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ALTITUDE-PRESSURE TABLES BASED ON THE UNITED STATES STANDARD ATMOSPHERE

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Introduction

The standard atmosphere which has been used for calibrating altimeters in the United States since 1917 assumes the atmosphere to be at a temperature of +10°C at all altitudes. This atmosphere represents average atmospheric conditions quite accurately up to an altitude of approximately 12,000 feet and hence, as long as aircraft did not exceed this altitude, the altimeter reading was an approximate measure of the actual altitude. With the rapid development of aircraft, their ceiling far exceeded 12,000 feet and, on account of the low temperatures corresponding to these altitudes, the assumption of an isothermal atmosphere at +10°C no longer even approximated the actual average conditions and the altimeter reading no longer was a measure of the actual altitude.

A new altimeter calibration standard approximating average atmospheric conditions up to at least 50,000 feet was proposed at a conference held in December 1924 at which the following organizations were represented: Bureau of Aeronautics of the U. S. Navy, Air Service of the U. S. Army, National Advisory Committee for Aeronautics, Bureau of Standards, U. S. Weather Bureau and the National Aeronautic Association. The standard atmosphere which was proposed by this conference for use as an altimeter calibration standard has since been adopted by the organizations represented at this conference.

This letter circular contains the tables necessary for the use of this new altimeter calibration standard. The tables have been prepared by the Aeronautic Instruments Section of the Bureau of Standards and the work has been financed jointly by the National Advisory Committee for Aeronautics and the Bureau of Standards.

Standard Atmosphere.

A standard atmosphere is an altitude-temperature-pressure relation in which an arbitrary altitude-temperature relation is assumed. The standard atmosphere adopted as the new altimeter calibration standard has also been adopted as the standard for aircraft performance in the United States. The altitude-temperature

assumption of this standard is extremely simple and approximates the average observed variation of temperature with altitude at latitude 40° in the United States. The standard atmosphere is defined completely in National Advisory Committee for Aeronautics Technical Report No. 218, "Standard Atmosphere - Tables and Data" by W. S. Diehl. The important formulas in this last report are repeated here for reference purposes, together with the expression for the temperature correction to be used in computing altitudes from pressure and temperature observations.

Definitions relating to the standard atmosphere:

Z = Altitude.

Z_1 = Altitude at boundary of the troposphere and isothermal layer.

T = Absolute temperature of the air at altitude Z in degrees Centigrade.

T_o = Absolute standard sea level temperature in degrees Centigrade.

T_m = Absolute mean temperature of the air column below altitude Z in degrees Centigrade.

T_{m1} = Absolute mean temperature for Z_1.

P = Pressure of the air at Z.

P_o = Standard sea level pressure.

Definitions relating to actual observations:

H = Altitude.

T'_m = Absolute mean temperature, computed from observations, in degrees Centigrade.

C = Altitude correction due to deviation of the actual from the standard mean temperature.

The formulas,

(a) Up to the isothermal layer,

$$T = 288 - aZ \qquad (1)$$

$T_o = 288$ °CA

$$T_m = \frac{a\,Z}{\log_e \frac{T_o}{T_o - aZ}} \qquad (2)$$

a = 0.0065000 for Z in meters
= 0.0019812 for Z in feet.

(b) At the boundary of the troposphere and the isothermal layer;

$$T = -55°C = 218° \text{ CA} \qquad (3)$$

$Z_1 = 35332$ ft. = 10769 meters

$T_{m1} = 251.378°$ CA

(c) In the isothermal layer

$$T = -55°C = 218° \text{ CA} \qquad (4)$$

$$T_m = \frac{Z}{\frac{Z_1}{T_{m1}} + \frac{Z - Z_1}{218}} \qquad (5)$$

For all levels:

$$Z = K \frac{T_m}{T_o} \log_{10} \frac{P_o}{P} \qquad (6)$$

K* = 19413.3 for Z in meters
= 63691.8 for Z in feet

$P_o = 760$ mm of Hg = 29.921 in.Hg,

P is in same unit of pressure as P_o.

*The values of K adopted for the altimeter calibration standard differ in the last place from the values given in N.A.C.A. Tech. Report No. 218, but the differences are small enough to be inconsequential.

The correction for deviation of the mean temperature of the air column from the standard value.

$$H = Z + C \tag{7}$$

$$H = K \frac{T'_m}{T_o} \log \frac{P_o}{P} \tag{8}$$

$$C = K \frac{T'_m - T_m}{T_o} \log \frac{P_o}{P}$$

$$= 63691.8 \frac{T'_m - T_m}{T_o} \log \frac{P_o}{P} \text{ feet.} \tag{9}$$

Description of the Tables.

Table I. Altitudes are given for every 0.1 millimeter of mercury pressure for the range 87 to 200 millimeters of mercury and for every 0.2 millimeter of mercury for the range 200 to 790 millimeters of mercury. The values given in the Table are accurate within 1 foot at the lower altitudes and within 2 feet at the higher altitudes.

Table II. Altitudes are given for every 0.01 inch of mercury for the range 3.4 to 31.09 inches of mercury. The accuracy of this Table is the same as that of Table I.

Table III. The pressures in inches of mercury and millimeters of mercury are given for every 500 foot interval for the range -1000 to 50,000 feet. The temperature of the air at the altitude and the mean temperature of the air column below the altitude are also given for each altitude. Furthermore, the altitudes corresponding to the pressures are also given for an isothermal atmosphere at a temperature of +10°C. The values of the latter are rounded off to the nearest 10 feet. The values of the pressures are rounded off from computations extending to 6 significant figures in each case, and for this reason it will be found that the pressures in inches and in millimeters do not always exactly correspond. The temperatures and mean temperatures are rounded off from values extending to six significant figures.

Table IV. The corrections (to be added algebraically to an indicated altitude Z to give true altitude H when the actual mean temperature differs from that of the standard atmosphere) are given for each 2000 foot interval of indicated altitude up to 50,000 feet.

Computation of Altitude from Pressure and Temperature Observations.

Indicated Altitude. The atmospheric pressure is measured simultaneously by suitable means at the surface of the earth and at the level of the aircraft. The indicated altitude above the ground level is obtained by subtracting the altitude corresponding to the pressure at the surface from that corresponding to the free air pressure at the aircraft level, as given in either Table I or II.

Temperature Correction. The actual mean temperature of the air column extending from the ground to the level of the aircraft will rarely be the same as the corresponding mean temperature for the standard atmosphere. In computing altitudes accurately it is necessary to determine the actual mean temperature and to apply an altitude correction depending on this temperature.

To obtain the actual mean temperature of the air column the temperature of the free air at successive levels should be plotted against corresponding values of log $\frac{P_0}{P}$ (or log P). If the observations of temperature correspond to values of P obtained from an aneroid barometer, it is convenient to plot values of log P as abscissas. The altitudes indicated by an altimeter calibrated to the old isothermal standard are proportional to log $\frac{P_0}{P}$, and so if such altimeter readings form part of the observations they can be plotted directly. If altitudes indicated by an altimeter calibrated to the new standard given in this paper form part of the observations, these altitudes should be converted to isothermal altitudes by means of Table III of this circular (or more easily by either Table I or Table II of this circular and Bureau of Standards Aeronautic Instruments Circular No. 3) before being plotted. The curve thus obtained is subdivided into equal divisions of isothermal altitude (or log P). The number of divisions is determined largely by the number of observations and the accuracy of the data. The arithmetic mean of the air temperatures at the middle of each altitude division gives the actual mean temperature. The correction in Table IV corresponding to the mean temperature thus found and to the indicated altitude is the desired temperature correction. The correction must be obtained by interpolation between the next higher and the next lower altitudes in Table IV.

True Altitude. The true altitude H is the sum of the indicated altitude and the temperature correction, proper attention being given to the sign of the latter. See equation (7).

Example of the Computation of True Altitude.

Data. Pressure of air at Surface: 29.54 in. of mercury.
Elevation of surface above sea level = 800 ft.
Pressure of air at level of aircraft: 12.22 in. of mercury.
Temperature observations (from the log of a flight).

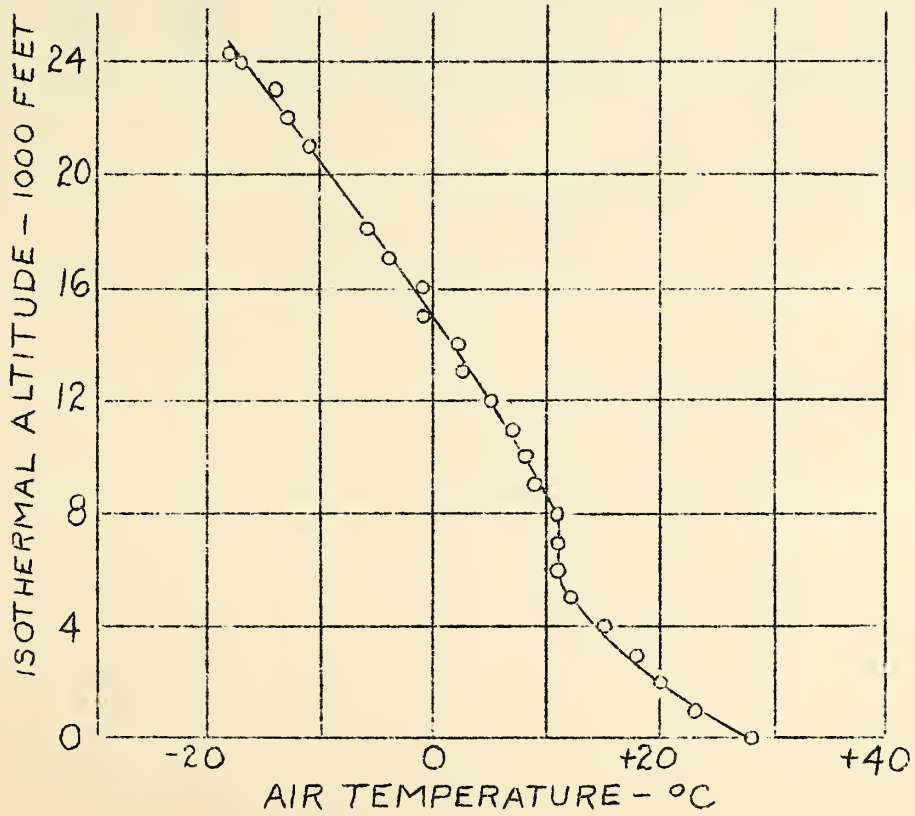
Isothermal Altitude Feet	Temperature °C	Isothermal Altitude Feet	Temperature °C
0	28	13000	2.5
1000	23	14000	+2.
2000	20	15000	-1.
3000	18	16000	-1.
4000	15	17000	-4
5000	12	18000	-6
6000	11	21000	-11
7000	11	22000	-13
8000	11	23000	-14
9000	9	24000	-17
10000	8	24200	-18
11000	7		
12000	5		

Computations. The temperatures have been plotted against isothermal altitude in Fig. 1. The graph has been divided into 2000 foot intervals and the mean temperature of the intervals determined by inspection and listed below:

Isothermal Altitude Interval Thousand Feet	Average Temperature of Interval °C
0 - 2	+23.5
2 - 4	17.5
4 - 6	12.5
6 - 8	11.0
8 - 10	9.5
10 - 12	7.0
12 - 14	+ 3.0
14 - 16	0.0
16 - 18	- 4.0
18 - 20	- 7.5
20 - 22	-11.0
22 - 24	-14.5
24 - 24.2	-17.5

Sum of the average temperatures, 0 - 24000 feet	+47.0
Mean Temperature of Air Column below 24000 ft. = $\frac{47.0}{12}$	+ 3.9°C
Mean Temperature of Air Column below 24200 ft. = + 3.9 - $\frac{0.2 \times 17.5}{24.2}$	+ 3.8°C
Altitude corresponding to 12.22 in.Hg, Table II	22775 ft.
Altitude corresponding to 29.54 in.Hg, Table II	+354 ft.
Indicated Altitude	22421 ft.
Temperature Correction corresponding to +3.8°C and 22421 feet, Table IV	+986 ft.
True Altitude above surface	23407 ft.
Elevation of ground surface	+800 ft.
True altitude above sea level	24207 ft.

Fig. 1



Department of Commerce,
Washington, D. C.

TABLE I.

ALTITUDE-PRESSURE TABLE --- FEET-MILLIMETERS

P mm.	0	.1	.2	.3	.4	.5	.6	.7	.8	.9
87	50073	50049	50025	50001	49977	49953	49929	49905	49881	49857
88	49833	810	786	762	738	715	691	667	644	620
89	49596	573	550	526	503	479	456	433	409	386
90	49362	339	316	293	270	247	223	200	177	154
91	49131	108	085	062	039	016	48994	48971	48948	48925
92	48902	879	857	834	812	789	766	744	721	698
93	48676	653	631	609	586	564	541	519	497	474
94	48452	430	407	385	363	341	319	297	275	252
95	48230	208	186	164	143	121	099	077	055	033
96	48011	47989	47968	47946	47924	47902	47881	47859	47837	47816
97	47794	773	751	730	708	687	665	644	622	601
98	47579	558	537	516	494	473	452	431	409	388
99	47367	346	325	304	283	262	241	220	199	178

ALTITUDE-PRESSURE TABLE -- FEET-MILLIMETERS

P m.	0	.1	.2	.3	.4	.5	.6	.7	.8	.9
100	47156	47136	47115	47094	47073	47052	47032	47011	46990	46969
101	46948	928	907	886	866	845	824	804	783	763
102	46742	721	701	681	660	640	619	599	579	558
103	46538	517	497	477	457	436	416	396	376	355
104	46335	315	295	275	255	235	215	195	175	155
105	46135	115	095	075	055	036	016	45996	45976	45956
106	45936	917	897	877	858	838	819	799	779	760
107	45740	721	701	682	662	643	623	604	584	565
108	45545	526	507	487	468	449	430	410	391	372
109	45352	333	314	295	276	257	238	218	199	180
110	45161	142	123	104	085	066	047	028	010	44991
111	44972	953	934	915	896	878	859	840	821	803
112	44784	765	747	728	709	691	672	654	635	616
113	44598	579	561	542	524	506	487	469	450	432
114	44413	395	377	358	340	322	304	285	267	249
115	44230	212	194	176	158	140	122	103	085	067
116	44049	031	013	43995	43977	43959	43941	43923	43905	43887
117	43869	851	834	816	798	780	762	744	727	709
118	43691	673	656	638	620	603	585	567	550	532
119	43514	497	479	462	444	427	409	392	374	357
120	43339	322	304	287	270	252	235	217	200	183
121	43165	148	131	113	096	079	062	044	027	010
122	42993	976	958	941	924	907	890	873	856	839
123	42822	805	788	771	754	737	720	703	686	669
124	42652	635	618	602	585	568	551	534	517	501
125	42484	467	450	434	417	400	384	367	350	334
126	42317	300	284	267	251	234	218	201	184	168
127	42151	135	118	102	086	069	053	036	020	004
128	41987	971	954	938	922	906	889	873	857	840
129	41824	808	792	776	759	743	727	711	695	679
130	41662	646	630	614	598	582	566	550	534	518
131	41502	486	470	454	438	422	406	390	375	359
132	41343	327	311	295	279	264	248	232	216	200
133	41185	169	153	138	122	106	091	075	059	043
134	41028	012	40997	40981	40966	40950	40934	40919	40903	40888
135	40872	857	841	826	811	795	780	764	749	733
136	40718	703	687	672	657	641	626	611	595	580
137	40565	549	534	519	504	488	473	458	443	428
138	40412	397	382	367	352	337	322	307	292	276
139	40261	246	231	216	201	186	171	156	141	126
140	40111	096	081	067	052	037	022	007	39992	39977
141	39962	947	933	918	903	888	873	859	844	829
142	39814	800	785	770	755	741	726	711	697	682
143	39667	653	638	623	609	594	580	565	550	536
144	39521	507	492	478	463	449	434	420	405	391
145	39376	362	348	333	319	304	290	276	261	247
146	39232	218	204	190	175	161	147	132	118	104
147	39090	075	061	047	033	018	004	38990	38976	38962
148	38948	933	919	905	891	877	863	849	835	821
149	38806	792	778	764	750	736	722	708	694	680

ALTITUDE-PRESSURE TABLE -- FEET-MILLIMETERS

P mm.	0	.1	.2	.3	.4	.5	.6	.7	.8	.9
150	38666	38652	38639	38625	38611	38597	38583	38569	38555	38541
151	38527	514	500	486	472	458	444	431	417	403
152	38389	376	362	348	334	321	307	293	280	266
153	38252	238	225	211	198	184	170	157	143	129
154	38116	102	089	075	062	048	035	021	007	37994
155	37980	967	953	940	927	913	900	886	873	859
156	37846	832	819	806	792	779	765	752	739	725
157	37712	699	685	672	659	646	632	619	606	592
158	37579	566	553	539	526	513	500	487	473	460
159	37447	434	421	408	394	381	368	355	342	329
160	37316	303	290	276	263	250	237	224	211	198
161	37185	172	159	146	133	120	107	094	081	068
162	37056	043	030	017	004	36991	36978	36965	36952	36939
163	36927	914	901	888	875	863	850	837	824	811
164	36799	786	773	760	748	735	722	710	697	684
165	36671	659	646	633	621	608	596	583	570	558
166	36545	532	520	507	495	482	469	457	444	432
167	36419	407	394	382	369	357	344	332	319	307
168	36294	282	269	257	245	232	220	207	195	183
169	36170	158	145	133	121	108	096	084	071	059
170	36046	034	022	010	35997	35985	35973	35961	35948	35936
171	35924	911	899	887	875	862	850	838	826	814
172	35801	789	777	765	753	741	728	716	704	692
173	35680	668	656	644	632	620	607	595	583	571
174	35559	547	535	523	511	499	487	475	463	451
175	35439	427	415	403	391	379	367	356	344	332
176	35320	308	296	284	272	260	248	237	225	213
177	35201	189	177	165	154	142	130	118	106	095
178	35083	071	059	048	036	024	012	000	34989	34977
179	34965	954	942	930	918	907	895	883	872	860
180	34848	837	825	813	802	790	778	767	755	743
181	34732	720	708	697	685	674	662	650	639	627
182	34616	604	592	581	569	558	546	535	523	511
183	34500	488	477	465	454	442	431	419	408	396
184	34385	373	362	351	339	328	316	305	293	282
185	34270	259	248	236	225	213	202	190	179	168
186	34156	145	134	122	111	099	088	077	065	054
187	34043	031	020	009	33997	33986	33975	33964	33952	33941
188	33930	918	907	896	885	873	862	851	840	828
189	33817	806	795	783	772	761	750	739	727	716
190	33705	694	683	671	660	649	638	627	616	604
191	33593	582	571	560	549	538	527	516	504	493
192	33482	471	460	449	438	427	416	405	394	383
193	33372	361	350	339	328	317	306	294	283	272
194	33261	250	239	228	218	207	196	185	174	163
195	33152	141	130	119	108	097	086	075	064	054
196	33043	032	021	010	32999	32988	32977	32966	32956	32945
197	32934	923	912	901	890	880	869	858	847	836
198	32825	815	804	793	782	771	761	750	739	728
199	32717	707	696	685	674	664	653	642	631	621

ALTITUDE-PRESSURE TABLE -- FEET-MILLIMETERS

P mm.	0	.2	.4	.6	.8
200	32610	32588	32567	32546	32524
201	32503	482	460	439	418
202	32396	375	354	332	311
203	32290	269	248	226	205
204	32184	163	142	121	100
205	32079	058	037	016	31995
206	31974	953	932	911	890
207	31869	848	828	807	786
208	31765	744	724	703	682
209	31661	641	620	599	579
210	31558	538	517	496	476
211	31455	435	414	394	373
212	31353	332	312	292	271
213	31251	230	210	190	169
214	31149	129	109	088	068
215	31048	028	007	30987	30967
216	30947	927	907	886	866
217	30846	826	806	786	766
218	30746	726	706	686	666
219	30646	626	606	586	567
220	30547	527	507	487	467
221	30447	428	408	388	368
222	30349	329	309	290	270
223	30250	231	211	191	172
224	30152	133	113	093	074
225	30054	035	015	29996	29976
226	29957	938	918	899	879
227	29860	841	821	802	783
228	29763	744	725	706	687
229	29667	648	629	610	590
230	29571	552	533	514	495
231	29476	457	438	419	400
232	29380	361	342	323	304
233	29285	267	248	229	210
234	29191	171	153	134	115
235	29096	077	059	040	021
236	29002	28983	28965	28946	28927
237	28909	890	871	853	834
238	28815	797	778	760	741
239	28722	704	685	667	648
240	28630	611	593	574	556
241	28537	519	500	482	464
242	28445	427	408	390	372
243	28353	335	317	298	280
244	28262	244	225	207	189
245	28171	153	134	116	098
246	28080	062	044	026	008
247	27989	971	953	935	917
248	27899	881	863	845	827
249	27809	791	773	755	737

P mm.	0	.2	.4	.6	.8
250	27719	27702	27684	27666	27648
251	27630	612	594	576	559
252	27541	523	505	487	470
253	27452	434	416	399	381
254	27363	346	328	310	293
255	27275	257	240	222	204
256	27187	169	152	134	111
257	27099	082	064	047	029
258	27012	26994	26977	26959	26942
259	26924	907	890	872	855
260	26838	820	803	786	768
261	26751	734	716	699	682
262	26665	647	630	613	596
263	26579	561	544	527	510
264	26493	476	458	441	424
265	26407	390	373	356	339
266	26322	305	288	271	254
267	26237	220	203	186	169
268	26152	135	118	102	085
269	26068	051	034	017	000
270	25984	967	950	933	916
271	25900	883	866	849	833
272	25816	799	782	766	749
273	25732	716	699	682	666
274	25649	632	616	599	583
275	25566	550	533	516	500
276	25483	467	450	434	417
277	25401	384	368	351	335
278	25318	302	286	269	253
279	25236	220	204	187	171
280	25154	138	122	106	089
281	25073	057	040	024	008
282	24992	975	959	943	927
283	24911	894	878	862	846
284	24830	813	797	781	765
285	24749	733	717	701	685
286	24669	653	637	620	604
287	24588	572	556	540	524
288	24509	493	477	461	445
289	24429	413	397	381	365
290	24349	334	318	302	286
291	24270	254	238	223	207
292	24191	175	159	144	128
293	24112	096	081	065	049
294	24033	018	002	23986	23971
295	23955	939	924	908	892
296	23877	861	845	830	814
297	23799	783	768	752	737
298	23721	706	690	674	659
299	23643	628	612	597	581

ALTITUDE-PRESSURE TABLE -- FEET-MILLIMETERS

P mm.	0	.2	.4	.6	.8
300	23566	23551	23535	23520	23504
301	23489	473	458	443	427
302	23412	397	381	366	351
303	23335	320	305	289	274
304	23259	243	228	213	198
305	23182	167	152	137	122
306	23106	091	076	061	046
307	23031	015	000	22985	22970
308	22955	940	925	909	894
309	22879	864	849	834	819
310	22804	789	774	759	744
311	22729	714	699	684	669
312	22654	639	624	609	594
313	22579	564	546	534	519
314	22504	490	475	460	445
315	22430	415	400	385	371
316	22356	341	326	311	296
317	22282	267	252	237	223
318	22208	193	178	164	149
319	22134	120	105	090	076
320	22061	046	032	017	002
321	21988	973	959	944	929
322	21915	900	886	871	856
323	21842	827	813	798	784
324	21769	755	740	726	711
325	21697	682	668	653	639
326	21625	610	596	581	567
327	21552	538	524	509	495
328	21481	466	452	437	423
329	21409	394	380	366	351
330	21337	323	308	294	280
331	21266	251	237	223	209
332	21194	180	166	152	138
333	21123	109	095	081	067
334	21052	038	024	010	20996
335	20982	968	953	939	925
336	20911	897	883	869	855
337	20841	827	813	799	784
338	20770	756	742	728	714
339	20700	686	672	658	644
340	20630	616	603	589	575
341	20561	547	533	519	505
342	20491	477	463	450	436
343	20422	408	394	380	366
344	20352	339	325	311	297
345	20283	270	256	242	228
346	20215	201	187	173	160
347	20146	132	118	105	091
348	20077	064	050	036	023
349	20009	19995	19982	19968	19954

P mm.	0	.2	.4	.6	.8
350	19941	19927	19913	19900	19886
351	19872	859	845	832	818
352	19804	791	777	764	750
353	19737	723	701	696	683
354	19669	656	642	629	615
355	19602	588	575	561	548
356	19534	521	507	494	481
357	19467	454	440	427	413
358	19400	387	373	360	346
359	19333	320	306	293	280
360	19266	253	240	226	213
361	19200	186	173	160	147
362	19133	120	107	094	080
363	19067	054	041	027	014
364	19001	18988	18974	18961	18948
365	18935	922	909	895	882
366	18869	856	843	830	817
367	18803	790	777	764	751
368	18738	725	712	699	685
369	18672	659	646	633	620
370	18607	594	581	568	555
371	18542	529	516	503	490
372	18477	464	451	438	425
373	18412	399	386	373	361
374	18348	335	322	309	296
375	18283	270	257	244	232
376	18219	206	193	180	167
377	18154	141	129	116	103
378	18090	077	065	052	039
379	18026	013	001	17988	17975
380	17962	950	937	924	911
381	17899	886	873	860	848
382	17835	822	810	797	784
383	17772	759	746	734	721
384	17708	696	683	670	658
385	17645	632	620	607	595
386	17582	569	557	544	532
387	17519	507	494	481	469
388	17456	444	431	419	406
389	17394	381	369	356	344
390	17331	319	306	294	281
391	17269	256	244	231	219
392	17206	194	182	169	157
393	17144	132	119	107	095
394	17082	070	057	045	033
395	17020	008	16996	16983	16971
396	16958	946	934	921	909
397	16897	885	872	860	848
398	16835	823	811	798	786
399	16774	762	749	737	725

ALTITUDE-PRESSURE TABLE -- FEET-MILLIMETERS

P mm.	0	.2	.4	.6	.8
400	16713	16700	16688	16676	16664
401	16652	639	627	615	603
402	16591	578	566	554	542
403	16530	518	505	493	481
404	16469	457	445	432	420
405	16408	396	384	372	360
406	16348	336	324	312	299
407	16287	275	263	251	239
408	16227	215	203	191	179
409	16167	155	143	131	119
410	16107	095	083	071	059
411	16047	035	023	011	15999
412	15987	975	963	951	940
413	15928	916	904	892	880
414	15868	856	844	832	820
415	15809	797	785	773	761
416	15749	737	725	714	702
417	15690	678	666	654	643
418	15631	619	607	595	584
419	15572	560	548	536	525
420	15513	501	489	478	466
421	15454	442	431	419	407
422	15395	384	372	360	348
423	15337	325	313	302	290
424	15278	267	255	243	232
425	15220	208	197	185	174
426	15162	150	139	127	115
427	15104	092	081	069	057
428	15046	034	023	011	000
429	14988	976	965	953	942
430	14930	919	907	896	884
431	14872	861	849	838	826
432	14815	803	792	780	769
433	14757	746	734	723	711
434	14700	689	679	666	654
435	14643	631	620	609	597
436	14586	574	563	552	540
437	14529	517	506	495	483
438	14472	460	449	438	426
439	14415	404	392	381	370
440	14358	347	336	324	313
441	14302	290	279	268	256
442	14245	234	223	211	200
443	14189	178	166	155	144
444	14132	121	110	099	088
445	14076	065	054	043	031
446	14020	009	13998	13987	13975
447	13964	953	942	931	920
448	13908	897	886	875	864
449	13853	841	830	819	808

P mm.	0	.2	.4	.6	.8
450	13797	13786	13775	13763	13752
451	13741	730	719	708	697
452	13686	675	664	653	641
453	13630	619	608	597	586
454	13575	564	553	542	531
455	13520	509	498	487	476
456	13465	454	443	432	421
457	13410	399	388	377	366
458	13355	344	333	322	311
459	13300	289	278	267	256
460	13245	234	224	213	202
461	13191	180	169	158	147
462	13136	125	115	104	093
463	13082	071	060	049	039
464	13028	017	006	12995	12984
465	12974	963	952	941	930
466	12919	908	898	887	876
467	12865	854	844	833	822
468	12811	801	790	779	768
469	12758	747	736	725	714
470	12704	693	682	671	661
471	12650	639	629	618	607
472	12596	586	575	564	554
473	12543	532	522	511	500
474	12490	479	468	458	447
475	12436	426	415	404	394
476	12383	372	362	351	341
477	12330	319	309	298	288
478	12277	266	256	245	235
479	12224	213	203	192	182
480	12171	161	150	140	129
481	12118	108	097	087	076
482	12066	055	045	034	024
483	12013	003	11992	11982	11971
484	11961	950	940	929	919
485	11908	898	887	877	866
486	11856	845	835	825	814
487	11804	793	783	772	762
488	11752	741	731	720	710
489	11700	689	679	668	658
490	11648	637	627	616	606
491	11596	585	575	565	554
492	11544	534	523	513	503
493	11492	482	472	461	451
494	11441	430	420	410	399
495	11389	379	368	358	348
496	11337	327	317	307	296
497	11286	276	266	255	245
498	11235	225	214	204	194
499	11184	173	163	153	143

ALTITUDE-PRESSURE TABLE -- FEET-MILLIMETERS

P mm.	0	.2	.4	.6	.8
500	11132	11122	11112	11102	11092
501	11081	071	061	051	041
502	11030	020	010	000	10990
503	10980	969	959	949	939
504	10929	919	909	898	888
505	10878	868	858	848	838
506	10827	817	807	797	787
507	10777	767	757	747	736
508	10726	716	706	696	687
509	10676	666	656	646	636
510	10626	616	606	596	586
511	10576	565	555	545	535
512	10525	515	505	495	485
513	10475	465	455	445	435
514	10425	415	405	395	385
515	10375	365	355	345	336
516	10326	316	306	296	286
517	10276	266	256	246	236
518	10226	216	206	196	186
519	10176	167	157	147	137
520	10127	117	107	097	087
521	10078	068	058	048	038
522	10028	018	008	9999	9989
523	9979	969	959	949	940
524	9930	920	910	900	890
525	9881	871	861	851	841
526	9831	822	812	802	792
527	9782	773	763	753	743
528	9734	724	714	704	695
529	9685	675	665	656	646
530	9636	626	617	607	597
531	9587	578	568	558	548
532	9539	529	519	510	500
533	9490	480	471	461	451
534	9442	432	422	413	403
535	9393	384	374	364	355
536	9345	335	326	316	306
537	9297	287	277	268	258
538	9248	239	229	220	210
539	9200	191	181	172	162
540	9152	143	133	124	114
541	9104	095	085	076	066
542	9056	047	037	028	018
543	9009	8999	8990	8980	8970
544	8961	951	942	932	923
545	8913	904	894	885	875
546	8866	856	847	837	828
547	8818	809	799	790	780
548	8771	761	752	742	733
549	8723	714	704	695	685

P mm.	0	.2	.4	.6	.8
550	8676	8666	8657	8647	8638
551	8629	619	610	600	591
552	8581	572	563	553	544
553	8534	525	516	506	497
554	8487	478	468	459	450
555	8440	431	422	412	403
556	8393	384	375	365	356
557	8347	337	328	318	309
558	8300	290	281	272	262
559	8253	244	234	225	216
560	8206	197	188	178	169
561	8160	150	141	132	123
562	8113	104	095	085	076
563	8067	058	048	039	030
564	8020	011	002	7993	7983
565	7974	965	956	946	937
566	7928	919	910	900	891
567	7882	873	863	854	845
568	7836	826	817	808	799
569	7790	780	771	762	753
570	7744	734	725	716	707
571	7698	689	679	670	661
572	7652	643	634	624	615
573	7606	597	588	579	570
574	7560	551	542	533	524
575	7515	506	497	487	478
576	7469	460	451	442	433
577	7424	415	405	396	387
578	7378	369	360	351	342
579	7333	324	315	306	296
580	7287	278	269	260	251
581	7242	233	224	215	206
582	7197	188	179	170	161
583	7152	143	134	125	116
584	7107	098	089	080	071
585	7062	053	044	035	026
586	7017	008	6999	6990	6981
587	6972	963	954	945	936
588	6927	918	909	900	891
589	6882	873	864	855	847
590	6838	829	820	811	802
591	6793	784	775	766	757
592	6748	739	730	722	713
593	6704	695	686	677	668
594	6659	650	642	633	624
595	6615	606	597	588	579
596	6571	562	553	544	535
597	6526	517	509	500	491
598	6482	473	464	456	447
599	6438	429	420	411	403

ALTITUDE-PRESSURE TABLE -- FEET MILLIMETERS

P mm.	0	.2	.4	.6	.8	P mm.	0	.2	.4	.6	.8
600	6394	6385	6376	6367	6359	650	4261	4253	4244	4236	4228
601	6350	341	332	323	315	651	4220	211	203	195	187
602	6306	297	288	279	271	652	4178	170	162	154	146
603	6262	253	244	236	227	653	4137	129	121	113	104
604	6218	209	200	192	183	654	4096	088	080	072	063
605	6174	165	157	148	139	655	4055	047	039	030	022
606	6130	122	113	104	096	656	4014	006	3998	3990	3981
607	6087	078	069	061	052	657	3973	965	957	949	940
608	6043	034	026	017	008	658	3932	924	916	908	899
609	6000	5991	5982	5974	5965	659	3891	883	875	867	859
610	5956	947	939	930	921	660	3850	842	834	826	818
611	5913	904	895	887	878	661	3810	802	793	785	777
612	5869	861	852	843	835	662	3769	761	753	745	736
613	5826	817	809	800	791	663	3728	720	712	704	696
614	5783	774	765	757	748	664	3688	680	671	663	655
615	5739	731	722	713	705	665	3647	639	631	623	615
616	5696	687	679	670	662	666	3607	598	590	582	574
617	5653	644	636	627	619	667	3566	558	550	542	534
618	5610	601	593	584	576	668	3526	518	509	501	493
619	5567	558	550	541	533	669	3485	477	469	461	453
620	5524	515	507	498	490	670	3445	437	429	421	413
621	5481	473	464	455	447	671	3405	397	389	381	372
622	5438	430	421	413	404	672	3364	356	348	340	332
623	5396	387	378	370	361	673	3324	316	308	300	292
624	5353	344	336	327	319	674	3284	276	268	260	252
625	5310	302	293	285	276	675	3244	236	228	220	212
626	5267	259	250	242	233	676	3204	196	188	180	172
627	5225	216	208	199	191	677	3164	156	148	140	132
628	5182	174	165	157	148	678	3124	116	108	100	092
629	5140	132	123	115	106	679	3084	076	068	060	052
630	5098	089	081	072	064	680	3044	036	028	020	012
631	5055	047	038	030	021	681	3004	2996	2989	2981	2973
632	5013	005	4996	4988	4979	682	2965	957	949	941	933
633	4971	962	954	945	937	683	2925	917	909	901	893
634	4929	920	912	903	895	684	2885	877	869	862	854
635	4886	878	870	861	853	685	2846	838	830	822	814
636	4844	836	828	819	811	686	2806	798	790	782	775
637	4802	794	786	777	769	687	2767	759	751	743	735
638	4760	752	744	735	727	688	2727	719	711	704	696
639	4718	710	702	693	685	689	2688	680	672	664	656
640	4677	668	660	652	643	690	2648	640	633	625	617
641	4635	626	618	610	601	691	2609	601	593	585	578
642	4593	585	576	568	560	692	2570	562	554	546	538
643	4551	543	535	526	518	693	2531	523	515	507	499
644	4510	501	493	485	476	694	2491	483	476	468	460
645	4468	460	452	443	435	695	2452	444	437	429	421
646	4427	418	410	402	393	696	2413	405	397	390	382
647	4385	377	369	360	352	697	2374	366	358	351	343
648	4344	335	327	319	311	698	2335	327	319	312	304
649	4302	294	286	278	269	699	2296	288	280	273	265

ALTITUDE-PRESSURE TABLE -- FEET-MILLIMETERS

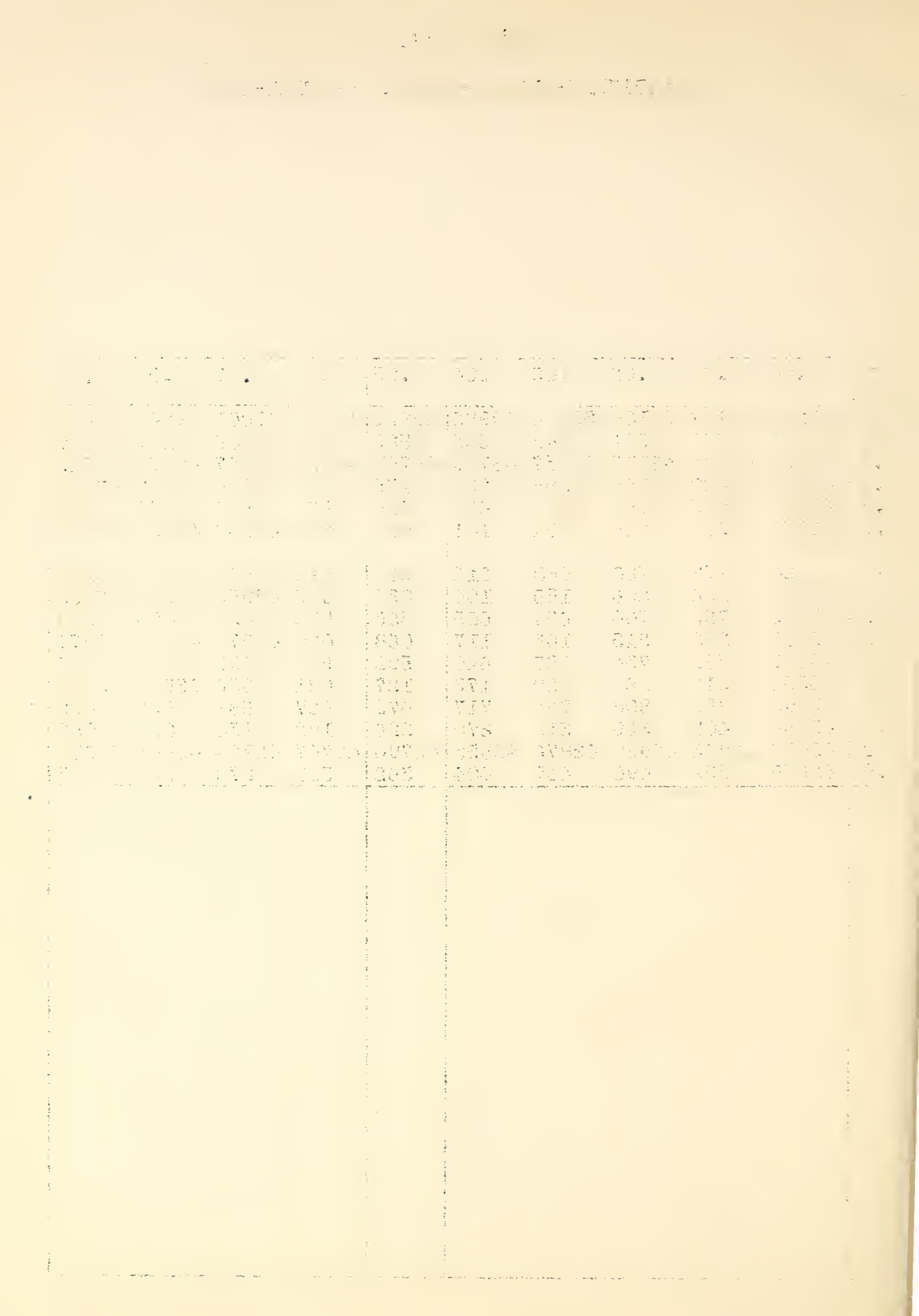
P mm.	0	.2	.4	.6	.8
700	2257	2249	2242	2234	2226
701	2218	210	203	195	187
702	2179	172	164	156	148
703	2141	133	125	117	110
704	2102	094	086	079	071
705	2063	055	048	040	032
706	2024	017	009	001	1994
707	1986	978	970	963	955
708	1947	940	932	924	916
709	1909	901	893	886	878
710	1870	863	855	847	840
711	1832	824	817	809	801
712	1793	786	778	770	763
713	1755	747	740	732	724
714	1717	709	702	694	686
715	1679	671	663	656	648
716	1640	633	625	617	610
717	1602	595	587	579	572
718	1564	556	549	541	534
719	1526	518	511	503	496
720	1488	480	473	465	458
721	1450	442	435	427	420
722	1412	404	397	389	382
723	1374	366	359	351	344
724	1336	329	321	313	306
725	1298	291	283	276	268
726	1261	253	245	238	230
727	1223	215	208	200	193
728	1185	178	170	162	155
729	1147	140	132	125	117
730	1110	102	095	087	080
731	1072	065	057	050	042
732	1035	027	020	012	005
733	997	990	982	975	967
734	960	952	945	937	930
735	922	915	907	900	892
736	885	877	870	863	855
737	848	840	833	825	818
738	810	803	795	788	780
739	773	766	758	751	743
740	736	728	721	714	706
741	699	691	684	676	669
742	662	654	647	639	632
743	624	617	610	602	595
744	587	580	573	565	558
745	550	543	536	528	521
746	513	506	499	491	484
747	476	469	462	454	447
748	440	432	425	417	410
749	403	395	388	381	373

P mm.	0	.2	.4	.6	.8
750	366	359	351	344	336
751	329	322	314	307	300
752	292	285	278	270	263
753	256	248	241	234	226
754	219	212	204	197	190
755	182	175	168	161	153
756	146	139	131	124	117
757	109	102	95	87	80
758	73	66	58	51	44
759	36	29	22	15	7
760	0	-7	-15	-22	-29
761	-36	44	51	58	65
762	-73	80	87	94	102
763	-109	116	124	131	138
764	-145	153	160	167	174
765	-181	189	196	203	210
766	-218	225	232	239	247
767	-254	261	268	275	283
768	-290	297	304	312	319
769	-326	333	340	348	355
770	-362	369	376	384	391
771	-398	405	412	420	427
772	-434	441	448	456	463
773	-470	477	484	491	499
774	-506	513	520	527	534
775	-542	549	556	563	570
776	-577	585	592	599	606
777	-613	620	627	635	642
778	-649	656	663	670	677
779	-685	692	699	706	713
780	-720	727	735	742	749
781	-756	763	770	777	784
782	-791	799	806	813	820
783	-827	834	841	848	855
784	-863	870	877	884	891
785	-898	905	912	919	926
786	-933	941	948	955	962
787	-969	976	983	990	997
788	-1004	011	018	025	032
789	-1040	1047	1054	1061	1068
790	-1075				

TABLE II.

ALTITUDE-PRESSURE TABLE -- FEET-INCHES

P ins.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
3.4	50228	50167	50104	50044	49982	49922	49862	49801	49741	49680
3.5	49620	561	501	442	382	323	264	206	147	089
3.6	49030	48972	48915	48857	48799	48741	48684	48627	48570	48513
3.7	48456	400	344	288	232	175	120	065	009	47954
3.8	47898	843	789	734	679	624	570	516	462	408
3.9	47354	301	248	194	141	088	035	46982	46930	46877
4.0	46824	772	720	668	616	564	513	461	410	358
4.1	46307	256	206	155	104	053	003	45953	45903	45853
4.2	45803	753	704	654	605	555	506	458	408	359
4.3	45310	262	213	165	117	068	020	44973	44925	44877
4.4	44829	782	734	687	640	592	546	499	452	405
4.5	44358	312	266	220	173	127	081	036	43990	43944
4.6	43898	853	808	762	717	672	627	582	537	492
4.7	43448	403	359	315	270	226	182	138	094	050
4.8	43007	42963	42920	42876	42833	42790	42747	42704	42661	42618
4.9	42575	532	490	447	404	362	320	278	236	193



ALTITUDE-PRESSURE TABLE -- FEET-INCHES

P ins.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
5.0	42151	42110	42068	42026	41985	41943	41902	41861	41819	41778
5.1	41737	696	655	614	573	532	492	451	411	370
5.2	41330	290	250	210	170	130	090	050	011	40971
5.3	40931	892	853	813	774	735	696	657	618	579
5.4	40540	502	463	425	386	347	309	271	233	195
5.5	40156	118	080	043	005	39967	39929	39892	39854	39816
5.6	39779	742	704	667	630	593	556	519	482	445
5.7	39408	372	335	298	262	225	189	153	117	080
5.8	39044	008	38972	38936	38900	38864	38829	38793	38757	38722
5.9	38686	651	615	580	545	509	474	439	404	369
6.0	38334	300	265	230	200	161	126	092	057	023
6.1	37989	954	920	886	852	818	784	750	716	682
6.2	37648	615	581	547	514	480	447	413	380	346
6.3	37313	280	247	214	181	147	115	082	049	016
6.4	36983	951	918	886	853	820	788	756	723	691
6.5	36659	627	595	563	531	498	467	435	403	371
6.6	36339	308	276	245	213	181	150	119	087	056
6.7	36024	35993	35962	35931	35900	35869	35838	35807	35776	35745
6.8	35714	683	653	622	591	560	530	499	469	438
6.9	35408	378	347	317	287	257	227	197	167	136
7.0	35106	077	047	017	34987	34957	34927	34898	34868	34838
7.1	34809	779	749	720	690	661	631	602	573	543
7.2	34514	485	455	426	397	368	339	310	281	251
7.3	34222	194	165	136	107	078	049	020	33992	33963
7.4	33934	906	877	848	820	791	763	734	706	678
7.5	33649	621	593	564	536	508	480	452	424	395
7.6	33367	339	311	283	255	227	200	172	144	116
7.7	33088	061	033	005	32978	32950	32922	32895	32867	32840
7.8	32812	785	758	730	703	676	648	621	594	567
7.9	32539	512	485	458	431	404	377	350	323	296
8.0	32269	242	215	188	161	135	108	081	054	028
8.1	32001	31975	31948	31921	31895	31868	31842	31815	31789	31763
8.2	31736	710	684	657	631	605	578	552	526	500
8.3	31474	448	422	396	370	344	318	292	266	240
8.4	31214	188	163	137	111	085	060	034	008	30983
8.5	30957	931	906	880	855	829	804	778	753	728
8.6	30702	677	652	626	601	576	550	525	500	475
8.7	30449	424	399	374	349	324	299	274	249	224
8.8	30199	174	149	125	100	075	050	025	001	29976
8.9	29951	927	902	877	853	828	804	779	755	730
9.0	29706	681	657	633	608	584	560	535	511	487
9.1	29462	438	414	390	366	342	317	293	269	245
9.2	29221	197	173	149	125	101	077	053	029	005
9.3	28982	958	934	910	887	863	839	816	792	768
9.4	28745	721	698	674	650	627	603	580	556	533
9.5	28510	486	463	439	416	393	369	346	323	300
9.6	28276	253	230	207	184	161	138	115	092	069
9.7	28046	023	000	27977	954	931	908	885	862	839
9.8	27816	794	771	748	725	702	680	657	634	612
9.9	27589	566	544	521	499	476	453	431	408	386

ALTITUDE-PRESSURE TABLE -- FEET-INCHES

P ins.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
10.0	27363	27341	27318	27296	27274	27251	27229	27206	27184	27162
10.1	27140	117	095	073	050	028	006	26984	26962	26940
10.2	26917	895	873	851	829	807	785	763	741	719
10.3	26697	676	654	632	610	588	566	544	523	501
10.4	26479	457	436	414	392	371	349	327	306	284
10.5	26262	241	219	198	176	155	133	112	090	069
10.6	26048	026	005	25984	25962	25941	25919	25898	25877	25856
10.7	25834	813	792	771	749	728	707	686	665	644
10.8	25622	601	580	559	538	517	496	475	454	433
10.9	25412	391	370	350	329	308	287	266	245	224
11.0	25204	183	162	141	121	100	079	059	038	017
11.1	24996	976	955	935	914	894	873	852	832	811
11.2	24791	770	750	730	709	689	668	648	628	607
11.3	24587	567	546	526	506	486	465	445	425	405
11.4	24384	364	344	324	304	284	263	243	223	203
11.5	24183	163	143	123	103	083	063	043	023	003
11.6	23983	963	944	924	904	884	864	844	824	805
11.7	23785	765	745	726	706	686	666	647	627	607
11.8	23588	568	549	529	509	490	470	451	431	412
11.9	23392	373	353	334	314	295	275	256	237	217
12.0	23198	178	159	140	121	101	082	063	043	024
12.1	23005	22986	22966	22947	22928	22909	22890	22870	22851	22832
12.2	22813	794	775	756	737	718	698	679	660	641
12.3	22622	603	584	565	547	528	509	490	471	452
12.4	22433	414	395	377	358	339	320	301	282	264
12.5	22245	226	207	189	170	151	133	114	095	077
12.6	22058	040	021	002	21984	21965	21947	21928	21910	21891
12.7	21872	854	836	817	799	780	762	743	725	706
12.8	21688	670	651	633	615	596	578	560	542	523
12.9	21505	487	469	450	432	414	396	377	359	341
13.0	21323	305	287	268	250	232	214	196	178	160
13.1	21142	124	106	088	070	052	034	016	20998	20980
13.2	20962	944	926	908	890	873	855	837	819	801
13.3	20783	765	748	730	712	694	677	659	641	623
13.4	20605	588	570	552	535	517	499	482	464	446
13.5	20429	411	394	376	358	341	323	306	288	271
13.6	20253	236	218	201	183	166	149	131	114	096
13.7	20079	061	044	027	009	19992	19975	19957	19940	19922
13.8	19905	888	871	853	836	819	802	784	767	750
13.9	19733	715	698	681	664	647	630	613	595	578
14.0	19561	544	527	510	493	476	459	442	425	408
14.1	19391	374	357	340	323	306	289	272	255	238
14.2	19221	204	187	170	154	137	120	103	086	069
14.3	19052	036	019	002	18985	18969	18952	18935	18918	18902
14.4	18885	868	852	835	818	802	785	768	752	735
14.5	18718	702	685	668	652	635	619	602	586	569
14.6	18553	536	520	503	487	470	454	437	421	404
14.7	18388	371	355	339	322	306	289	273	257	240
14.8	18224	208	191	175	159	142	126	110	093	077
14.9	18061	045	028	012	17996	17980	17963	17947	17931	17915

ALTITUDE-PRESSURE TABLE -- FEET-INCHES

P ins.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
15.0	17899	17882	17866	17850	17834	17818	17802	17736	17770	17754
15.1	17737	721	705	689	673	657	641	625	609	593
15.2	17577	561	545	529	513	497	481	465	449	433
15.3	17417	402	386	370	354	338	322	306	290	275
15.4	17259	243	227	211	196	180	164	148	132	117
15.5	17101	085	069	054	038	022	007	16991	16975	16959
15.6	16944	928	912	897	881	866	850	834	819	803
15.7	16787	772	756	741	725	710	694	679	663	648
15.8	16632	617	601	586	570	555	539	524	508	493
15.9	16477	462	447	431	416	400	385	370	354	339
16.0	16324	308	293	278	262	247	232	216	201	186
16.1	16171	155	140	125	110	094	079	064	049	034
16.2	16018	003	15988	15973	15958	15943	15927	15912	15897	15882
16.3	15867	852	837	822	806	791	776	761	746	731
16.4	15716	701	686	671	656	641	626	611	596	581
16.5	15566	551	536	521	506	491	476	461	446	431
16.6	15416	402	387	372	357	342	327	312	298	283
16.7	15268	253	238	224	209	194	179	164	150	135
16.8	15120	105	091	076	061	047	032	017	002	14988
16.9	14973	958	944	929	914	900	885	870	856	841
17.0	14826	812	797	783	768	753	739	724	710	695
17.1	14681	666	652	637	622	608	594	579	564	550
17.2	14536	521	507	492	478	463	449	434	420	406
17.3	14391	377	362	348	334	319	305	291	276	262
17.4	14247	233	219	204	190	176	162	147	133	119
17.5	14104	090	076	062	047	033	019	005	13990	13976
17.6	13962	948	934	919	905	891	877	863	849	834
17.7	13820	806	792	778	764	750	736	722	707	693
17.8	13679	665	651	637	623	609	595	581	567	553
17.9	13539	525	511	497	483	469	455	441	427	413
18.0	13399	385	371	357	343	329	315	301	287	274
18.1	13260	246	232	218	204	190	176	163	149	135
18.2	13121	107	094	080	066	052	038	025	011	12997
18.3	12983	970	956	942	928	915	901	887	873	860
18.4	12846	832	819	805	791	778	764	750	736	723
18.5	12709	695	682	668	655	641	627	614	600	587
18.6	12573	559	546	532	519	505	492	478	464	451
18.7	12437	424	410	397	383	370	356	343	329	316
18.8	12302	289	275	262	249	235	222	208	195	181
18.9	12168	155	141	128	114	101	088	074	061	048
19.0	12034	021	008	11994	11981	11968	11954	11941	11928	11914
19.1	11901	888	874	861	848	835	821	808	795	781
19.2	11768	755	742	729	715	702	689	676	663	649
19.3	11636	623	610	597	584	570	557	544	531	518
19.4	11505	491	478	465	452	439	426	413	400	387
19.5	11374	360	347	334	321	308	295	282	269	256
19.6	11243	230	217	204	191	178	165	152	139	126
19.7	11113	100	087	074	061	048	035	023	010	10997
19.8	10984	971	958	945	932	919	906	894	881	868
19.9	10855	842	829	816	804	791	778	765	752	739

ALTITUDE-PRESSURE TABLE -- FEET-INCHES

P ins.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
20.0	10726	10714	10701	10688	10675	10662	10650	10637	10624	10611
20.1	10599	586	573	560	548	535	522	509	497	484
20.2	10471	459	446	433	421	408	395	383	370	357
20.3	10344	332	319	307	294	281	269	256	243	231
20.4	10218	206	193	180	168	155	143	130	117	105
20.5	10092	080	067	055	042	030	017	005	9992	9980
20.6	9967	955	942	930	917	905	892	880	867	855
20.7	9842	830	817	805	793	780	768	755	743	730
20.8	9718	706	693	681	668	656	644	631	619	607
20.9	9594	582	570	557	545	532	520	508	495	483
21.0	9471	458	446	434	422	409	397	385	372	360
21.1	9348	336	323	311	299	287	274	262	250	238
21.2	9225	213	201	189	176	164	152	140	128	116
21.3	9103	091	079	067	055	043	030	018	006	8994
21.4	8982	970	958	946	933	921	909	897	885	873
21.5	8861	849	837	825	813	801	789	776	764	752
21.6	8740	728	716	704	692	680	668	656	644	632
21.7	8620	608	596	584	572	560	548	536	524	512
21.8	8500	489	477	465	453	441	429	417	405	393
21.9	8381	369	357	346	334	322	310	298	286	274
22.0	8262	250	239	227	215	203	191	179	168	156
22.1	8144	132	120	109	097	085	073	061	050	038
22.2	8026	014	003	7991	7979	7967	7956	7944	7932	7920
22.3	7909	897	885	873	862	850	838	827	815	803
22.4	7791	780	768	756	745	733	721	710	698	686
22.5	7675	663	652	640	628	617	605	593	582	570
22.6	7559	547	535	524	512	501	489	478	466	454
22.7	7443	431	420	408	397	385	374	362	350	339
22.8	7327	316	304	293	281	270	258	247	235	224
22.9	7212	201	189	178	167	155	144	132	121	109
23.0	7098	086	075	064	052	041	029	018	006	6995
23.1	6984	972	961	949	938	927	915	904	893	881
23.2	6870	858	847	836	824	813	802	790	779	768
23.3	6756	745	734	722	711	700	688	677	666	655
23.4	6643	632	621	610	598	587	576	564	553	542
23.5	6531	519	508	497	486	475	463	452	441	430
23.6	6418	407	396	385	374	363	351	340	329	318
23.7	6307	296	284	273	262	251	240	229	218	206
23.8	6195	184	173	162	151	140	129	118	106	095
23.9	6084	073	062	051	040	029	018	007	5996	5985
24.0	5974	962	951	940	929	918	907	896	885	874
24.1	5863	852	841	830	819	808	797	786	775	764
24.2	5753	742	731	720	709	698	687	676	666	655
24.3	5644	633	622	611	600	589	578	567	556	545
24.4	5534	524	513	502	491	480	469	458	447	436
24.5	5425	415	404	393	382	371	360	350	339	328
24.6	5317	306	295	285	274	263	252	241	230	220
24.7	5209	198	187	176	166	155	144	133	123	112
24.8	5101	090	080	069	058	047	037	026	015	004
24.9	4994	983	972	961	951	940	929	919	908	897

ALTITUDE-PRESSURE TABLE -- FEET-INCHES

P ins.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
25.0	4886	4876	4865	4854	4844	4833	4822	4812	4801	4790
25.1	4780	769	758	748	737	726	716	705	695	684
25.2	4673	663	652	642	631	620	610	599	588	578
25.3	4567	557	546	536	525	514	504	493	483	472
25.4	4462	451	440	430	419	409	398	388	377	367
25.5	4356	346	335	325	314	304	293	283	272	262
25.6	4251	241	230	220	209	199	188	178	167	157
25.7	4146	136	125	115	105	094	084	073	063	052
25.8	4042	032	021	011	000	3990	3980	3969	3959	3948
25.9	3938	928	917	907	896	886	876	865	855	845
26.0	3834	824	814	803	793	782	772	762	751	741
26.1	3731	720	710	700	689	679	669	659	648	638
26.2	3628	617	607	597	586	576	566	556	545	535
26.3	3525	515	504	494	484	474	463	453	443	433
26.4	3422	412	402	392	382	371	361	351	341	331
26.5	3320	310	300	290	279	269	259	249	239	229
26.6	3218	208	198	188	178	168	157	147	137	127
26.7	3117	107	097	086	076	066	056	046	036	026
26.8	3016	005	2995	2985	2975	2965	2955	2945	2935	2925
26.9	2915	905	895	884	874	864	854	844	834	824
27.0	2814	804	794	784	774	764	754	744	734	724
27.1	2714	704	694	684	674	664	654	644	634	624
27.2	2614	604	594	584	574	564	554	544	534	524
27.3	2514	504	494	484	474	464	454	444	434	425
27.4	2415	405	395	385	375	365	355	345	335	325
27.5	2315	306	296	286	276	266	256	246	236	226
27.6	2217	207	197	187	177	167	158	148	138	128
27.7	2118	108	098	089	079	069	059	049	040	030
27.8	2020	010	000	1990	1981	1971	1961	1951	1942	1932
27.9	1922	912	902	893	883	873	863	854	844	834
28.0	1824	814	805	795	785	776	766	756	746	737
28.1	1727	717	707	698	688	678	668	659	649	639
28.2	1630	620	610	601	591	581	572	562	552	542
28.3	1533	523	513	504	494	484	475	465	456	446
28.4	1436	427	417	407	398	388	378	369	359	350
28.5	1340	330	321	311	302	292	282	273	263	254
28.6	1244	234	225	215	206	196	186	177	167	158
28.7	1148	139	129	120	110	100	091	081	072	062
28.8	1053	1043	1034	1024	1015	1005	995	986	976	967
28.9	957	948	938	929	919	910	900	891	881	872
29.0	863	853	844	834	825	815	806	796	787	777
29.1	768	758	749	739	730	721	711	702	692	683
29.2	673	664	655	645	636	626	617	607	598	589
29.3	579	570	560	551	542	532	523	514	504	495
29.4	485	476	467	457	448	439	429	420	410	401
29.5	392	382	373	364	354	345	336	326	318	308
29.6	298	289	280	270	261	252	242	233	224	215
29.7	205	196	187	177	168	159	149	140	131	122
29.8	112	103	94	85	75	66	57	47	38	29
29.9	20	10	+1	-8	-17	-26	-36	-45	-54	-63

ALTITUDE-PRESSURE TABLE -- FEET-INCHES

P ins.	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
30.0	-73	82	91	100	110	119	128	137	146	156
30.1	-165	174	183	192	202	211	220	229	238	248
30.2	-257	266	275	284	293	303	312	321	330	339
30.3	-348	358	367	376	385	394	403	412	421	431
30.4	-440	449	458	467	476	485	494	504	513	522
30.5	-531	540	549	558	567	576	585	594	604	613
30.6	-622	631	640	649	658	667	676	685	694	703
30.7	-712	721	730	740	749	758	767	776	785	794
30.8	-803	812	821	830	839	848	857	866	875	884
30.9	-893	902	911	920	929	938	947	956	965	974
31.0	-983	992	1001	1010	1019	1028	1037	1046	1055	1064

TABLE III

ALTITUDE-PRESSURE-TEMPERATURE TABLE.

Altitude Feet	Pressure		Temp. °C	Mean Temp. °C	Isothermal Altitude (+10°C) Feet
	In. Hg.	Mm. Hg.			
-1000	31.02	787.9	+17.0	+16.0	-1010
- 500	30.47	773.8	16.0	15.5	- 510
0	29.921	760.0	15.0	15.0	- 10
+ 500	29.38	746.4	14.0	14.5	+ 480
+1000	28.86	732.9	13.0	14.0	+ 980
1500	28.33	719.7	12.0	13.5	1480
2000	27.82	706.6	11.0	13.0	1980
2500	27.31	693.8	10.0	12.5	2470
3000	26.81	681.1	9.1	12.0	2980
3500	26.32	668.6	8.1	11.5	3480
4000	25.84	656.3	7.1	11.0	3990
4500	25.36	644.2	6.1	10.5	4500
5000	24.89	632.3	5.1	10.0	5020
5500	24.43	620.6	4.1	9.5	5520
6000	23.98	609.0	3.1	9.0	6040
6500	23.53	597.6	2.1	8.5	6550
7000	23.09	586.4	1.1	8.0	7070
7500	22.65	575.3	+0.1	7.5	7600
8000	22.22	564.4	-0.8	7.0	8110
8500	21.80	553.7	-1.8	6.5	8640
9000	21.38	543.2	-2.8	6.0	9160
9500	20.98	532.8	-3.8	5.5	9690
10000	20.57	522.6	-4.8	5.0	10220
10500	20.18	512.5	-5.8	4.5	10750
11000	19.79	502.6	-6.8	4.0	11280
11500	19.40	492.8	-7.8	3.5	11820
12000	19.03	483.3	-8.8	2.9	12360
12500	18.65	473.8	-9.8	2.4	12890
13000	18.29	464.5	-10.8	1.9	13440
13500	17.93	455.4	-11.7	1.4	13980
14000	17.57	446.4	-12.7	0.9	14520
14500	17.22	437.5	-13.7	+0.4	15070
15000	16.88	428.8	-14.7	-0.1	15620
15500	16.54	420.2	-15.7	-0.6	16170
16000	16.21	411.8	-16.7	-1.2	16730
16500	15.89	403.5	-17.7	-1.7	17280
17000	15.56	395.3	-18.7	-2.2	17830
17500	15.25	387.3	-19.7	-2.7	18400
18000	14.94	379.4	-20.7	-3.2	18960
18500	14.63	371.7	-21.7	-3.7	19520
19000	14.33	364.0	-22.6	-4.3	20100
19500	14.04	356.5	-23.6	-4.8	20660

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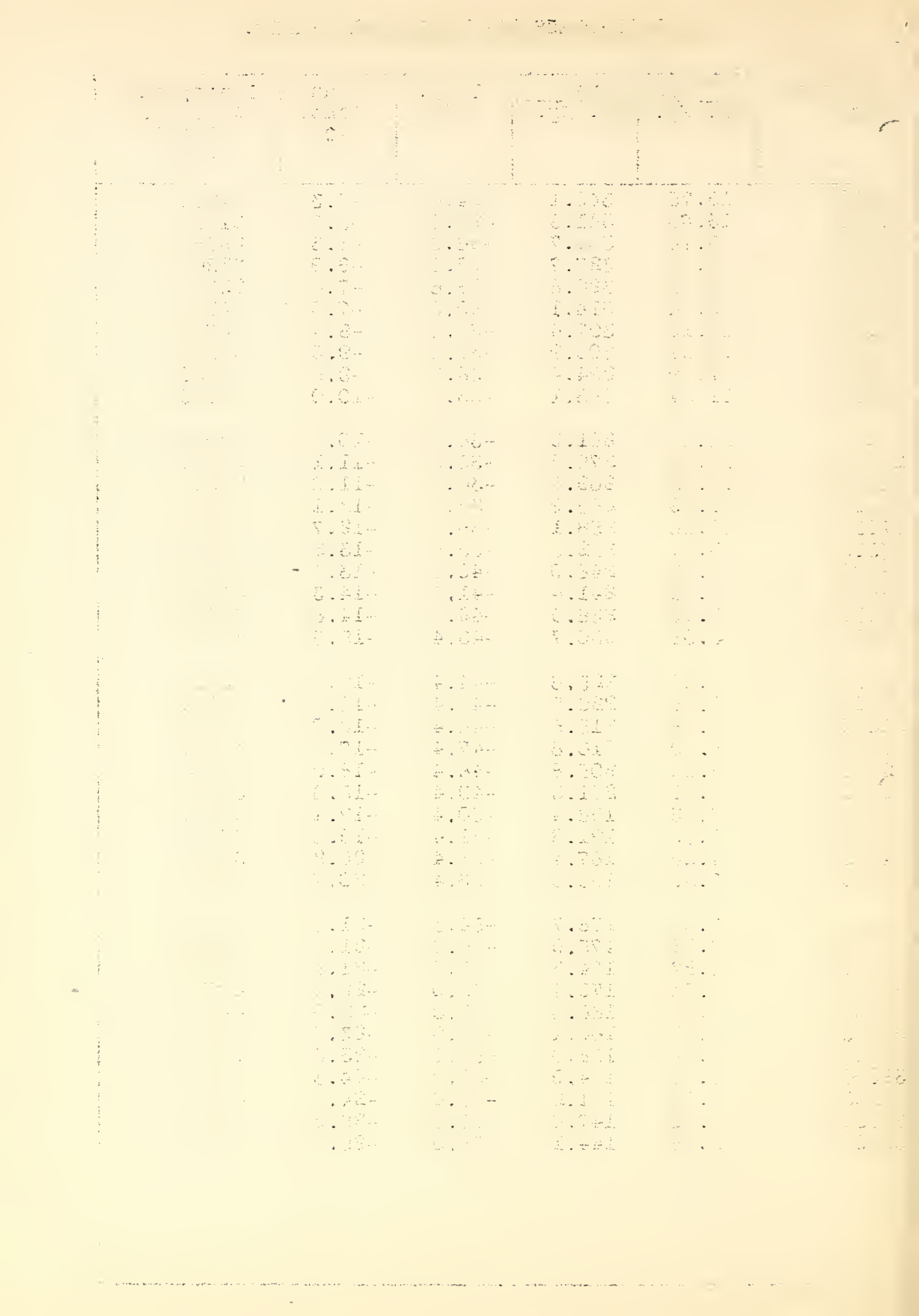
ALTITUDE-PRESSURE-TEMPERATURE TABLE.

Altitude Feet	Pressure		Temp. °C	Mean Temp. °C	Isothermal Altitude (+10°C) Feet
	In. Hg.	Mm. Hg.			
30000	13.75	349.1	-24.6	-5.3	21240
30500	13.46	341.9	-25.6	-5.8	21800
31000	13.18	334.7	-26.6	-6.3	22380
31500	12.90	327.7	-27.6	-6.9	22960
32000	12.63	320.8	-28.6	-7.4	23550
32500	12.36	314.1	-29.6	-7.9	24120
33000	12.10	307.4	-30.6	-8.4	24710
33500	11.84	300.9	-31.6	-9.0	25300
34000	11.59	294.4	-32.5	-9.5	25890
34500	11.34	288.1	-33.5	-10.0	26480
35000	11.10	281.9	-34.5	-10.5	27080
35500	10.86	275.8	-35.5	-11.1	27680
36000	10.62	269.8	-36.5	-11.6	28280
36500	10.39	263.9	-37.5	-12.1	28880
37000	10.16	258.1	-38.5	-12.7	29490
37500	9.94	252.5	-39.5	-13.2	30090
38000	9.72	246.9	-40.5	-13.7	30700
38500	9.50	241.4	-41.5	-14.3	31310
39000	9.29	236.0	-42.5	-14.8	31930
39500	9.08	230.7	-43.4	-15.3	32550
30000	8.88	225.6	-44.4	-15.9	33160
30500	8.68	220.5	-45.4	-16.4	33790
31000	8.48	215.5	-46.4	-16.9	34420
31500	8.29	210.6	-47.4	-17.5	35040
32000	8.10	205.8	-48.4	-18.0	35680
32500	7.91	201.0	-49.4	-18.6	36320
33000	7.73	196.4	-50.4	-19.1	36950
33500	7.55	191.8	-51.4	-19.6	37590
34000	7.38	187.4	-52.4	-20.2	38220
34500	7.20	183.0	-53.4	-20.7	38870
35000	7.04	178.7	-54.3	-21.3	39520
35332	6.93	175.9	-55.0	-21.6	39960
35500	6.87	174.5	-55.0	-21.8	40160
36000	6.71	170.4	-55.0	-22.3	40820
36500	6.55	166.4	-55.0	-22.8	41470
37000	6.39	162.4	-55.0	-23.3	42130
37500	6.24	158.6	-55.0	-23.8	42780
38000	6.10	154.9	-55.0	-24.3	43440
38500	5.95	151.2	-55.0	-24.8	44090
39000	5.81	147.6	-55.0	-25.2	44750
39500	5.68	144.1	-55.0	-25.6	45410



ALTITUDE-PRESSURE-TEMPERATURE TABLE.

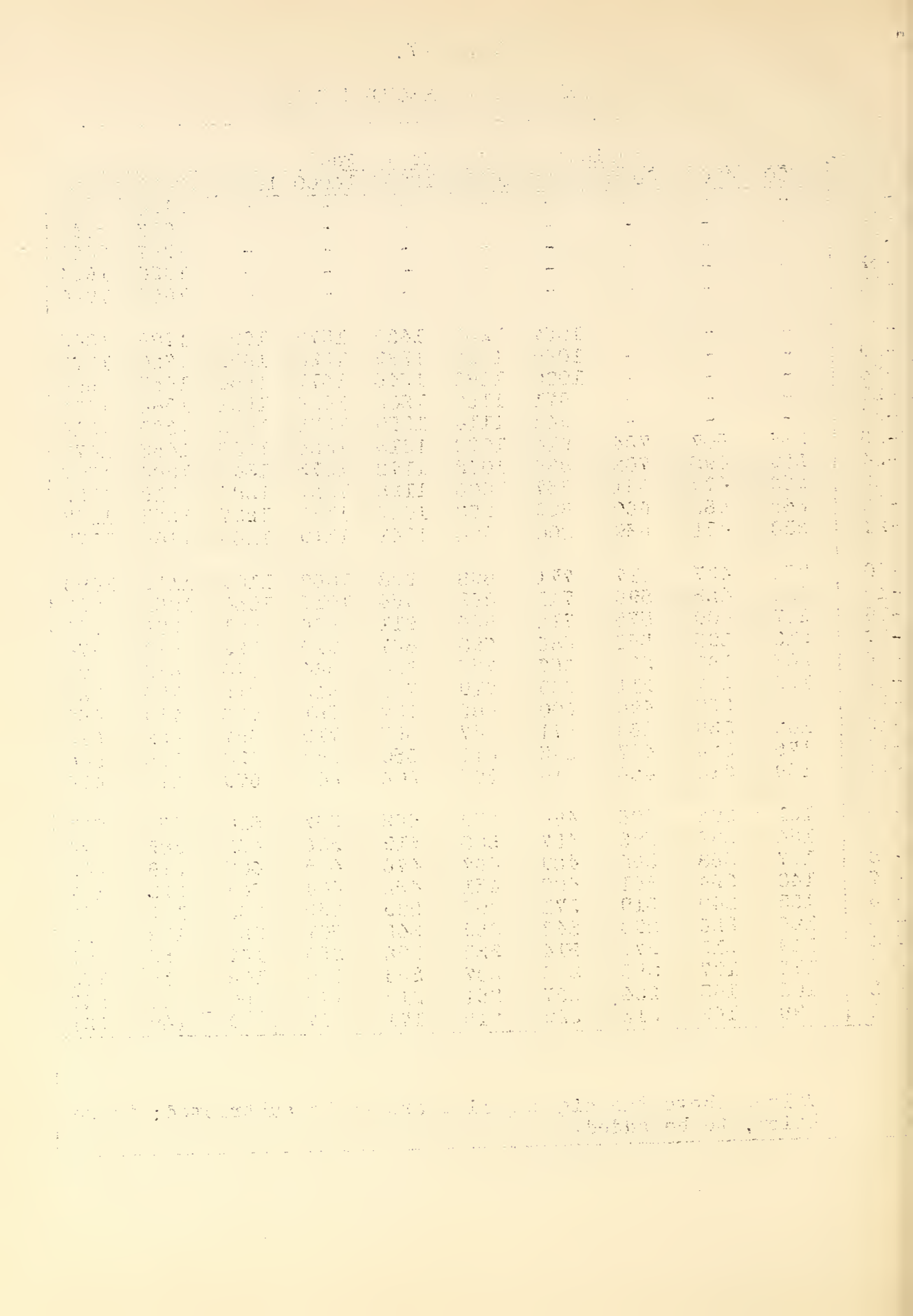
Altitude Feet	Pressure		Temp. °C	Mean Temp. °C	Isothermal Altitude (+10°C) Feet
	In. Hg.	Mm. Hg.			
40000	5.54	140.7	-55.0	-26.0	46060
40500	5.41	137.4	-55.0	-26.4	46710
41000	5.28	134.2	-55.0	-26.8	47350
41500	5.16	131.0	-55.0	-27.2	48010
42000	5.04	127.9	-55.0	-27.6	48670
42500	4.92	124.9	-55.0	-28.0	49320
43000	4.80	122.0	-55.0	-28.3	49960
43500	4.69	119.1	-55.0	-28.6	50610
44000	4.58	116.3	-55.0	-29.0	51260
44500	4.47	113.5	-55.0	-29.3	51930
45000	4.36	110.8	-55.0	-29.6	52590
45500	4.26	108.2	-55.0	-29.9	53240
46000	4.16	105.7	-55.0	-30.2	53870
46500	4.06	103.2	-55.0	-30.5	54530
47000	3.97	100.7	-55.0	-30.8	55200
47500	3.87	98.4	-55.0	-31.1	55830
48000	3.78	96.1	-55.0	-31.4	56480
48500	3.69	93.8	-55.0	-31.7	57140
49000	3.61	91.6	-55.0	-31.9	57790
49500	3.52	89.4	-55.0	-32.2	58450
50000	3.44	87.3	-55.0	-32.4	59100

TABLE IV

TEMPERATURE CORRECTION TABLE

Mean Temp.	Indicated Altitude in Feet									
°C	2000	4000	6000	8000	10000	12000	14000	16000	18000	20000
-35	-	-	-	-	-	-	-	-	2120	2219
-34	-	-	-	-	-	-	-	-	2053	2144
-33	-	-	-	-	-	-	-	-	1987	2069
-32	-	-	-	-	-	-	-	-	1920	1994
-31	-	-	-	-	-	-	-	-	1853	1920
-30	-	-	-	1057	1258	1433	1579	1698	1786	1845
-29	-	-	-	1029	1222	1389	1528	1639	1720	1770
-28	-	-	-	1000	1186	1346	1477	1580	1653	1696
-27	-	-	-	971	1150	1302	1426	1521	1586	1621
-26	-	-	-	943	1114	1259	1375	1462	1520	1546
-25	266	507	724	914	1078	1215	1324	1403	1453	1472
-24	259	493	702	886	1042	1172	1273	1344	1386	1397
-23	252	479	681	857	1006	1128	1221	1286	1319	1322
-22	245	465	660	829	970	1085	1170	1227	1253	1247
-21	238	451	639	800	934	1041	1119	1168	1186	1173
-20	231	437	617	771	898	998	1068	1109	1119	1098
-19	224	423	596	743	862	954	1017	1050	1053	1023
-18	217	409	575	714	826	911	966	991	986	949
-17	210	395	553	686	790	867	915	932	919	874
-16	203	381	532	657	755	824	864	874	852	799
-15	196	367	511	629	719	780	813	815	786	725
-14	189	353	490	600	683	737	761	756	719	650
-13	182	338	468	571	647	693	710	697	652	575
-12	175	324	447	543	611	650	659	638	585	500
-11	168	310	426	514	575	606	608	579	519	426
-10	161	296	405	486	539	563	557	520	452	351
- 9	154	282	383	457	503	519	506	462	385	276
- 8	147	268	362	429	467	476	455	403	319	202
- 7	140	254	341	400	431	432	404	344	252	127
- 6	133	240	319	371	395	389	353	285	185	52
- 5	126	226	298	343	359	345	301	226	118	22
- 4	119	212	277	314	323	302	250	167	52	97
- 3	112	197	256	286	287	258	199	108	15	172
- 2	105	183	234	257	251	215	148	50	82	247
- 1	98	169	213	229	215	171	97	9	148	321

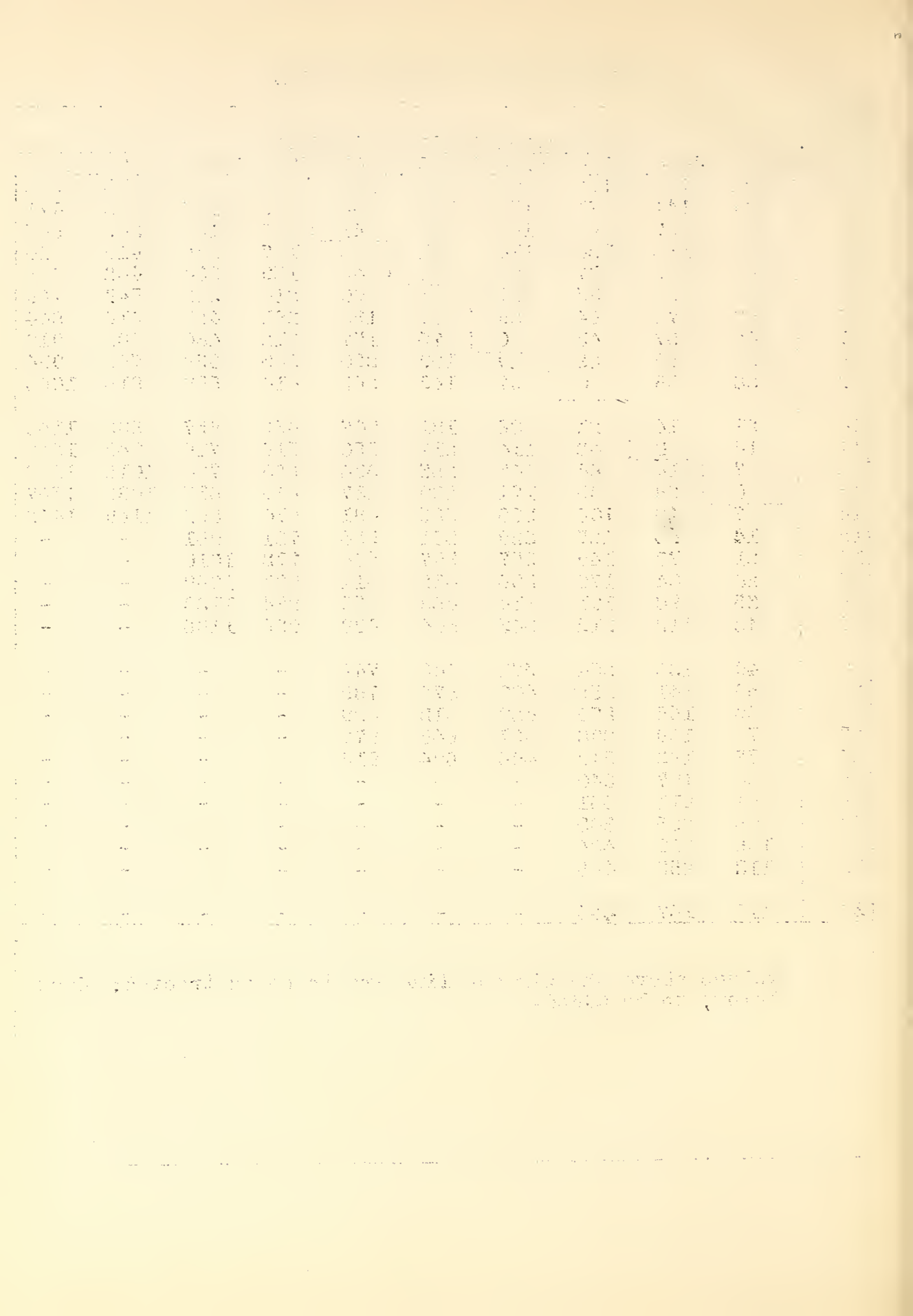
Values above the zig zag line are to be subtracted; those below, to be added.



TEMPERATURE CORRECTION TABLE

Mean Temp.	Indicated Altitude in Feet									
°C	2000	4000	6000	8000	10000	12000	14000	16000	18000	20000
0	91	155	192	200	179	128	46	68	215	396
1	84	141	171	171	143	84	5	127	282	471
2	77	127	149	143	107	41	56	186	349	545
3	70	113	128	114	71	3	107	245	415	620
4	63	99	107	86	35	46	159	304	482	695
5	56	85	85	57	1	90	210	362	549	769
6	49	71	64	29	37	133	261	421	616	844
7	42	57	43	0	73	177	312	480	682	919
8	35	43	22	29	109	220	363	539	749	994
9	28	28	0	57	145	263	414	598	816	1068
10	21	14	21	86	181	307	465	657	882	1143
11	14	0	42	114	217	350	516	716	949	1218
12	7	14	64	143	253	394	568	774	1016	1292
13	0	28	85	171	289	437	619	833	1083	1367
14	7	42	106	200	325	481	670	892	1149	1442
15	14	56	127	229	361	524	721	951	-	-
16	21	70	149	257	397	568	772	1010	-	-
17	28	84	170	286	432	611	823	1069	-	-
18	35	98	191	314	468	655	874	1128	-	-
19	42	112	212	343	504	698	925	1186	-	-
20	49	126	234	371	540	742	-	-	-	-
21	56	141	255	400	576	785	-	-	-	-
22	63	155	276	429	612	829	-	-	-	-
23	70	169	298	457	648	872	-	-	-	-
24	77	183	319	486	684	916	-	-	-	-
25	84	197	340	-	-	-	-	-	-	-
26	91	211	361	-	-	-	-	-	-	-
27	98	225	383	-	-	-	-	-	-	-
28	105	239	404	-	-	-	-	-	-	-
29	112	253	425	-	-	-	-	-	-	-
30	119	267	446	-	-	-	-	-	-	-

Values above the zig zag line are to be subtracted; those below, to be added.



TEMPERATURE CORRECTION TABLE

Mean Temp.	Indicated Altitude in Feet									
-°C	22000	24000	26000	28000	30000	32000	34000	36000	38000	40000
-35	2287	2323	2327	2297	2233	2132	1994	1819	1635	1452
-34	2204	2232	2227	2189	2116	2006	1859	1675	1483	1290
-33	2121	2141	2128	2082	1999	1881	1725	1532	1330	1128
-32	2038	2050	2029	1974	1883	1755	1590	1388	1177	966
-31	1956	1959	1929	1866	1766	1630	1456	1244	1024	804
-30	1873	1868	1830	1758	1649	1504	1321	1101	872	642
-29	1790	1777	1730	1650	1533	1379	1187	957	719	480
-28	1707	1686	1631	1542	1416	1253	1052	814	566	318
-27	1624	1595	1531	1434	1299	1128	918	670	413	156
-26	1541	1504	1432	1326	1183	1002	783	526	260	6
-25	1459	1413	1332	1218	1066	877	649	383	108	168
-24	1376	1322	1233	1110	949	751	514	239	45	330
-23	1293	1230	1134	1002	833	626	380	96	198	492
-22	1210	1139	1034	894	716	500	245	48	351	654
-21	1127	1048	935	786	599	375	111	192	504	816
-20	1044	957	835	678	483	249	24	335	656	978
-19	962	866	736	570	366	124	158	479	809	1140
-18	879	775	636	462	249	2	292	623	962	1302
-17	796	684	537	354	133	127	427	766	1115	1463
-16	713	593	437	246	16	252	561	910	1268	1625
-15	630	502	338	138	101	378	696	1053	1420	1787
-14	548	411	239	30	217	503	830	1197	1573	1949
-13	465	320	139	78	334	629	965	1341	1726	2111
-12	382	229	40	186	451	754	1099	1484	1879	2273
-11	299	138	60	294	567	880	1234	1628	2031	2435
-10	216	46	159	402	684	1005	1368	1772	2184	2597
- 9	133	45	259	510	801	1131	1503	1915	2337	2759
- 8	51	136	358	618	917	1256	1637	2059	2490	2921
- 7	32	227	458	726	1034	1382	1772	2202	2643	3083
- 6	115	318	557	834	1151	1507	1906	2346	2795	3245
- 5	198	409	656	942	1267	1633	2041	2490	-	-
- 4	281	500	756	1050	1384	1758	2175	2633	-	-
- 3	364	591	855	1158	1501	1884	2310	2777	-	-
- 2	446	682	955	1266	1617	2009	2444	2921	-	-
- 1	529	773	1054	1374	1734	2135	2579	3064	-	-
0	612	864	1154	1482	1851	2260	-	-	-	-
+ 1	695	955	1253	1590	1967	2386	-	-	-	-
2	778	1047	1353	1698	2084	2511	-	-	-	-
3	861	1138	1452	1806	2201	2637	-	-	-	-
4	943	1229	1551	1914	2317	2762	-	-	-	-
5	1026	1320	1651	2022	-	-	-	-	-	-
6	1109	1411	1750	2130	-	-	-	-	-	-
7	1192	1502	1850	2238	-	-	-	-	-	-
8	1275	1593	1949	2346	-	-	-	-	-	-
9	1358	1684	2049	2454	-	-	-	-	-	-
10	1440	1775	-	-	-	-	-	-	-	-
11	1523	1866	-	-	-	-	-	-	-	-
12	1606	1957	-	-	-	-	-	-	-	-
13	1689	2048	-	-	-	-	-	-	-	-
14	1772	2139	-	-	-	-	-	-	-	-

Values above the zig zag line are to be subtracted; those below, to be added.

TEMPERATURE CORRECTION TABLE

Mean Temp.	Indicated Altitude in Feet					
°C	40000	42000	44000	46000	48000	50000
-40	2262	2124	1987	1849	1711	1574
-39	2100	1953	1806	1659	1513	1366
-38	1938	1782	1626	1470	1314	1158
-37	1776	1611	1446	1280	1115	950
-36	1614	1440	1265	1091	917	742
-35	1452	1269	1085	901	718	535
-34	1290	1097	905	712	519	327
-33	1128	926	724	522	321	119
-32	966	755	544	333	122	89
-31	804	584	364	143	77	297
-30	642	413	183	46	275	505
-29	480	242	3	236	474	712
-28	318	71	177	425	673	920
-27	156	101	357	615	871	1128
-26	6	272	538	804	1070	1336
-25	168	443	718	993	1269	1544
-24	330	614	898	1183	1467	1752
-23	492	785	1079	1372	1666	1959
-22	654	956	1259	1562	1865	2167
-21	816	1128	1439	1751	2063	2375
-20	978	1299	1620	1941	2262	2583
-19	1140	1470	1800	2130	2461	2791
-18	1302	1641	1980	2320	2659	2999
-17	1463	1812	2161	2509	2858	3206
-16	1625	1983	2341	2699	3057	3414
-15	1787	2154	2521	2888	3255	3622
-14	1949	2326	2702	3078	3454	3830
-13	2111	2497	2882	3267	3653	4038
-12	2273	2668	3062	3457	3851	4246
-11	2435	2839	3243	3646	4050	4453
-10	2597	3010	-	-	-	-
- 9	2759	3181	-	-	-	-
- 8	2921	3352	-	-	-	-
- 7	3083	3524	-	-	-	-
- 6	3245	3695	-	-	-	-
- 5	3407	3866	-	-	-	-

Values above the zig zag line are to be subtracted; those below, to be added.