
874.4	4436.7	4.1	-1.9	65.0
850.0	5193.2	4.1	-1.1	69.0
791.6	7090.3	2.2	.1	86.0
762.0	8103.7	2.5	2.4	99.0
700.0	10357.1	1.1	1.0	99.0
675.8	11285.2	-1.0	-1.3	98.0
666.6	11644.6	-2.1	-4.0	87.0
635.3	12895.3	-5.2	-5.3	99.0
620.8	13492.1	-5.2	-9.3	73.0
585.0	15015.6	-9.1	-13.4	71.0
576.0	15409.7	-9.8	-15.9	61.0
571.7	15600.0	-9.7	-21.3	38.0
558.6	16188.1	-9.9	-32.3	14.0
541.2	16991.4	-9.3	-32.3	13.0
524.6	17781.2	-10.6	-33.6	13.0
500.0	18987.6	-14.2	-35.1	15.0
429.2	22720.7	-24.6	-38.1	27.0
413.8	23592.9	-26.3	-42.0	21.0
400.0	24396.5	-28.3	-46.2	16.0

GEODETIC COORDINATES
 33.18295 LAT DEG
 106.15114 LON DEG

UPPER AIR DATA
 3420210010
 RITA
 TABLE 15

STATION ALTITUDE 4186.74 FEET MSL
 R OLC. 82 1515 HRS MST
 ASCENSION NO. 16

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DIRECTION DEGREES (TN)	WIND SPEED KNOTS	INDEX OF REFRACTION
		DEGREES	DEGREE CENTIGRADE						
4100.7	862.6	5.0	.8	74.0	1102.3	650.6	320.0	4.1	1.000277
4500.0	872.3	4.1	-1.8	65.3	1093.5	649.4	350.4	2.3	1.000270
5000.0	890.2	4.1	-1.3	68.0	1073.1	649.5	74.0	3.3	1.000267
5500.0	840.3	3.8	-.8	71.7	1054.2	649.2	93.7	6.8	1.000263
6000.0	824.7	3.3	-.5	76.2	1036.4	648.6	99.9	10.5	1.000260
6500.0	809.3	2.8	-.2	80.7	1018.9	648.1	114.4	11.8	1.000257
7000.0	794.3	2.3	.1	85.2	1001.6	647.5	129.6	13.3	1.000254
7500.0	779.5	2.3	1.0	91.3	982.8	647.6	142.0	16.5	1.000252
8000.0	765.0	2.5	2.1	97.7	963.5	647.9	150.0	20.3	1.000250
8500.0	750.7	2.3	2.1	99.0	946.2	647.7	154.1	25.0	1.000246
9000.0	730.7	1.9	1.8	99.0	929.6	647.3	157.6	29.0	1.000242
9500.0	723.0	1.6	1.5	99.0	913.3	646.9	162.0	31.0	1.000238
10000.0	709.5	1.3	1.2	99.0	897.3	646.6	165.3	31.2	1.000233
10500.0	690.2	.8	.6	98.8	882.3	645.9	168.2	30.2	1.000229
11000.0	683.1	-.4	-.6	98.3	869.6	644.5	170.2	29.3	1.000224
11500.0	670.3	-1.7	-2.9	91.4	857.7	642.8	172.3	28.5	1.000217
12000.0	657.6	-3.0	-4.3	90.4	845.7	641.2	175.3	29.0	1.000211
12500.0	645.0	-4.2	-4.9	95.2	833.5	639.7	178.0	29.7	1.000208
13000.0	632.7	-5.2	-5.9	94.4	820.7	638.5	179.4	31.2	1.000204
13500.0	620.6	-5.2	-9.3	73.0	805.4	638.3	180.2	32.5	1.000195
14000.0	608.6	-6.5	-10.6	72.3	793.8	636.7	178.8	33.1	1.000191
14500.0	596.9	-7.8	-12.0	71.7	782.3	635.1	177.0	33.6	1.000187
15000.0	585.4	-9.1	-13.3	71.0	771.1	633.5	174.1	33.6	1.000184
15500.0	574.0	-9.8	-18.2	50.1	758.4	632.6	173.9	34.4	1.000177
16000.0	562.8	-9.8	-27.6	21.7	744.2	632.3	175.1	35.6	1.000169
16500.0	551.8	-9.7	-32.4	13.6	729.3	632.5	176.5	33.8	1.000165
17000.0	541.0	-9.3	-32.6	13.0	714.2	632.9	170.3	31.4	1.000161
17500.0	530.5	-10.1	-33.2	13.0	702.4	631.9	173.3	28.5	1.000158
18000.0	520.0	-11.3	-33.8	13.4	691.6	630.5	172.3	26.8	1.000156
18500.0	509.8	-12.7	-34.4	14.2	681.8	628.7	172.3	25.1	1.000154
19000.0	499.7	-14.2	-35.1	15.0	672.2	628.9	174.4	23.0	1.000151
19500.0	489.6	-15.6	-35.2	16.6	662.2	625.2	175.3	22.9	1.000149
20000.0	479.7	-17.0	-35.5	18.3	652.3	623.6	175.5	23.8	1.000147
20500.0	470.0	-18.4	-35.8	19.9	642.8	621.9	175.2	24.6	1.000145
21000.0	460.5	-19.8	-36.2	21.5	633.1	620.2	176.2	24.3	1.000143
21500.0	451.2	-21.2	-36.7	23.1	623.7	618.4	178.5	22.9	1.000140
22000.0	442.0	-22.6	-37.3	24.7	614.5	616.7	180.1	22.5	1.000138
22500.0	433.1	-24.0	-37.9	26.3	605.4	615.0	181.7	22.9	1.000136
23000.0	424.2	-25.1	-39.3	25.1	595.8	613.6	183.5	24.9	1.000134
23500.0	415.4	-26.1	-41.6	21.6	585.8	612.4			1.000131

STATION ALTITUDE 4186.74 Feet MSL
 8 DEC. 82 1515 HRS MST
 ASCENSION NO. 16

UPPER AIR DATA
 3420210016
 RITA
 TABLE 16
 Cont'd

GEODETIC COORDINATES
 33.18295 LAT DEG
 106.15114 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CELSIUS	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION
2900.0	400.0	-27.3	18.5	576.3	610.9			1.000129

STATION ALTITUDE 4186.74 FEET MSL
 8 DEC. 62
 ASCENSION NO. 16

MANDATORY LEVELS
 3420210010
 RITA

GEODETIC COORDINATES
 33.18295 LAT DEG
 106.15114 LON DEG

TABLE 17

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM.		WIND DATA	
HALLIBRAN	FEET	AIR DEGREES	DEWPOINT DEGREES	PERCENT	PERCENT	DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	5190.	4.1	-1.1	69.		85.0	4.6
800.0	6805.	2.5	-0	83.		124.1	12.7
750.0	8519.	2.2	2.1	99.		154.3	25.2
700.0	10348.	1.1	1.0	99.		167.3	30.5
650.0	12290.	-3.7	-4.6	93.		177.1	29.3
600.0	14353.	-7.4	-11.6	72.		177.8	35.6
550.0	16561.	-9.6	-32.4	14.		170.7	35.5
500.0	18962.	-14.2	-35.1	15.		174.3	25.1
450.0	21548.	-21.4	-36.8	23.		178.9	24.8
400.0	24358.	-28.3	-46.2	16.			

LMET
-88