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ATMOSPHERIC ENVIRONMENT FOR SPACE SHUTTLE (STS-1) LAUNCH

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16 ABSTRACT

This report presents a summary of selected atmospheric conditions observed near Space Shuttle STS-1 launch time on April 12, 1981, 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 the wind and thermodynamic parameters measured at the surface and aloft in the SRB descent/impact ocean area. Final meteorological data tapes for STS-1 vehicle ascent, and SRB descent have been constructed which consist of wind and thermodynamic parameters versus altitude. The STS-1 ascent meteorological data tape has been constructed by Marshall Space Flight Center in response to Shuttle task agreement No. 989-13-22-368 with Johnson Space Center.

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TECHNICAL MEMORANDUM

ATMOSPHERIC ENVIRONMENT FOR SPACE SHUTTLE (STS-1) LAUNCH

I. INTRODUCTION

This report presents an evaluation of the atmospheric environmental data taken during the launch of the Space Shuttle/STS-1 vehicle. This Space Shuttle vehicle was launched from Pad 39A at Kennedy Space Center (KSC), Florida, on a bearing of 60° east of north at 1200:04 (0700 EST) on April 12, 1981.

This report presents a summary of the atmospheric environment at launch time (T+O) of the STS-1 together with the sequence of prelaunch Jimsphere measured winds aloft profiles from L-13 h 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 measurements 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 pr vious 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). A report summarizing only ASTP launch conditions is presented in Reference 3.

II. SOURCES OF DATA

Atmospheric observational data used in this report were taken from weather 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) and from the ship Gen. H.S. Vandenberg in the Atlantic off the Florida Coast. High-altitude winds and thermodynamic data were measured by the Loki Dart and Super Loki rocketsondes launched from the CCAFS. Table 1 presents a listing of systems used to obtain the upper level wind profiles used in compiling the final ascent meteorological data tape. Only the ship-launched omega-sonde-rawinsonde, Loki Dart and Super Loki rocket data were used in the upper level atmospheric regions for the construction of the final SRB descent/impact meteorological data tape. Data cutoff altitudes are also given in Table 1.

III. GENERAL SYNOPTIC SITUATION AT LAUNCH TIME

A ridge of high pressure over the Kennedy Space Center area during launch time was analyzed. Surface winds were lightly easterly. Temperatures were warm, and visibilities were slightly obscured by light fog. Figure 1 gives the surface weather map at the time of launch. Figure 2 shows the wind flow at the 500 mb level. Light northeasterly winds dominated the flow aloft over the Kennedy Space Center region.

The cloud bands were well northwest and southwest of the Cape, as depicted in Figure 3. Figure 3 is the GOES east (SMS-II) infrared satellite picture taken during launch. Figure 4 shows the contrail of the Shuttle after launch as seen by GOES east (SMS-II) visible satellite photograph. The directional change of the contrail was attributed to wind shear in the upper levels of the atmosphere.

IV. SURFACE OBSERVATIONS AT LAUNCH TIME

Surface observations at launch time for selected KSC locations are given in Table 2. Included are pad 39A, Shuttle runway, and CCAFS balloon release station observations. Neither precipitation nor lightning was observed at launch time. From in-cabin motion pictures the vehicle appears to have passed through the high, thin cirrus clouds during ascent.

Table 3 presents Pad 39A wind data along with other standard hourly meteorological measurements and sky observations for the 8 hours prior to launch of STS-1. Values 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 (1215Z), GMD rawinsonde (1212Z), Loki-Dart rocketsonde (1430Z) and Super-Loki rocketsonde (1330Z) systems were used to measure the upper level wind and thermodynamic parameters for STS-1 launch. At altitudes above the rocket-measured data, the Global Reference Atmosphere (GRA) (Ref. 4) parameters for April KSC conditions were used. A tabulation of the STS-1 final meteorological data for ascent is presented in Table 4 which lists the wind and thermodynamic parameters versus altitude. A summary of parameters is given in the following paragraphs.

A. Wind Speed

At launch time wind speeds were light, being 6.0 f/s (3.6 kn) near the surface and increasing to a maximum of 98.0 f/s (58.0 kn) blowing from 250°. The maximum occurred at an altitude of 44,300 ft (13,503 m). This maximum wind speed was near the 50 percentile level for April, with lower levels being generally lighter than the April mean speeds. The winds decreased above the 50,000 ft altitude and then became stronger again at much higher levels, as shown in Figure 5. The overall maximum speed was 167.0 f/s (98.9 kn) at 212,000 ft (64,618 m) altitude.

B. Wind Direction

At launch time the surface wind direction was from the east southeast (120°) and remained southeasterly up to 4,000 ft when directions became east northeast. Wind directions stayed this way until a switch to westerly winds occurred above 19,000 ft and persisted to 60,000 ft. Figure 5 shows the complete wind direction versus altitude profile. As shown in Figure 5, wind directions became quite variable at altitudes with low wind speeds.

C. Prelaunch/Launch Component Winds

The upper air pattern described in Section 3 produced winds aloft near monthly mean values except for the weak headwind components to about 16,000 ft. The in-plane and out-of-plane wind components taken during the 13 hours prior to launch by the FPS-16 Jimsphere system are presented in Figures 6 and 7, respectively. Monthly mean component speeds are indicated by dashed lines in the figures. There were no significant changes in the profiles during this prelaunch/launch time period.

D. Thermodynamic Data

The thermodynamic data taken at STS-1 launch time consisting of atmospheric temperature, dew-point temperature, pressure, and density has been compiled as the STS-1 ascent meteorological data and is presented in Table 4. The associated thermodynamic data taken in support of the SRB descent has also been assembled as the STS-1 SRB descent/impact meteorological data and is presented in Table 5. The vertical structure of temperature for both STS-1 ascent and for SRB descent is shown graphically versus altitude in Figure 8.

E. SRB Upper Air and Surface Measurements

As has been mentioned in earlier paragraphs, an SRB descent meteorological data tape has also been constructed which consists of data taken from the Omegasonde-Rawinsonde system (1603Z) aboard the USNS Vandenberg, which was stationed off the coast in the Atlantic Ocean. The CCAFS measured 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 5, with wind speed and direction profiles presented in Figure 9. Figure 8 gives the vertical temperature profile.

The surface-ship meteorological and oceanographical observations taken close to STS-1 SRB impact are presented in Table 6.

VI. CONCLUSION

The T+O atmospheric summary for the NASA Space Shuttle/STS-1 launch and SRB re-entry is presented in this report.

TABLE 1. SYSTEMS USED TO MEASURE UPPER AIR WIND DATA FOR STS-1 ASCENT.*

Type of Data	Release Time		Portion of Data Used			
			Start		End	
	Time (UT) (h:min)	Time After T+0 (min)	Altitude m (ft)	Time After T+0 (min)	Altitude m (ft)	Time After T+0 (min)
FPS-16 Jimsphere	12:15	15	0 (0)	15	17 374 (57 000)	74
Rawinsonde	12:12	12	17 678 (58 000)	70	27 127 (89 000)	101
Loki-Dart Rocketsonde	14:30	150	62 484 (205 000)	150	27 432 (90 000)	171
Super-Loki Rocketsonde	13:30	90	76 200 (250 000)	90	62 789 (206,000)	91
*Omegasonde-Rawinsonde	16:03	243	0 (0)	243	24,384 (80,000)	323

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

TABLE 2. SURFACE OBSERVATIONS AT STS-1 LAUNCH TIME

Location[b]	Time After T-0 (min)	Pressure,[a*] N/cm² (psia)	Temperature, K (°F)	Dew Point K (°F)	Relative Humidity (%)	Visibility km (miles)	Sky Cover			Wind	
							Cloud Amount (Tenths)	Cloud Type	Height of Base Meters (ft)	Speed f/s (kn)	Direction (deg)
NASA Space Shuttle Runway. Winds Measured at 10.4 m (34 ft)	0	10.237 (14.85)	288.6 (58.0)	285.9 (55.0)	92	16 (10)	4	Ci	10363 (34000)	3.4 (2.0)	100
CCAFS[d] Surface Measurements	12	10.234 (14.84)	290.2 (63.0)	289.1 (61.0)	93	-	-	-	-	6.0 3.6	120
Pad 39A Lightpole[e] SE 18.3 m (60.0 ft)	0	10.180[f] (14.77)	294.3 (70.0)	290.9 (64.0)	82	-	-	-	-	11.8[c] (7.0)	125[c]
Pad 39A FSS (Top-SE) 83.8 m (275 ft)	0	-	-	-	-	-	-	-	-	15.2[c] (9.0)	120[c]

a. Pad 39A Camera Site 3 barometric pressure instrument appeared to be reading too low. Therefore, the KSC Shuttle runway station pressure of 10.234 N/cm² would be more appropriate as the T + 0 pad atmospheric pressure measurement, to be applied at 14 ft above MSL.

b. Altitudes of measurements are above natural grade.

c. 1 min average prior to T + 0.

d. Balloon release site.

e. PAD 39A thermodynamic measurements are taken at ∿ 1.2 m (4 ft) at camera site #3.

f. Station pressure value.

*Reduced to mean sea level.

TABLE 3. PRE-LAUNCH THROUGH LAUNCH KSC PAD 39A METEOROLOGICAL MEASUREMENTS*

Hourly Atmospheric Measurements								Sky Condition			
12 April 1981 Time Z	Temp. (°F)	Dew Pt. (°F)	RH (%)	275' Level (SE)**		60' Level (SE)**		Clouds	Total Sky Cover	Vis. (mi.)	Other Remarks
				WS Kt	WD°	WS Kt	WD°				
0400	70	62	77	9	070	7	090	Thin scattered at 34,000 ft	4/10	10	
0500	70	61	74	10	070	9	100	1/10 AC at 15,000 ft, 4/10 thin CS at 34,000 ft	4/10	10	Patches Ground Fog
0600	70	60	70	10	070	10	100	1/10 CU at 2,100 ft, 4/10 thin CS at 34,000 ft	5/10	10	Patches Ground Fog
0700	70	61	74	10	090	8	110	1/10 SC at 3,500 ft, 3/10 CS at 34,000 ft	3/10	10	Patches Ground Fog
0800	70	61	74	9	090	8	110	1/10 CS at 34,000 ft	1/10	10	Patches Ground Fog
0900	70	62	76	9	090	7	110	Clear	0/10	10	Patches Ground Fog
1000	68	61	78	9	090	8	110	Clear	0/10	10	Patches Ground Fog
1100	68	62	80	9	090	4	140	1/10 CU at 2,000 ft, 4/10 Ci at 34,000 ft	4/10	7	Patches Ground Fog
T-0***1200	70	64	82	9	120	7	125	4/10 Ci at 34,000 ft	4/10	10	Patches Ground Fog

* - Hourly verbal observations from CCAFS

** - 10 min mean from instrumentation on SE side of pad 39A. Hourly verbal estimates from CCAFS

*** - T+O PAD Winds from KSC strip charts (∿ 1 min average before T+O)
T+O PAD thermo parameters from MSFC-HOSC data bank (∿ 1 min average before T+O)

TABLE 4. STS-1 FINAL T+0 ASCENT METEOROLOGICAL DATA TAPE

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
000014	006	120	17.0	.1023+04	.1221+04	15.9
000100	009	125	17.2	.1020+04	.1216+04	15.8
000200	011	127	17.4	.1017+04	.1211+04	15.7
000300	014	129	17.6	.1013+04	.1206+04	15.6
000400	017	130	17.8	.1010+04	.1201+04	15.5
000500	019	130	18.0	.1006+04	.1196+04	15.4
000600	022	131	18.2	.1002+04	.1191+04	15.2
000700	022	136	18.5	.9990+03	.1186+04	15.1
000800	020	137	18.7	.9954+03	.1181+04	15.0
000900	020	130	18.9	.9919+03	.1176+04	14.9
001000	023	132	19.1	.9885+03	.1171+04	14.8
001100	021	143	18.8	.9850+03	.1168+04	14.7
001200	019	139	18.5	.9815+03	.1165+04	14.5
001300	020	133	18.2	.9780+03	.1162+04	14.4
001400	023	135	17.9	.9745+03	.1159+04	14.3
001500	021	145	17.7	.9711+03	.1156+04	14.2
001600	019	139	17.4	.9676+03	.1153+04	14.0
001700	024	134	17.1	.9642+03	.1150+04	13.9
001800	023	142	16.8	.9608+03	.1147+04	13.8
001900	021	145	16.5	.9574+03	.1144+04	13.6
002000	021	138	16.2	.9540+03	.1141+04	13.5
002100	024	137	16.0	.9506+03	.1138+04	13.3
002200	024	143	15.8	.9472+03	.1135+04	13.1
002300	022	141	15.6	.9438+03	.1132+04	[illegible]
002400	022	138	15.4	.9404+03	.1129+04	[illegible]
002500	024	141	15.2	.9370+03	.1126+04	[illegible]
002600	024	149	14.9	.9337+03	.1122+04	[illegible]
002700	022	147	14.7	.9304+03	.1119+04	[illegible].2
002800	023	143	14.5	.9270+03	.1116+04	12.1
002900	025	151	14.3	.9237+03	.1113+04	11.9
003000	022	162	14.1	.9204+03	.1110+04	11.7
003100	021	156	14.2	.9171+03	.1106+04	10.5
003200	021	153	14.3	.9138+03	.1102+04	9.2
003300	019	158	14.4	.9105+03	.1098+04	8.0
003400	018	170	14.5	.9073+03	.1094+04	6.8
003500	014	168	14.6	.9040+03	.1090+04	5.6
003600	014	160	14.7	.9008+03	.1086+04	4.3
003700	013	156	14.8	.8975+03	.1082+04	3.1
003800	009	149	14.9	.8943+03	.1078+04	1.9
003900	006	102	15.0	.8911+03	.1074+04	.6
004000	009	093	15.1	.8879+03	.1070+04	-.6
004100	009	099	15.1	.8847+03	.1067+04	-.8
004200	009	075	15.1	.8815+03	.1063+04	-.9
004300	013	057	15.2	.8784+03	.1059+04	-1.1
004400	017	058	15.2	.8752+03	.1055+04	-1.2
004500	014	058	15.2	.8721+03	.1051+04	-1.4
004600	014	057	15.2	.8690+03	.1047+04	-1.6
004700	018	058	15.2	.8658+03	.1043+04	-1.7
004800	022	069	15.3	.8627+03	.1040+04	-1.9
004900	019	080	15.3	.8596+03	.1036+04	-2.0

TABLE 4. (Continued)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
005000	019	080	15.3	.8566+03	.1032+04	-2.2
005100	024	081	15.2	.8535+03	.1029+04	-2.2
005200	024	087	15.1	.8504+03	.1025+04	-2.3
005300	023	083	15.0	.8474+03	.1022+04	-2.3
005400	025	075	14.9	.8443+03	.1019+04	-2.4
005500	025	076	14.7	.8413+03	.1016+04	-2.4
005600	024	066	14.6	.8382+03	.1012+04	-2.5
005700	025	063	14.5	.8352+03	.1009+04	-2.5
005800	026	074	14.4	.8322+03	.1006+04	-2.6
005900	024	076	14.3	.8292+03	.1003+04	-2.6
006000	025	077	14.2	.8263+03	.9994+03	-2.7
006100	025	086	14.2	.8233+03	.9959+03	-2.7
006200	024	078	14.2	.8203+03	.9923+03	-2.6
006300	028	068	14.1	.8174+03	.9888+03	-2.6
006400	029	066	14.1	.8144+03	.9853+03	-2.5
006500	032	062	14.1	.8115+03	.9818+03	-2.4
006600	036	065	14.1	.8086+03	.9783+03	-2.4
006700	034	065	14.1	.8057+03	.9749+03	-2.3
006800	033	064	14.0	.8028+03	.9714+03	-2.3
006900	034	071	14.0	.7999+03	.9680+03	-2.2
007000	030	073	14.0	.7970+03	.9645+03	-2.2
007100	031	075	13.8	.7941+03	.9618+03	-2.3
007200	033	080	13.6	.7913+03	.9591+03	-2.5
007300	031	079	13.3	.7884+03	.9564+03	-2.6
007400	033	078	13.1	.7856+03	.9536+03	-2.7
007500	032	081	12.9	.7827+03	.9509+03	-2.8
007600	030	078	12.7	.7799+03	.9483+03	-3.0
007700	032	078	12.5	.7771+03	.9456+03	-3.1
007800	031	081	12.2	.7743+03	.9429+03	-3.2
007900	030	079	12.0	.7715+03	.9402+03	-3.4
008000	033	083	11.8	.7687+03	.9376+03	-3.5
008100	032	085	11.6	.7659+03	.9347+03	-3.6
008200	032	079	11.5	.7631+03	.9319+03	-3.7
008300	034	081	11.3	.7603+03	.9290+03	-3.8
008400	032	081	11.1	.7575+03	.9262+03	-3.9
008500	033	075	11.0	.7548+03	.9234+03	-3.9
008600	035	076	10.8	.7520+03	.9206+03	-4.0
008700	034	074	10.6	.7493+03	.9178+03	-4.1
008800	036	073	10.4	.7466+03	.9150+03	-4.2
008900	036	074	10.3	.7439+03	.9122+03	-4.3
009000	034	071	10.1	.7412+03	.9095+03	-4.4
009100	035	071	9.9	.7384+03	.9069+03	-4.7
009200	032	075	9.7	.7357+03	.9042+03	-5.0
009300	032	069	9.5	.7330+03	.9016+03	-5.3
009400	034	069	9.3	.7303+03	.8990+03	-5.6
009500	034	072	9.1	.7277+03	.8964+03	-5.9
009600	031	069	8.8	.7250+03	.8939+03	-6.3
009700	034	067	8.6	.7223+03	.8913+03	-6.6
009800	035	069	8.4	.7197+03	.8887+03	-6.9
009900	031	070	8.2	.7170+03	.8861+03	-7.2

TABLE 4. (Continued

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
015000	011	037	-2.8	.5919+03	.7620+03	-16.
015100	013	027	-2.9	.5897+03	.7593+03	-17.1
015200	014	036	-3.0	.5874+03	.7567+03	-17.5
015300	013	029	-3.1	.5852+03	.7541+03	-17.8
015400	017	029	-3.2	.5829+03	.7515+03	-18.1
015500	015	037	-3.3	.5807+03	.7489+03	-18.4
015600	014	025	-3.4	.5785+03	.7464+03	-18.8
015700	015	019	-3.5	.5762+03	.7438+03	-19.1
015800	013	017	-3.6	.5740+03	.7412+03	-19.4
015900	014	001	-3.7	.5718+03	.7387+03	-19.8
016000	015	011	-3.8	.5696+03	.7361+03	-20.1
016100	014	003	-3.9	.5674+03	.7335+03	-20.3
016200	018	002	-4.0	.5653+03	.7309+03	-20.4
016300	015	003	-4.0	.5631+03	.7283+03	-20.6
016400	014	351	-4.1	.5609+03	.7258+03	-20.8
016500	016	000	-4.2	.5588+03	.7232+03	-20.9
016600	014	351	-4.3	.5566+03	.7206+03	-21.1
016700	014	350	-4.4	.5545+03	.7181+03	-21.3
016800	013	353	-4.4	.5523+03	.7155+03	-21.5
016900	011	342	-4.5	.5502+03	.7130+03	-21.6
017000	013	330	-4.6	.5481+03	.7105+03	-21.8
017100	014	335	-4.8	.5460+03	.7083+03	-22.0
017200	014	321	-5.0	.5439+03	.7062+03	-22.2
017300	017	317	-5.3	.5418+03	.7040+03	-22.4
017400	017	329	-5.5	.5397+03	.7019+03	-22.6
017500	016	319	-5.7	.5376+03	.6997+03	-22.7
017600	017	311	-5.9	.5355+03	.6976+03	-22.9
017700	017	312	-6.1	.5334+03	.6955+03	-23.1
017800	014	319	-6.4	.5314+03	.6934+03	-23.3
017900	015	315	-6.6	.5293+03	.6913+03	-23.5
018000	016	310	-6.8	.5272+03	.6892+03	-23.7
018100	014	325	-7.0	.5252+03	.6870+03	-23.9
018200	014	318	-7.2	.5231+03	.6848+03	-24.1
018300	015	309	-7.4	.5211+03	.6827+03	-24.2
018400	014	320	-7.6	.5191+03	.6805+03	-24.4
018500	014	308	-7.8	.5170+03	.6784+03	-24.6
018600	013	313	-8.0	.5150+03	.6763+03	-24.8
018700	010	315	-8.2	.5130+03	.6741+03	-25.0
018800	011	287	-8.4	.5110+03	.6720+03	-25.1
018900	010	303	-8.6	.5090+03	.6699+03	-25.3
019000	007	296	-8.8	.5070+03	.6678+03	-25.5
019100	010	274	-9.1	.5050+03	.6658+03	-25.7
019200	007	283	-9.3	.5031+03	.6639+03	-25.9
019300	005	251	-9.6	.5011+03	.6619+03	-26.1
019400	008	232	-9.8	.4991+03	.6600+03	-26.3
019500	007	259	-10.1	.4971+03	.6580+03	-26.5
019600	008	246	-10.4	.4952+03	.6561+03	-26.7
019700	010	238	-10.6	.4932+03	.6542+03	-26.9
019800	010	248	-10.9	.4913+03	.6523+03	-27.1
019900	010	231	-11.1	.4894+03	.6503+03	-27.3

TABLE 4. (Continued)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT.	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
010000	032	067	8.0	.7144+03	.8836+03	-7.5
010100	034	069	7.8	.7118+03	.8811+03	-7.6
010200	033	072	7.5	.7092+03	.8785+03	-7.8
010300	034	067	7.3	.7065+03	.8760+03	-7.9
010400	037	068	7.1	.7039+03	.8735+03	-8.1
010500	034	071	6.9	.7013+03	.8710+03	-8.2
010600	033	068	6.6	.6987+03	.8685+03	-8.4
010700	036	066	6.4	.6961+03	.8660+03	-8.5
010800	036	069	6.2	.6936+03	.8636+03	-8.7
010900	034	069	5.9	.6910+03	.8611+03	-8.8
011000	034	065	5.7	.6885+03	.8586+03	-9.0
011100	034	062	5.5	.6859+03	.8561+03	-9.1
011200	035	073	5.2	.6833+03	.8537+03	-9.1
011300	036	065	5.0	.6808+03	.8512+03	-9.2
011400	035	070	4.8	.6783+03	.8487+03	-9.2
011500	033	068	4.6	.6757+03	.8463+03	-9.3
011600	035	066	4.3	.6732+03	.8438+03	-9.4
011700	034	070	4.1	.6707+03	.8414+03	-9.4
011800	032	066	3.9	.6682+03	.8389+03	-9.5
011900	033	063	3.6	.6657+03	.8365+03	-9.5
012000	031	069	3.4	.6632+03	.8341+03	-9.6
012100	028	068	3.2	.6608+03	.8316+03	-9.7
012200	030	072	3.0	.6583+03	.8291+03	-9.7
012300	029	079	2.8	.6558+03	.8266+03	-9.8
012400	026	077	2.6	.6533+03	.8241+03	-9.9
012500	027	070	2.3	.6509+03	.8217+03	-9.9
012600	026	074	2.1	.6485+03	.8192+03	-10.0
012700	023	070	1.9	.6460+03	.8168+03	-10.1
012800	024	064	1.7	.6436+03	.8143+03	-10.2
012900	022	072	1.5	.6412+03	.8119+03	-10.2
013000	019	065	1.3	.6388+03	.8095+03	-10.3
013100	021	066	1.1	.6364+03	.8071+03	-10.5
013200	018	071	.8	.6339+03	.8047+03	-10.7
013300	018	067	.6	.6315+03	.8024+03	-10.9
013400	018	076	.4	.6292+03	.8000+03	-11.1
013500	015	083	.2	.6268+03	.7977+03	-11.3
013600	018	080	-.1	.6244+03	.7954+03	-11.6
013700	017	089	-.3	.6220+03	.7930+03	-11.8
013800	016	086	-.5	.6197+03	.7907+03	-12.0
013900	018	086	-.8	.6173+03	.7884+03	-12.2
014000	017	092	-1.0	.6150+03	.7861+03	-12.4
014100	017	082	-1.2	.6127+03	.7836+03	-12.8
014200	015	093	-1.4	.6103+03	.7812+03	-13.3
014300	013	083	-1.5	.6080+03	.7788+03	-13.7
014400	013	081	-1.7	.6057+03	.7764+03	-14.2
014500	012	080	-1.9	.6034+03	.7739+03	-14.6
014600	013	064	-2.1	.6011+03	.7715+03	-15.0
014700	012	067	-2.3	.5988+03	.7691+03	-15.5
014800	011	056	-2.4	.5965+03	.7667+03	-15.9
014900	014	044	-2.6	.5942+03	.7643+03	-16.4

TABLE 4. (Continued)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
020000	011	239	-11.4	.4879+03	.6484+03	-27.5
020100	008	243	-11.6	.4855+03	.6465+03	-27.7
020200	010	230	-11.9	.4836+03	.6445+03	-27.9
020300	008	243	-12.1	.4817+03	.6426+03	-28.1
020400	007	233	-12.4	.4798+03	.6407+03	-28.3
020500	009	236	-12.6	.4778+03	.6387+03	-28.5
020600	006	260	-12.9	.4759+03	.6368+03	-28.7
020700	008	240	-13.1	.4741+03	.6349+03	-28.9
020800	007	249	-13.4	.4722+03	.6330+03	-29.1
020900	006	256	-13.6	.4703+03	.6311+03	-29.3
021000	008	255	-13.9	.4684+03	.6292+03	-29.5
021100	007	277	-14.2	.4666+03	.6273+03	-29.6
021200	007	255	-14.4	.4647+03	.6255+03	-29.8
021300	009	274	-14.7	.4628+03	.6236+03	-29.9
021400	008	276	-15.0	.4610+03	.6218+03	-30.0
021500	009	281	-15.2	.4591+03	.6199+03	-30.1
021600	010	288	-15.5	.4573+03	.6181+03	-30.3
021700	010	276	-15.8	.4554+03	.6163+03	-30.4
021800	011	287	-16.1	.4536+03	.6144+03	-30.5
021900	010	288	-16.3	.4518+03	.6126+03	-30.7
022000	013	287	-16.6	.4500+03	.6108+03	-30.8
022100	013	290	-16.8	.4482+03	.6089+03	-31.0
022200	013	281	-17.1	.4463+03	.6070+03	-31.2
022300	014	288	-17.3	.4445+03	.6052+03	-31.4
022400	011	288	-17.6	.4427+03	.6033+03	-31.6
022500	014	271	-17.8	.4409+03	.6015+03	-31.8
022600	012	281	-18.1	.4392+03	.5996+03	-32.0
022700	013	270	-18.3	.4374+03	.5978+03	-32.2
022800	014	276	-18.6	.4356+03	.5959+03	-32.4
022900	014	275	-18.8	.4338+03	.5941+03	-32.6
023000	016	277	-19.1	.4321+03	.5923+03	-32.8
023100	016	281	-19.3	.4303+03	.5903+03	-33.0
023200	016	278	-19.5	.4285+03	.5884+03	-33.2
023300	018	286	-19.7	.4268+03	.5864+03	-33.3
023400	016	287	-19.9	.4250+03	.5845+03	-33.5
023500	016	287	-20.1	.4233+03	.5826+03	-33.7
023600	015	280	-20.3	.4216+03	.5807+03	-33.9
023700	014	272	-20.5	.4199+03	.5787+03	-34.1
023800	017	271	-20.7	.4181+03	.5768+03	-34.2
023900	014	261	-20.9	.4164+03	.5749+03	-34.4
024000	016	262	-21.1	.4147+03	.5730+03	-34.6
024100	015	261	-21.4	.4130+03	.5712+03	-34.8
024200	014	250	-21.6	.4113+03	.5695+03	-35.0
024300	016	262	-21.9	.4096+03	.5678+03	-35.2
024400	015	261	-22.1	.4079+03	.5660+03	-35.4
024500	015	265	-22.4	.4062+03	.5642+03	-35.6
024600	015	265	-22.7	.4046+03	.5625+03	-35.8
024700	012	264	-22.9	.4029+03	.5608+03	-36.0
024800	016	264	-23.2	.4012+03	.5590+03	-36.2
024900	014	262	-23.4	.3996+03	.5573+03	-36.4

TABLE 4. (Continued)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
025000	015	266	-23.7	.3979+03	.5556+03	-36.6
025100	017	266	-23.9	.3963+03	.5537+03	-36.8
025200	017	261	-24.1	.3946+03	.5518+03	-36.9
025300	019	260	-24.3	.3930+03	.5500+03	-37.1
025400	019	264	-24.5	.3914+03	.5481+03	-37.2
025500	019	265	-24.6	.3897+03	.5462+03	-37.4
025600	021	269	-24.8	.3881+03	.5444+03	-37.6
025700	018	270	-25.0	.3865+03	.5425+03	-37.7
025800	017	268	-25.2	.3849+03	.5407+03	-37.9
025900	019	264	-25.4	.3833+03	.5388+03	-38.0
026000	015	265	-25.6	.3817+03	.5370+03	-38.2
026100	014	268	-25.8	.3801+03	.5352+03	-38.4
026200	018	270	-26.0	.3785+03	.5334+03	-38.6
026300	018	273	-26.2	.3769+03	.5316+03	-38.8
026400	019	274	-26.4	.3753+03	.5298+03	-39.0
026500	023	270	-26.6	.3738+03	.5280+03	-39.1
026600	021	273	-26.8	.3722+03	.5262+03	-39.3
026700	020	276	-27.0	.3706+03	.5244+03	-39.5
026800	021	271	-27.2	.3691+03	.5227+03	-39.7
026900	018	262	-27.4	.3675+03	.5209+03	-39.9
027000	019	259	-27.6	.3660+03	.5191+03	-40.1
027100	019	259	-27.8	.3644+03	.5174+03	-40.3
027200	019	247	-28.1	.3629+03	.5158+03	-40.5
027300	020	248	-28.3	.3614+03	.5141+03	-40.7
027400	021	253	-28.6	.3598+03	.5124+03	-40.9
027500	019	250	-28.8	.3583+03	.5107+03	-41.1
027600	021	250	-29.0	.3568+03	.5091+03	-41.4
027700	021	253	-29.3	.3553+03	.5074+03	-41.6
027800	021	248	-29.5	.3538+03	.5058+03	-41.8
027900	022	251	-29.8	.3523+03	.5041+03	-42.0
028000	022	253	-30.0	.3508+03	.5025+03	-42.2
028100	021	249	-30.3	.3493+03	.5010+03	-42.4
028200	022	251	-30.6	.3478+03	.4994+03	-42.7
028300	023	252	-30.9	.3463+03	.4979+03	-42.9
028400	025	254	-31.2	.3448+03	.4964+03	-43.2
028500	026	255	-31.5	.3433+03	.4949+03	-43.4
028600	024	250	-31.8	.3419+03	.4934+03	-43.7
028700	027	250	-32.1	.3404+03	.4919+03	-43.9
028800	027	251	-32.4	.3389+03	.4904+03	-44.2
028900	027	249	-32.7	.3375+03	.4889+03	-44.4
029000	030	249	-33.0	.3361+03	.4874+03	-44.7
029100	029	246	-33.3	.3346+03	.4859+03	-44.9
029200	033	243	-33.6	.3331+03	.4844+03	-45.2
029300	035	244	-33.9	.3317+03	.4829+03	-45.4
029400	034	241	-34.2	.3303+03	.4814+03	-45.7
029500	034	241	-34.5	.3288+03	.4800+03	-45.9
029600	037	244	-34.8	.3274+03	.4785+03	-46.2
029700	036	243	-35.1	.3260+03	.4770+03	-46.4
029800	038	243	-35.4	.3246+03	.4756+03	-46.7
029900	039	243	-35.7	.3232+03	.4741+03	-46.9

TABLE 4. (Continued)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
030000	040	242	-36.0	.3218+03	.4726+03	-47.2
030100	043	244	-36.2	.3204+03	.4710+03	-47.4
030200	043	241	-36.5	.3190+03	.4695+03	-47.6
030300	042	242	-36.7	.3176+03	.4679+03	-47.8
030400	044	244	-37.0	.3162+03	.4663+03	-48.0
030500	042	241	-37.2	.3148+03	.4647+03	-48.1
030600	042	244	-37.4	.3134+03	.4632+03	-48.3
030700	041	242	-37.7	.3120+03	.4616+03	-48.5
030800	039	243	-37.9	.3107+03	.4601+03	-48.7
030900	040	246	-38.2	.3093+03	.4585+03	-48.9
031000	039	242	-38.4	.3080+03	.4570+03	-49.1
031100	041	246	-38.6	.3066+03	.4554+03	-49.2
031200	041	245	-38.9	.3052+03	.4538+03	-49.3
031300	040	243	-39.1	.3039+03	.4523+03	-49.4
031400	040	245	-39.3	.3025+03	.4507+03	-49.5
031500	040	243	-39.5	.3012+03	.4491+03	-49.5
031600	042	243	-39.8	.2999+03	.4476+03	-49.6
031700	046	247	-40.0	.2985+03	.4461+03	-49.7
031800	045	243	-40.2	.2972+03	.4445+03	-49.8
031900	045	244	-40.5	.2959+03	.4430+03	-49.9
032000	047	245	-40.7	.2946+03	.4415+03	-50.0
032100	045	242	-40.9	.2933+03	.4398+03	-50.0
032200	046	241	-41.0	.2920+03	.4381+03	-50.1
032300	044	239	-41.2	.2907+03	.4365+03	-50.1
032400	045	240	-41.3	.2894+03	.4348+03	-50.1
032500	046	241	-41.5	.2881+03	.4332+03	-50.1
032600	047	242	-41.7	.2868+03	.4316+03	-50.2
032700	048	241	-41.8	.2855+03	.4299+03	-50.2
032800	050	244	-42.0	.2842+03	.4283+03	-50.2
032900	051	245	-42.1	.2830+03	.4267+03	-50.3
033000	052	246	-42.3	.2817+03	.4251+03	-50.3
033100	051	247	-42.5	.2804+03	.4235+03	-50.4
033200	050	253	-42.7	.2792+03	.4219+03	-50.5
033300	051	252	-42.8	.2779+03	.4204+03	-50.6
033400	049	254	-43.0	.2767+03	.4188+03	-50.7
033500	050	253	-43.2	.2754+03	.4172+03	-50.8
033600	047	251	-43.4	.2742+03	.4157+03	-51.0
033700	048	251	-43.6	.2730+03	.4142+03	-51.1
033800	045	252	-43.7	.2717+03	.4126+03	-51.2
033900	044	253	-43.9	.2705+03	.4111+03	-51.3
034000	046	253	-44.1	.2693+03	.4096+03	-51.4
034100	045	252	-44.3	.2681+03	.4081+03	-51.6
034200	043	255	-44.6	.2669+03	.4067+03	-51.8
034300	045	255	-44.8	.2657+03	.4053+03	-52.0
034400	042	256	-45.1	.2644+03	.4039+03	-52.2
034500	044	258	-45.3	.2632+03	.4025+03	-52.4
034600	041	257	-45.5	.2621+03	.4011+03	-52.7
034700	041	259	-45.8	.2609+03	.3997+03	-52.9
034800	043	259	-46.0	.2597+03	.3983+03	-53.1
034900	044	253	-46.3	.2585+03	.3969+03	-53.3

TABLE 4. (Continued)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
035000	042	254	-46.5	.2573+03	.3955+03	-53.5
035100	043	253	-46.8	.2561+03	.3942+03	-53.8
035200	043	251	-47.1	.2550+03	.3929+03	-54.0
035300	042	254	-47.3	.2538+03	.3915+03	-54.3
035400	044	257	-47.6	.2526+03	.3902+03	-54.5
035500	044	256	-47.9	.2515+03	.3889+03	-54.8
035600	047	255	-48.2	.2503+03	.3876+03	-55.1
035700	050	254	-48.5	.2492+03	.3863+03	-55.3
035800	048	254	-48.7	.2480+03	.3850+03	-55.6
035900	050	255	-49.0	.2469+03	.3837+03	-55.8
036000	052	253	-49.3	.2458+03	.3825+03	-56.1
036100	051	255	-49.6	.2446+03	.3811+03	-56.4
036200	053	256	-49.8	.2435+03	.3798+03	-56.6
036300	053	254	-50.1	.2424+03	.3785+03	-56.9
036400	052	254	-50.4	.2412+03	.3772+03	-57.2
036500	055	254	-50.6	.2401+03	.3759+03	-57.4
036600	053	254	-50.9	.2390+03	.3747+03	-57.7
036700	054	256	-51.2	.2379+03	.3734+03	-58.0
036800	054	255	-51.5	.2368+03	.3721+03	-58.3
036900	052	256	-51.7	.2357+03	.3708+03	-58.5
037000	054	257	-52.0	.2346+03	.3695+03	-58.8
037100	053	257	-52.3	.2335+03	.3683+03	-59.0
037200	055	256	-52.6	.2324+03	.3670+03	-59.3
037300	054	258	-52.9	.2313+03	.3658+03	-59.5
037400	053	259	-53.2	.2302+03	.3646+03	-59.8
037500	055	260	-53.4	.2291+03	.3633+03	-60.0
037600	053	261	-53.7	.2281+03	.3621+03	-60.3
037700	054	260	-54.0	.2270+03	.3609+03	-60.5
037800	056	260	-54.3	.2259+03	.3596+03	-60.8
037900	053	259	-54.6	.2249+03	.3584+03	-61.0
038000	055	262	-54.9	.2238+03	.3572+03	-61.3
038100	053	262	-55.2	.2227+03	.3561+03	-9999.
038200	053	260	-55.6	.2217+03	.3549+03	-9999.
038300	055	259	-55.9	.2206+03	.3538+03	-9999.
038400	052	259	-56.3	.2196+03	.3527+03	-9999.
038500	054	263	-56.6	.2185+03	.3515+03	-9999.
038600	055	261	-56.9	.2175+03	.3504+03	-9999.
038700	054	263	-57.3	.2164+03	.3493+03	-9999.
038800	056	262	-57.6	.2154+03	.3482+03	-9999.
038900	053	261	-58.0	.2144+03	.3470+03	-9999.
039000	053	262	-58.3	.2133+03	.3459+03	-9999.
039100	053	262	-58.5	.2123+03	.3446+03	-9999.
039200	051	261	-58.8	.2113+03	.3433+03	-9999.
039300	055	261	-59.0	.2103+03	.3420+03	-9999.
039400	053	261	-59.2	.2093+03	.3407+03	-9999.
039500	052	260	-59.4	.2082+03	.3395+03	-9999.
039600	056	259	-59.7	.2072+03	.3382+03	-9999.
039700	056	257	-59.9	.2062+03	.3369+03	-9999.
039800	057	260	-60.1	.2052+03	.3356+03	-9999.
039900	057	258	-60.4	.2042+03	.3344+03	-9999.

TABLE 4. (Continued)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
040000	056	259	-60.6	.2032+03	.3331+03	-9999.
040100	057	259	-60.6	.2023+03	.3316+03	-9999.
040200	057	261	-60.7	.2013+03	.3300+03	-9999.
040300	057	262	-60.7	.2003+03	.3284+03	-9999.
040400	063	260	-60.7	.1993+03	.3269+03	-9999.
040500	059	259	-60.7	.1984+03	.3253+03	-9999.
040600	059	260	-60.8	.1974+03	.3238+03	-9999.
040700	063	259	-60.8	.1964+03	.3223+03	-9999.
040800	063	257	-60.8	.1955+03	.3208+03	-9999.
040900	064	256	-60.9	.1945+03	.3192+03	-9999.
041000	068	252	-60.9	.1936+03	.3177+03	-9999.
041100	069	251	-61.0	.1926+03	.3163+03	-9999.
041200	075	253	-61.1	.1917+03	.3149+03	-9999.
041300	078	253	-61.1	.1908+03	.3135+03	-9999.
041400	078	255	-61.2	.1898+03	.3121+03	-9999.
041500	079	256	-61.3	.1889+03	.3107+03	-9999.
041600	081	255	-61.4	.1880+03	.3093+03	-9999.
041700	082	250	-61.5	.1871+03	.3079+03	-9999.
041800	083	251	-61.5	.1862+03	.3065+03	-9999.
041900	081	252	-61.6	.1853+03	.3051+03	-9999.
042000	082	254	-61.7	.1843+03	.3037+03	-9999.
042100	083	253	-61.8	.1834+03	.3023+03	-9999.
042200	079	256	-61.9	.1826+03	.3010+03	-9999.
042300	082	255	-61.9	.1817+03	.2996+03	-9999.
042400	079	257	-62.0	.1808+03	.2983+03	-9999.
042500	077	260	-62.1	.1799+03	.2969+03	-9999.
042600	080	261	-62.2	.1790+03	.2956+03	-9999.
042700	078	263	-62.3	.1781+03	.2943+03	-9999.
042800	077	261	-62.3	.1773+03	.2929+03	-9999.
042900	076	259	-62.4	.1764+03	.2916+03	-9999.
043000	077	257	-62.5	.1755+03	.2903+03	-9999.
043100	076	257	-62.5	.1747+03	.2888+03	-9999.
043200	078	255	-62.4	.1738+03	.2874+03	-9999.
043300	077	255	-62.4	.1730+03	.2859+03	-9999.
043400	083	251	-62.4	.1721+03	.2845+03	-9999.
043500	087	253	-62.3	.1713+03	.2831+03	-9999.
043600	088	253	-62.3	.1704+03	.2816+03	-9999.
043700	090	251	-62.3	.1696+03	.2802+03	-9999.
043800	093	251	-62.3	.1688+03	.2788+03	-9999.
043900	090	252	-62.2	.1680+03	.2774+03	-9999.
044000	094	252	-62.2	.1671+03	.2760+03	-9999.
044100	096	253	-62.2	.1663+03	.2746+03	-9999.
044200	095	253	-62.1	.1655+03	.2732+03	-9999.
044300	098	250	-62.1	.1647+03	.2718+03	-9999.
044400	097	250	-62.0	.1639+03	.2704+03	-9999.
044500	094	250	-61.9	.1631+03	.2690+03	-9999.
044600	095	248	-61.9	.1623+03	.2676+03	-9999.
044700	093	249	-61.8	.1615+03	.2663+03	-9999.
044800	089	252	-61.8	.1607+03	.2649+03	-9999.
044900	088	251	-61.7	.1599+03	.2635+03	-9999.

TABLE 4. (Continued)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
045000	085	253	-61.7	.1591+03	.2622+03	-9999.
045100	082	254	-61.7	.1584+03	.2609+03	-9999.
045200	080	257	-61.8	.1576+03	.2597+03	-9999.
045300	079	255	-61.8	.1568+03	.2585+03	-9999.
045400	075	257	-61.8	.1561+03	.2572+03	-9999.
045500	074	262	-61.8	.1553+03	.2560+03	-9999.
045600	075	261	-61.9	.1545+03	.2548+03	-9999.
045700	073	265	-61.9	.1538+03	.2536+03	-9999.
045800	072	263	-61.9	.1530+03	.2524+03	-9999.
045900	073	261	-62.0	.1523+03	.2512+03	-9999.
046000	072	265	-62.0	.1515+03	.2500+03	-9999.
046100	070	263	-62.1	.1508+03	.2489+03	-9999.
046200	070	262	-62.2	.1500+03	.2478+03	-9999.
046300	069	263	-62.4	.1493+03	.2468+03	-9999.
046400	070	263	-62.5	.1486+03	.2457+03	-9999.
046500	069	264	-62.6	.1479+03	.2446+03	-9999.
046600	071	263	-62.7	.1471+03	.2436+03	-9999.
046700	072	263	-62.8	.1464+03	.2425+03	-9999.
046800	068	266	-63.0	.1457+03	.2415+03	-9999.
046900	071	262	-63.1	.1450+03	.2404+03	-9999.
047000	071	260	-63.2	.1443+03	.2394+03	-9999.
047100	066	265	-63.3	.1435+03	.2383+03	-9999.
047200	072	261	-63.4	.1428+03	.2373+03	-9999.
047300	067	264	-63.5	.1421+03	.2362+03	-9999.
047400	062	267	-63.6	.1414+03	.2352+03	-9999.
047500	063	266	-63.7	.1407+03	.2341+03	-9999.
047600	065	266	-63.9	.1400+03	.2331+03	-9999.
047700	063	263	-64.0	.1394+03	.2321+03	-9999.
047800	060	262	-64.1	.1387+03	.2311+03	-9999.
047900	059	262	-64.2	.1380+03	.2300+03	-9999.
048000	061	262	-64.3	.1373+03	.2290+03	-9999.
048100	064	265	-64.4	.1366+03	.2280+03	-9999.
048200	069	261	-64.5	.1360+03	.2270+03	-9999.
048300	068	265	-64.6	.1353+03	.2259+03	-9999.
048400	070	267	-64.7	.1346+03	.2249+03	-9999.
048500	073	264	-64.7	.1339+03	.2239+03	-9999.
048600	075	260	-64.8	.1333+03	.2229+03	-9999.
048700	073	264	-64.9	.1326+03	.2219+03	-9999.
048800	075	259	-65.0	.1320+03	.2209+03	-9999.
048900	073	257	-65.1	.1313+03	.2199+03	-9999.
049000	074	254	-65.2	.1307+03	.2189+03	-9999.
049100	078	252	-65.3	.1300+03	.2179+03	-9999.
049200	075	255	-65.4	.1294+03	.2169+03	-9999.
049300	077	256	-65.5	.1287+03	.2159+03	-9999.
049400	081	255	-65.6	.1281+03	.2149+03	-9999.
049500	082	260	-65.6	.1274+03	.2140+03	-9999.
049600	082	261	-65.7	.1268+03	.2130+03	-9999.
049700	081	259	-65.8	.1262+03	.2120+03	-9999.
049800	085	264	-65.9	.1256+03	.2111+03	-9999.
049900	086	267	-66.0	.1249+03	.2101+03	-9999.

TABLE 4. (Continued)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
050000	082	269	-66.1	.1243+03	.2092+03	-9999.
050100	084	264	-66.2	.1237+03	.2082+03	-9999.
050200	082	264	-66.3	.1231+03	.2073+03	-9999.
050300	079	267	-66.4	.1225+03	.2063+03	-9999.
050400	080	265	-66.5	.1218+03	.2054+03	-9999.
050500	077	268	-66.6	.1212+03	.2045+03	-9999.
050600	076	266	-66.7	.1206+03	.2036+03	-9999.
050700	076	271	-66.8	.1200+03	.2026+03	-9999.
050800	072	271	-66.9	.1194+03	.2017+03	-9999.
050900	070	271	-67.0	.1188+03	.2008+03	-9999.
051000	066	268	-67.1	.1182+03	.1999+03	-9999.
051100	066	271	-67.2	.1176+03	.1990+03	-9999.
051200	063	273	-67.3	.1171+03	.1982+03	-9999.
051300	060	268	-67.5	.1165+03	.1973+03	-9999.
051400	058	273	-67.7	.1159+03	.1965+03	-9999.
051500	059	271	-67.8	.1153+03	.1956+03	-9999.
051600	054	274	-67.9	.1147+03	.1947+03	-9999.
051700	054	274	-68.1	.1141+03	.1939+03	-9999.
051800	051	277	-68.2	.1136+03	.1931+03	-9999.
051900	053	281	-68.4	.1130+03	.1922+03	-9999.
052000	052	278	-68.5	.1124+03	.1914+03	-9999.
052100	050	283	-68.6	.1119+03	.1905+03	-9999.
052200	054	276	-68.8	.1113+03	.1897+03	-9999.
052300	046	281	-68.9	.1107+03	.1889+03	-9999.
052400	042	280	-69.0	.1102+03	.1880+03	-9999.
052500	043	276	-69.1	.1096+03	.1872+03	-9999.
052600	044	275	-69.3	.1091+03	.1864+03	-9999.
052700	040	268	-69.4	.1085+03	.1855+03	-9999.
052800	038	267	-69.5	.1080+03	.1847+03	-9999.
052900	037	261	-69.7	.1074+03	.1839+03	-9999.
053000	042	257	-69.8	.1069+03	.1831+03	-9999.
053100	035	264	-70.0	.1063+03	.1823+03	-9999.
053200	039	258	-70.1	.1058+03	.1815+03	-9999.
053300	037	250	-70.3	.1053+03	.1808+03	-9999.
053400	040	255	-70.5	.1047+03	.1800+03	-9999.
053500	039	260	-70.6	.1042+03	.1792+03	-9999.
053600	042	257	-70.8	.1037+03	.1785+03	-9999.
053700	039	257	-71.0	.1031+03	.1777+03	-9999.
053800	036	264	-71.2	.1026+03	.1770+03	-9999.
053900	040	262	-71.3	.1021+03	.1762+03	-9999.
054000	042	255	-71.5	.1016+03	.1755+03	-9999.
054100	037	260	-71.6	.1010+03	.1747+03	-9999.
054200	040	262	-71.8	.1005+03	.1739+03	-9999.
054300	042	262	-71.9	.1000+03	.1731+03	-9999.
054400	041	264	-72.0	.9949+02	.1723+03	-9999.
054500	041	262	-72.1	.9898+02	.1715+03	-9999.
054600	044	258	-72.3	.9847+02	.1708+03	-9999.
054700	044	261	-72.4	.9796+02	.1700+03	-9999.
054800	048	256	-72.5	.9746+02	.1692+03	-9999.
054900	046	265	-72.7	.9696+02	.1685+03	-9999.

TABLE 4. (Continued)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	PER DIFF (PCT)
055000	049	266	-72.8	.9646+02	.1677+03	-9999.
055100	044	263	-72.7	.9596+02	.1668+03	-9999.
055200	043	268	-72.7	.9547+02	.1659+03	-9999.
055300	042	272	-72.6	.9498+02	.1650+03	-9999.
055400	040	268	-72.6	.9449+02	.1641+03	-9999.
055500	041	275	-72.5	.9401+02	.1632+03	-9999.
055600	038	276	-72.4	.9353+02	.1623+03	-9999.
055700	038	273	-72.4	.9305+02	.1614+03	-9999.
055800	038	269	-72.3	.9257+02	.1606+03	-9999.
055900	038	264	-72.3	.9209+02	.1597+03	-9999.
056000	038	257	-72.2	.9162+02	.1588+03	-9999.
056100	038	255	-72.2	.9115+02	.1580+03	-9999.
056200	038	255	-72.2	.9068+02	.1572+03	-9999.
056300	038	250	-72.2	.9022+02	.1564+03	-9999.
056400	037	245	-72.2	.8976+02	.1556+03	-9999.
056500	037	249	-72.1	.8930+02	.1548+03	-9999.
056600	041	249	-72.1	.8884+02	.1540+03	-9999.
056700	039	259	-72.1	.8838+02	.1532+03	-9999.
056800	039	261	-72.1	.8793+02	.1524+03	-9999.
056900	038	263	-72.1	.8748+02	.1516+03	-9999.
057000	035	270	-72.1	.8703+02	.1508+03	-9999.
058000	032	274	-72.6	.8266+02	.1436+03	-9999.
059000	026	278	-73.1	.7850+02	.1367+03	-9999.
060000	020	287	-74.6	.7454+02	.1308+03	-9999.
061000	015	309	-74.3	.7076+02	.1240+03	-9999.
062000	009	336	-72.3	.6720+02	.1166+03	-9999.
063000	004	001	-69.5	.6385+02	.1097+03	-9999.
064000	005	053	-67.7	.6071+02	.1029+03	-9999.
065000	011	061	-66.7	.5774+02	.9763+02	-9999.
066000	020	058	-65.6	.5493+02	.9220+02	-9999.
067000	024	060	-63.8	.5227+02	.8698+02	-9999.
068000	023	071	-62.6	.4976+02	.8233+02	-9999.
069000	018	085	-61.0	.4739+02	.7782+02	-9999.
070000	013	082	-60.8	.4514+02	.7405+02	-9999.
071000	013	056	-60.3	.4300+02	.7038+02	-9999.
072000	019	044	-59.0	.4097+02	.6665+02	-9999.
073000	025	050	-57.8	.3905+02	.6317+02	-9999.
074000	028	057	-56.6	.3723+02	.5989+02	-9999.
075000	030	063	-55.4	.3550+02	.5679+02	-9999.
076000	032	068	-53.6	.3386+02	.5371+02	-9999.
077000	029	077	-50.9	.3232+02	.5066+02	-9999.
078000	024	093	-48.9	.3086+02	.4794+02	-9999.
079000	022	115	-47.7	.2948+02	.4555+02	-9999.
080000	019	138	-48.2	.2816+02	.4361+02	-9999.
081000	016	165	-48.8	.2689+02	.4172+02	-9999.
082000	014	191	-48.6	.2569+02	.3984+02	-9999.
083000	011	221	-47.5	.2454+02	.3789+02	-9999.
084000	009	250	-46.3	.2344+02	.3607+02	-9999.
085000	006	276	-46.2	.2240+02	.3438+02	-9999.
086000	002	001	-46.2	.2141+02	.3286+02	-9999.

TABLE 4. (Continued)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
087000	010	081	-46.2	.2046+02	.3141+02	-9999.
088000	016	090	-46.1	.1955+02	.3000+02	-9999.
089000	022	096	-45.5	.1868+02	.2859+02	-9999.
090000	020	089	-45.2	.1785+02	.2697+02	-9999.
091000	021	111	-44.2	.1687+02	.2567+02	-9999.
092000	027	120	-42.8	.1613+02	.2440+02	-9999.
093000	030	128	-41.8	.1543+02	.2324+02	-9999.
094000	028	130	-41.2	.1476+02	.2216+02	-9999.
095000	025	127	-40.6	.1412+02	.2115+02	-9999.
096000	023	122	-40.1	.1351+02	.2019+02	-9999.
097000	023	122	-39.4	.1292+02	.1926+02	-9999.
098000	020	115	-38.5	.1237+02	.1836+02	-9999.
099000	018	108	-37.5	.1184+02	.1750+02	-9999.
100000	016	100	-36.7	.1133+02	.1670+02	-9999.
101000	013	083	-36.4	.1085+02	.1597+02	-9999.
102000	011	066	-36.3	.1039+02	.1528+02	-9999.
103000	011	051	-35.7	.9949+01	.1460+02	-9999.
104000	013	041	-34.1	.9528+01	.1388+02	-9999.
105000	013	036	-32.3	.9128+01	.1320+02	-9999.
106000	013	036	-31.7	.8747+01	.1262+02	-9999.
107000	011	037	-31.4	.8383+01	.1208+02	-9999.
108000	010	040	-30.8	.8034+01	.1155+02	-9999.
109000	011	043	-29.9	.7701+01	.1103+02	-9999.
110000	015	045	-28.8	.7383+01	.1052+02	-9999.
111000	018	044	-27.6	.7079+01	.1004+02	-9999.
112000	023	042	-27.4	.6789+01	.9625+01	-9999.
113000	030	041	-27.7	.6511+01	.9241+01	-9999.
114000	037	039	-27.9	.6243+01	.8868+01	-9999.
115000	040	044	-27.2	.5988+01	.8482+01	-9999.
116000	037	055	-26.1	.5743+01	.8097+01	-9999.
117000	032	072	-23.5	.5510+01	.7690+01	-9999.
118000	030	088	-22.7	.5288+01	.7357+01	-9999.
119000	030	096	-23.2	.5076+01	.7074+01	-9999.
120000	030	096	-23.6	.4871+01	.6801+01	-9999.
121000	028	091	-23.9	.4674+01	.6534+01	-9999.
122000	021	086	-22.8	.4486+01	.6243+01	-9999.
123000	013	060	-21.5	.4306+01	.5962+01	-9999.
124000	018	012	-21.7	.4134+01	.5726+01	-9999.
125000	030	003	-22.5	.3968+01	.5515+01	-9999.
126000	035	015	-22.2	.3809+01	.5287+01	-9999.
127000	032	036	-21.4	.3657+01	.5060+01	-9999.
128000	028	053	-21.7	.3511+01	.4863+01	-9999.
129000	027	061	-22.0	.3370+01	.4675+01	-9999.
130000	027	055	-22.0	.3235+01	.4487+01	-9999.
131000	028	041	-21.9	.3106+01	.4306+01	-9999.
132000	033	031	-21.8	.2981+01	.4132+01	-9999.
133000	035	033	-21.7	.2862+01	.3965+01	-9999.
134000	033	044	-21.6	.2748+01	.3805+01	-9999.
135000	028	057	-21.5	.2638+01	.3652+01	-9999.
136000	028	062	-21.4	.2533+01	.3505+01	-9999.

TABLE 4. (Continued)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
137000	028	066	-21.3	.2431+01	.3363+01	-9999.
138000	030	066	-21.2	.2335+01	.3228+01	-9999.
139000	032	066	-20.2	.2242+01	.3087+01	-9999.
140000	033	066	-17.9	.2153+01	.2938+01	-9999.
141000	033	066	-14.9	.2069+01	.2790+01	-9999.
142000	033	069	-12.0	.1988+01	.2652+01	-9999.
143000	033	078	-9.0	.1912+01	.2522+01	-9999.
144000	035	085	-6.6	.1840+01	.2405+01	-9999.
145000	037	092	-4.8	.1771+01	.2299+01	-9999.
146000	038	098	-4.1	.1705+01	.2207+01	-9999.
147000	038	107	-3.6	.1641+01	.2121+01	-9999.
148000	038	118	-3.0	.1580+01	.2037+01	-9999.
149000	038	130	-2.0	.1521+01	.1954+01	-9999.
150000	037	141	-1.1	.1465+01	.1876+01	-9999.
151000	035	151	-.3	.1411+01	.1801+01	-9999.
152000	028	161	.2	.1359+01	.1732+01	-9999.
153000	025	174	-.1	.1309+01	.1670+01	-9999.
154000	023	190	-.6	.1261+01	.1611+01	-9999.
155000	021	214	-1.6	.1214+01	.1558+01	-9999.
156000	021	239	-2.6	.1169+01	.1505+01	-9999.
157000	027	248	-2.0	.1126+01	.1446+01	-9999.
158000	027	264	-3.4	.1084+01	.1399+01	-9999.
159000	020	276	-4.9	.1043+01	.1355+01	-9999.
160000	013	250	-5.2	.1004+01	.1306+01	-9999.
161000	018	209	-5.6	.9666+00	.1259+01	-9999.
162000	015	264	-6.0	.9303+00	.1213+01	-9999.
163000	027	283	-6.6	.8953+00	.1170+01	-9999.
164000	032	290	-6.4	.8616+00	.1125+01	-9999.
165000	033	264	-6.1	.8292+00	.1092+01	-9999.
166000	038	260	-5.8	.7981+00	.1040+01	-9999.
167000	050	244	-7.0	.7681+00	.1005+01	-9999.
168000	050	255	-8.8	.7390+00	.9738+00	-9999.
169000	045	259	-10.2	.7109+00	.9417+00	-9999.
170000	035	265	-10.5	.6838+00	.9069+00	-9999.
171000	032	234	-10.7	.6577+00	.8732+00	-9999.
172000	032	227	-10.8	.6325+00	.8399+00	-9999.
173000	035	224	-11.1	.6084+00	.8089+00	-9999.
174000	037	223	-11.8	.5851+00	.7799+00	-9999.
175000	036	225	-12.2	.5626+00	.7512+00	-9999.
176000	043	207	-12.8	.5410+00	.7238+00	-9999.
177000	050	201	-13.5	.5201+00	.6978+00	-9999.
178000	054	198	-14.0	.5000+00	.6721+00	-9999.
179000	057	206	-14.5	.4807+00	.6475+00	-9999.
180000	043	228	-14.9	.4621+00	.6234+00	-9999.
181000	042	246	-15.0	.4441+00	.5994+00	-9999.
182000	037	266	-15.2	.4269+00	.5764+00	-9999.
183000	023	248	-15.4	.4103+00	.5546+00	-9999.
184000	035	209	-14.6	.3944+00	.5313+00	-9999.
185000	060	196	-14.2	.3791+00	.5101+00	-9999.
186000	079	194	-12.6	.3645+00	.4873+00	-9999.

TABLE 4. (Continued)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
187000	094	205	-12.2	.3505+00	.4679+00	-9999.
188000	109	215	-11.9	.3371+00	.4494+00	-9999.
189000	118	220	-12.0	.3242+00	.4324+00	-9999.
190000	133	230	-12.6	.3118+00	.4168+00	-9999.
191000	135	234	-13.5	.2998+00	.4022+00	-9999.
192000	130	236	-14.3	.2882+00	.3878+00	-9999.
193000	121	238	-14.8	.2770+00	.3735+00	-9999.
194000	114	243	-16.3	.2663+00	.3612+00	-9999.
195000	104	248	-17.8	.2559+00	.3491+00	-9999.
196000	099	254	-19.5	.2458+00	.3376+00	-9999.
197000	104	257	-20.9	.2361+00	.3261+00	-9999.
198000	104	258	-22.8	.2267+00	.3154+00	-9999.
199000	106	257	-24.3	.2177+00	.3047+00	-9999.
200000	108	253	-25.7	.2089+00	.2940+00	-9999.
201000	108	251	-27.9	.2004+00	.2847+00	-9999.
202000	114	246	-28.9	.1923+00	.2742+00	-9999.
203000	103	242	-29.9	.1844+00	.2641+00	-9999.
204000	099	244	-31.4	.1768+00	.2548+00	-9999.
205000	108	237	-32.3	.1695+00	.2451+00	-9999.
206000	136	231	-36.0	.1566+00	.2301+00	-9999.
207000	143	231	-36.6	.1501+00	.2209+00	-9999.
208000	150	230	-36.2	.1436+00	.2111+00	-9999.
209000	157	230	-35.2	.1376+00	.1997+00	-9999.
210000	162	230	-34.2	.1319+00	.1923+00	-9999.
211000	165	230	-36.0	.1264+00	.1857+00	-9999.
212000	167	231	-35.2	.1211+00	.1773+00	-9999.
213000	167	232	-37.4	.1160+00	.1714+00	-9999.
214000	165	234	-39.6	.1110+00	.1656+00	-9999.
215000	162	236	-40.2	.1063+00	.1589+00	-9999.
216000	155	240	-39.2	.1018+00	.1516+00	-9999.
217000	146	245	-39.2	.9740-01	.1450+00	-9999.
218000	138	251	-40.6	.9330-01	.1398+00	-9999.
219000	126	259	-39.4	.8930-01	.1331+00	-9999.
220000	118	267	-38.4	.8550-01	.1269+00	-9999.
221000	111	276	-39.8	.8190-01	.1223+00	-9999.
222000	108	286	-40.5	.7840-01	.1194+00	-9999.
223000	104	296	-40.9	.7490-01	.1163+00	-9999.
224000	103	306	-51.9	.7160-01	.1127+00	-9999.
225000	101	314	-55.9	.6840-01	.1097+00	-9999.
226000	097	320	-57.2	.6520-01	.1052+00	-9999.
227000	091	326	-58.2	.6220-01	.1008+00	-9999.
228000	084	331	-59.4	.5920-01	.9647-01	-9999.
229000	077	336	-60.2	.5640-01	.9224-01	-9999.
230000	069	342	-60.7	.5380-01	.8824-01	-9999.
231000	060	350	-64.2	.5130-01	.8552-01	-9999.
232000	052	359	-66.2	.4890-01	.8230-01	-9999.
233000	047	009	-67.2	.4660-01	.7884-01	-9999.
234000	045	019	-68.8	.4440-01	.7551-01	-9999.
235000	047	030	-68.2	.4210-01	.7154-01	-9999.
236000	048	038	-69.2	.4010-01	.6948-01	-9999.

TABLE 4. (Continued)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
237000	052	044	-70.3	.3810-01	.6544-01	-9999.
238000	055	049	-71.9	.3620-01	.6265-01	-9999.
239000	060	052	-72.4	.3440-01	.5999-01	-9999.
240000	064	053	-74.9	.3270-01	.5746-01	-9999.
241000	067	054	-76.4	.3110-01	.5507-01	-9999.
242000	070	056	-78.0	.2950-01	.5265-01	-9999.
243000	074	057	-79.2	.2800-01	.5028-01	-9999.
244000	076	057	-80.0	.2660-01	.4798-01	-9999.
245000	079	056	-79.8	.2520-01	.4540-01	-9999.
246000	082	055	-78.3	.2400-01	.4290-01	-9999.
247000	086	054	-78.2	.2270-01	.4055-01	-9999.
248000	087	053	-78.2	[illegible]	.3859-01	-9999.
249000	091	053	-78.2	[illegible]	.3662-01	-9999.
250000	082	053	-79.2	[illegible]	.3502-01	-9999.
251000	078	053	-78.6	[illegible]	.3354-01	-9999.
252000	074	053	-78.1	.1769-01	.3212-01	-9999.
253000	070	053	-77.6	.1713-01	.3076-01	-9999.
254000	065	053	-77.0	.1641-01	.2946-01	-9999.
255000	061	053	-76.5	.1571-01	.2821-01	-9999.
256000	057	053	-76.0	.1505-01	.2702-01	-9999.
257000	053	054	-75.5	.1441-01	.2588-01	-9999.
258000	049	054	-74.9	.1380-01	.2478-01	-9999.
259000	045	054	-74.4	.1322-01	.2374-01	-9999.
260000	041	055	-73.9	.1266-01	.2273-01	-9999.
261000	036	055	-73.4	.1212-01	.2177-01	-9999.
262000	032	056	-72.8	.1161-01	.2085-01	-9999.
263000	028	057	-72.3	.1112-01	.1997-01	-9999.
264000	024	058	-71.8	.1065-01	.1912-01	-9999.
265000	020	059	-71.3	.1020-01	.1832-01	-9999.
268000	020	083	-72.3	.8770-02	.1520-01	-9999.
271000	022	104	-73.2	.7530-02	.1310-01	-9999.
274000	026	120	-74.2	.6460-02	.1130-01	-9999.
277000	032	131	-75.2	.5540-02	.9740-02	-9999.
280000	035	132	-76.2	.4760-02	.8400-02	-9999.
283000	031	121	-77.3	.4080-02	.7240-02	-9999.
286000	028	108	-78.5	.3500-02	.6240-02	-9999.
289000	027	094	-79.6	.3000-02	.5380-02	-9999.
292000	029	079	-80.8	.2570-02	.4640-02	-9999.
295000	031	066	-82.0	.2200-02	.4000-02	-9999.
298000	024	063	-82.9	.1830-02	.3330-02	-9999.
301000	014	052	-83.2	.1550-02	.2830-02	-9999.
304000	006	333	-83.6	.1310-02	.2400-02	-9999.
307000	022	279	-83.9	.1110-02	.2030-02	-9999.
310000	048	271	-84.3	.9450-03	.1720-02	-9999.
313000	067	269	-83.9	.8030-03	.1460-02	-9999.
316000	067	269	-82.5	.6830-03	.1230-02	-9999.
319000	065	269	-81.2	.5810-03	.1030-02	-9999.
322000	060	269	-79.8	.4940-03	.8690-03	-9999.
325000	051	269	-78.4	.4200-03	.7320-03	-9999.
328000	035	268	-77.1	.3580-03	.6160-03	-9999.

TABLE 4. (Concluded)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
331000	038	268	-72.7	.3070-03	.5160-03	-9999.
334000	042	268	-68.2	.2640-03	.4330-03	-9999.
337000	046	267	-63.7	.2270-03	.3630-03	-9999.
340000	050	267	-59.2	.1950-03	.3040-03	-9999.
343000	053	266	-54.7	.1670-03	.2550-03	-9999.
346000	056	267	-48.4	1460-03	.2160-03	-9999.
349000	056	266	-40.5	.1290-03	.1840-03	-9999.
352000	056	265	-32.5	.1140-03	.1560-03	-9999.
355000	053	263	-24.6	.1000-03	.1330-03	-9999.
358000	048	260	-16.6	.8830-04	.1130-03	-9999.
361000	039	262	-8.6	.7780-04	.9650-04	-9999.
364000	038	259	2.0	.7070-04	.8400-04	-9999.
367000	037	255	12.6	.6410-04	.7320-04	-9999.
370000	035	249	23.1	.5810-04	.6380-04	-9999.
373000	032	241	33.7	.5260-04	.5560-04	-9999.
376000	029	226	44.3	.4750-04	.4840-04	-9999.
379000	020	233	55.5	.4330-04	.4250-04	-9999.
382000	019	231	67.5	.3980-04	.3740-04	-9999.
385000	019	226	79.9	.3680-04	.3340-04	-9999.
388000	020	220	92.6	.3400-04	.2980-04	-9999.
391000	020	215	105.6	.3160-04	.2660-04	-9999.
394000	021	209	118.9	.2940-04	.2390-04	-9999.
397000	022	204	132.4	.2740-04	.2150-04	-9999.
400000	023	199	146.2	.2570-04	.1940-04	-9999.

TABLE 5. STS-1 FINAL SRB DESCENT METEOROLOGICAL DATA TAPE

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
000000	000	000	26.0	.1023+04	.1182+04	17.7
001000	016	010	20.7	.9891+03	.1165+04	15.0
002000	018	013	18.3	.9548+03	.1134+04	14.8
003000	018	010	15.6	.9215+03	.1104+04	14.1
004000	018	008	15.8	.8890+03	.1071+04	-10.6
005000	015	008	16.1	.8577+03	.1031+04	-7.7
006000	015	012	15.2	.8275+03	.9983+03	-8.9
007000	015	010	14.7	.7982+03	.9644+03	-7.6
008000	018	008	12.8	.7699+03	.9361+03	-5.4
009000	017	007	11.3	.7426+03	.9078+03	-9.2
010000	019	009	10.4	.7158+03	.8782+03	-10.7
011000	017	007	8.2	.6900+03	.8534+03	-13.7
012000	014	006	6.5	.6650+03	.8273+03	-13.3
013000	015	010	4.2	.6407+03	.8036+03	-13.0
014000	016	009	1.8	.6171+03	.7807+03	-12.3
015000	009	345	-.9	.5941+03	.7594+03	-16.1
016000	004	283	-2.5	.5719+03	.7357+03	-24.8
017000	004	236	-2.9	.5503+03	.7091+03	-25.3
018000	004	237	-4.0	.5296+03	.6851+03	-26.2
019000	004	241	-5.7	.5095+03	.6634+03	-27.9
020000	010	217	-7.3	.4901+03	.6419+03	-29.3
021000	016	211	-9.8	.4713+03	.6232+03	-30.3
022000	014	208	-12.2	.4530+03	.6045+03	-31.7
023000	014	202	-14.0	.4353+03	.5850+03	-33.9
024000	016	197	-15.9	.4181+03	.5661+03	-35.6
025000	016	197	-17.9	.4016+03	.5479+03	-36.7
026000	015	198	-20.0	.3855+03	.5304+03	-38.6
027000	017	199	-21.7	.3700+03	.5125+03	-39.8
028000	020	197	-23.5	.3550+03	.4953+03	-40.9
029000	018	184	-26.2	.3405+03	.4803+03	-43.1
030000	021	176	-27.8	.3265+03	.4635+03	-44.3
031000	030	183	-30.4	.3129+03	.4490+03	-45.2
032000	038	187	-32.2	.2998+03	.4334+03	-47.1
033000	040	189	-35.4	.2871+03	.4206+03	-47.9
034000	040	189	-37.8	.2748+03	.4067+03	-48.0
035000	041	189	-40.1	.2629+03	.3930+03	-49.7
036000	040	188	-42.2	.2514+03	.3792+03	-51.4
037000	039	186	-44.2	.2403+03	.3657+03	-53.2
038000	039	185	-45.5	.2297+03	.3515+03	-54.4
039000	042	186	-48.0	.2194+03	.3395+03	-56.7
040000	044	188	-50.2	.2095+03	.3274+03	-58.7
041000	047	189	-52.6	.2000+03	.3159+03	-60.9
042000	050	189	-54.1	.1908+03	.3034+03	-62.4
043000	051	188	-54.9	.1819+03	.2904+03	-63.2
044000	051	189	-55.4	.1735+03	.2774+03	-63.9
045000	051	190	-56.0	.1654+03	.2654+03	-64.5
046000	050	190	-56.5	.1577+03	.2536+03	-65.0
047000	050	191	-56.4	.1504+03	.2417+03	-65.1
048000	052	192	-57.4	.1434+03	.2315+03	-66.1
049000	049	191	-57.7	.1366+03	.2209+03	-66.4

TABLE 5. (Continued)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
050000	045	190	-57.9	.1302+03	.2108+03	-66.6
051000	046	189	-59.0	.1241+03	.2019+03	-67.5
052000	044	188	-59.5	.1183+03	.1928+03	-68.1
053000	041	189	-60.0	.1127+03	.1841+03	-9999.
054000	038	193	-60.6	.1073+03	.1759+03	-9999.
055000	036	197	-60.9	.1022+03	.1678+03	-9999.
056000	033	199	-60.9	.9736+02	.1598+03	-9999.
057000	029	202	-61.2	.9273+02	.1524+03	-9999.
058000	021	209	-62.3	.8851+02	.1459+03	-9999.
059000	011	206	-62.5	.8408+02	.1390+03	-9999.
060000	005	206	-62.7	.8006+02	.1325+03	-9999.
061000	002	206	-62.7	.7622+02	.1262+03	-9999.
062000	001	206	-62.5	.7257+02	.1200+03	-9999.
063000	000	034	-62.2	.6910+02	.1141+03	-9999.
064000	002	029	-61.8	.6580+02	.1085+03	-9999.
065000	005	029	-61.2	.6267+02	.1030+03	-9999.
066000	008	032	-60.9	.5969+02	.9797+02	-9999.
067000	009	036	-60.2	.5686+02	.9302+02	-9999.
068000	010	037	-59.5	.5418+02	.8793+02	-9999.
069000	012	036	-56.8	.5164+02	.8315+02	-9999.
070000	016	027	-55.8	.4925+02	.7865+02	-9999.
071000	015	020	-53.5	.4698+02	.1451+02	-9999.
072000	015	020	-51.9	.4483+02	.7059+02	-9999.
073000	015	019	-50.9	.4279+02	.6707+02	-9999.
074000	015	017	-50.0	.4085+02	.6377+02	-9999.
075000	015	015	-48.8	.3901+02	.6057+02	-9999.
076000	017	016	-47.7	.3726+02	.5757+02	-9999.
077000	018	018	-46.6	.3560+02	.5474+02	-9999.
078000	017	016	-45.6	.3402+02	.5208+02	-9999.
079000	015	014	-44.6	.3251+02	.4955+02	-9999.
080000	014	012	-43.7	.3108+02	.4719+02	-9999.
081000	015	020	-43.9	.2937+02	.4463+02	-9999.
082000	018	028	-44.1	.2775+02	.4221+02	-9999.
083000	015	036	-44.2	.2623+02	.3991+02	-9999.
084000	014	044	-44.3	.2478+02	.3772+02	-9999.
085000	012	052	-44.5	.2342+02	.3568+02	-9999.
086000	010	060	-44.6	.2213+02	.3373+02	-9999.
087000	010	068	-44.7	.2092+02	.3190+02	-9999.
088000	012	078	-44.8	.1976+02	.3015+02	-9999.
089000	014	084	-45.0	.1868+02	.2852+02	-9999.
090000	020	089	-45.2	.1765+02	.2697+02	-9999.
091000	021	111	-44.2	.1687+02	.2567+02	-9999.
092000	027	120	-42.8	.1613+02	.2440+02	-9999.
093000	030	128	-41.8	.1543+02	.2324+02	-9999.
094000	028	130	-41.2	.1476+02	.2216+02	-9999.
095000	025	127	-40.6	.1412+02	.2115+02	-9999.
096000	023	122	-40.1	.1351+02	.2019+02	-9999.
097000	023	122	-39.4	.1292+02	.1926+02	-9999.
098000	020	115	-38.5	.1237+02	.1836+02	-9999.
099000	018	108	-37.5	.1184+02	.1750+02	-9999.

TABLE 5. (Continued)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
100000	016	100	-38.7	.1139+02	.1670+02	-9999.
101000	013	083	-36.4	.1085+02	.1597+02	-9999.
102000	011	066	-36.2	.1039+02	.1528+02	-9999.
103000	011	051	-35.7	.9949+01	.1460+02	-9999.
104000	013	041	-34.1	.9528+01	.1388+02	-9999.
105000	013	036	-32.3	.9128+01	.1320+02	-9999.
106000	013	030	-31.7	.8747+01	.1262+02	-9999.
107000	011	037	-31.4	.8383+01	.1208+02	-9999.
108000	010	048	-30.6	.8034+01	.1155+02	-9999.
109000	011	043	-29.9	.7701+01	.1103+02	-9999.
110000	015	045	-29.8	.7383+01	.1052+02	-9999.
111000	018	044	-27.6	.7079+01	.1004+02	-9999.
112000	023	042	-27.4	.6789+01	.9629+01	-9999.
113000	030	041	-27.7	.6511+01	.9241+01	-9999.
114000	037	039	-27.9	.6245+01	.8868+01	-9999.
115000	040	044	-27.2	.5988+01	.8482+01	-9999.
116000	037	049	-26.8	.5743+01	.8097+01	-9999.
117000	032	052	-23.5	.5510+01	.7690+01	-9999.
118000	030	050	-22.9	.5288+01	.7357+01	-9999.
119000	030	046	-23.2	.5076+01	.7074+01	-9999.
120000	030	040	-23.6	.4874+01	.6801+01	-9999.
121000	028	031	-23.5	.4674+01	.6534+01	-9999.
122000	021	006	-22.8	.4486+01	.6243+01	-9999.
123000	013	060	-21.5	.4306+01	.5962+01	-9999.
124000	018	012	-21.7	.4134+01	.5726+01	-9999.
125000	030	003	-22.5	.3968+01	.5515+01	-9999.
126000	035	019	-22.8	.3809+01	.5287+01	-9999.
127000	032	036	-21.4	.3657+01	.5060+01	-9999.
128000	028	053	-21.7	.3511+01	.4863+01	-9999.
129000	027	061	-22.0	.3370+01	.4675+01	-9999.
130000	027	059	-22.0	.3235+01	.4487+01	-9999.
131000	028	041	-21.9	.3106+01	.4306+01	-9999.
132000	033	031	-21.8	.2981+01	.4133+01	-9999.
133000	035	033	-21.7	.2862+01	.3965+01	-9999.
134000	033	044	-21.6	.2748+01	.3805+01	-9999.
135000	028	057	-21.5	.2638+01	.3652+01	-9999.
136000	028	062	-21.4	.2533+01	.3505+01	-9999.
137000	028	066	-21.3	.2431+01	.3363+01	-9999.
138000	030	068	-21.8	.2335+01	.3228+01	-9999.
139000	032	066	-20.2	.2242+01	.3087+01	-9999.
140000	033	066	-17.9	.2153+01	.2938+01	-9999.
141000	033	066	-14.9	.2069+01	.2790+01	-9999.
142000	033	069	-12.0	.1988+01	.2652+01	-9999.
143000	033	078	-9.0	.1912+01	.2522+01	-9999.
144000	035	085	-6.6	.1840+01	.2406+01	-9999.
145000	037	092	-4.8	.1771+01	.2299+01	-9999.
146000	038	098	-4.1	.1705+01	.2207+01	-9999.
147000	038	107	-3.6	.1641+01	.2121+01	-9999.
148000	038	118	-3.0	.1580+01	.2037+01	-9999.
149000	038	130	-2.0	.1521+01	.1954+01	-9999.

TABLE 5. (Continued)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
150000	037	141	-1.1	.1469+01	.1876+01	-9999.
151000	035	151	-.3	.1411+01	.1801+01	-9999.
152000	028	161	.2	.1359+01	.1732+01	-9999.
153000	025	174	-.1	.1309+01	.1670+01	-9999.
154000	023	190	-.6	.1261+01	.1611+01	-9999.
155000	021	214	-1.6	.1214+01	.1558+01	-9999.
156000	021	239	-2.6	.1169+01	.1505+01	-9999.
157000	027	248	-2.0	.1126+01	.1446+01	-9999.
158000	027	264	-3.4	.1084+01	.1399+01	-9999.
159000	020	276	-4.9	.1043+01	.1355+01	-9999.
160000	013	290	-5.2	.1004+01	.1306+01	-9999.
161000	018	209	-5.6	.9666+00	.1259+01	-9999.
162000	015	264	-6.0	.9303+00	.1213+01	-9999.
163000	027	283	-6.6	.8953+00	.1170+01	-9999.
164000	032	290	-8.4	.8618+00	.1119+01	-9999.
165000	033	264	-6.1	.8292+00	.1082+01	-9999.
166000	038	260	-5.8	.7981+00	.1040+01	-9999.
167000	050	244	-7.0	.7681+00	.1005+01	-9999.
168000	050	255	-8.8	.7390+00	.9738+00	-9999.
169000	045	259	-10.2	.7109+00	.9417+00	-9999.
170000	039	265	-10.5	.6838+00	.9069+00	-9999.
171000	032	234	-10.7	.6577+00	.8732+00	-9999.
172000	032	227	-10.8	.6325+00	.8399+00	-9999.
173000	035	224	-11.1	.6084+00	.8089+00	-9999.
174000	037	223	-11.8	.5851+00	.7799+00	-9999.
175000	032	225	-12.2	.5626+00	.7512+00	-9999.
176000	043	207	-12.8	.5410+00	.7235+00	-9999.
177000	050	201	-13.5	.5203+00	.6978+00	-9999.
178000	054	198	-14.0	.5008+00	.6721+00	-9999.
179000	057	206	-14.5	.4807+00	.6475+00	-9999.
180000	043	228	-14.9	.4621+00	.6234+00	-9999.
181000	042	246	-15.3	.4441+00	.5994+00	-9999.
182000	037	266	-15.2	.4269+00	.5764+00	-9999.
183000	023	248	-15.4	.4103+00	.5546+00	-9999.
184000	035	209	-14.4	.3944+00	.5313+00	-9999.
185000	060	196	-14.2	.3791+00	.5101+00	-9999.
186000	079	194	-12.6	.3645+00	.4873+00	-9999.
187000	094	205	-12.2	.3505+00	.4679+00	-9999.
188000	109	215	-11.9	.3371+00	.4494+00	-9999.
189000	118	220	-12.0	.3242+00	.4324+00	-9999.
190000	133	230	-12.6	.3118+00	.4160+00	-9999.
191000	135	234	-13.5	.2998+00	.4022+00	-9999.
192000	130	236	-14.3	.2882+00	.3878+00	-9999.
193000	121	238	-14.8	.2770+00	.3735+00	-9999.
194000	114	243	-16.3	.2663+00	.3612+00	-9999.
195000	104	248	-17.8	.2559+00	.3491+00	-9999.
196000	099	254	-19.5	.2458+00	.3376+00	-9999.
197000	104	257	-20.9	.2361+00	.3261+00	-9999.
198000	104	258	-22.8	.2267+00	.3154+00	-9999.
199000	106	257	-24.3	.2177+00	.3047+00	-9999.

TABLE 5. (Continued)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
200000	108	253	-29.7	.2089+00	.2940+00	-9999.
201000	108	251	-27.9	.2004+00	.2847+00	-9999.
202000	114	248	-28.9	.1923+00	.2742+00	-9999.
203000	103	242	-29.9	.1844+00	.2641+00	-9999.
204000	099	244	-31.4	.1763+00	.2548+00	-9999.
205000	108	237	-32.3	.1693+00	.2451+00	-9999.
206000	136	231	-36.0	.1566+00	.2301+00	-9999.
207000	143	231	-36.6	.1500+00	.2209+00	-9999.
208000	140	230	-36.2	.1436+00	.2111+00	-9999.
209000	157	230	-33.2	.1376+00	.1997+00	-9999.
210000	162	238	-34.2	.1319+00	.1923+00	-9999.
211000	165	230	-36.0	.1264+00	.1857+00	-9999.
212000	167	231	-35.2	.1211+00	.1773+00	-9999.
213000	167	232	-37.4	.1160+00	.1714+00	-9999.
214000	169	234	-39.0	.1110+00	.1656+00	-9999.
215000	162	236	-40.2	.1063+00	.1589+00	-9999.
216000	155	240	-39.2	.1018+00	.1516+00	-9999.
217000	146	245	-39.2	.9740-01	.1450+00	-9999.
218000	138	251	-40.6	.9330-01	.1398+00	-9999.
219000	126	259	-39.4	.8930-01	.1331+00	-9999.
220000	118	267	-38.6	.8550-01	.1269+00	-9999.
221000	111	276	-39.8	.8190-01	.1223+00	-9999.
222000	108	286	-40.5	.7845-01	.1194+00	-9999.
223000	104	296	-40.9	.7495-01	.1163+00	-9999.
224000	103	306	-41.9	.7160-01	.1127+00	-9999.
225000	101	314	-45.9	.6840-01	.1097+00	-9999.
226000	097	320	-47.2	.6520-01	.1052+00	-9999.
227000	091	326	-48.2	.6220-01	.1008+00	-9999.
228000	084	331	-49.4	.5930-01	.9647-01	-9999.
229000	077	336	-50.2	.5640-01	.9224-01	-9999.
230000	069	342	-50.7	.5380-01	.8824-01	-9999.
231000	060	350	-54.2	.5130-01	.8352-01	-9999.
232000	052	359	-56.2	.4890-01	.8028-01	-9999.
233000	047	009	-57.2	.4660-01	.7684-01	-9999.
234000	045	019	-58.0	.4438-01	.7351-01	-9999.
235000	047	030	-58.2	.4210-01	.7154-01	-9999.
236000	048	038	-59.2	.4010-01	.6848-01	-9999.
237000	052	044	-70.5	.3810-01	.6544-01	-9999.
238000	055	049	-71.9	.3620-01	.6265-01	-9999.
239000	060	052	-73.4	.3440-01	.5999-01	-9999.
240000	064	053	-74.9	.3270-01	.5746-01	-9999.
241000	067	054	-76.4	.3110-01	.5507-01	-9999.
242000	070	056	-78.0	.2950-01	.5265-01	-9999.
243000	074	057	-79.2	.2800-01	.5028-01	-9999.
244000	076	057	-80.0	.2660-01	.4798-01	-9999.
245000	079	056	-79.8	.2570-01	.4540-01	-9999.
246000	082	055	-78.3	.2400-01	.4290-01	-9999.
247000	086	054	-78.2	.2270-01	.4055-01	-9999.
248000	087	053	-78.2	.2160-01	.3859-01	-9999.
249000	091	053	-78.2	.2050-01	.3662-01	-9999.

TABLE 5. (Continued)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
250000	082	053	-79.2	.1950-01	.3502-01	-9999.
251000	078	053	-78.6	.1865-01	.3350-01	-9999.
252000	074	053	-78.1	.1785-01	.3205-01	-9999.
253000	070	053	-77.6	.1708-01	.3067-01	-9999.
254000	065	053	-77.0	.1634-01	.2935-01	-9999.
255000	061	053	-76.5	.1565-01	.2809-01	-9999.
256000	057	053	-76.0	.1498-01	.2690-01	-9999.
257000	053	054	-75.5	.1434-01	.2576-01	-9999.
258000	049	054	-74.9	.1374-01	.2467-01	-9999.
259000	045	054	-74.4	.1316-01	.2363-01	-9999.
260000	041	055	-73.9	.1261-01	.2264-01	-9999.
261000	036	055	-73.4	.1208-01	.2169-01	-9999.
262000	032	056	-72.8	.1158-01	.2079-01	-9999.
263000	028	057	-72.3	.1110-01	.1993-01	-9999.
264000	024	058	-71.8	.1064-01	.1910-01	-9999.
265000	020	059	-71.3	.1020-01	.1832-01	-9999.
268000	020	083	-72.3	.8770-02	.1520-01	-9999.
271000	022	104	-73.2	.7530-02	.1310-01	-9999.
274000	026	120	-74.2	.6460-02	.1130-01	-9999.
277000	032	131	-75.2	.5540-02	.9740-02	-9999.
280000	035	132	-76.2	.4760-02	.8400-02	-9999.
283000	031	121	-77.3	.4080-02	.7240-02	-9999.
286000	028	108	-78.5	.3500-02	.6240-02	-9999.
289000	027	094	-79.6	.3006-02	.5380-02	-9999.
292000	029	079	-80.8	.2578-02	.4640-02	-9999.
295000	031	066	-82.0	.2200-02	.4000-02	-9999.
298000	024	063	-82.9	.1830-02	.3330-02	-9999.
301000	014	052	-83.2	.1550-02	.2830-02	-9999.
304000	006	333	-83.6	.1310-02	.2400-02	-9999.
307000	022	279	-83.9	.1110-02	.2030-02	-9999.
310000	048	271	-84.3	.9450-03	.1720-02	-9999.
313000	067	269	-83.9	.8030-03	.1460-02	-9999.
316000	067	269	-82.5	.6830-03	.1230-02	-9999.
319000	065	269	-81.2	.5810-03	.1030-02	-9999.
322000	060	269	-79.8	.4940-03	.8690-03	-9999.
325000	051	269	-78.4	.4200-03	.7320-03	-9999.
328000	035	268	-77.1	.3580-03	.6160-03	-9999.
331000	038	268	-72.7	.3070-03	.5160-03	-9999.
334000	042	268	-68.2	.2640-03	.4330-03	-9999.
337000	046	267	-63.7	.2270-03	.3630-03	-9999.
340000	050	267	-59.2	.1950-03	.3040-03	-9999.
343000	053	266	-54.7	.1670-03	.2550-03	-9999.
346000	056	267	-48.4	.1460-03	.2160-03	-9999.
349000	056	266	-40.5	.1290-03	.1840-03	-9999.
352000	056	265	-32.5	.1140-03	.1560-03	-9999.
355000	053	263	-24.6	.1000-03	.1330-03	-9999.
358000	048	260	-16.6	.8830-04	.1130-03	-9999.
361000	039	262	-8.6	.7780-04	.9650-04	-9999.
364000	038	259	2.0	.7070-04	.8400-04	-9999.
367000	037	255	12.6	.6410-04	.7320-04	-9999.

TABLE 5. (Concluded)

METEOROLOGICAL DATA TAPE

ALTITUDE (FT)	WIND SPEED (FT/SEC)	WIND DIRECTION (DEG)	TEMPERATURE (DEG C)	PRESSURE (MILLIBARS)	DENSITY (GRAM/M3)	DEW POINT (DEG C)
370000	035	249	23.1	.5010-04	.6380-04	-9999.
373000	032	241	33.7	.5240-04	.5560-04	-9999.
376000	029	226	[illegible]	.4740-04	.4840-04	-9999.
379000	020	236	55.5	.4330-04	.4250-04	-9999.
382000	016	231	67.5	.3980-04	.3760-04	-9999.
385000	013	226	79.9	.3640-04	.3340-04	-9999.
388000	020	220	92.6	.3400-04	.2980-04	-9999.
391000	020	215	105.6	.3160-04	.2660-04	-9999.
394000	021	209	118.9	.2940-04	.2390-04	-9999.
397000	022	204	132.4	.2740-04	.2150-04	-9999.
400000	022	199	146.2	.2570-04	.1940-04	-9999.

TABLE 6. STS-1 SRB DESCENT-IMPACT SURFACE SHIP OBSERVATIONS

Site: USN Ship, Gen. H.S. Vandenberg

Location: 30°N Latitude
78°W Longitude

Date: April 12, 1981
Time: 1212 Z

Surface Observation:

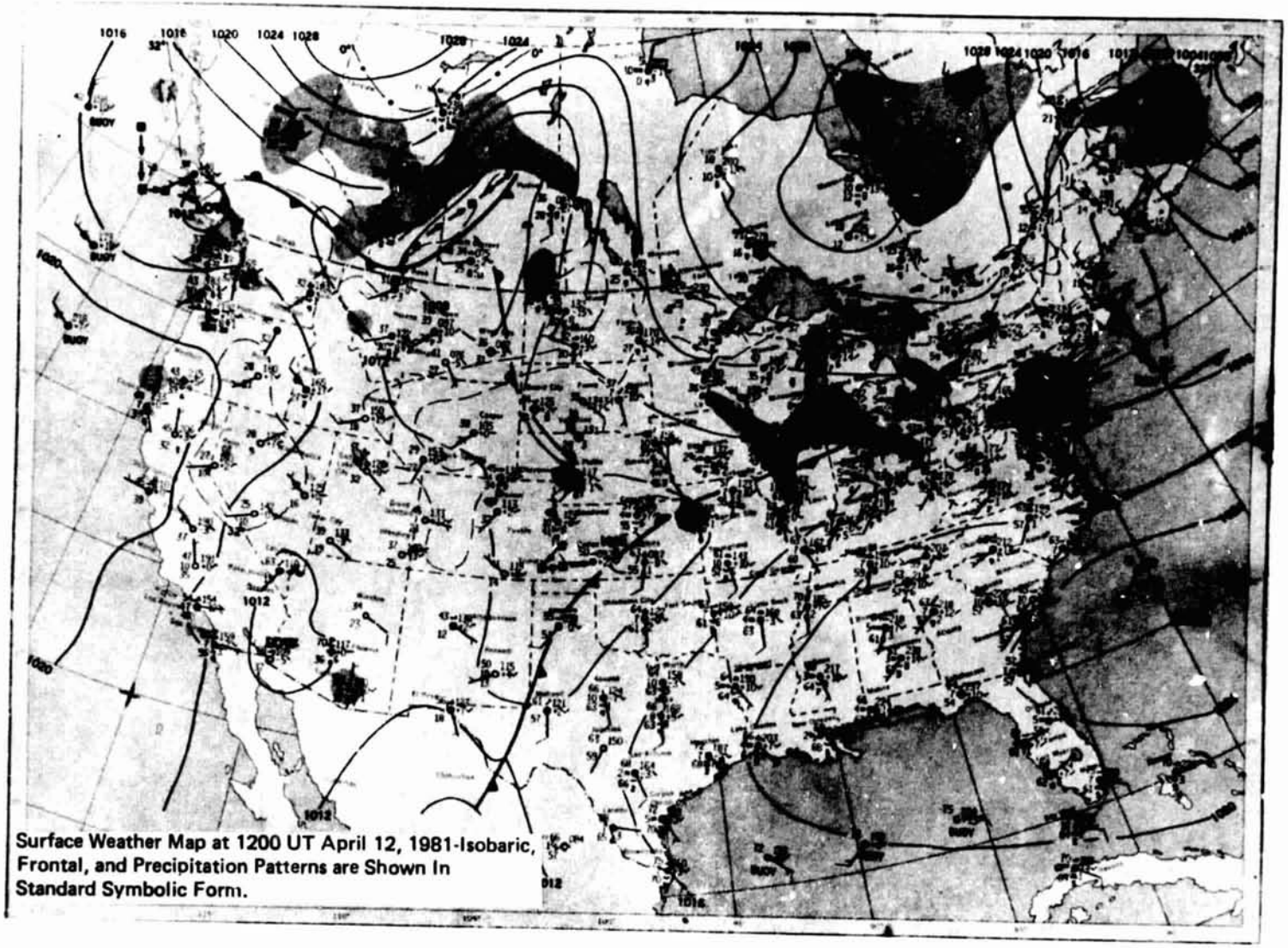
Air Temp. °F	Wet-Bulb °F	Dew Pt. °F	Pressure mb	Wind Dir.	Wind Sp. Kt.
71.8	63.8	59	1024.1	140°	7

Sky Observation:

Clouds	Total Sky Cover	Total Opaque Sky	Visibility (miles)
2/10 Cumulus at 3500 ft 3/10 thin cirrus at 35000 ft	6/10	2/10	7

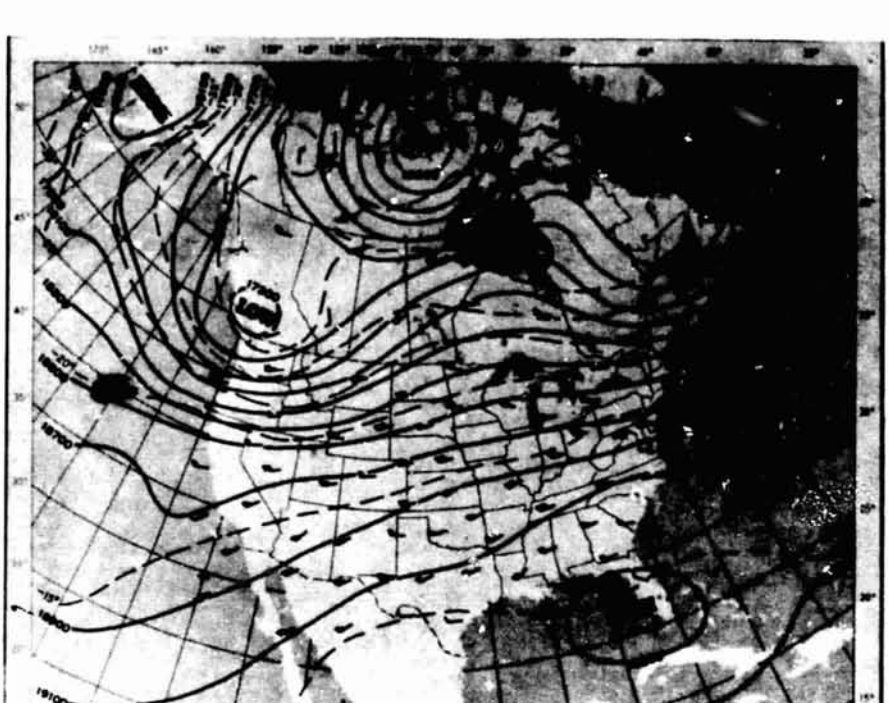
Sea Observations:

Sea Condition:	Wind Waves:		Swell Conditions:		
	Freq. Sec.	Ht. m.	Dir. from which Swell is coming	Freq. Sec.	Ht. m.
Sea Slight - Code 3 0/10 Breaking waves 0/10 Foam Surface Sea Water Temp = 72°F	2	1	010°	8	3



Surface Weather Map at 1200 UT April 12, 1981-Isobaric, Frontal, and Precipitation Patterns are Shown In Standard Symbolic Form.

Figure 1. Surface weather map at launch of STS-1



500 Millibar Height
Contours at 1200 UT
April 12, 1981.
Continuous Lines Indicate Height Contours In
Feet Above Sea Level. Dashed Lines are Isotherms
In Degrees Centigrade. Arrow Show Wind Direction
and Speed at the 500 MB Level.
(Arrows Same As on Surface Map).

Figure 2. 500 mb map at launch of STS-1.

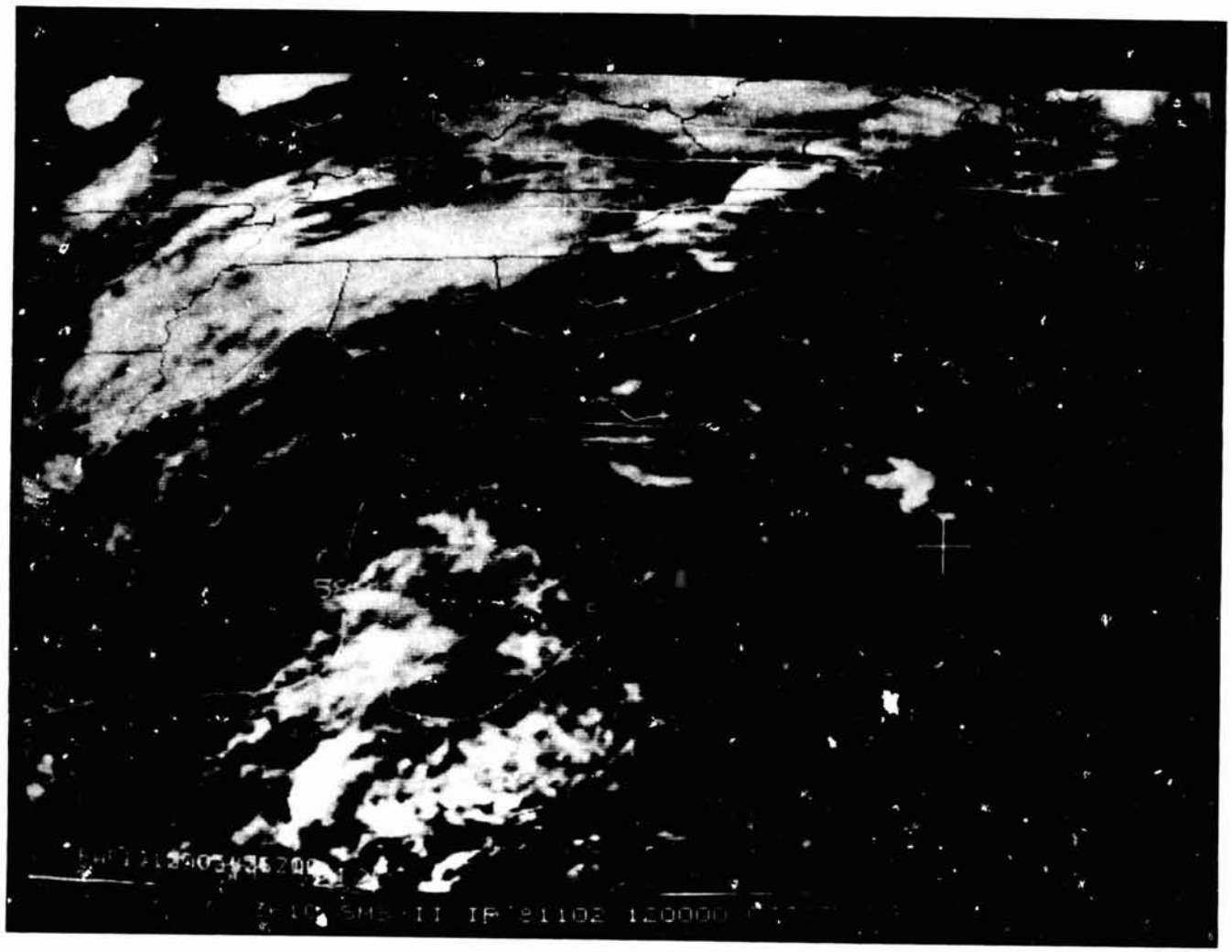


Figure 3. GOES SMS-II IR imagery of cloud cover at launch time of STS-1 (1200Z, 12 April 1981).

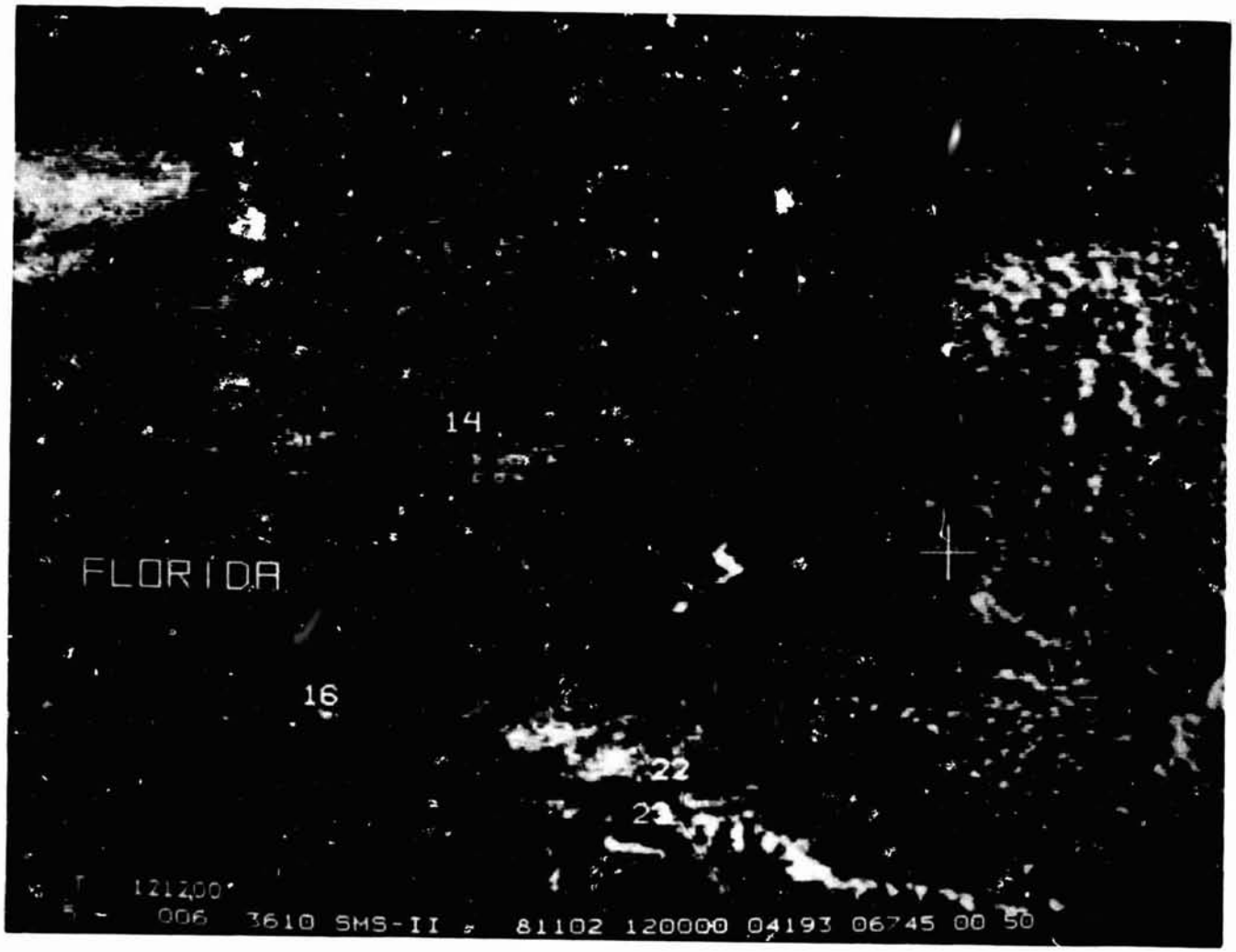


Figure 4. Enlarged view of GOES SMS-II visible imagery of cloud cover with exhaust trail visible during launch of STS-1 (1200Z, 12 April 1981).

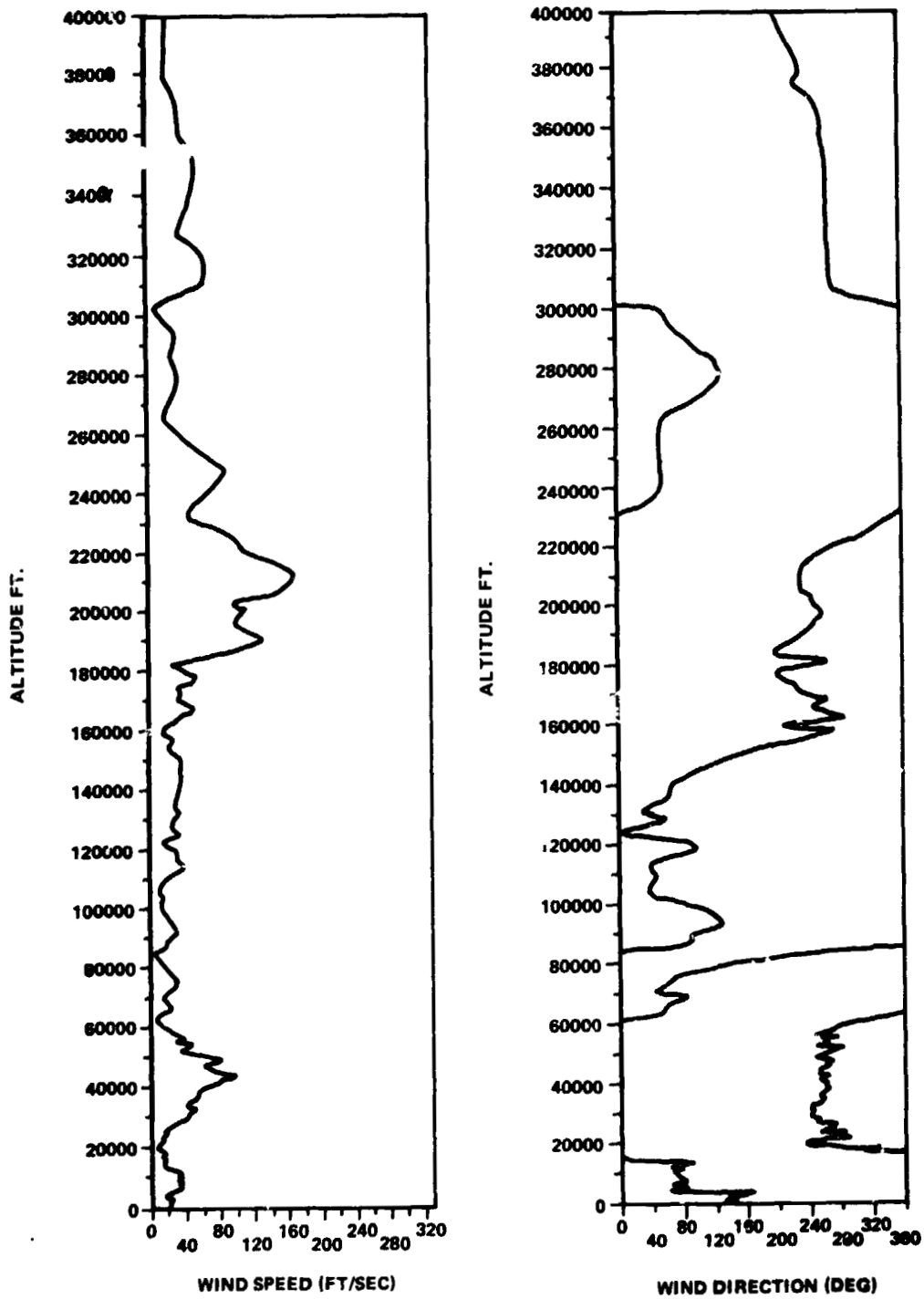


Figure 5. Scalar wind speed and direction at launch time of STS-1.

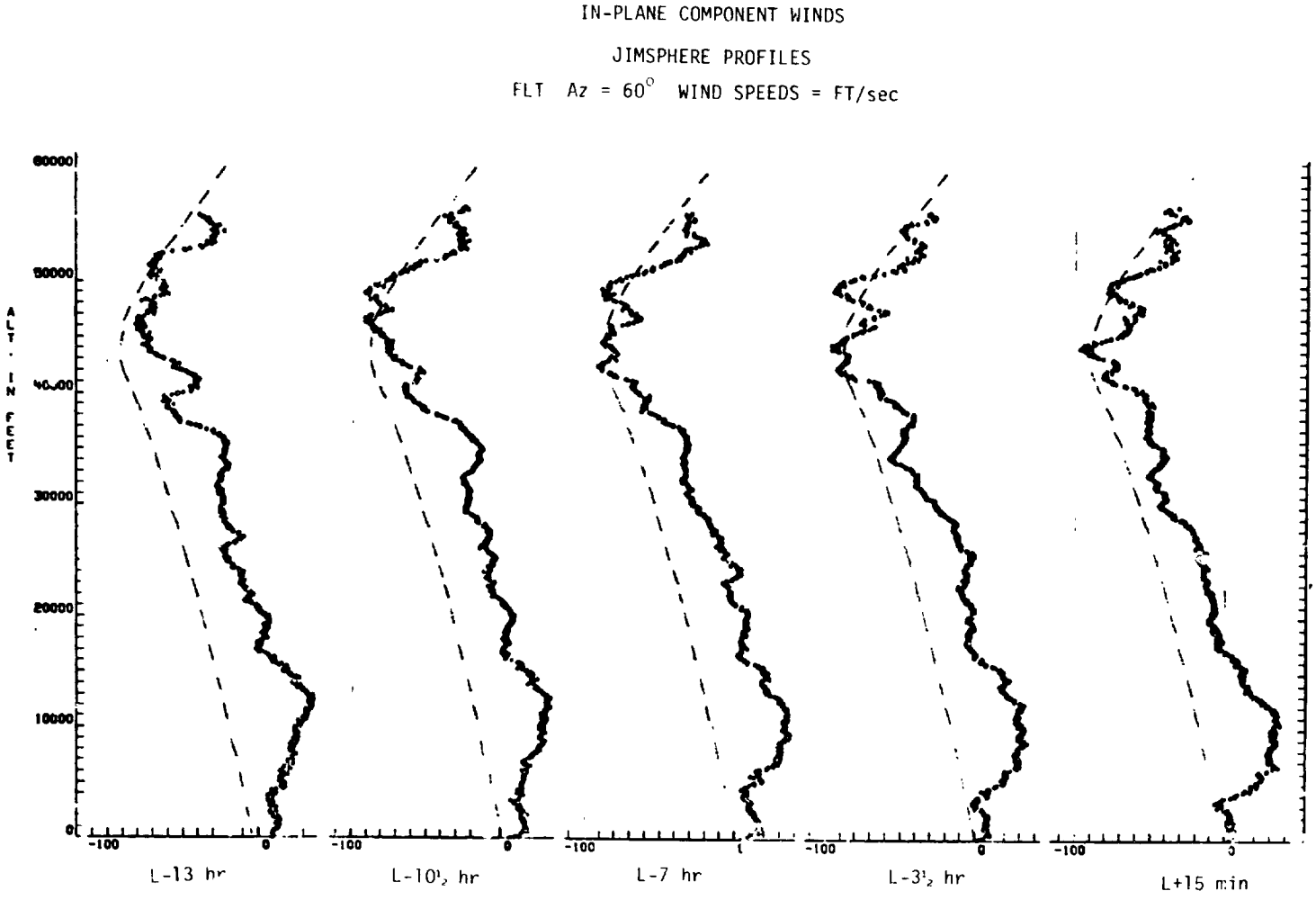


Figure 6. STS-1 prelaunch/launch Jimsphere-measured in-plane component winds.

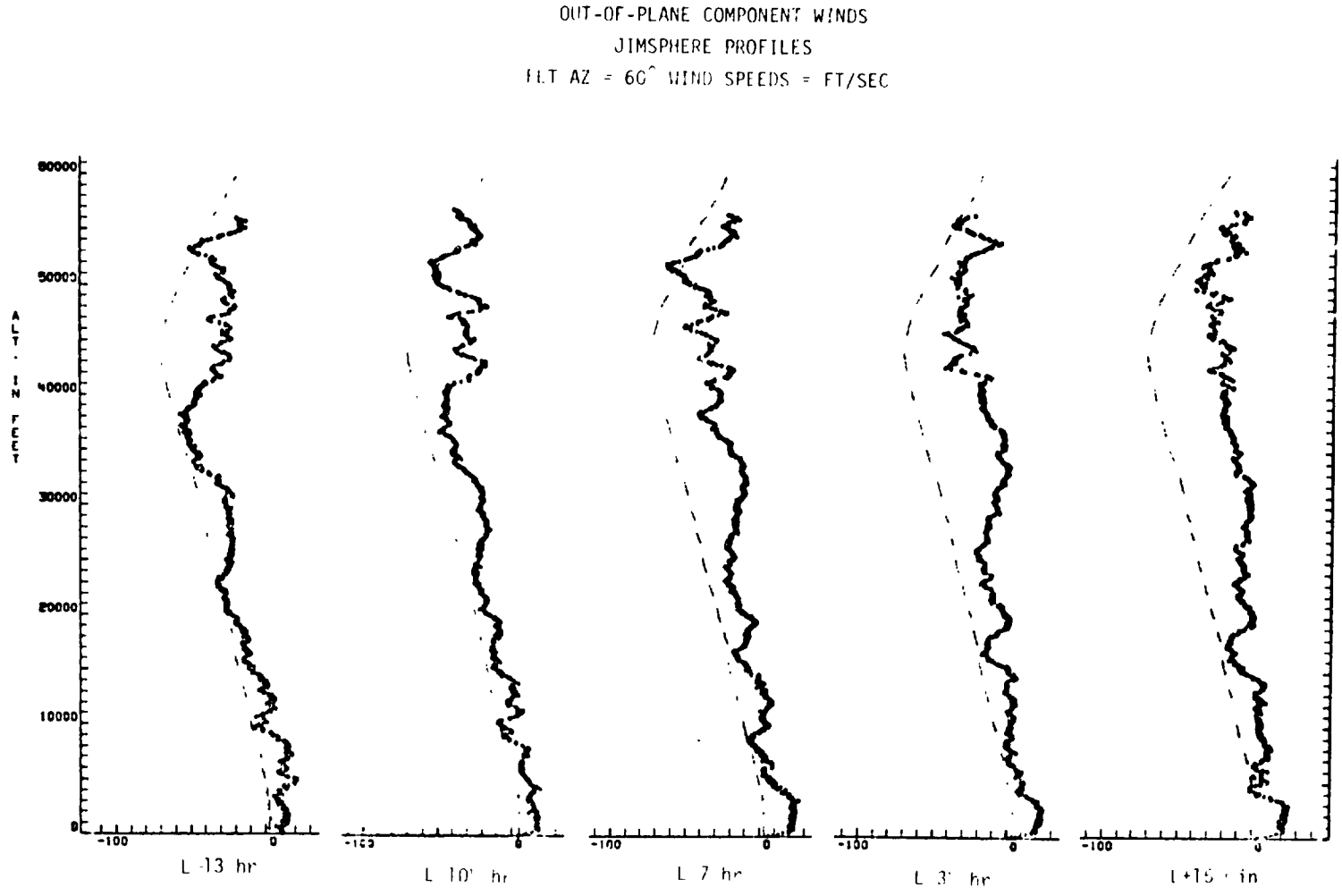


Figure 7. STS-1 prelaunch/launch Jimsphere-measured out-of-plane component winds.

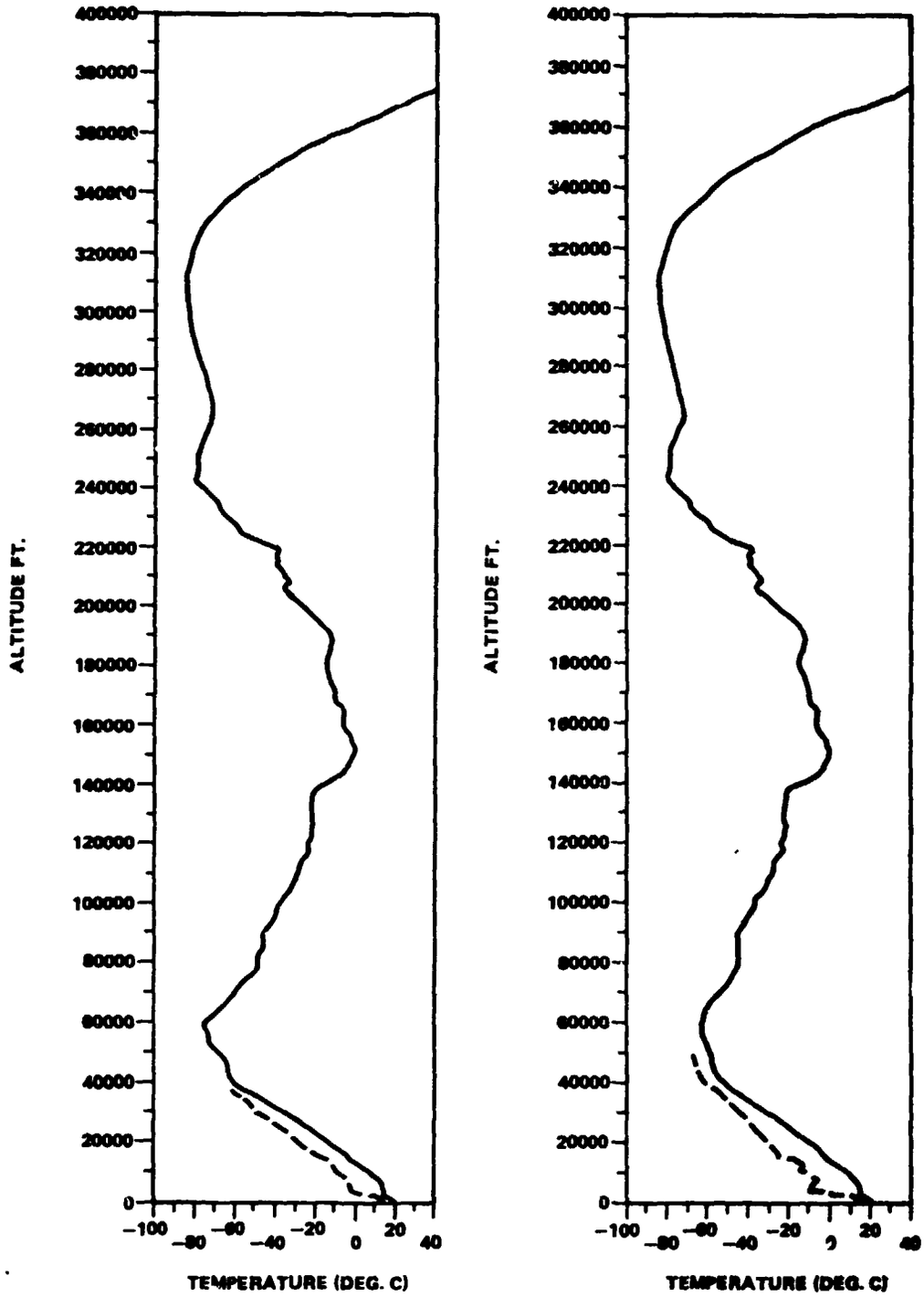


Figure 8. STS-1 temperature profile versus altitude for launch (left) and SRB descent (right).

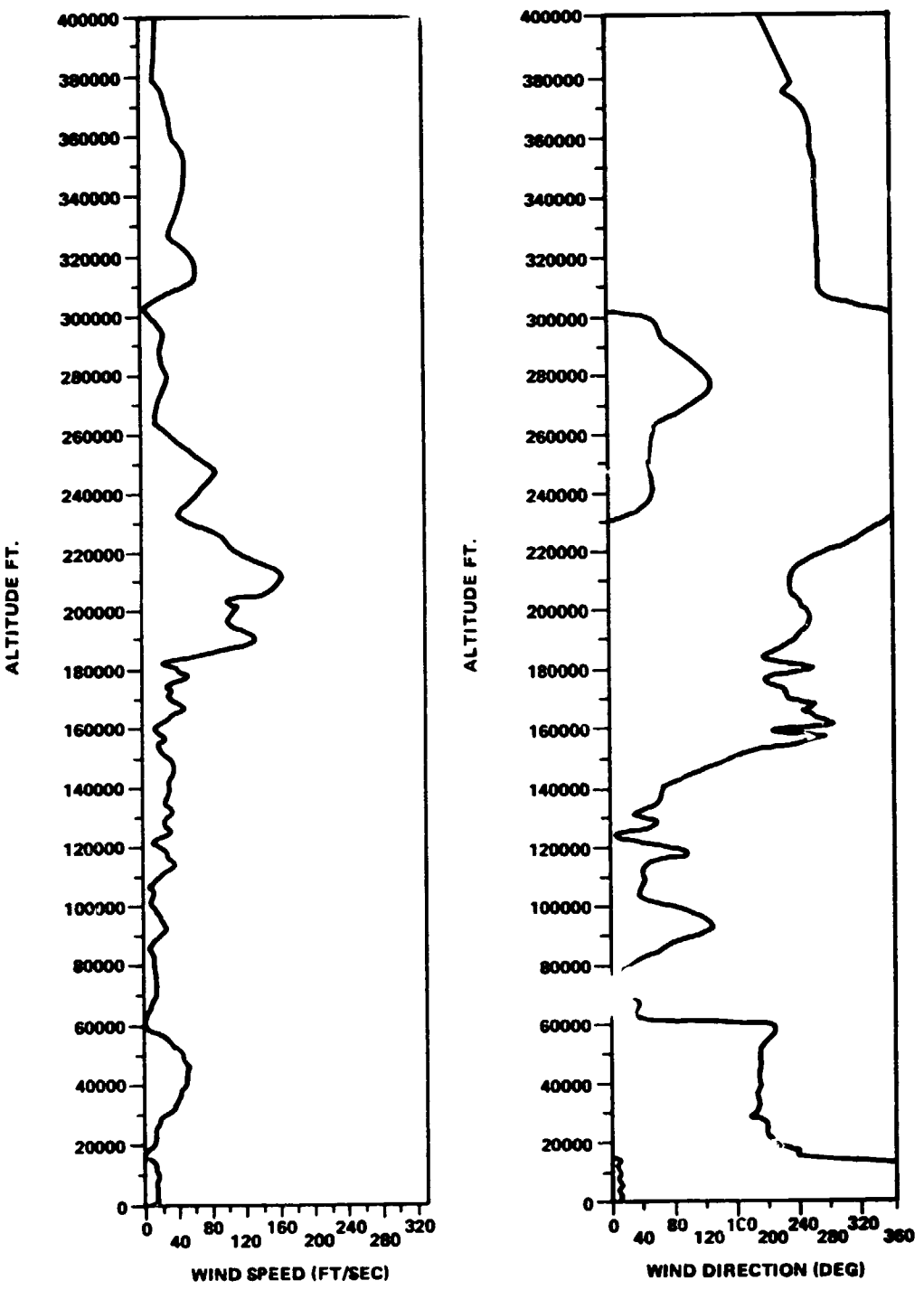


Figure 9. Scalar wind speed and direction for SRB descent.

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APPROVAL

ATMOSPHERIC ENVIRONMENT FOR SPACE SHUTTLE (STS-1) LAUNCH

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The information in this report has been reviewed for technical content. Review of any information concerning Department of Defense or nuclear energy activities or programs has been made by the MSFC Security Classification Officer. This report, in its entirety, has been determined to be unclassified.

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