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ATMOSPHERIC ENVIRONMENT FOR SPACE SHUTTLE (STS-41D) LAUNCH

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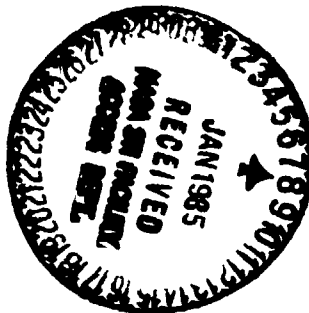
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16. ABSTRACT This report presents a summary of selected atmospheric conditions observed near Space Shuttle STS-41D launch time on August 30, 1984, at Kennedy Space Center, Florida. Values of ambient pressure, temperature, moisture, ground winds, visual observations (cloud), and winds aloft are included. The sequence of prelaunch Jimsphere measured vertical wind profiles is given in this report. Also presented are wind and thermodynamic parameters representative of surface and aloft conditions in the SRB descent/impact ocean area. Final atmospheric tapes, which consist of wind and thermodynamic parameters versus altitude, for STS-41D vehicle ascent and SRB descent/impact have been constructed. The STS-41D ascent meteorological data tape has been constructed by Marshall Space Flight Center's Atmospheric Sciences Division to provide an internally consistent data set for use in post flight performance assessments.					
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TECHNICAL MEMORANDUM

ATMOSPHERIC ENVIRONMENT FOR SPACE SHUTTLE (STS-41D) LAUNCH

I. INTRODUCTION

This report presents an evaluation of the atmospheric environmental data taken during the launch of the Space Shuttle/STS-41D vehicle. This Space Shuttle vehicle was launched from Pad 39A at Kennedy Space Center (KSC), Florida, on a bearing of 91.6 deg east of north at 1242 UT (0842 EDT) on August 30, 1984.

This report presents a summary of the atmospheric environment at launch time (L+0) of the STS-41D, together with the sequence of prelaunch Jimsphere measured winds aloft profiles from L-13 hr through liftoff. The general weather situation for the launch and flight area is described, and surface and upper level wind/thermodynamic observations near launch time are given. Surface and upper level wind/thermodynamic parameter estimates are also presented for the SRB descent/impact analyses.

Previous MSFC-related launch vehicle atmospheric environmental conditions have been published as Appendix A of individual MSFC Saturn Flight Evaluation Working Group reports [1]. Office memorandums have been issued for previous flights giving launch pad wind information. A report has also been published [2] which summarizes most launch atmospheric conditions observed for the past 155 MSFC/ABMA-related vehicle launches through SA-208 (Skylab 4). Reports summarizing ASTP and STS-1 through STS-13 launch conditions are presented in References 3 through 14, respectively. Table 1 gives the atmospheric L+0 launch conditions for all the Space Shuttle missions.

II. SOURCES OF DATA

Atmospheric observational data used in this report were taken from synoptic maps made by the National Weather Service plus all available surface observations and measurements from around the launch area. Upper air observations were taken from balloon-released instruments sent aloft from Cape Canaveral Air Force Station (CCAFS). High-altitude winds and thermodynamic data were measured by the Super-Loki rocketsondes launched from the CCAFS. Table 2 presents a listing of systems used to obtain the upper level wind profiles used in compiling the final ascent atmospheric data tape. The Redstone ship released omegasonde and Super-Loki rocket data were used in the upper level atmospheric regions for the construction of the final SRB impact/descent atmospheric data tape. Data cutoff altitudes are also given in Table 2.

III. GENERAL SYNOPTIC SITUATION AT LAUNCH TIME

A cold front extended southward from Canada to a low pressure center over Michigan. The cold front continued southwestward through the Ohio Valley, Missouri and Kansas. The front became stationary over the Rockies.

High pressure prevailed over the southeast and was centered over southwest Georgia. Light and northerly surface winds dominated most of Florida and moderate temperatures were the rule at launch time.

Figure 1 presents the surface map conditions approximately 42 minutes before STS-41D launch. Figure 2 depicts winds aloft conditions at the 500 mb pressure level approximately 42 minutes before launch. Weak westerly winds prevailed aloft over the KSC Florida area.

There were patches of shallow ground fog over north and central Florida. But for the most part skies were generally clear with cloud cover less than three-tenths.

Figure 3 presents the GOES-5 infrared southeast U.S. cloud picture taken just prior to launch (1230 UT). Figure 4 shows an up-close visible shot of the Florida peninsula as recorded by GOES-5, taken at 1230 UT.

IV. SURFACE OBSERVATIONS AT LAUNCH TIME

Surface observations at launch time for selected KSC locations are given in Table 3. Included are pad 39A, shuttle runway, and CCAFS balloon release station observations. Neither precipitation nor lightning was observed at launch time.

Table 4 presents PAD 39A wind data along with other standard hourly atmospheric measurements and sky observations for the 6-hr period prior to launch of STS-41D. Value for wind speed and direction are given for the 84 m (275 ft) FSS reference level and 18 m (60 ft) pad light pole level.

V. UPPER AIR MEASUREMENTS DURING LAUNCH

The FPS-16 Jimsphere (1257 UT), MSS Rawinsonde (1242 UT), Super-Loki Rocketsonde (1454 UT), and Super-Loki Robin (1354 UT) systems were used to measure the upper level wind and thermodynamic parameters for STS-41D launch. At altitudes above the rocket-measured data, the Global Reference Atmosphere (GRA) [15] parameters for August KSC conditions were used. A tabulation of the STS-41D final atmospheric data for ascent is presented in Table 5 which lists the wind and thermodynamic parameters versus altitude. A brief summary of parameters is given in the following paragraphs.

A. Wind Speed

At launch time, wind speeds were light (3.0 ft/sec) at 60 ft and increased to a maximum of 44 ft/sec (26 kn) blowing from 270 deg. This maximum occurred at an altitude of 40,300 ft (12,283 m). The winds then decreased near the tropopause and increased in magnitude as shown in Figure 5. The overall maximum measured speed was 168 ft/sec (99 kn) at 191,000 ft (58,217 m) altitude.

B. Wind Direction

At launch time, the 60-ft wind direction was from the east-southeast (106 deg) and shifted through the south to a westerly component above 3,300 ft (1006 m). Winds remained westerly throughout most of the upper troposphere and lower stratosphere to 60,000 ft (18,288 m) where the summer easterlys prevailed throughout most of the mesosphere. Figure 5 shows the complete wind direction versus altitude profile. As shown in Figure 5, wind direction became quite variable at altitudes with low wind speeds.

C. Prelaunch/Launch Wind Profiles

Prelaunch/launch wind profiles presented in Figures 6 through 9 were measured by the Jimsphere FPS-16 system. Data are shown for four measurement periods beginning at L-13 hr and extending through L+0.

The wind speed and direction profiles for the 13-hr period prior to and including L+0 are shown in Figures 6 and 7. The in-plane (head-tail wind) and out-of-plane (left-right crosswind) profiles are given on Figures 8 and 9. The wind speeds and in-plane component speeds were greater than the August means but less than the 95 percent values within the 30,000 ft to 50,000 ft altitude layer. The out-of-plane component speeds were approximately equal to the mean values. No ascent load exceedences were calculated. The prelaunch atmospheric conditions are discussed in more detail in Section III.

D. Thermodynamic Data

The thermodynamic data taken at STS-41D launch time, consisting of atmospheric temperature, dew-point temperature, pressure, and density have been compiled as the STS-41D ascent atmospheric data and are presented in Table 5. The associated thermodynamic data taken in support of the SRB descent have also been assembled as the STS-41D SRB descent/impact atmospheric data and are presented in Table 6. The vertical structure of temperature for the STS-41D ascent and for the SRB descent is shown graphically versus altitude in Figure 10.

The atmospheric thermodynamic parameters of temperature, pressure, and density, measured during STS-41D launch below 183,000 ft (55,778 m) were all within 5 percent of their respective PRA-63 [16] annual values. All these parameters stayed within 14 percent of their respective PRA-63 values, at all levels of measurement.

E. SRB Upper Air and Surface Measurements

As has been mentioned in earlier paragraphs, an SRB descent atmospheric data tape has also been constructed which consists of data taken from the Omegasonde-Rawinsonde system (1613 UT) aboard the USNS Redstone, which was stationed off the coast in the Atlantic Ocean. The CCAFS measured Super-Loki rocketsonde data and the GRA model data were used at altitude levels above the measured Omegasonde data. The tabular values for the SRB descent meteorological tape are presented in Table 6, with wind speed and direction profiles presented in Figure 11. Figure 10 gives the vertical temperature profile.

The surface-ship atmospheric and oceanographic observations taken close to STS-41D SRB impact are presented in Table 7.

TABLE 1. SELECTED ATMOSPHERIC OBSERVATIONS FOR THE FLIGHT TESTS OF THE SPACE SHUTTLE VEHICLES

Seq. No.	Vehicle Data				Surface Observations				Inflight Conditions Max. Wind Below 60,000 ft			Count Down and Launch Comments of Meteorological Significance	
	Vehicle No.	Launch Date	Time (EST) Nearest Minute	Launch Pad	Thermodynamic ^a			Wind ^b		Alt. (ft)	Speed (ft/sec)		Dir. (deg)
					Press. ^c N/cm ²	Temp. (°C)	Rel. Hum. (%)	Speed (ft/sec)	Dir. (deg)				
1	STS-1 Columbia	4/12/81	0700	39A	10.234 ^d	21	82	11.8 15.2	125 120	44,300	98	250	
2	STS-2 Columbia	11/12/81	1010	39A	10.166	23	61	27.0 27.0	345 355	36,300	158	286	
3	STS-3 Columbia	3/22/82	1100	39A	10.160	24	71	7.0 ^e 8.0 ^e	50 ^e 145 ^e	45,000	119	250	Wind directional change observed at Pad just prior to L+0. Onset of sea breeze.
4	STS-4 Columbia	6/27/82	1100 ^f	39A	10.200	29	70	5.8 ^g 4.9 ^g	133 ^g 141 ^g	47,900	37	329	
5	STS-5 Columbia	11/11/82	0719	39A	10.227	22	68	22.0 35.0	90 90	40,600	146	336	
6	STS-6 Challenger	4/4/83	1330	39A	10.183	23	55	12.7 16.4	63 55	46,100	155	277	
7	STS-7 Challenger	6/18/83	0733 ^f	39A	10.146	25	80	5.9 ^e 10.3 ^e	10 ^e 350 ^e	45,900	76	278	
8	STS-8 Challenger	8/30/83	0232 ^f	39A	10.111	24	97	8.8 14.0	269 268	45,100	30	349	17 min countdown delay due to adverse weather conditions. Thunderstorms in area.
9	STS-9 (SL-1) Columbia	11/28/83	1100	39A	10.153	24	83	19.1 32.0	183 190	47,100	117	252	
10	STS-11 (41-B) Challenger	2/3/84	0800	39A	10.173	17	75	0.0 NA	0 NA	38,200	143	288	
11	STS-13 (41-C) Challenger	4/6/84	0858	39A	10.149	16	56	21.5 18.6	320 275	37,700	176	289	
12	STS-41D Discovery	8/30/84	0842 ^f	39A	10.172	26	81	3.0 3.6	106 39	40,300	44	270	

a. Pad 39A thermodynamic measurements taken at approximately 1.2 m (4 ft) above natural grade at camera site No. 3.

b. 1 min average prior to L+0 of 60 ft P1P (listed first) and 275 ft FSS winds measured above natural grade.

c. Pressure measurement applicable to 21 ft above MSL unless otherwise indicated.

d. Pressure measurement applicable to 14 ft above MSL.

e. 10 sec average prior to L+0.

f. Eastern Daylight Time.

g. 30 sec average prior to L+0.

TABLE 2. SYSTEMS USED TO MEASURE UPPER AIR WIND DATA FOR STS-41D ASCENT*

Type of Data	Date: August 30, 1984		Portion of Data Used					
	Release Time		Start			End		
	Time (UT) (hr/min)	Time After L+0 (min)	Altitude m (ft)	Time After L+0 (min)	Altitude m (ft)	Time After L+0 (min)		
FPS-16 Jimsphere	12:57	15	6 (21)	15	17,374 (57,000)	79		
MSS Rawinsonde	12:42	0	17,678 (58,000)	58	29,870 (98,000)	98		
Super-Loki Rocketsonde (Datasonde)	14:54	132	62,179 (204,000)	132	30,175 (99,000)	149		
Super-Loki Rocketsonde (Robin)	13:54	72	83,515 (274,000)	72	62,484 (205,000)	73		
Omegasonde-Rawinsonde*	16:13	211	9 (28)	211	29,870 (98,000)	309		

* The Omegasonde-Rawinsonde was released from the USNS Redstone to measure the upper atmosphere for SRB descent/impact analyses.

TABLE 3. SURFACE OBSERVATIONS AT STS-41D LAUNCH TIME

Location ^a	Time After L+0 (min)	Pressure (MSL) N/cm ² (psia)	Temperature °K (°F)	Dew Point °K (°F)	Relative Humidity (%)	Visibility km (miles)	Sky Cover			Wind	
							Cloud** Amount	Cloud Type	Height of Base Meters (ft)	Speed ft/sec (kt)	Direction (deg)
NASA Space Shuttle Runway X68 ^e Winds Measured at 10.4 m (34 ft)	0	10.183 (14.769)	300.4 (81.0)	296.5 (74.0)	80	16 (10)	1	Cumulus	610 (2,000)	1.7 (1.0)	090
CCAFS XMR ^c Surface Measurements	0	10.176 (14.759)	299.8 (80.0)	296.5 (74.0)	82	16 (10)	1	Cumulo- Nimbus	457 (1,500)	0.0 (0.0)	0
Pad 39A ^d Lightpole SE 18.3 m (60.0 ft)	0	10.172* (14.753)*	299.4 (79.2)	295.9 (72.9)	81	-	1	Alto- Cumulus	3,050 (10,000)	3.0 ^b (1.8)	106 ^b
Pad 39A FSS (Top-SE) 83.8 m (275 ft)	0	-	-	-	-	-	-	Cirrus	9,150 (30,000)	3.6 ^b (2.1)	039 ^b

* Pad 39A Camera Site 3 barometric pressure instrument is located at approximately 21 ft above MSL. Sea level pressure was 10.180 N/cm².

** 3/10 total sky cover at X68 and 2/10 at CCAFS.

a. Altitudes of measurements are above natural grade, except where noted.

b. Approximately 1 min average prior to L+0.

c. Balloon release site.

d. Pad 39A thermodynamic measurements are taken at camera site No. 3, approximately 6.4 m (21 ft) above MSL.

e. Official STS-41D sky observational site.

TABLE 4. STS-41D PRE-LAUNCH THROUGH LAUNCH KSC PAD 39A ATMOSPHERIC MEASUREMENTS^a

30 August 1984 Time UT		Hourly Atmospheric Measurements										Sky Condition ^b			Other Remarks
		Temp. (°F)	Dew Point (°F)	RH (%)	275' Level (SE)		60' Level (SE)		Clouds	Total Sky Cover	Vis. (mi)				
					WS Kt	WD°	WS Kt	WD°							
0700	77	72	84	6	183	2	177	Scattered at 2,500 f	1/10	7	Patches of Shallow Ground Fog				
0800	76	71	84	3	94	3	79	Clear Skys	0/10	7	Patches of Shallow Ground Fog				
0900	76	72	87	7	155	3	145	Clear Skys	0/10	10	Patches of Shallow Ground Fog				
1000	76	72	88	2	190	0	0	Scattered at 1,500 ft Scattered at 8,000 ft	1/10	9	Patches of Shallow Ground Fog				
1100	75	72	91	2	270	0	0	Scattered at 1,500 ft Scattered at 8,000 ft Scattered at 30,000 ft	3/10	6	Ground Fog				
1200	77	72	85	0	0	0	0	Scattered at 2,000 ft Scattered at 8,000 ft Scattered at 30,000 ft	3/10	7	Patchy Shallow Ground Fog, ALQDS.				
L+0 ^c 1242	79	73	81	2	39	2	106	1/10 CU at 2,000 ft 0/10 SC at 4,000 ft 3/10 CI at 30,000 ft	3/10	10					

a. Hourly pad observations (obtained via MSFC/HOSC) averaged over 1 min, centered on the hour.

b. Sky observations taken at the Shuttle runway site X68.

c. L+0 PAD Wind and thermodynamic parameters obtained from HOSC strip char.s. SE Anemometers used at 60 and 275 ft levels for L+0 wind conditions (approximately 1 min average prior to L+0). Pad 39A L+0 atmospheric pressure, at 21 ft (MSL), was 10.172 N/cm². Sea level pressure was 10.180 N/cm².

TABLE 5. STS-41D FINAL ASCENT ATMOSPHERIC TAPE LISTING

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
00021	001	110	26.2	.1017+04	.1172+04	22.3
000100	003	098	26.7	.1014+04	.1169+04	22.3
000200	003	067	25.7	.1011+04	.1166+04	22.2
000300	003	046	25.5	.1007+04	.1163+04	22.2
000400	001	116	25.2	.1004+04	.1160+04	22.2
000500	001	119	25.0	.1000+04	.1157+04	22.2
000600	001	121	24.7	.9970+03	.1154+04	22.1
000700	001	124	24.5	.9936+03	.1151+04	22.1
000800	001	127	24.2	.9902+03	.1148+04	22.0
000900	000	132	24.0	.9867+03	.1145+04	22.0
001000	000	139	23.7	.9833+03	.1142+04	22.0
001100	000	145	23.5	.9799+03	.1139+04	21.8
001200	000	153	23.1	.9765+03	.1136+04	21.7
001300	000	164	23.1	.9731+03	.1133+04	21.5
001400	000	176	22.9	.9697+03	.1130+04	21.3
001500	000	189	22.8	.9664+03	.1127+04	21.2
001600	000	201	22.6	.9630+03	.1123+04	21.0
001700	000	211	22.4	.9597+03	.1120+04	20.8
001800	000	220	22.2	.9564+03	.1117+04	20.6
001900	000	227	22.0	.9530+03	.1114+04	20.5
002000	000	233	21.8	.9497+03	.1111+04	20.3
002100	001	239	21.6	.9464+03	.1108+04	19.9
002200	001	241	21.4	.9431+03	.1105+04	19.6
002300	001	245	21.2	.9398+03	.1102+04	19.2
002400	001	247	21.0	.9365+03	.1099+04	18.9
002500	001	249	20.7	.9332+03	.1096+04	18.5
002600	001	251	20.7	.9300+03	.1093+04	18.1
002700	001	253	20.5	.9267+03	.1090+04	17.8
002800	001	254	20.3	.9235+03	.1087+04	17.4
002900	001	255	20.1	.9203+03	.1085+04	17.1
003000	001	256	19.9	.9170+03	.1082+04	16.7
003100	001	257	19.7	.9138+03	.1079+04	16.3
003200	001	259	19.5	.9106+03	.1076+04	15.9
003300	001	259	19.3	.9074+03	.1073+04	15.4
003400	001	260	19.1	.9042+03	.1070+04	15.0
003500	001	260	18.9	.9010+03	.1067+04	14.6
003600	001	261	18.9	.8978+03	.1064+04	14.2
003700	002	261	18.5	.8947+03	.1061+04	13.8
003800	002	262	18.4	.8915+03	.1059+04	13.3
003900	002	262	18.2	.8884+03	.1055+04	12.9
004000	002	263	18.0	.8852+03	.1053+04	12.5
004100	002	263	17.9	.8821+03	.1050+04	12.3
004200	002	263	17.7	.8790+03	.1046+04	12.2
004300	002	264	17.5	.8758+03	.1043+04	12.0
004400	002	264	17.3	.8727+03	.1040+04	11.8
004500	002	264	17.2	.8696+03	.1037+04	11.7
004600	002	264	17.0	.8665+03	.1034+04	11.5
004700	002	265	16.9	.8635+03	.1031+04	11.3
004800	002	265	16.6	.8604+03	.1028+04	11.1
004900	002	265	16.5	.8573+03	.1025+04	11.0

TABLE 5. (Continued)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M ³)	DEW POINT (DEG C)
005000	002	265	16.1	.8543+03	.1022+04	10.8
005100	002	266	16.1	.8512+03	.1019+04	10.8
005200	002	266	15.9	.8482+03	.1017+04	10.7
005300	003	266	15.6	.8452+03	.1014+04	10.6
005400	003	266	15.4	.8421+03	.1011+04	10.6
005500	003	266	15.2	.8391+03	.1009+04	10.5
005600	003	266	15.2	.8361+03	.1005+04	10.5
005700	003	267	14.8	.8331+03	.1002+04	10.5
005800	003	267	14.5	.8302+03	.9995+03	10.5
005900	003	267	14.3	.8272+03	.9967+03	10.4
006000	003	267	14.1	.8242+03	.9939+03	10.3
006100	005	279	13.8	.8213+03	.9911+03	10.2
006200	007	254	13.6	.8183+03	.9884+03	10.2
006300	007	237	13.3	.8154+03	.9857+03	10.1
006400	008	248	13.1	.8124+03	.9830+03	10.0
006500	011	249	12.8	.8095+03	.9804+03	10.0
006600	009	230	12.6	.8066+03	.9777+03	9.9
006700	009	242	12.3	.8037+03	.9750+03	9.8
006800	009	222	12.1	.8008+03	.9724+03	9.7
006900	007	239	11.8	.7979+03	.9697+03	9.7
007000	008	255	11.6	.7950+03	.9671+03	9.6
007100	007	240	11.3	.7921+03	.9645+03	9.3
007200	007	260	11.1	.7892+03	.9620+03	9.0
007300	008	257	10.8	.7864+03	.9595+03	8.7
007400	006	236	10.6	.7835+03	.9569+03	8.4
007500	007	263	10.3	.7807+03	.9544+03	8.1
007600	009	251	10.1	.7778+03	.9519+03	7.9
007700	006	244	9.8	.7750+03	.9494+03	7.6
007800	008	270	9.5	.7722+03	.9469+03	7.3
007900	007	256	9.3	.7694+03	.9444+03	7.0
008000	003	244	9.0	.7666+03	.9419+03	6.7
008100	006	282	9.0	.7638+03	.9389+03	5.5
008200	005	273	8.9	.7610+03	.9359+03	4.4
008300	004	255	8.9	.7582+03	.9329+03	3.2
008400	008	275	8.8	.7554+03	.9299+03	2.0
008500	009	270	8.8	.7526+03	.9269+03	.9
008600	008	261	8.8	.7499+03	.9239+03	-1.3
008700	011	281	8.7	.7471+03	.9209+03	-1.5
008800	016	280	8.7	.7444+03	.9178+03	-2.7
008900	013	276	8.6	.7417+03	.9147+03	-3.8
009000	014	285	8.6	.7390+03	.9117+03	-5.0
009100	017	279	8.6	.7362+03	.9085+03	-5.7
009200	017	272	8.5	.7335+03	.9054+03	-6.4
009300	018	277	8.5	.7308+03	.9022+03	-7.1
009400	020	282	8.5	.7281+03	.8991+03	-7.8
009500	019	277	8.5	.7255+03	.8960+03	-8.4
009600	018	280	8.4	.7228+03	.8928+03	-9.1
009700	016	291	8.4	.7202+03	.8897+03	-9.8
009800	019	282	8.4	.7175+03	.8866+03	-10.5
009900	011	270	8.3	.7149+03	.8835+03	-11.2

TABLE 5. (Continued)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M ³)	DEW POINT (DEG C)
010000	015	277	8.3	.7122+03	.8804+03	-11.9
010100	017	285	8.3	.7096+03	.8774+03	-12.1
010200	018	275	8.2	.7070+03	.8743+03	-12.4
010300	014	274	8.1	.7044+03	.8713+03	-12.6
010400	013	270	8.1	.7018+03	.8682+03	-12.8
010500	012	266	8.0	.6992+03	.8652+03	-13.0
010600	021	279	8.0	.6967+03	.8622+03	-13.3
010700	020	278	8.0	.6941+03	.8592+03	-13.5
010800	013	273	7.9	.6915+03	.8562+03	-13.7
011000	014	266	7.9	.6890+03	.8532+03	-14.0
011100	013	269	7.9	.6865+03	.8502+03	-14.2
011200	010	257	7.7	.6839+03	.8475+03	-14.2
011300	010	244	7.5	.6814+03	.8448+03	-14.2
011400	010	264	7.4	.6789+03	.8421+03	-14.2
011500	011	262	7.2	.6764+03	.8394+03	-14.2
011600	010	298	7.1	.6739+03	.8367+03	-14.2
011700	008	297	7.0	.6714+03	.8340+03	-14.3
011800	010	247	6.8	.6689+03	.8314+03	-14.3
011900	009	226	6.7	.6664+03	.8287+03	-14.3
012000	008	235	6.5	.6640+03	.8261+03	-14.3
012100	008	297	6.4	.6615+03	.8234+03	-14.3
012200	008	247	6.2	.6591+03	.8210+03	-14.1
012300	012	269	6.0	.6566+03	.8186+03	-13.9
012400	009	279	5.7	.6542+03	.8161+03	-13.6
012500	008	270	5.5	.6517+03	.8137+03	-13.4
012600	010	301	5.3	.6493+03	.8113+03	-13.2
012700	010	298	5.1	.6469+03	.8089+03	-13.0
012800	008	294	4.9	.6445+03	.8065+03	-12.8
012900	008	309	4.6	.6421+03	.8041+03	-12.5
013000	012	309	4.4	.6397+03	.8018+03	-12.3
013100	009	299	4.2	.6374+03	.7994+03	-12.1
013200	011	302	4.0	.6350+03	.7970+03	-11.9
013300	011	303	3.8	.6326+03	.7946+03	-11.7
013400	010	287	3.6	.6302+03	.7922+03	-11.5
013500	013	289	3.4	.6279+03	.7898+03	-11.3
013600	014	294	3.2	.6255+03	.7874+03	-11.1
013700	014	285	2.9	.6232+03	.7850+03	-10.9
013800	013	280	2.7	.6208+03	.7827+03	-10.7
013900	014	291	2.5	.6185+03	.7803+03	-10.5
014000	016	283	2.3	.6162+03	.7780+03	-10.3
014100	015	281	2.1	.6139+03	.7756+03	-10.1
014200	015	287	1.9	.6116+03	.7733+03	-10.2
014300	016	284	1.7	.6093+03	.7710+03	-10.3
014400	013	274	1.5	.6070+03	.7686+03	-10.4
014500	011	274	1.3	.6047+03	.7663+03	-10.5
014600	013	288	1.1	.6024+03	.7640+03	-10.6
014700	010	274	.9	.6001+03	.7617+03	-10.7
014800	010	277	.6	.5979+03	.7595+03	-10.8
014900	011	292	.4	.5956+03	.7572+03	-10.9
014900	012	283	.2	.5934+03	.7549+03	-11.0

TABLE 5. (Continued)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MLLBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
015000	011	280		.5911+03	.7526+03	-11.1
015100	013	288	-0.2	.5889+03	.7503+03	-11.3
015200	013	274	-0.3	.5866+03	.7479+03	-11.6
015300	012	273	-0.5	.5849+03	.7456+03	-11.8
015400	013	282	-0.7	.5832+03	.7432+03	-12.1
015500	012	274	-0.8	.5808+03	.7409+03	-12.3
015600	011	279	-1.0	.5786+03	.7385+03	-12.6
015700	011	283	-1.2	.5756+03	.7362+03	-12.8
015800	012	272	-1.4	.5739+03	.7339+03	-13.1
015900	010	251	-1.5	.5712+03	.7316+03	-13.3
016000	008	245	-1.7	.5691+03	.7293+03	-13.6
016100	011	243	-1.9	.5669+03	.7270+03	-13.7
016200	010	239	-2.1	.5647+03	.7248+03	-13.9
016300	010	244	-2.3	.5626+03	.7226+03	-14.0
016400	010	231	-2.5	.5604+03	.7203+03	-14.1
016500	007	230	-2.7	.5583+03	.7181+03	-14.2
016600	007	257	-2.9	.5561+03	.7159+03	-14.4
016700	007	238	-3.1	.5540+03	.7137+03	-14.5
016800	005	247	-3.3	.5519+03	.7115+03	-14.6
016900	008	268	-3.5	.5498+03	.7093+03	-14.8
017000	008	262	-3.7	.5477+03	.7071+03	-14.9
017100	007	281	-3.9	.5456+03	.7049+03	-14.9
017200	008	278	-4.1	.5435+03	.7028+03	-15.0
017300	007	264	-4.3	.5414+03	.7006+03	-15.0
017400	009	283	-4.5	.5393+03	.6984+03	-15.1
017500	008	276	-4.7	.5372+03	.6962+03	-15.1
017600	009	276	-4.9	.5351+03	.6941+03	-15.2
017700	013	294	-5.1	.5331+03	.6919+03	-15.2
017800	009	282	-5.3	.5310+03	.6897+03	-15.3
017900	010	289	-5.5	.5290+03	.6876+03	-15.3
018000	012	292	-5.7	.5269+03	.6855+03	-15.4
018100	010	277	-5.9	.5249+03	.6834+03	-15.5
018200	007	275	-6.2	.5229+03	.6814+03	-15.5
018300	010	283	-6.4	.5208+03	.6793+03	-15.6
018400	010	272	-6.7	.5198+03	.6773+03	-15.7
018500	009	273	-6.9	.5168+03	.6753+03	-15.7
018600	012	290	-7.1	.5148+03	.6733+03	-15.8
018700	011	285	-7.4	.5128+03	.6713+03	-15.9
018800	011	292	-7.6	.5108+03	.6693+03	-16.0
018900	013	291	-7.9	.5098+03	.6673+03	-16.0
019000	013	281	-8.1	.5068+03	.6653+03	-16.1
019100	015	287	-8.3	.5049+03	.6632+03	-16.5
019200	014	287	-8.5	.5029+03	.6612+03	-16.8
019300	013	277	-8.7	.5009+03	.6591+03	-17.2
019400	014	292	-8.9	.4989+03	.6571+03	-17.5
019500	014	286	-9.1	.4970+03	.6551+03	-17.9
019600	014	277	-9.4	.4950+03	.6530+03	-18.3
019700	014	287	-9.6	.4931+03	.6510+03	-18.6
019800	015	283	-9.8	.4912+03	.6490+03	-19.0
019900	013	276	-10.0	.4893+03	.6470+03	-19.3

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TABLE 5. (Continued)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MM Hg)	DENSITY (GRAM/M ³)	DEW POINT (DEG C)
020000	012	287	-10.2	.4873+03	.6450+03	-19.7
020100	013	283	-10.3	.4854+03	.6429+03	-20.3
020200	012	273	-10.5	.4835+03	.6407+03	-21.4
020300	010	264	-10.6	.4816+03	.6386+03	-22.0
020400	012	255	-10.8	.4797+03	.6365+03	-22.6
020500	010	256	-10.9	.4778+03	.6343+03	-23.2
020600	011	278	-11.1	.4759+03	.6322+03	-23.6
020700	013	269	-11.2	.4740+03	.6301+03	-24.3
020800	011	265	-11.4	.4722+03	.6280+03	-24.9
020900	015	269	-11.5	.4703+03	.6259+03	-25.5
021000	015	265	-11.7	.4685+03	.6238+03	-25.7
021100	018	276	-11.9	.4666+03	.6218+03	-25.8
021200	020	276	-12.1	.4647+03	.6197+03	-26.0
021300	017	282	-12.2	.4629+03	.6177+03	-26.2
021400	020	284	-12.4	.4611+03	.6157+03	-26.3
021500	019	286	-12.6	.4592+03	.6137+03	-26.5
021600	021	291	-12.8	.4574+03	.6117+03	-26.7
021700	019	284	-13.0	.4556+03	.6096+03	-26.9
021800	017	287	-13.1	.4538+03	.6077+03	-27.0
021900	016	282	-13.3	.4520+03	.6057+03	-27.2
022000	015	281	-13.5	.4502+03	.6037+03	-27.3
022100	016	282	-13.6	.4484+03	.6016+03	-27.5
022200	016	286	-13.8	.4466+03	.5996+03	-27.6
022300	018	294	-13.9	.4448+03	.5975+03	-27.7
022400	017	292	-14.1	.4430+03	.5955+03	-27.8
022500	016	294	-14.3	.4413+03	.5934+03	-28.0
022600	017	280	-14.4	.4395+03	.5914+03	-28.1
022700	017	278	-14.5	.4378+03	.5894+03	-28.2
022800	019	275	-14.7	.4360+03	.5874+03	-28.4
022900	019	272	-14.8	.4343+03	.5854+03	-28.5
023000	021	277	-15.0	.4325+03	.5834+03	-28.6
023100	020	276	-15.2	.4308+03	.5815+03	-28.7
023200	023	276	-15.4	.4291+03	.5797+03	-28.7
023300	022	272	-15.6	.4273+03	.5778+03	-28.8
023400	021	273	-15.8	.4256+03	.5759+03	-28.9
023500	020	274	-16.0	.4239+03	.5741+03	-29.1
023600	017	272	-16.3	.4222+03	.5723+03	-29.1
023700	019	276	-16.5	.4205+03	.5704+03	-29.2
023800	017	268	-16.7	.4188+03	.5686+03	-29.2
023900	018	274	-16.9	.4171+03	.5668+03	-29.3
024000	016	268	-17.1	.4154+03	.5649+03	-29.3
024100	017	274	-17.3	.4137+03	.5632+03	-29.3
024200	016	263	-17.6	.4121+03	.5614+03	-29.3
024300	016	268	-17.8	.4104+03	.5597+03	-29.3
024400	014	263	-18.1	.4087+03	.5579+03	-29.3
024500	015	267	-18.3	.4071+03	.5562+03	-29.3
024600	016	271	-18.5	.4054+03	.5544+03	-29.2
024700	016	264	-18.8	.4038+03	.5527+03	-29.2
024800	017	272	-19.0	.4021+03	.5510+03	-29.2
024900	016	266	-19.3	.4005+03	.5493+03	-29.2

TABLE 5. (Continued)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
025200	016	270	-19.5	.3972+03	.5458+03	-29.2
025100	016	272	-19.7	.3956+03	.5441+03	-29.1
025200	016	271	-20.0	.3940+03	.5423+03	-29.0
025300	017	279	-20.2	.3924+03	.5406+03	-29.0
025400	016	272	-20.4	.3908+03	.5389+03	-29.0
025500	016	279	-20.6	.3892+03	.5371+03	-29.0
025600	017	274	-20.9	.3876+03	.5354+03	-28.9
025700	019	279	-21.1	.3860+03	.5337+03	-28.9
025800	022	287	-21.3	.3844+03	.5320+03	-28.8
025900	023	280	-21.6	.3828+03	.5303+03	-28.8
026000	029	281	-21.8	.3813+03	.5285+03	-28.9
026100	028	280	-22.0	.3797+03	.5268+03	-29.0
026200	027	282	-22.2	.3791+03	.5250+03	-29.1
026300	030	285	-22.4	.3766+03	.5233+03	-29.2
026400	029	282	-22.6	.3750+03	.5215+03	-29.3
026500	030	286	-22.9	.3735+03	.5198+03	-29.4
026600	029	284	-23.0	.3719+03	.5181+03	-29.5
026700	029	284	-23.2	.3704+03	.5163+03	-29.6
026800	031	284	-23.4	.3688+03	.5146+03	-29.7
026900	029	282	-23.6	.3673+03	.5129+03	-29.8
027000	032	285	-23.8	.3658+03	.5113+03	-30.2
027100	031	284	-24.0	.3643+03	.5096+03	-30.6
027200	030	286	-24.3	.3627+03	.5080+03	-31.0
027300	033	287	-24.5	.3612+03	.5063+03	-31.8
027400	030	286	-24.7	.3597+03	.5047+03	-32.1
027500	031	290	-24.9	.3582+03	.5031+03	-32.7
027600	031	288	-25.2	.3567+03	.5014+03	-33.1
027700	027	280	-25.4	.3553+03	.4998+03	-33.5
027800	031	284	-25.6	.3538+03	.4982+03	-33.9
027900	032	284	-25.9	.3523+03	.4966+03	-34.4
028000	031	279	-26.1	.3508+03	.4949+03	-34.9
028100	034	277	-26.3	.3493+03	.4932+03	-35.4
028200	033	273	-26.5	.3479+03	.4915+03	-35.9
028300	032	273	-26.7	.3464+03	.4898+03	-36.3
028400	032	273	-26.9	.3450+03	.4882+03	-36.8
028500	031	269	-27.0	.3435+03	.4865+03	-37.3
028600	030	274	-27.2	.3421+03	.4848+03	-37.8
028700	030	267	-27.4	.3406+03	.4832+03	-38.3
028800	030	270	-27.6	.3392+03	.4815+03	-38.8
028900	031	270	-27.8	.3378+03	.4799+03	-39.3
029000	029	266	-28.0	.3363+03	.4783+03	-39.8
029100	031	271	-28.2	.3349+03	.4767+03	-39.5
029200	029	268	-28.4	.3335+03	.4751+03	-39.8
029300	030	274	-28.7	.3321+03	.4735+03	-40.0
029400	030	272	-28.9	.3307+03	.4719+03	-40.2
029500	029	273	-29.1	.3293+03	.4704+03	-40.5
029600	030	281	-29.3	.3279+03	.4689+03	-40.7
029700	029	281	-29.5	.3265+03	.4672+03	-41.0
029800	027	285	-29.8	.3251+03	.4657+03	-41.0
029900	029	289	-30.1			

TABLE 5. (Continued)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M ³)	DEW POINT (DEG C)
030000	031	287	-30.2	.3237+03	.4641+03	-41.2
030100	027	289	-30.4	.3224+03	.4625+03	-41.5
030200	028	297	-30.6	.3210+03	.4610+03	-41.9
030300	028	300	-30.8	.3196+03	.4594+03	-42.2
030400	025	300	-31.0	.3182+03	.4578+03	-42.5
030500	026	306	-31.2	.3169+03	.4563+03	-42.8
030600	026	303	-31.5	.3155+03	.4547+03	-43.2
030700	023	301	-31.7	.3142+03	.4532+03	-43.5
030800	025	306	-31.9	.3128+03	.4516+03	-43.8
030900	024	301	-32.1	.3115+03	.4501+03	-44.2
031000	023	303	-32.3	.3102+03	.4485+03	-44.5
031100	024	307	-32.5	.3088+03	.4471+03	-44.8
031200	024	300	-32.8	.3075+03	.4456+03	-45.1
031300	024	300	-33.0	.3062+03	.4442+03	-45.4
031400	025	304	-33.3	.3048+03	.4427+03	-45.7
031500	025	297	-33.5	.3035+03	.4413+03	-45.9
031600	024	301	-33.8	.3022+03	.4398+03	-46.2
031700	027	302	-34.0	.3009+03	.4384+03	-46.5
031800	028	297	-34.3	.2996+03	.4370+03	-46.8
031900	025	298	-34.5	.2983+03	.4355+03	-47.1
032000	028	299	-34.8	.2970+03	.4341+03	-47.4
032100	027	295	-35.1	.2957+03	.4327+03	-47.3
032200	025	296	-35.3	.2945+03	.4313+03	-47.3
032300	025	299	-35.6	.2932+03	.4299+03	-47.2
032400	024	292	-35.8	.2919+03	.4284+03	-47.2
032500	024	295	-36.1	.2906+03	.4270+03	-47.1
032600	026	296	-36.4	.2894+03	.4257+03	-47.0
032700	024	294	-36.6	.2881+03	.4243+03	-47.0
032800	023	292	-36.9	.2868+03	.4229+03	-46.9
032900	026	294	-37.1	.2856+03	.4215+03	-46.9
033000	026	290	-37.4	.2843+03	.4201+03	-45.8
033100	026	291	-37.6	.2831+03	.4187+03	-46.9
033200	029	294	-37.9	.2818+03	.4173+03	-47.0
033300	028	292	-38.1	.2806+03	.4159+03	-47.0
033400	027	285	-38.4	.2794+03	.4145+03	-47.1
033500	028	283	-38.6	.2781+03	.4131+03	-47.2
033600	027	281	-38.8	.2769+03	.4117+03	-47.3
033700	024	276	-39.1	.2757+03	.4103+03	-47.4
033800	025	279	-39.3	.2745+03	.4089+03	-47.4
033900	027	278	-39.6	.2733+03	.4075+03	-47.5
034000	025	279	-39.8	.2721+03	.4061+03	-47.6
034100	027	282	-40.0	.2708+03	.4047+03	-47.8
034200	027	282	-40.3	.2696+03	.4033+03	-48.1
034300	024	279	-40.5	.2684+03	.4019+03	-48.3
034400	027	282	-40.7	.2672+03	.4005+03	-48.5
034500	027	281	-40.9	.2661+03	.3991+03	-48.7
034600	025	276	-41.2	.2649+03	.3977+03	-49.0
034700	027	278	-41.4	.2637+03	.3964+03	-49.2
034800	028	279	-41.6	.2625+03	.3950+03	-49.4
034900	026	274	-41.9	.2614+03	.3936+03	-49.7

TABLE 5. (Continued)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M ³)	DEW POINT (DEG C)
035000	028	282	-42.1	.2602+03	.3923+03	-49.9
035100	028	279	-42.3	.2590+03	.3909+03	-50.1
035200	027	277	-42.6	.2579+03	.3895+03	-50.4
035300	028	278	-42.8	.2567+03	.3882+03	-50.6
035400	028	280	-43.0	.2555+03	.3868+03	-50.9
035500	028	278	-43.2	.2544+03	.3854+03	-51.1
035600	030	281	-43.5	.2532+03	.3841+03	-51.3
035700	029	281	-43.7	.2521+03	.3828+03	-51.6
035800	029	278	-43.9	.2510+03	.3814+03	-51.8
035900	030	283	-44.2	.2498+03	.3801+03	-52.1
036000	029	281	-44.4	.2487+03	.3788+03	-52.3
036100	029	278	-44.6	.2476+03	.3774+03	-52.5
036200	031	278	-44.9	.2465+03	.3761+03	-52.7
036300	029	275	-45.1	.2453+03	.3749+03	-52.9
036400	029	277	-45.4	.2442+03	.3736+03	-53.1
036500	029	278	-45.6	.2431+03	.3723+03	-53.3
036600	026	284	-45.9	.2420+03	.3710+03	-53.6
036700	030	275	-46.1	.2409+03	.3697+03	-53.8
036800	031	286	-46.4	.2398+03	.3684+03	-54.0
036900	028	280	-46.6	.2387+03	.3672+03	-54.2
037000	031	280	-46.9	.2377+03	.3659+03	-54.4
037100	033	280	-47.1	.2366+03	.3646+03	-54.6
037200	030	282	-47.4	.2355+03	.3634+03	-54.8
037300	030	278	-47.6	.2344+03	.3621+03	-55.0
037400	031	281	-47.9	.2333+03	.3608+03	-55.2
037500	030	275	-48.1	.2323+03	.3596+03	-55.4
037600	030	279	-48.4	.2312+03	.3583+03	-55.6
037700	030	275	-48.6	.2301+03	.3571+03	-55.8
037800	029	273	-48.9	.2291+03	.3558+03	-56.0
037900	031	272	-49.1	.2280+03	.3546+03	-56.2
038000	030	266	-49.4	.2270+03	.3534+03	-56.4
038100	033	266	-49.7	.2259+03	.3521+03	-56.6
038200	033	262	-49.9	.2249+03	.3509+03	-56.8
038300	032	261	-50.2	.2238+03	.3497+03	-57.1
038400	034	262	-50.4	.2228+03	.3485+03	-57.3
038500	034	269	-50.7	.2217+03	.3473+03	-57.5
038600	035	265	-51.0	.2207+03	.3460+03	-57.7
038700	040	260	-51.2	.2197+03	.3448+03	-57.9
038800	038	263	-51.5	.2187+03	.3436+03	-58.2
038900	041	261	-51.7	.2177+03	.3425+03	-58.4
039000	040	261	-52.0	.2166+03	.3413+03	-58.6
039100	043	260	-52.3	.2156+03	.3401+03	-58.8
039200	040	260	-52.5	.2146+03	.3389+03	-59.0
039300	040	265	-52.8	.2136+03	.3377+03	-59.3
039400	041	261	-53.0	.2126+03	.3365+03	-59.5
039500	041	263	-53.3	.2116+03	.3353+03	-59.7
039600	041	265	-53.6	.2106+03	.3341+03	-59.9
039700	042	262	-53.9	.2096+03	.3329+03	-60.1
039800	042	265	-54.1	.2086+03	.3319+03	-60.4
039900	043	266	-54.3	.2077+03	.3306+03	-60.6

TABLE 5. (Continued)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MM HG)	DENSITY (GRAM/M ³)	DEW POINT (DEG C)
04000	042	269	-54.6	2057+03	3294+03	-60.8
04010	043	269	-54.9	2057+03	3282+03	-61.0
04020	042	269	-55.1	2047+03	3274+03	-61.2
04030	044	271	-55.3	2037+03	3259+03	-61.4
04040	043	268	-55.6	2028+03	3247+03	-61.6
04050	043	270	-55.8	2018+03	3235+03	-61.8
04060	042	271	-56.1	2009+03	3224+03	-62.1
04070	040	267	-56.3	1999+03	3212+03	-62.3
04080	041	267	-56.6	1990+03	3201+03	-62.5
04090	042	262	-56.8	1980+03	3189+03	-62.7
04100	040	262	-57.1	1971+03	3178+03	-62.9
04110	041	266	-57.3	1961+03	3166+03	-62.9
04120	040	264	-57.6	1952+03	3154+03	-62.9
04130	040	265	-57.9	1942+03	3143+03	-62.9
04140	042	265	-58.1	1933+03	3131+03	-62.9
04150	041	264	-58.3	1924+03	3120+03	-62.9
04160	041	268	-58.5	1914+03	3109+03	-62.9
04170	044	267	-58.8	1905+03	3097+03	-62.9
04180	041	264	-59.1	1896+03	3086+03	-62.9
04190	041	267	-59.3	1887+03	3075+03	-62.9
04200	041	262	-59.6	1878+03	3063+03	-62.9
04210	040	264	-59.9	1869+03	3052+03	-62.9
04220	040	265	-60.1	1860+03	3041+03	-62.9
04230	039	264	-60.3	1851+03	3030+03	-62.9
04240	039	267	-60.6	1842+03	3018+03	-62.9
04250	038	262	-60.8	1833+03	3007+03	-62.9
04260	038	267	-61.1	1824+03	2996+03	-62.9
04270	041	265	-61.3	1815+03	2985+03	-62.9
04280	039	266	-61.6	1806+03	2974+03	-62.9
04290	040	269	-61.8	1797+03	2963+03	-62.9
04300	039	266	-62.1	1789+03	2952+03	-62.9
04310	039	267	-62.3	1780+03	2941+03	-62.9
04320	040	267	-62.6	1771+03	2930+03	-62.9
04330	040	263	-62.8	1762+03	2919+03	-62.9
04340	041	266	-63.0	1754+03	2907+03	-62.9
04350	043	267	-63.2	1745+03	2896+03	-62.9
04360	040	267	-63.5	1736+03	2885+03	-62.9
04370	040	269	-63.7	1728+03	2874+03	-62.9
04380	043	269	-63.9	1719+03	2863+03	-62.9
04390	041	268	-64.2	1711+03	2852+03	-62.9
04400	040	265	-64.4	1703+03	2841+03	-62.9
04410	040	270	-64.5	1694+03	2829+03	-62.9
04420	037	264	-64.7	1686+03	2817+03	-62.9
04430	038	262	-64.8	1677+03	2805+03	-62.9
04440	042	261	-65.0	1669+03	2793+03	-62.9
04450	042	261	-65.1	1661+03	2782+03	-62.9
04460	042	261	-65.3	1653+03	2770+03	-62.9
04470	040	266	-65.4	1644+03	2758+03	-62.9
04480	042	265	-65.6	1636+03	2746+03	-62.9
04490	040	269	-65.7	1628+03	2735+03	-62.9

TABLE 5. (Continued)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M ³)	DEW POINT (DEG C)
045000	042	268	-65.9	.1620+03	.2723+03	-9999.
045100	041	278	-66.0	.1612+03	.2711+03	-9999.
045200	040	280	-66.1	.1604+03	.2698+03	-9999.
045300	039	282	-66.1	.1596+03	.2686+03	-9999.
045400	042	287	-66.2	.1588+03	.2673+03	-9999.
045500	041	284	-66.3	.1580+03	.2661+03	-9999.
045600	039	283	-66.4	.1572+03	.2649+03	-9999.
045700	040	286	-66.5	.1564+03	.2636+03	-9999.
045800	039	290	-66.6	.1556+03	.2624+03	-9999.
045900	036	286	-66.6	.1549+03	.2612+03	-9999.
046000	037	287	-66.7	.1541+03	.2600+03	-9999.
046100	041	290	-66.9	.1533+03	.2589+03	-9999.
046200	038	291	-67.0	.1525+03	.2578+03	-9999.
046300	038	292	-67.2	.1518+03	.2568+03	-9999.
046400	037	293	-67.4	.1510+03	.2557+03	-9999.
046500	035	296	-67.5	.1503+03	.2546+03	-9999.
046600	034	289	-67.7	.1495+03	.2535+03	-9999.
046700	031	287	-67.9	.1488+03	.2525+03	-9999.
046800	032	297	-68.1	.1480+03	.2514+03	-9999.
046900	031	305	-68.2	.1473+03	.2504+03	-9999.
047000	032	294	-68.4	.1465+03	.2493+03	-9999.
047100	031	299	-68.4	.1458+03	.2481+03	-9999.
047200	029	304	-68.5	.1451+03	.2469+03	-9999.
047300	030	305	-68.5	.1443+03	.2457+03	-9999.
047400	032	305	-68.5	.1436+03	.2445+03	-9999.
047500	026	310	-68.5	.1429+03	.2433+03	-9999.
047600	024	300	-68.6	.1422+03	.2421+03	-9999.
047700	024	307	-68.6	.1414+03	.2409+03	-9999.
047800	021	302	-68.6	.1407+03	.2397+03	-9999.
047900	016	302	-68.7	.1400+03	.2385+03	-9999.
048000	017	303	-68.7	.1393+03	.2374+03	-9999.
048100	012	297	-68.7	.1386+03	.2362+03	-9999.
048200	012	279	-68.8	.1379+03	.2351+03	-9999.
048300	008	272	-68.8	.1372+03	.2340+03	-9999.
048400	012	277	-68.9	.1365+03	.2328+03	-9999.
048500	019	273	-68.9	.1358+03	.2317+03	-9999.
048600	019	276	-69.0	.1351+03	.2306+03	-9999.
048700	020	265	-69.0	.1345+03	.2295+03	-9999.
048800	017	280	-69.1	.1338+03	.2284+03	-9999.
048900	020	291	-69.1	.1331+03	.2273+03	-9999.
049000	017	297	-69.2	.1324+03	.2262+03	-9999.
049100	012	284	-69.3	.1318+03	.2248+03	-9999.
049200	003	324	-68.8	.1311+03	.2235+03	-9999.
049300	004	166	-68.6	.1304+03	.2222+03	-9999.
049400	009	165	-68.4	.1298+03	.2208+03	-9999.
049500	008	190	-68.2	.1291+03	.2195+03	-9999.
049600	011	195	-68.3	.1285+03	.2182+03	-9999.
049700	017	202	-67.8	.1278+03	.2169+03	-9999.
049800	020	203	-67.6	.1272+03	.2156+03	-9999.
049900	021	206	-67.4	.1265+03	.2143+03	-9999.

TABLE 5. (Continued)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (NEG C)	PRESSURE (MT, TBARS)	DENSITY (GRAM/M3)	DEM POINT (DEG C)
050000	020	197	-67.2	.1259+03	.2130+03	-9999.
050100	021	192	-67.1	.1253+03	.2118+03	-9999.
050200	022	189	-67.0	.1247+03	.2107+03	-9999.
050300	022	182	-66.9	.1240+03	.2095+03	-9999.
050400	017	169	-66.8	.1234+03	.2084+03	-9999.
050500	021	172	-66.7	.1228+03	.2072+03	-9999.
050600	020	167	-66.6	.1222+03	.2061+03	-9999.
050700	022	182	-66.5	.1216+03	.2049+03	-9999.
050800	025	177	-66.4	.1210+03	.2038+03	-9999.
050900	018	181	-66.3	.1204+03	.2027+03	-9999.
051000	020	181	-66.2	.1198+03	.2016+03	-9999.
051100	018	182	-66.3	.1192+03	.2007+03	-9999.
051200	016	195	-66.4	.1186+03	.1998+03	-9999.
051300	015	191	-66.5	.1180+03	.1989+03	-9999.
051400	015	182	-66.6	.1174+03	.1980+03	-9999.
051500	017	191	-66.7	.1168+03	.1971+03	-9999.
051600	015	160	-66.2	.1162+03	.1963+03	-9999.
051700	015	189	-67.0	.1156+03	.1954+03	-9999.
051800	016	198	-67.1	.1151+03	.1945+03	-9999.
051900	017	187	-67.2	.1145+03	.1936+03	-9999.
052000	014	176	-67.3	.1139+03	.1928+03	-9999.
052100	013	174	-67.1	.1133+03	.1917+03	-9999.
052200	012	143	-67.0	.1128+03	.1905+03	-9999.
052300	014	144	-66.8	.1122+03	.1894+03	-9999.
052400	014	137	-66.6	.1117+03	.1883+03	-9999.
052500	014	145	-66.4	.1111+03	.1872+03	-9999.
052600	008	127	-66.3	.1105+03	.1861+03	-9999.
052700	006	068	-66.1	.1100+03	.1851+03	-9999.
052800	011	039	-65.9	.1094+03	.1840+03	-9999.
052900	011	042	-65.8	.1089+03	.1829+03	-9999.
053000	008	075	-65.6	.1084+03	.1819+03	-9999.
053100	008	080	-65.6	.1078+03	.1809+03	-9999.
053200	006	097	-65.5	.1073+03	.1800+03	-9999.
053300	010	149	-65.5	.1067+03	.1791+03	-9999.
053400	007	163	-65.4	.1062+03	.1781+03	-9999.
053500	005	211	-65.4	.1057+03	.1772+03	-9999.
053600	005	204	-65.4	.1052+03	.1763+03	-9999.
053700	006	136	-65.3	.1046+03	.1754+03	-9999.
053800	004	117	-65.3	.1041+03	.1745+03	-9999.
053900	005	076	-65.2	.1036+03	.1736+03	-9999.
054000	004	076	-65.2	.1031+03	.1727+03	-9999.
054100	004	011	-65.2	.1026+03	.1719+03	-9999.
054200	004	317	-65.2	.1021+03	.1710+03	-9999.
054300	008	342	-65.3	.1016+03	.1702+03	-9999.
054400	010	343	-65.3	.1011+03	.1694+03	-9999.
054500	010	348	-65.3	.1006+03	.1685+03	-9999.
054600	006	019	-65.3	.1001+03	.1677+03	-9999.
054700	006	036	-65.3	.9996+02	.1669+03	-9999.
054800	003	076	-65.4	.9991+02	.1661+03	-9999.
054900	009	064	-65.4	.9986+02	.1653+03	-9999.

TABLE 5. (Continued)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M ³)	DEW POINT (DEG C)
055000	010	084	-65.4	.9809+02	.1645+03	-9999.
055100	012	117	-65.4	.9760+02	.1637+03	-9999.
055200	016	089	-65.5	.9712+02	.1629+03	-9999.
055300	018	110	-65.5	.9663+02	.1622+03	-9999.
055400	020	115	-65.6	.9615+02	.1614+03	-9999.
055500	020	101	-65.6	.9568+02	.1606+03	-9999.
055600	017	109	-65.7	.9520+02	.1599+03	-9999.
055700	014	097	-65.7	.9473+02	.1591+03	-9999.
055800	013	107	-65.8	.9426+02	.1584+03	-9999.
055900	011	120	-65.8	.9379+02	.1576+03	-9999.
056000	009	114	-65.9	.9332+02	.1569+03	-9999.
056100	011	114	-65.9	.9286+02	.1561+03	-9999.
056200	010	126	-65.9	.9239+02	.1553+03	-9999.
056300	009	139	-65.9	.9193+02	.1545+03	-9999.
056400	006	146	-65.9	.9146+02	.1538+03	-9999.
056500	007	146	-65.9	.9102+02	.1530+03	-9999.
056600	007	142	-65.9	.9057+02	.1522+03	-9999.
056700	009	176	-65.9	.9012+02	.1515+03	-9999.
056800	007	168	-65.9	.8967+02	.1507+03	-9999.
056900	005	170	-65.9	.8922+02	.1500+03	-9999.
057000	007	119	-65.9	.8878+02	.1492+03	-9999.
058000	019	117	-65.3	.8847+02	.1486+03	-9999.
059000	020	116	-65.2	.8837+02	.1386+03	-9999.
060000	021	098	-64.7	.8768+02	.1278+03	-9999.
061000	028	080	-63.1	.8728+02	.1207+03	-9999.
062000	035	074	-63.5	.8630+02	.1152+03	-9999.
063000	038	076	-62.3	.8598+02	.1090+03	-9999.
064000	039	078	-61.3	.8528+02	.1033+03	-9999.
065000	039	079	-60.1	.8445+02	.9766+02	-9999.
066000	038	078	-59.5	.8372+02	.9297+02	-9999.
067000	039	076	-60.0	.8333+02	.8880+02	-9999.
068000	041	075	-59.8	.8276+02	.8452+02	-9999.
069000	044	079	-59.2	.8232+02	.8031+02	-9999.
070000	046	087	-58.6	.8100+02	.7631+02	-9999.
071000	047	091	-57.7	.8000+02	.7244+02	-9999.
072000	046	091	-57.6	.8270+02	.6901+02	-9999.
073000	044	090	-58.1	.8070+02	.6593+02	-9999.
074000	044	089	-58.1	.8080+02	.6245+02	-9999.
075000	047	088	-56.9	.8698+02	.5957+02	-9999.
076000	050	089	-56.7	.8526+	.5675+02	-9999.
077000	051	093	-56.0	.8362+	.5369+02	-9999.
078000	052	090	-54.5	.8207+	.5113+02	-9999.
079000	053	096	-53.4	.8059+	.4849+02	-9999.
080000	054	101	-52.9	.8219+02	.4615+02	-9999.
081000	055	106	-50.8	.8796+02	.4365+02	-9999.
082000	055	109	-50.1	.8660+02	.4154+02	-9999.
083000	055	117	-48.2	.8541+02	.3935+02	-9999.
084000	054	109	-46.4	.8227+02	.3729+02	-9999.
085000	052	104	-49.2	.8319+02	.3607+02	-9999.
1146000	753	095	-89.4	.7215+02	.3449+02	-9999.

TABLE 5. (Continued)

ALTITUDE (FT)	WIND SPEED (F/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (IN HG)	DENSITY (GRAM/M ³)	DEW POINT (DEG C)
087000	056	087	-49.3	.2115+02	.3291+02	-9999.
088000	060	081	-49.2	.2020+02	.3142+02	-9999.
089000	064	079	-49.0	.1929+02	.2998+02	-9999.
090000	067	079	-48.7	.1822+02	.2859+02	-9999.
091000	070	079	-48.3	.1760+02	.2727+02	-9999.
092000	075	081	-48.0	.1681+02	.2601+02	-9999.
093000	080	082	-46.5	.1606+02	.2470+02	-9999.
094000	085	085	-45.6	.1535+02	.2350+02	-9999.
095000	089	089	-46.0	.1467+02	.2250+02	-9999.
096000	091	093	-45.9	.1402+02	.2149+02	-9999.
097000	092	095	-45.2	.1340+02	.2048+02	-9999.
098000	089	095	-43.9	.1281+02	.1947+02	-9999.
099000	092	094	-42.8	.1234+02	.1865+02	-9999.
100000	097	097	-41.7	.1180+02	.1776+02	-9999.
101000	101	099	-40.6	.1129+02	.1691+02	-9999.
102000	099	100	-39.5	.1080+02	.1610+02	-9999.
103000	094	101	-38.5	.1033+02	.1534+02	-9999.
104000	087	101	-37.5	.9892+01	.1462+02	-9999.
105000	081	100	-36.6	.9789+01	.1394+02	-9999.
106000	079	098	-36.1	.9668+01	.1333+02	-9999.
107000	079	094	-36.2	.9543+01	.1277+02	-9999.
108000	081	090	-36.5	.9413+01	.1224+02	-9999.
109000	082	088	-37.0	.9295+01	.1174+02	-9999.
110000	084	087	-37.3	.9180+01	.1126+02	-9999.
111000	086	084	-37.1	.9077+01	.1077+02	-9999.
112000	084	083	-36.1	.8975+01	.1027+02	-9999.
113000	081	081	-35.1	.8885+01	.9789+01	-9999.
114000	079	075	-34.1	.8807+01	.9336+01	-9999.
115000	076	071	-33.1	.8738+01	.8909+01	-9999.
116000	074	064	-32.2	.8681+01	.8504+01	-9999.
117000	076	053	-32.0	.8636+01	.8142+01	-9999.
118000	077	066	-32.9	.8601+01	.7831+01	-9999.
119000	082	072	-33.7	.8573+01	.7527+01	-9999.
120000	087	080	-33.7	.8556+01	.7212+01	-9999.
121000	089	085	-33.6	.8548+01	.6904+01	-9999.
122000	094	090	-33.0	.8549+01	.6600+01	-9999.
123000	096	092	-33.9	.8559+01	.6294+01	-9999.
124000	097	080	-30.6	.8478+01	.6000+01	-9999.
125000	101	087	-29.4	.8405+01	.5723+01	-9999.
126000	101	087	-28.8	.8380+01	.5474+01	-9999.
127000	099	087	-29.3	.8368+01	.5219+01	-9999.
128000	099	089	-30.2	.8350+01	.5061+01	-9999.
129000	099	093	-30.4	.8338+01	.4856+01	-9999.
130000	101	095	-29.9	.8324+01	.4645+01	-9999.
131000	101	095	-29.3	.8310+01	.4442+01	-9999.
132000	097	107	-28.3	.8292+01	.4243+01	-9999.
133000	092	103	-26.8	.8280+01	.4045+01	-9999.
134000	091	104	-25.3	.8274+01	.3857+01	-9999.
135000	089	104	-23.1	.8263+01	.3679+01	-9999.
136000	086	104	-22.9	.8257+01	.3511+01	-9999.

TABLE 5. (Continued)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEM POINT (DEG C)
137000	084	105	-21.0	.2426*01	.3351*01	-9999.
138000	082	104	-19.6	.2330*01	.3201*01	-9999.
139000	077	101	-18.3	.2238*01	.3059*01	-9999.
140000	076	096	-17.0	.2150*01	.2924*01	-9999.
141000	072	087	-15.8	.2065*01	.2796*01	-9999.
142000	077	079	-15.4	.1985*01	.2683*01	-9999.
143000	091	070	-15.8	.1907*01	.2582*01	-9999.
144000	113	066	-15.7	.1833*01	.2480*01	-9999.
145000	119	075	-12.3	.1762*01	.2353*01	-9999.
146000	138	087	-8.9	.1694*01	.2233*01	-9999.
147000	165	084	-6.6	.1630*01	.2130*01	-9999.
148000	158	085	-6.6	.1569*01	.2050*01	-9999.
149000	143	090	-6.8	.1509*01	.1974*01	-9999.
150000	126	101	-6.9	.1453*01	.1900*01	-9999.
151000	101	106	-7.2	.1398*01	.1831*01	-9999.
152000	082	106	-8.2	.1345*01	.1768*01	-9999.
153000	086	116	-9.2	.1294*01	.1707*01	-9999.
154000	091	120	-10.2	.1244*01	.1649*01	-9999.
155000	086	114	-11.2	.1197*01	.1592*01	-9999.
156000	082	102	-12.2	.1151*01	.1536*01	-9999.
157000	097	099	-11.8	.1107*01	.1475*01	-9999.
158000	092	094	-10.9	.1064*01	.1414*01	-9999.
159000	082	078	-10.0	.1023*01	.1355*01	-9999.
160000	104	074	-9.1	.9845*00	.1299*01	-9999.
161000	136	074	-8.3	.9471*00	.1246*01	-9999.
162000	157	079	-7.9	.9113*00	.1197*01	-9999.
163000	145	086	-8.7	.8768*00	.1152*01	-9999.
164000	135	091	-8.4	.8436*00	.1110*01	-9999.
165000	124	098	-8.5	.8116*00	.1068*01	-9999.
166000	119	105	-8.8	.7808*00	.1029*01	-9999.
167000	104	115	-9.0	.7512*00	.9907*00	-9999.
168000	109	120	-9.3	.7226*00	.9539*00	-9999.
169000	106	129	-9.6	.6952*00	.9188*00	-9999.
170000	092	140	-9.7	.6687*00	.8842*00	-9999.
171000	079	155	-9.9	.6432*00	.8512*00	-9999.
172000	064	169	-10.1	.6187*00	.8193*00	-9999.
173000	054	185	-10.3	.5951*00	.7887*00	-9999.
174000	038	201	-10.5	.5724*00	.7593*00	-9999.
175000	023	216	-11.0	.5506*00	.7318*00	-9999.
176000	018	306	-13.1	.5294*00	.7091*00	-9999.
177000	043	335	-15.1	.5090*00	.6872*00	-9999.
178000	062	343	-17.2	.4891*00	.6657*00	-9999.
179000	059	359	-19.2	.4699*00	.6446*00	-9999.
180000	045	014	-21.4	.4513*00	.6245*00	-9999.
181000	040	052	-23.5	.4333*00	.6045*00	-9999.
182000	054	069	-25.5	.4159*00	.5850*00	-9999.
183000	060	076	-27.8	.3990*00	.5664*00	-9999.
184000	050	058	-27.0	.3827*00	.5416*00	-9999.
185000	059	037	-25.6	.3672*00	.5168*00	-9999.
186000	044	035	-23.1	.3525*00	.4911*00	-9999.

TABLE 5. (Continued)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MM HG)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
187000	108	030	-20.9	.3384+00	.4673+00	-9999.
188000	143	051	-19.1	.3251+00	.4458+00	-9999.
189000	152	060	-18.6	.3123+00	.4224+00	-9999.
190000	158	070	-18.4	.3000+00	.4102+00	-9999.
191000	168	080	-18.8	.2882+00	.3947+00	-9999.
192000	168	089	-18.4	.2769+00	.3766+00	-9999.
193000	141	097	-18.5	.2650+00	.3639+00	-9999.
194000	135	109	-18.7	.2556+00	.3499+00	-9999.
195000	128	119	-18.5	.2455+00	.3361+00	-9999.
196000	119	129	-18.5	.2359+00	.3227+00	-9999.
197000	111	140	-19.2	.2266+00	.3109+00	-9999.
198000	116	139	-18.3	.2177+00	.2975+00	-9999.
199000	123	144	-18.4	.2092+00	.2861+00	-9999.
200000	116	145	-19.8	.2009+00	.2762+00	-9999.
201000	113	139	-22.4	.1930+00	.2681+00	-9999.
202000	092	136	-24.9	.1850+00	.2582+00	-9999.
203000	069	128	-26.8	.1754+00	.2480+00	-9999.
204000	037	119	-30.1	.1672+00	.2396+00	-9999.
205000	015	160	-32.2	.1594+00	.2304+00	-9999.
206000	003	261	-34.2	.1520+00	.2216+00	-9999.
207000	015	335	-37.0	.1449+00	.2137+00	-9999.
208000	027	349	-44.1	.1381+00	.2101+00	-9999.
209000	038	356	-45.2	.1321+00	.2018+00	-9999.
210000	048	004	-45.2	.1263+00	.1930+00	-9999.
211000	057	013	-45.2	.1208+00	.1846+00	-9999.
212000	069	022	-46.2	.1155+00	.1773+00	-9999.
213000	081	029	-47.4	.1104+00	.1703+00	-9999.
214000	092	033	-49.2	.1056+00	.1642+00	-9999.
215000	103	037	-50.2	.1009+00	.1576+00	-9999.
216000	113	039	-51.5	.9630-01	.1514+00	-9999.
217000	118	042	-54.6	.9200-01	.1466+00	-9999.
218000	121	045	-55.7	.8770-01	.1405+00	-9999.
219000	123	048	-54.4	.8380-01	.1334+00	-9999.
220000	119	051	-54.7	.8000-01	.1276+00	-9999.
221000	114	054	-57.0	.7640-01	.1231+00	-9999.
222000	108	056	-58.8	.7290-01	.1185+00	-9999.
223000	099	063	-61.0	.6950-01	.1141+00	-9999.
224000	091	064	-62.2	.6600-01	.1090+00	-9999.
225000	081	069	-65.9	.6270-01	.1054+00	-9999.
226000	069	075	-69.2	.5960-01	.1018+00	-9999.
227000	060	083	-68.2	.5680-01	.9655-01	-9999.
228000	052	092	-65.1	.5420-01	.9074-01	-9999.
229000	045	102	-62.2	.5170-01	.8536-01	-9999.
230000	040	112	-62.2	.4930-01	.8140-01	-9999.
231000	035	122	-62.2	.4700-01	.7760-01	-9999.
232000	032	135	-62.2	.4480-01	.7397-01	-9999.
233000	030	151	-61.2	.4270-01	.7017-01	-9999.
234000	028	168	-60.5	.4070-01	.6669-01	-9999.
235000	032	182	-60.2	.3880-01	.6346-01	-9999.
236000	033	192	-60.6	.3770-01	.6063-01	-9999.

TABLE 5. (Continued)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/MS)	DEW POINT (DEG C)
237000	037	199	-62.2	.3530-01	.5401-01	-9999.
238000	040	207	-62.2	.3360-01	.5547-01	-9999.
239000	043	214	-63.2	.3210-01	.5325-01	-9999.
240000	045	220	-64.2	.3050-01	.5024-01	-9999.
241000	048	226	-65.7	.2910-01	.4887-01	-9999.
242000	054	233	-68.0	.2770-01	.4703-01	-9999.
243000	059	239	-70.2	.2630-01	.4513-01	-9999.
244000	065	245	-71.0	.2500-01	.4308-01	-9999.
245000	070	250	-71.2	.2380-01	.4105-01	-9999.
246000	077	254	-71.9	.2270-01	.3929-01	-9999.
247000	084	257	-75.0	.2150-01	.3780-01	-9999.
248000	091	260	-77.1	.2040-01	.3625-01	-9999.
249000	096	263	-77.9	.1940-01	.3462-01	-9999.
250000	103	265	-79.2	.1840-01	.3304-01	-9999.
251000	109	267	-80.7	.1750-01	.3167-01	-9999.
252000	114	269	-81.2	.1660-01	.3013-01	-9999.
253000	121	270	-82.2	.1570-01	.2864-01	-9999.
254000	126	272	-83.2	.1490-01	.2732-01	-9999.
255000	131	273	-83.8	.1410-01	.2594-01	-9999.
256000	136	275	-86.2	.1340-01	.2496-01	-9999.
257000	140	276	-87.8	.1270-01	.2387-01	-9999.
258000	143	277	-89.5	.1200-01	.2277-01	-9999.
259000	148	278	-91.9	.1140-01	.2191-01	-9999.
260000	152	279	-93.7	.1080-01	.2096-01	-9999.
261000	155	280	-94.2	.1020-01	.1985-01	-9999.
262000	157	281	-94.6	.9600-02	.1873-01	-9999.
263000	158	281	-94.2	.9100-02	.1771-01	-9999.
264000	158	282	-92.6	.8600-02	.1659-01	-9999.
265000	158	283	-91.3	.8100-02	.1552-01	-9999.
266000	158	284	-90.5	.7700-02	.1469-01	-9999.
267000	155	285	-90.2	.7300-02	.1390-01	-9999.
268000	153	286	-90.6	.6900-02	.1317-01	-9999.
269000	152	286	-92.1	.6500-02	.1251-01	-9999.
270000	148	287	-92.5	.6100-02	.1177-01	-9999.
271000	146	287	-94.2	.5800-02	.1129-01	-9999.
272000	143	287	-95.7	.5500-02	.1096-01	-9999.
273000	140	288	-98.2	.5200-02	.1035-01	-9999.
274000	136	288	-99.7	.4900-02	.9843-02	-9999.
275000	129	288	-98.8	.4704-02	.9450-02	-9999.
276000	122	288	-97.9	.4517-02	.9073-02	-9999.
277000	114	288	-97.0	.4336-02	.8711-02	-9999.
278000	107	289	-96.1	.4163-02	.8363-02	-9999.
279000	100	288	-5.2	.3997-02	.8030-02	-9999.
280000	093	288	-94.3	.3838-02	.7709-02	-9999.
281000	086	288	-93.4	.3685-02	.7402-02	-9999.
282000	078	288	-92.5	.3537-02	.7106-02	-9999.
283000	071	288	-91.6	.3396-02	.6823-02	-9999.
284000	064	288	-90.7	.3261-02	.6550-02	-9999.
285000	057	289	-89.8	.3131-02	.6289-02	-9999.
216000	050	280	-88.9	.3006-02	.6038-02	-9999.

TABLE 5. (Concluded)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M ³)	DEW POINT (DEG C)
287000	042	289	-87.9	.2886-02	.5797-02	-9999.
288000	035	290	-87.0	.2771-02	.5566-02	-9999.
289000	026	291	-86.1	.2660-02	.5343-02	-9999.
292000	036	284	-86.5	.2260-02	.4220-02	-9999.
295000	045	279	-86.9	.1920-02	.3590-02	-9999.
298000	089	273	-84.2	.1670-02	.3060-02	-9999.
301000	140	271	-82.7	.1420-02	.2560-02	-9999.
304000	193	271	-81.3	.1210-02	.2180-02	-9999.
307000	241	270	-79.8	.1030-02	.1840-02	-9999.
310000	276	270	-78.3	.0790-03	.1550-02	-9999.
313000	292	269	-76.2	.7510-03	.1320-02	-9999.
316000	302	269	-75.6	.6940-03	.1120-02	-9999.
319000	308	269	-74.2	.5520-03	.9470-03	-9999.
322000	305	269	-72.9	.4730-03	.8040-03	-9999.
325000	292	269	-71.5	.4050-03	.6820-03	-9999.
328000	264	269	-70.2	.3470-03	.5790-03	-9999.
331000	270	269	-67.5	.2990-03	.4950-03	-9999.
334000	272	269	-64.9	.2570-03	.4150-03	-9999.
337000	266	269	-62.0	.2210-03	.3520-03	-9999.
340000	249	268	-59.3	.1900-03	.2980-03	-9999.
343000	218	268	-56.6	.1640-03	.2520-03	-9999.
346000	196	268	-52.5	.1420-03	.2140-03	-9999.
349000	195	267	-47.2	.1250-03	.1830-03	-9999.
352000	187	267	-41.2	.1090-03	.1560-03	-9999.
355000	171	265	-36.5	.9530-04	.1330-03	-9999.
358000	144	263	-31.2	.8330-04	.1130-03	-9999.
361000	103	264	-25.8	.7290-04	.9650-04	-9999.
364000	099	261	-18.1	.6540-04	.8380-04	-9999.
367000	092	257	-10.4	.5860-04	.7270-04	-9999.
370000	081	251	-2.9	.5250-04	.6310-04	-9999.
373000	067	240	4.9	.4700-04	.5470-04	-9999.
376000	052	217	12.6	.4210-04	.4750-04	-9999.
379000	029	215	21.0	.3870-04	.4150-04	-9999.
382000	030	209	30.2	.3460-04	.3660-04	-9999.
385000	032	204	39.6	.3160-04	.3230-04	-9999.
388000	034	200	49.3	.2970-04	.2860-04	-9999.
391000	037	195	59.3	.2660-04	.2550-04	-9999.
394000	040	192	69.4	.2460-04	.2270-04	-9999.
397000	043	189	79.7	.2270-04	.2030-04	-9999.
400000	047	186	90.1	.2100-04	.1820-04	-9999.

TABLE 6. STS-41D FINAL SRB DESCENT ATMOSPHERIC DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M ³)	DEW POINT (DEG C)
000028	01	150	27.7	.1167+04	.1133+04	21.7
001000	011	204	27.1	.9844+03	.1107+04	18.4
002000	009	215	21.9	.9518+03	.1077+04	18.1
003000	002	196	2.0	.9192+03	.1049+04	16.4
004000	005	199	19.6	.8875+03	.1021+04	11.8
005000	008	214	17.5	.8566+03	.9933+03	9.3
006000	010	225	15.2	.8266+03	.9659+03	.1
007000	012	222	13.6	.7974+03	.9366+03	.8
008000	011	216	12.0	.7691+03	.9079+03	.4
009000	012	211	10.5	.7416+03	.8817+03	-1.1
010000	015	213	8.6	.7149+03	.8565+03	-11.0
011000	017	222	6.7	.6890+03	.8291+03	-91.6
012000	016	227	5.8	.6639+03	.8039+03	-87.4
013000	018	243	4.0	.6396+03	.7774+03	-88.2
014000	021	260	2.9	.6160+03	.7527+03	-49.1
015000	021	270	1.4	.5933+03	.7335+03	-51.2
016000	016	266	-1.9	.5711+03	.7116+03	-52.5
017000	012	255	-4.1	.5496+03	.6870+03	-53.1
018000	013	259	-5.0	.5288+03	.6668+03	-54.6
019000	014	267	-7.4	.5086+03	.6441+03	-55.4
020000	016	267	-8.6	.4891+03	.6240+03	-56.6
021000	021	277	-10.6	.4703+03	.6050+03	-58.1
022000	026	289	-12.9	.4520+03	.5849+03	-59.1
023000	027	278	-14.5	.4343+03	.5686+03	-61.1
024000	026	273	-17.6	.4171+03	.5496+03	-62.2
025000	021	278	-19.3	.4005+03	.5304+03	-63.1
026000	021	273	-20.7	.3844+03	.5151+03	-65.1
027000	026	269	-23.7	.3688+03	.4971+03	-66.0
028000	030	271	-25.2	.3538+03	.4828+03	-68.1
029000	034	273	-28.4	.3392+03	.4652+03	-69.0
030000	031	277	-29.7	.3251+03	.4480+03	-69.7
031000	027	280	-30.9	.3115+03	.4336+03	-71.4
032000	022	280	-33.4	.2984+03	.4205+03	-73.4
033000	023	270	-36.4	.2857+03	.4066+03	-75.0
034000	026	270	-38.9	.2734+03	.3932+03	-76.8
035000	027	277	-41.4	.2616+03	.3802+03	-78.5
036000	028	276	-44.0	.2501+03	.3684+03	-80.6
037000	030	270	-47.2	.2389+03	.3557+03	-82.3
038000	031	268	-49.7	.2282+03	.3414+03	-83.2
039000	031	270	-50.9	.2178+03	.3311+03	-85.7
040000	033	272	-54.6	.2078+03	.3187+03	-87.0
041000	037	277	-56.5	.1982+03	.3074+03	-99.99
042000	040	282	-59.1	.1889+03	.2960+03	-99.99
043000	043	282	-61.4	.1799+03	.2855+03	-99.99
044000	048	276	-64.2	.1713+03	.2748+03	-99.99
045000	045	270	-65.0	.1621+03	.2639+03	-99.99
046000	039	265	-66.1	.1525+03	.2529+03	-99.99
047000	070	256	-66.5	.1425+03	.2416+03	-99.99
048000	024	246	-65.3	.1321+03	.2299	-99.99
049000	023	239	-65.8	.1222+03	.2182	-99.99

TABLE 6. (Continued)

ALTITUDE (FT)	WIND SPEED (FY/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
050000	019	212	-65.8	.1270+03	.2133+03	-9999.
051000	008	213	-65.8	.1208+03	.2030+03	-9999.
052000	004	142	-62.2	.1150+03	.1898+03	-9999.
053000	004	084	-62.1	.1095+03	.1807+03	-9999.
054000	005	082	-62.6	.1042+03	.1724+03	-9999.
055000	006	080	-63.1	.9923+02	.1646+03	-9999.
056000	009	085	-64.4	.9845+02	.1576+03	-9999.
057000	012	105	-64.0	.9899+02	.1497+03	-9999.
058000	014	104	-63.7	.9856+02	.1423+03	-9999.
059000	020	104	-63.4	.9814+02	.1353+03	-9999.
060000	029	105	-62.8	.9775+02	.1284+03	-9999.
061000	036	103	-62.6	.9738+02	.1221+03	-9999.
062000	038	097	-62.0	.9702+02	.1160+03	-9999.
063000	037	095	-61.3	.9694+02	.1101+03	-9999.
064000	039	086	-61.1	.9676+02	.1047+03	-9999.
065000	051	068	-60.1	.9673+02	.9930+02	-9999.
066000	057	063	-59.1	.9786+02	.9417+02	-9999.
067000	060	081	-58.7	.9514+02	.8957+02	-9999.
068000	037	097	-58.0	.9255+02	.8509+02	-9999.
069000	041	114	-56.9	.9010+02	.8071+02	-9999.
070000	045	134	-57.2	.8776+02	.7705+02	-9999.
071000	053	155	-56.1	.8554+02	.7309+02	-9999.
072000	049	147	-54.9	.8343+02	.6932+02	-9999.
073000	044	118	-54.3	.8142+02	.6593+02	-9999.
074000	044	097	-54.2	.7952+02	.6288+02	-9999.
075000	046	081	-53.4	.7770+02	.5977+02	-9999.
076000	046	081	-52.9	.7598+02	.5691+02	-9999.
077000	046	080	-52.4	.7433+02	.5418+02	-9999.
078000	047	079	-50.3	.7277+02	.5123+02	-9999.
079000	051	079	-49.6	.7129+02	.4876+02	-9999.
080000	054	083	-48.8	.6988+02	.4640+02	-9999.
081000	054	084	-47.9	.6854+02	.4414+02	-9999.
082000	054	085	-46.1	.6727+02	.4184+02	-9999.
083000	059	088	-47.1	.6606+02	.4016+02	-9999.
084000	062	087	-47.2	.6469+02	.3838+02	-9999.
085000	064	085	-47.1	.6378+02	.3665+02	-9999.
086000	068	081	-46.6	.6272+02	.3494+02	-9999.
087000	076	080	-46.5	.6171+02	.3337+02	-9999.
088000	084	077	-46.3	.6075+02	.3187+02	-9999.
089000	080	074	-46.1	.5983+02	.3043+02	-9999.
090000	082	082	-44.8	.5895+02	.2891+02	-9999.
091000	055	092	-44.1	.5812+02	.2756+02	-9999.
092000	056	102	-44.4	.5732+02	.2638+02	-9999.
093000	054	109	-44.6	.5656+02	.2524+02	-9999.
094000	072	110	-44.0	.5583+02	.2407+02	-9999.
095000	076	110	-43.4	.5513+02	.2294+02	-9999.
096000	082	109	-43.0	.5447+02	.2190+02	-9999.
097000	083	108	-42.6	.5377+02	.2081+02	-9999.
098000	086	109	-42.3	.5310+02	.1977+02	-9999.
099000	092	102	-42.0	.5247+02	.1879+02	-9999.

TABLE 6. (Continued)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M ³)	DEW POINT (DEG C)
10000	099	097	-41.7	.1186+02	.1785+02	-9999.
10100	101	099	-40.6	.1129+02	.1691+02	-9999.
10200	099	100	-39.5	.1080+02	.1619+02	-9999.
10300	094	101	-38.5	.1033+02	.1534+02	-9999.
10400	087	101	-37.5	.9852+.01	.1462+02	-9999.
10500	081	100	-36.6	.9470+01	.1394+02	-9999.
10600	079	098	-36.1	.9068+01	.1333+02	-9999.
10700	079	094	-36.2	.8683+01	.1277+02	-9999.
10800	081	090	-36.6	.8313+01	.1224+02	-9999.
10900	082	088	-37.0	.7959+01	.1174+02	-9999.
11000	084	084	-37.3	.7620+01	.1126+02	-9999.
11100	086	084	-37.1	.7295+01	.1077+02	-9999.
11200	084	083	-36.1	.6985+01	.1027+02	-9999.
11300	081	080	-35.1	.6689+01	.9789+01	-9999.
11400	079	075	-34.1	.6407+01	.9339+01	-9999.
11500	076	071	-33.1	.6138+01	.8909+01	-9999.
11600	074	064	-32.2	.5881+01	.8504+01	-9999.
11700	076	063	-32.0	.5636+01	.8142+01	-9999.
11800	077	066	-32.9	.5400+01	.7831+01	-9999.
11900	082	072	-33.7	.5173+01	.7527+01	-9999.
12000	087	080	-33.7	.4956+01	.7212+01	-9999.
12100	089	086	-33.6	.4748+01	.6904+01	-9999.
12200	094	090	-33.0	.4549+01	.6600+01	-9999.
12300	096	092	-31.9	.4359+01	.6294+01	-9999.
12400	097	089	-30.6	.4178+01	.6000+01	-9999.
12500	101	087	-29.4	.4005+01	.5723+01	-9999.
12600	101	087	-28.8	.3850+01	.5474+01	-9999.
12700	099	087	-29.3	.3682+01	.5259+01	-9999.
12800	099	089	-30.2	.3530+01	.5061+01	-9999.
12900	101	093	-30.4	.3384+01	.4856+01	-9999.
13000	101	095	-29.9	.3244+01	.4645+01	-9999.
13100	101	096	-29.3	.3110+01	.4442+01	-9999.
13200	097	100	-28.3	.2982+01	.4243+01	-9999.
13300	092	103	-26.8	.2860+01	.4045+01	-9999.
13400	091	104	-25.3	.2744+01	.3857+01	-9999.
13500	089	104	-23.8	.2633+01	.3679+01	-9999.
13600	086	104	-22.4	.2527+01	.3511+01	-9999.
13700	084	105	-21.0	.2426+01	.3351+01	-9999.
13800	082	104	-19.6	.2330+01	.3201+01	-9999.
13900	077	101	-18.3	.2238+01	.3059+01	-9999.
14000	076	096	-17.0	.2150+01	.2924+01	-9999.
14100	072	087	-15.8	.2065+01	.2796+01	-9999.
14200	077	079	-15.4	.1985+01	.2683+01	-9999.
14300	091	070	-15.8	.1907+01	.2582+01	-9999.
14400	113	066	-15.7	.1833+01	.2487+01	-9999.
14500	119	075	-12.3	.1762+01	.2353+01	-9999.
14600	138	087	-8.9	.1694+01	.2233+01	-9999.
14700	165	084	-6.6	.1630+01	.2130+01	-9999.
14800	158	085	-6.6	.1569+01	.2050+01	-9999.
14900	143	090	-6.8	.1509+01	.1974+01	-9999.

TABLE 6. (Continued)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	QEM POINT (DEG C)
15000	126	101	-7.2	.1453+01	.1831+01	-9999.
15100	101	106	-8.2	.1398+01	.1768+01	-9999.
15200	082	106	-9.2	.1294+01	.1649+01	-9999.
15300	086	116	-10.2	.1244+01	.1592+01	-9999.
15400	091	120	-11.2	.1197+01	.1536+01	-9999.
15500	086	114	-11.8	.1151+01	.1475+01	-9999.
15600	082	102	-10.9	.1107+01	.1414+01	-9999.
15700	097	099	-10.0	.1064+01	.1355+01	-9999.
15800	092	094	-9.1	.1023+01	.1299+01	-9999.
15900	082	078	-8.3	.9845+00	.1246+01	-9999.
16000	104	074	-7.9	.9471+00	.1197+01	-9999.
16100	136	074	-8.0	.9133+00	.1152+01	-9999.
16200	157	079	-8.4	.8768+00	.1110+01	-9999.
16300	145	086	-8.5	.8436+00	.1068+01	-9999.
16400	135	091	-8.8	.8116+00	.1029+01	-9999.
16500	124	098	-9.0	.7808+00	.9907+00	-9999.
16600	119	105	-9.3	.7512+00	.9539+00	-9999.
16700	104	115	-9.6	.7226+00	.9188+00	-9999.
16800	109	120	-9.7	.6952+00	.8842+00	-9999.
16900	106	129	-9.9	.6687+00	.8512+00	-9999.
17000	092	140	-10.1	.6432+00	.8193+00	-9999.
17100	079	155	-10.5	.6187+00	.7887+00	-9999.
17200	064	169	-11.0	.5951+00	.7593+00	-9999.
17300	054	185	-11.0	.5724+00	.7318+00	-9999.
17400	038	201	-13.1	.5506+00	.7091+00	-9999.
17500	023	216	-15.1	.5294+00	.6872+00	-9999.
17600	018	306	-17.2	.5090+00	.6657+00	-9999.
17700	043	335	-19.2	.4891+00	.6446+00	-9999.
17800	062	343	-21.4	.4699+00	.6235+00	-9999.
17900	059	358	-23.5	.4513+00	.6045+00	-9999.
18000	045	014	-25.5	.4333+00	.5850+00	-9999.
18100	040	052	-27.8	.4159+00	.5664+00	-9999.
18200	054	069	-27.0	.3990+00	.5416+00	-9999.
18300	060	076	-25.6	.3827+00	.5168+00	-9999.
18400	050	058	-21.1	.3672+00	.4911+00	-9999.
18500	059	037	-20.9	.3525+00	.4673+00	-9999.
18600	084	035	-19.1	.3384+00	.4458+00	-9999.
18700	108	030	-18.6	.3251+00	.4274+00	-9999.
18800	143	051	-18.4	.3123+00	.4102+00	-9999.
18900	142	060	-16.8	.3000+00	.3947+00	-9999.
19000	158	270	-18.4	.2882+00	.3786+00	-9999.
19100	168	080	-16.5	.2660+00	.3639+00	-9999.
19200	168	089	-18.7	.2556+00	.3499+00	-9999.
19300	141	097	-18.5	.2455+00	.3361+00	-9999.
19400	135	109	-19.2	.2359+00	.3227+00	-9999.
19500	128	119	-18.3	.2266+00	.3109+00	-9999.
19600	119	129	-18.4	.2177+00	.2975+00	-9999.
19700	111	140	-18.4	.2092+00	.2861+00	-9999.
19800	116	139				
19900	123	144				

TABLE 6. (Continued)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/CM ³)	DEW POINT (DEG C)
20000	116	145	-19.8	.2762±00	.2681±00	-9999.
20100	113	139	-22.4	.1930±00	.2681±00	-9999.
20200	092	136	-24.9	.2009±00	.2582±00	-9999.
20300	069	128	-26.8	.1754±00	.2480±00	-9999.
20400	037	119	-30.1	.1672±00	.2396±00	-9999.
20500	015	160	-32.2	.1594±00	.2304±00	-9999.
20600	003	261	-34.2	.1520±00	.2216±00	-9999.
20700	015	335	-37.0	.1449±00	.2137±00	-9999.
20800	027	349	-44.1	.1381±00	.2101±00	-9999.
20900	078	356	-45.2	.1321±00	.2018±00	-9999.
21000	048	004	-45.2	.1263±00	.1930±00	-9999.
21100	057	013	-45.2	.1208±00	.1846±00	-9999.
21200	069	022	-46.2	.1155±00	.1773±00	-9999.
21300	081	029	-47.4	.1104±00	.1703±00	-9999.
21400	092	033	-49.2	.1056±00	.1642±00	-9999.
21500	103	037	-50.2	.1009±00	.1576±00	-9999.
21600	113	039	-51.5	.9630-01	.1514±00	-9999.
21700	118	042	-54.6	.9200-01	.1466±00	-9999.
21800	121	045	-55.7	.8770-01	.1405±00	-9999.
21900	123	048	-54.4	.8380-01	.1334±00	-9999.
22000	119	051	-54.7	.8000-01	.1276±00	-9999.
22100	114	054	-57.0	.7640-01	.1231±00	-9999.
22200	108	056	-58.8	.7290-01	.1185±00	-9999.
22300	099	060	-61.0	.6950-01	.1141±00	-9999.
22400	091	064	-62.2	.6600-01	.1090±00	-9999.
22500	081	069	-65.9	.6270-01	.1054±00	-9999.
22600	069	075	-69.2	.5960-01	.1018±00	-9999.
22700	060	083	-68.2	.5680-01	.9655-01	-9999.
22800	052	082	-65.1	.5420-01	.9076-01	-9999.
22900	045	102	-62.2	.5170-01	.8536-01	-9999.
23000	040	112	-62.2	.4930-01	.8140-01	-9999.
23100	035	122	-62.2	.4700-01	.7760-01	-9999.
23200	032	135	-62.2	.4480-01	.7397-01	-9999.
23300	030	151	-61.2	.4270-01	.7017-01	-9999.
23400	028	168	-60.5	.4070-01	.6669-01	-9999.
23500	032	182	-60.2	.3880-01	.6346-01	-9999.
23600	033	192	-60.6	.3700-01	.6063-01	-9999.
23700	037	199	-61.2	.3530-01	.5801-01	-9999.
23800	040	207	-62.2	.3360-01	.5547-01	-9999.
23900	043	214	-63.2	.3210-01	.5325-01	-9999.
24000	045	220	-64.2	.3050-01	.5084-01	-9999.
24100	048	226	-65.7	.2910-01	.4887-01	-9999.
24200	054	233	-68.0	.2770-01	.4703-01	-9999.
24300	059	239	-70.2	.2630-01	.4513-01	-9999.
24400	065	245	-71.0	.2500-01	.4308-01	-9999.
24500	070	250	-71.2	.2380-01	.4105-01	-9999.
24600	077	254	-71.9	.2270-01	.3929-01	-9999.
24700	084	257	-75.0	.2150-01	.3780-01	-9999.
24800	091	260	-77.1	.2040-01	.3625-01	-9999.
24900	096	263	-77.9	.1940-01	.3462-01	-9999.

TABLE 6. (Continued)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M ³)	DEW POINT (DEG C)
25000	103	285	-79.2	.1840-01	.3308-01	-9999.
251000	109	267	-80.7	.1750-01	.3167-01	-9999.
252000	114	269	-81.2	.1660-01	.3013-01	-9999.
253000	121	270	-82.2	.1570-01	.2868-01	-9999.
254000	126	272	-83.2	.1490-01	.2732-01	-9999.
255000	131	273	-83.8	.1410-01	.2598-01	-9999.
256000	136	275	-86.2	.1340-01	.2496-01	-9999.
257000	140	276	-87.8	.1270-01	.2387-01	-9999.
258000	143	277	-89.5	.1200-01	.2277-01	-9999.
259000	148	278	-91.9	.1140-01	.2191-01	-9999.
260000	152	279	-93.7	.1080-01	.2086-01	-9999.
261000	155	280	-94.2	.1020-01	.1985-01	-9999.
262000	157	281	-94.6	.9600-02	.1873-01	-9999.
263000	158	281	-94.2	.9100-02	.1771-01	-9999.
264000	158	282	-92.6	.8600-02	.1659-01	-9999.
265000	158	283	-91.3	.8100-02	.1552-01	-9999.
266000	158	284	-90.5	.7700-02	.1469-01	-9999.
267000	155	285	-90.2	.7300-02	.1390-01	-9999.
268000	153	286	-90.6	.6900-02	.1317-01	-9999.
269000	152	286	-92.1	.6500-02	.1251-01	-9999.
270000	148	287	-92.6	.6100-02	.1177-01	-9999.
271000	146	287	-94.2	.5800-02	.1129-01	-9999.
272000	143	287	-96.7	.5500-02	.1086-01	-9999.
273000	140	288	-98.2	.5200-02	.1035-01	-9999.
274000	136	288	-99.7	.4900-02	.9893-02	-9999.
275000	129	288	-98.8	.4700-02	.9450-02	-9999.
276000	122	288	-97.9	.4517-02	.9073-02	-9999.
277000	114	288	-97.0	.4336-02	.8711-02	-9999.
278000	107	288	-96.1	.4163-02	.8363-02	-9999.
279000	100	288	-95.2	.3997-02	.8030-02	-9999.
280000	93	288	-94.3	.3838-02	.7709-02	-9999.
281000	86	288	-93.4	.3685-02	.7402-02	-9999.
282000	78	288	-92.5	.3537-02	.7106-02	-9999.
283000	71	288	-91.6	.3396-02	.6823-02	-9999.
284000	64	288	-90.7	.3261-02	.6550-02	-9999.
285000	57	289	-89.8	.3131-02	.6289-02	-9999.
286000	50	289	-88.9	.3006-02	.6038-02	-9999.
287000	42	289	-87.9	.2886-02	.5797-02	-9999.
288000	35	290	-87.0	.2771-02	.5566-02	-9999.
289000	28	291	-86.1	.2660-02	.5343-02	-9999.
290000	21	289	-86.2	.2557-02	.5223-02	-9999.
291000	14	273	-84.2	.2460-02	.5093-02	-9999.
292000	10	271	-82.7	.2370-02	.5060-02	-9999.
293000	13	271	-81.3	.2280-02	.4820-02	-9999.
294000	24	270	-79.6	.2190-02	.4640-02	-9999.
295000	26	270	-78.3	.2100-02	.4490-02	-9999.
296000	29	269	-76.9	.2010-02	.4320-02	-9999.
297000	30	269	-75.6	.1940-02	.4120-02	-9999.
298000	32	269	-74.2	.1870-02	.3970-02	-9999.
299000	32	269	-74.2	.1810-02	.3820-02	-9999.

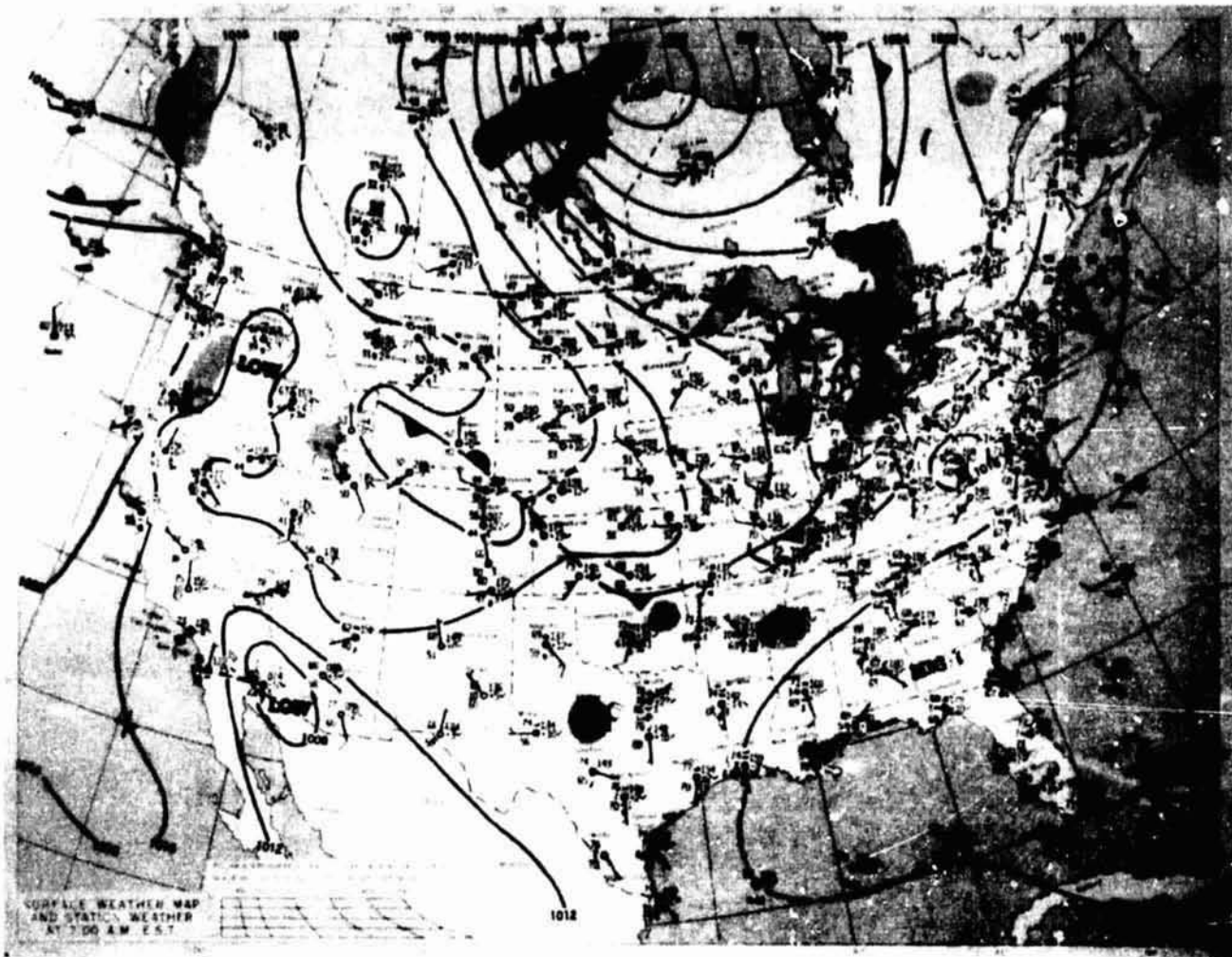
TABLE 6. (Concluded)

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
322000	305	269	-72.9	.4730-03	.8090-03	-9999.
325000	292	269	-71.5	.4050-03	.6820-03	-9999.
328000	264	269	-70.2	.3470-03	.5790-03	-9999.
331000	270	269	-67.5	.2990-03	.4900-03	-9999.
334000	272	269	-64.8	.2570-03	.4150-03	-9999.
337000	266	269	-62.0	.2210-03	.3520-03	-9999.
340000	249	268	-59.3	.1900-03	.2980-03	-9999.
343000	218	268	-56.6	.1640-03	.2520-03	-9999.
346000	196	268	-52.5	.1420-03	.2140-03	-9999.
349000	195	267	-47.2	.1250-03	.1830-03	-9999.
352000	187	267	-41.9	.1090-03	.1560-03	-9999.
355000	171	265	-36.5	.9530-04	.1330-03	-9999.
358000	144	263	-31.2	.8330-04	.1130-03	-9999.
361000	103	264	-25.8	.7290-04	.9650-04	-9999.
365000	099	261	-19.1	.6540-04	.8380-04	-9999.
367000	092	257	-10.4	.5860-04	.7270-04	-9999.
370000	081	251	-2.8	.5250-04	.6310-04	-9999.
373000	067	240	4.9	.4700-04	.5470-04	-9999.
376000	052	217	12.6	.4210-04	.4750-04	-9999.
379000	029	215	21.0	.3800-04	.4150-04	-9999.
382000	030	209	30.2	.3460-04	.3660-04	-9999.
385000	032	204	39.6	.3160-04	.3230-04	-9999.
388000	034	200	49.3	.2900-04	.2860-04	-9999.
391000	037	196	59.3	.2660-04	.2550-04	-9999.
394000	040	192	69.4	.2460-04	.2270-04	-9999.
397000	043	189	79.7	.2270-04	.2030-04	-9999.
400000	047	186	90.1	.2100-04	.1820-04	-9999.

TABLE 7. STS-41D SRB DESCENT-IMPACT SURFACE SHIP OBSERVATIONS

Site:	U.S.N. Ship Redstone						
Location:	28° 45' Latitude						
	78° 07' Longitude						
Date:	August 30, 1984						
Time:	1248 UT						
Surface Observation:							
	<u>Air Temp °F</u>	<u>Wet-Bulk °F</u>	<u>Dew Point °F</u>	<u>Pressure (MSL) mb</u>	<u>Wind Direction</u>	<u>Wind Speed Kt.</u>	
	81.9	74.1	71*	1018.8	150°	8*	
Sky Observation:							
	<u>Clouds</u>	<u>Total Sky Cover</u>	<u>Total Opaque Sky</u>	<u>Visibility (miles)</u>			
	3/10 Cumulus at 1000 ft	8/10*	6/10*	7			
	4/10 Towering CU at 1000 ft						
	2/10 Altocumulus at 6500 ft						
Sea Observation:							
	<u>Sea Condition:</u>	<u>Wind Waves:</u>	<u>Swell Conditions:</u>				
	Sea Smooth - Code 2	<u>Freq. Sec.</u>	<u>Ht. m.</u>	<u>Dir. from Which Swell is coming</u>	<u>Freq. Sec.</u>	<u>Ht. m.</u>	
	0/10 Breaking Waves*	6	1	50°	6*	1*	
	0/10 Foam*						
	Surface Sea Water Temp. = 82°F						

* Observation approximated from record, due to data transmission problems.

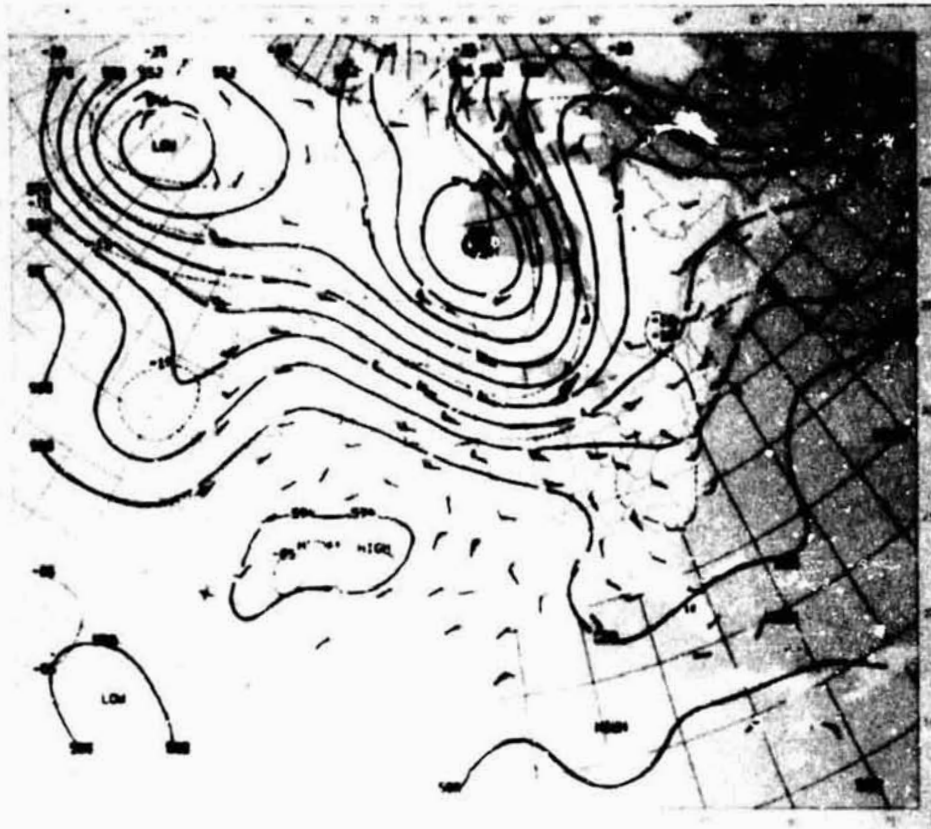


Surface Synoptic Map at 1200 UT August 30, 1984 – Isobaric, Frontal, and Precipitation Patterns are Shown in Standard Symbolic Form.

Figure 1. Surface synoptic chart 42 min before launch of STS-41D.

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500 Millibar Height
Contours at 1200 UT
August 30, 1984
Continuous Lines Indicate Height Contours In
Feet Above Sea Level. Dashed Lines are
Isotherms In Degrees Centigrade. Arrows Show
wind Direction and Speed at the 500 MB Level.

Figure 2. 500 mb map 42 min prior to launch of STS-41D.

CLOUD PHOTOGRAPH NOT AVAILABLE

Figure 3. GOES-5 infrared imagery of cloud cover at launch of STS-41D (1230 UT, August 30, 1984).
500-mb contours and wind barbs are also included for 1200 UT.

CLOUD PHOTOGRAPH NOT AVAILABLE

Figure 4. Enlarged view of GOES-5 visible imagery of cloud cover at launch of STS-41D (1230 UT, August 30, 1984). Surface temperatures and wind barbs for 1300 UT are also included.

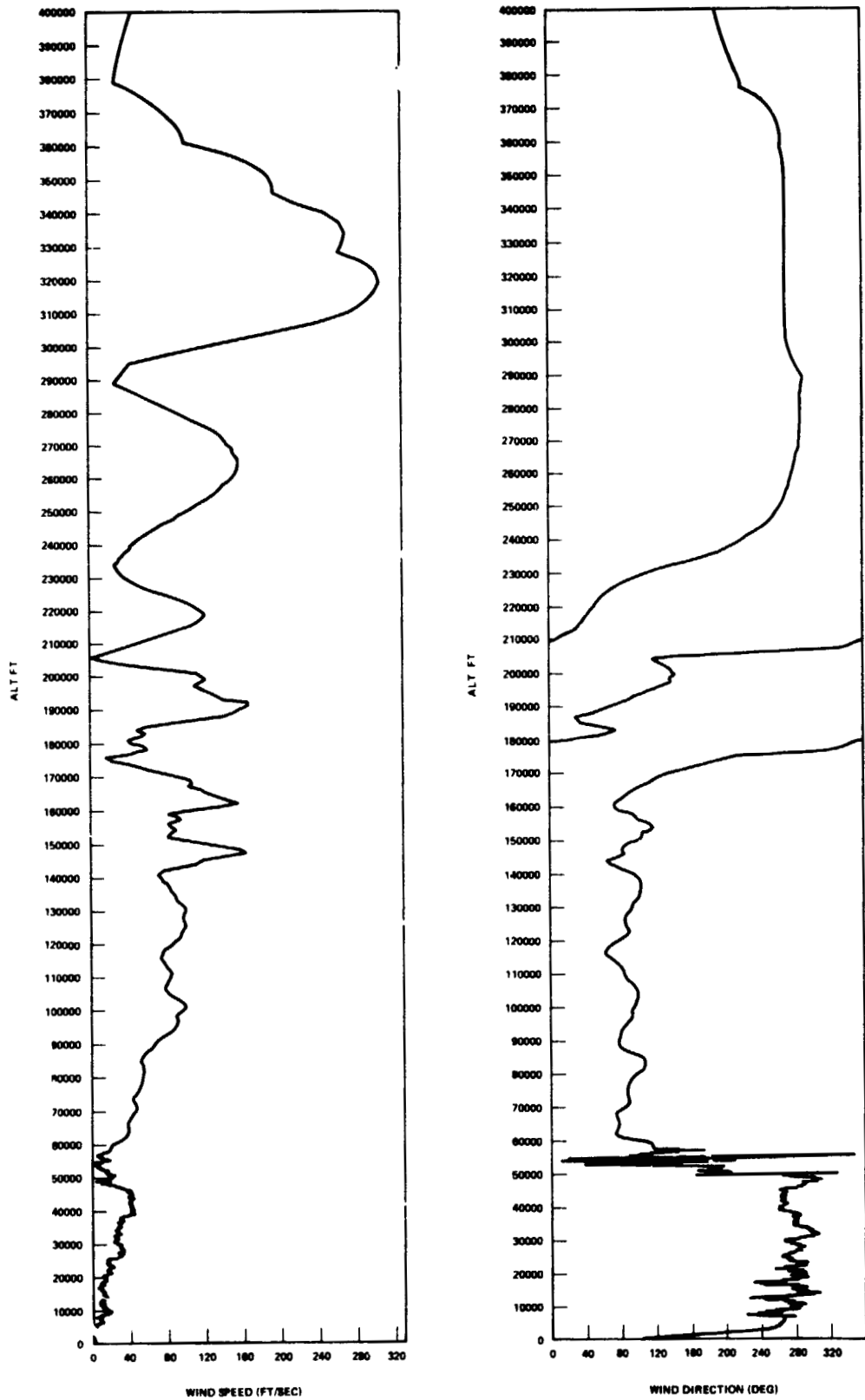


Figure 5. Scalar wind speed and direction at launch time of STS-41D.

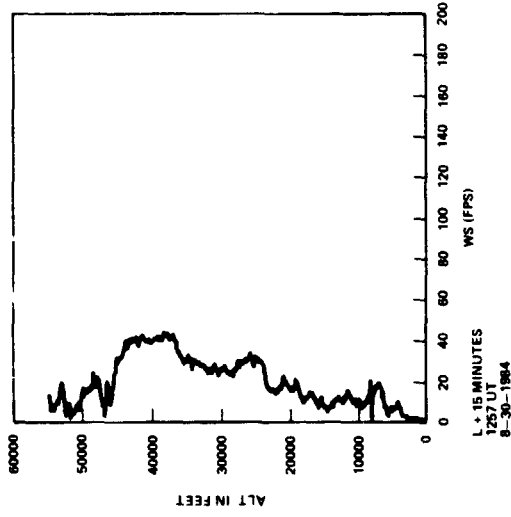
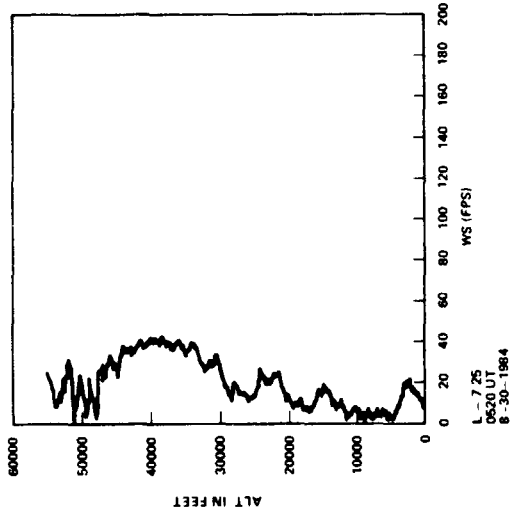
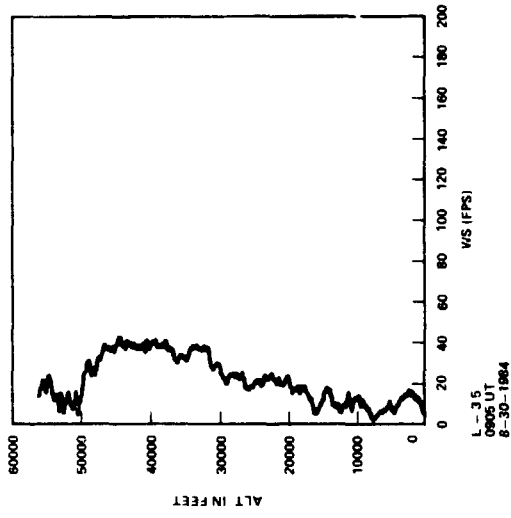
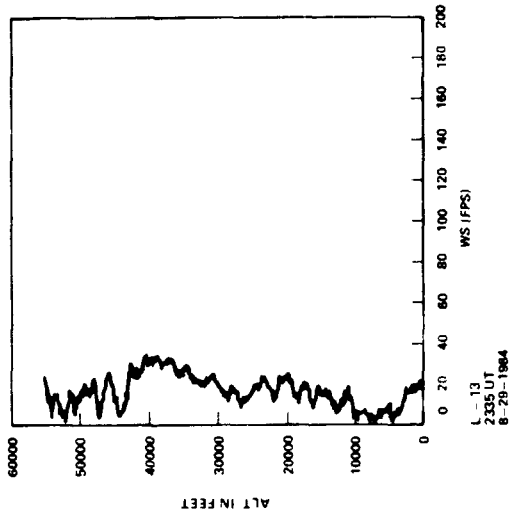


Figure 6. STS-41D prelaunch/launch Jimsphere-measured wind speeds (FPS).

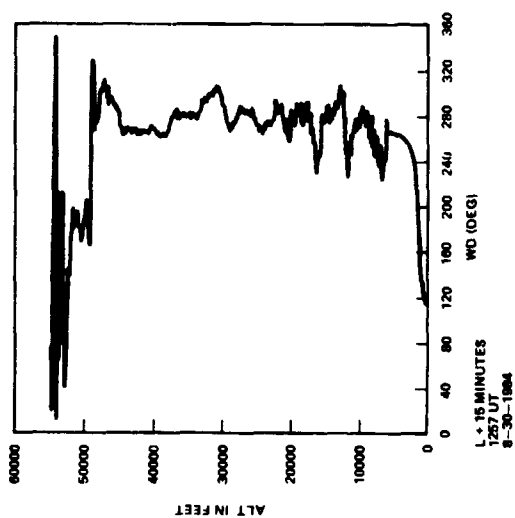
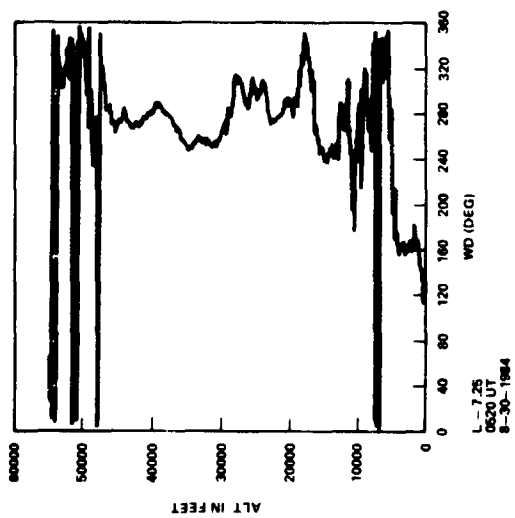
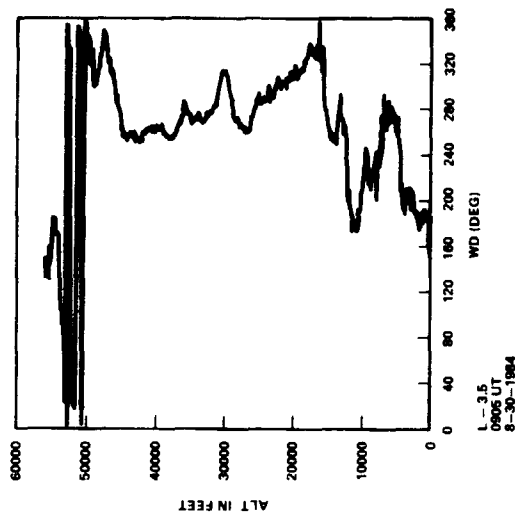
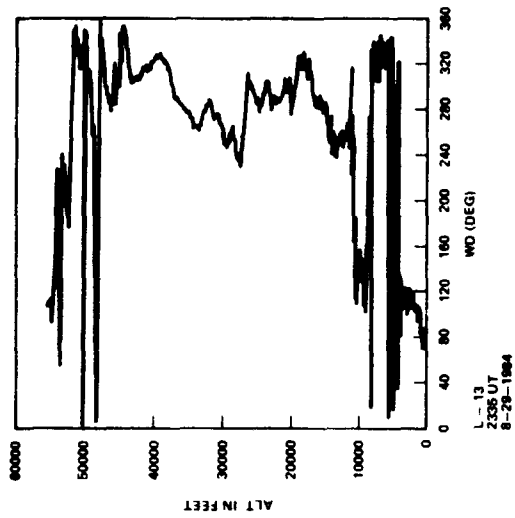


Figure 7. STS-41D prelaunch/launch Jimsphere-measured wind directions (degrees).

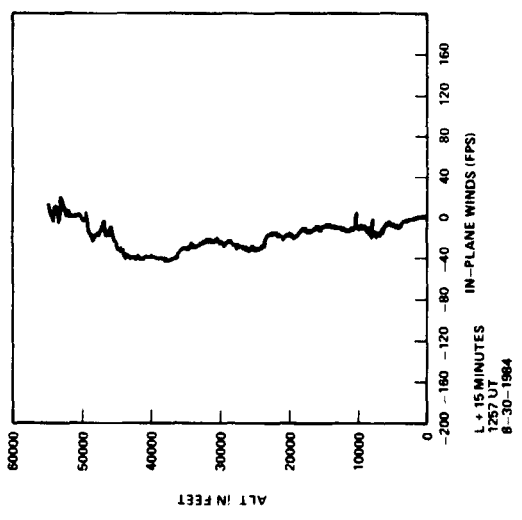
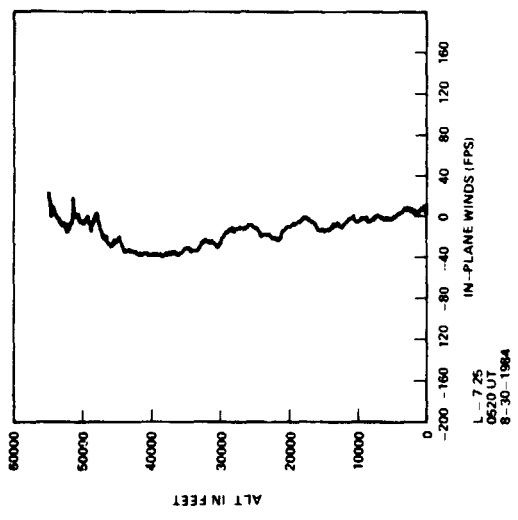
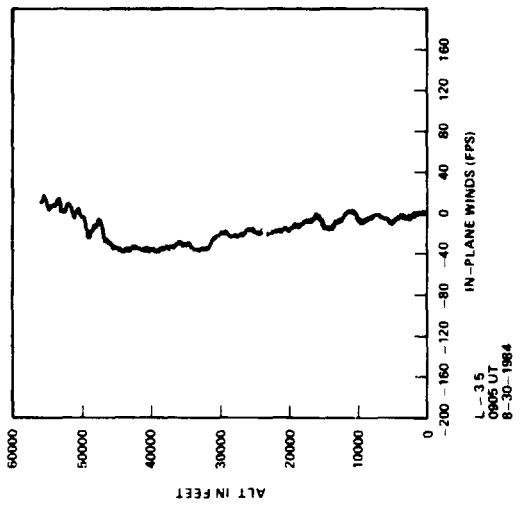
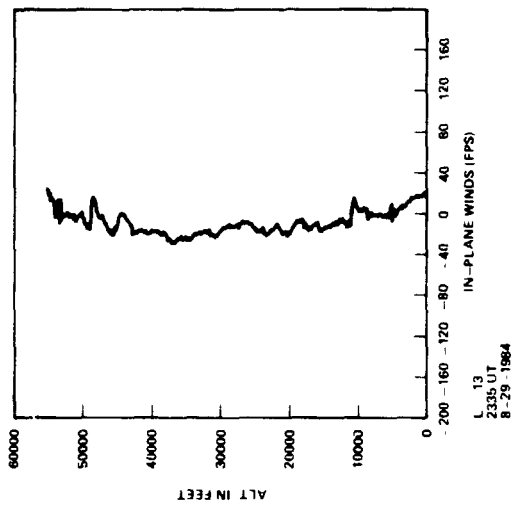


Figure 8. STS-41D prelaunch/launch Jimsphere-measured in-plane component winds (FPS).
Flight azimuth = 92 degrees.

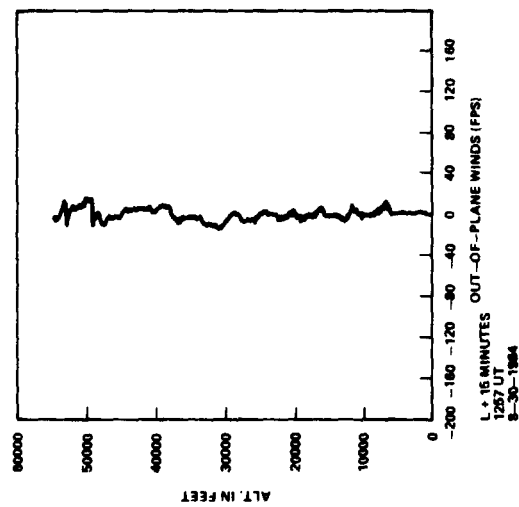
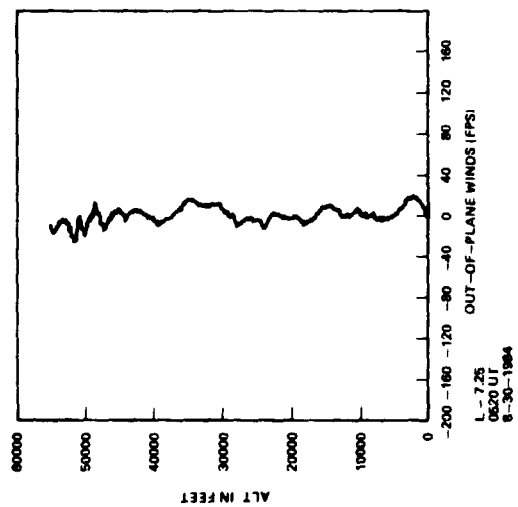
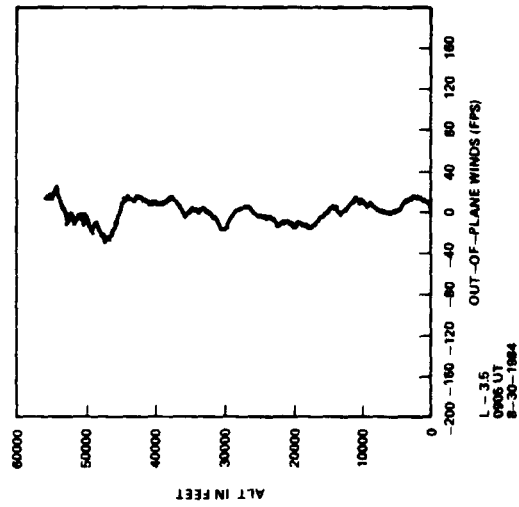
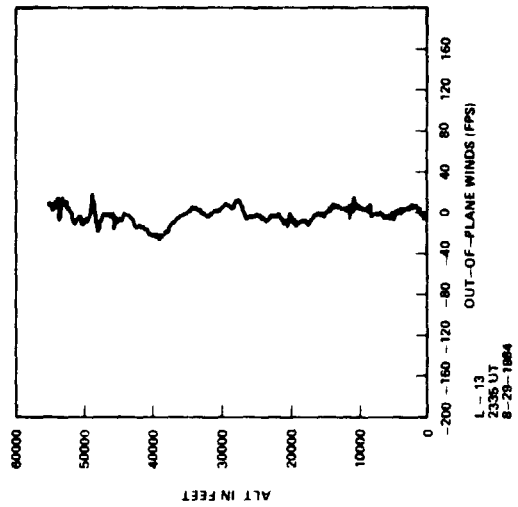


Figure 9. STS-41D prelaunch/launch Jimsphere-measured out-of-plane component winds (FPS).
Flight azimuth = 92 degrees.

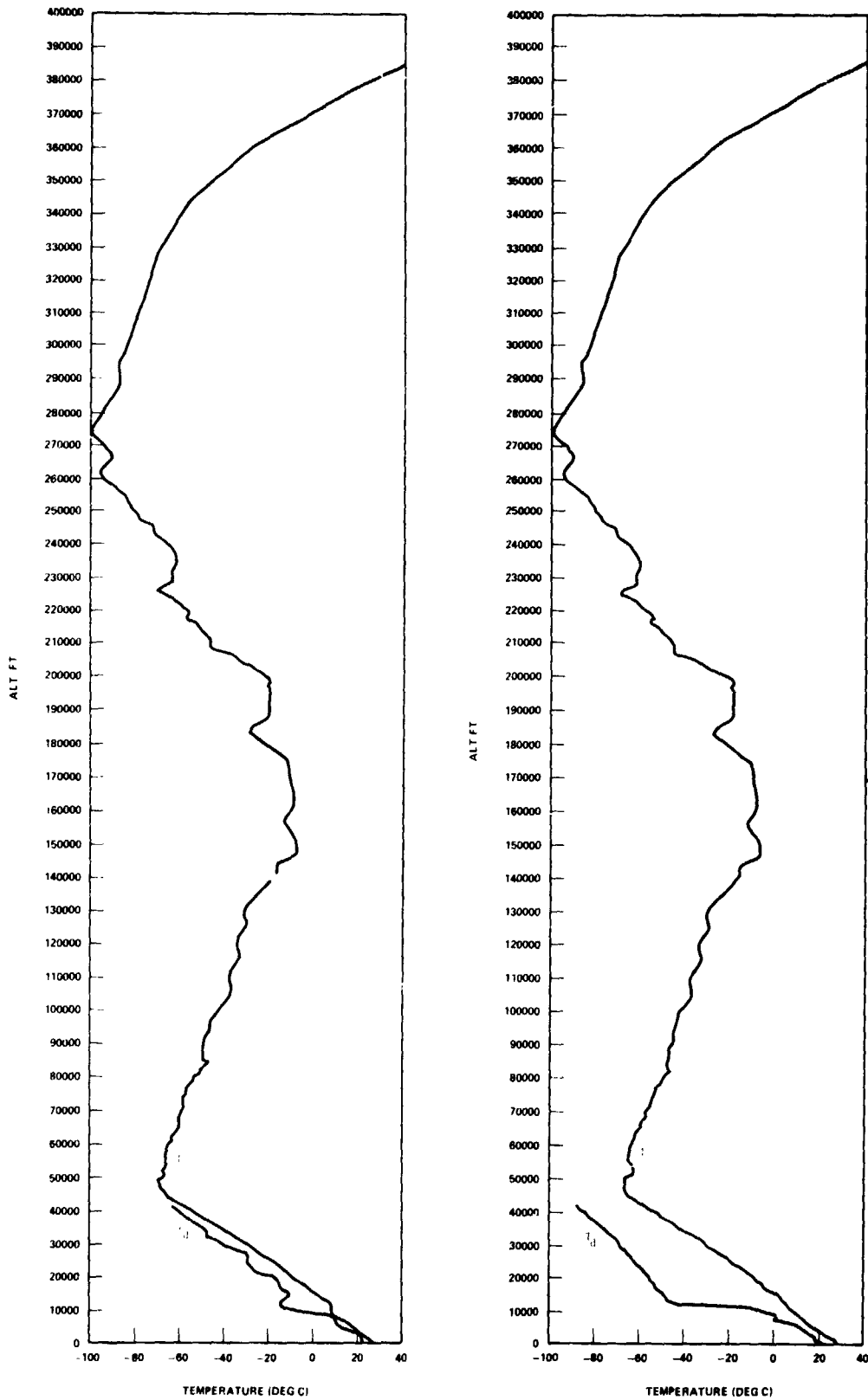


Figure 10. STS-41D temperature profiles versus altitude for launch (left) and SRB descent (right).

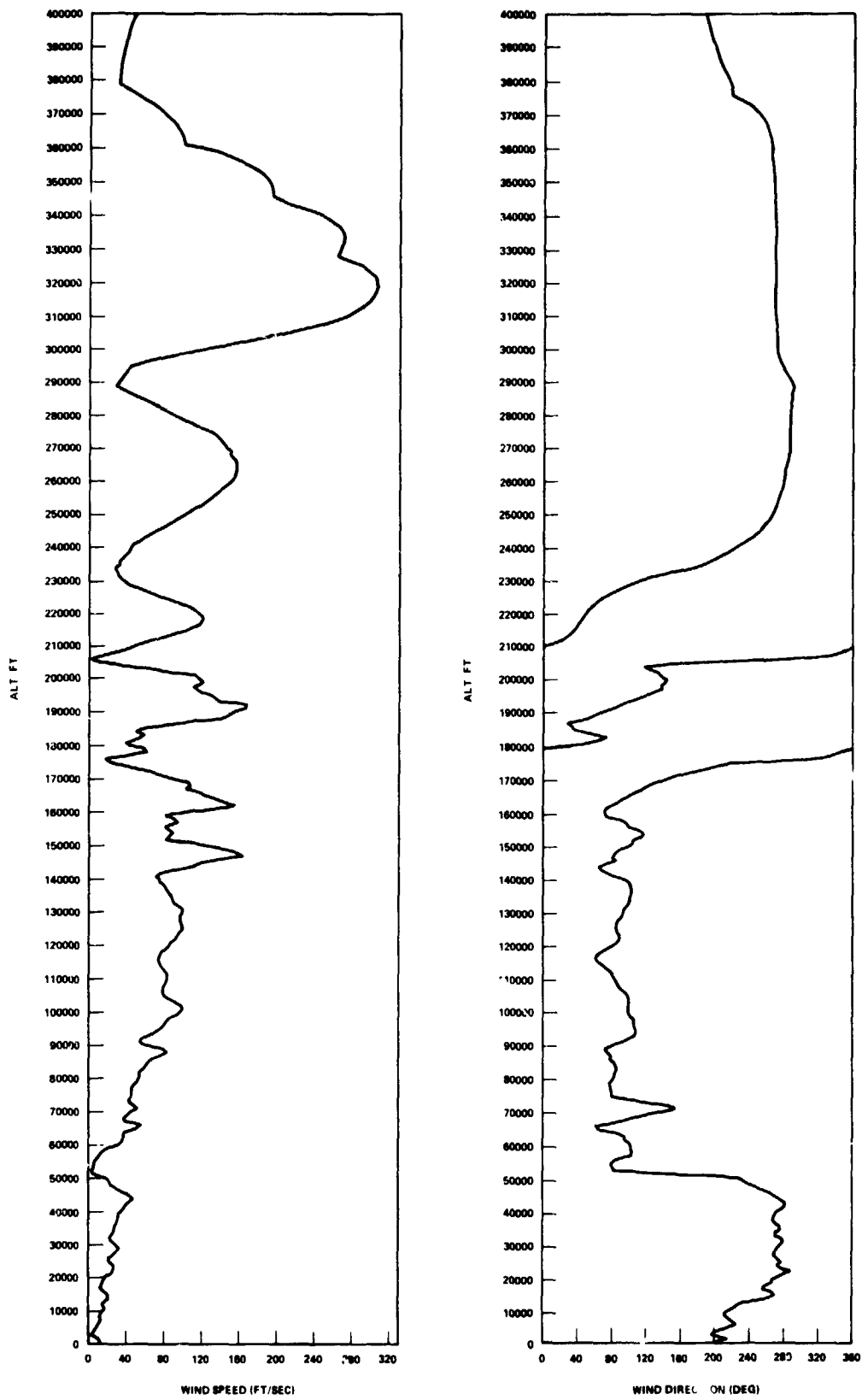


Figure 11. STS-41D scalar wind speed and direction for SRB descent.

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