

Standard Conditions for Atmospheric Air

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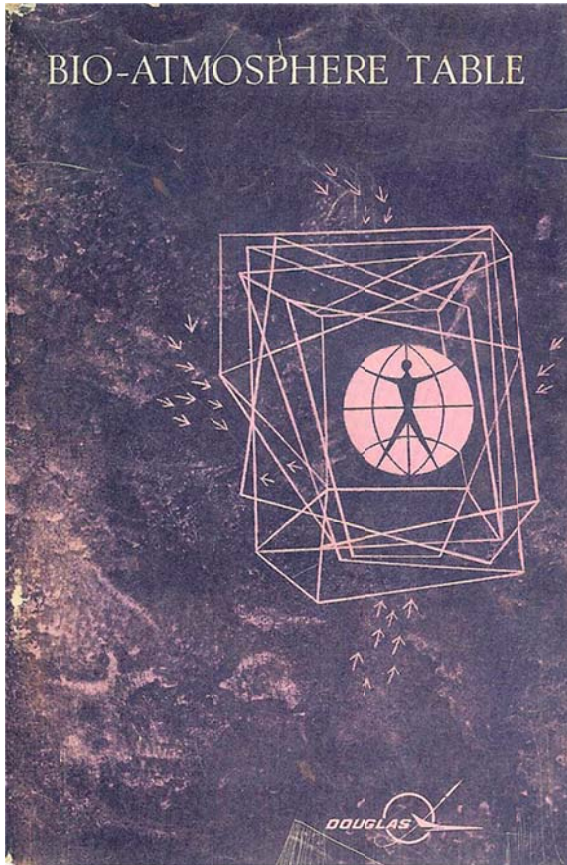
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This document covers the Standard Conditions from 16,500 ft BMSL thru 2,320,000 ft AMSL.

One will find that the tables provided on page 4 will provide the information needed for most common engineering problems.

Note! The following approximate altitude related **Benchmarks** are within the range of this extensive tabulation:

	ft	km
Dead Sea	-1,383	-0.42
Death Valley	-282	-0.09
New York (JFK Airport)	13	0.00
Kempton Park South Africa (Airport)	5,558	1.69
Sameden Switzerland (Airport)	5,600	1.71
Quito Equador (Airport)	9,228	2.81
Leadville Colorado (Airport)	9,927	3.03
Lapaz Bolivia (Airport)	13,323	4.06
Lhasa Tibet (Airport)	14,315	4.36
Bangda Tibet (Airport)	15,548	4.74
Mt Fuji	12,389	3.78
Matterhorn	14,692	4.48
Mt Blanc	15,782	4.81
Mount Kenya	17,057	5.20
Kilimanjaro	19,342	5.90
Mount Logan	19,541	5.96
Mount McKinley	20,320	6.19
Mount Everest	29,029	8.85
Lower Limit of the Troposphere	20,000	6
Upper limit of the Troposphere	65,000	20
Upper Limit of the Stratosphere	164,000	50
Upper limit of the Mesosphere	279,000	85
Kármán Line (Beginning of Outer Space)	328,000	100
Upper Limit of the Thermosphere	2,264,000	690



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PREFACE The "Bio-Atmosphere Table" provides useful information for those scientists and engineers concerned with atmospheric and environmental control systems. The values in this table are based directly on the "geometric altitude" portion of Table IV of the U. S. Standard Atmosphere, 1962, prepared under the joint sponsorship of the National Aeronautics and Space Administration, the United States Air Force and the United States Weather Bureau, December 1962, Washington, D. C. Temperature columns in degrees fahrenheit (°F) and centigrade (°C) and pressure in inches of mercury (in. Hg) are taken directly from Table IV. Two pressure columns, millimeters of mercury (mm Hg) and pounds per square inch absolute are indexed to these data. They are calculated from the "inches-of-mercury" column in Table IV by the following conversion factors:

$$\text{mm Hg} = 25.40 \text{ (in. Hg)} = \text{(torr)}$$

$$\text{psia} = .4911540 \text{ (in. Hg abs.)}$$

NOTE:
A one- or two-digit number (preceded by a minus sign) following the initial entry of each block of figures indicates the power of 10 by which that entry and each succeeding entry of that block should be multiplied. A change of power occurring within a block is indicated by a similar notation.

ALTITUDES BY SECTION

-16,500 FT. TO -600 FT.
1ST SECTION

-500 FT. TO 42,800 FT.
2ND SECTION

43,000 FT. TO 189,500 FT.
3RD SECTION

190,000 FT. TO 558,000 FT.
4TH SECTION

560,000 FT. TO 2,320,000 FT.
5TH SECTION

Table with 7 columns: ALTITUDE Feet, PRESSURE (P, mm Hg, P, in. Hg, P, psia), TEMPERATURE (t, °F, t, °C). Rows range from 91000 to 98800 feet.

Table with 7 columns: ALTITUDE Feet, PRESSURE (P, mm Hg, P, in. Hg, P, psia), TEMPERATURE (t, °F, t, °C). Rows range from 99000 to 109500 feet.

Table with 7 columns: ALTITUDE Feet, PRESSURE (P, mm Hg, P, in. Hg, P, psia), TEMPERATURE (t, °F, t, °C). Rows range from 110000 to 129500 feet.

Table with 7 columns: ALTITUDE Feet, PRESSURE (P, mm Hg, P, in. Hg, P, psia), TEMPERATURE (t, °F, t, °C). Rows range from 130000 to 149500 feet.

ALTITUDE Feet	PRESSURE			TEMPERATURE	
	P, mm Hg	P, in. Hg	P, psia	t, °F	t, °C
1800000	4.6197-9	1.8188-10	8.9331-11	2232.92	1222.73
1805000	4.5389	1.7870	8.7769	2233.14	1222.85
1810000	4.4599	1.7559	8.6241	2233.38	1222.99
1815000	4.3822	1.7253	8.4738	2233.64	1223.13
1820000	4.3060	1.6953	8.3265	2233.93	1223.29
1825000	4.2313-9	1.6659-10	8.1821-11	2234.23	1223.46
1830000	4.1579	1.6370	8.0401	2234.56	1223.65
1835000	4.0860	1.6087	7.9011	2234.92	1223.84
1840000	4.0154	1.5809	7.7646	2235.29	1224.05
1845000	3.9461	1.5536	7.6305	2235.68	1224.27
1850000	3.8783-9	1.5269-10	7.4994-11	2236.10	1224.50
1855000	3.8115	1.5006	7.3702	2236.54	1224.74
1860000	3.7459	1.4748	7.2435	2236.99	1225.00
1865000	3.6817	1.4495	7.1192	2237.47	1225.26
1870000	3.6187	1.4247	6.9974	2237.97	1225.54
1875000	3.5567-9	1.4003-10	6.8776-11	2238.48	1225.82
1880000	3.4960	1.3764	6.7602	2239.02	1226.12
1885000	3.4366	1.3530	6.6453	2239.58	1226.43
1890000	3.3779	1.3299	6.5318	2240.15	1226.75
1895000	3.3205	1.3073	6.4208	2240.74	1227.08
1900000	3.2641-9	1.2851-10	6.3118-11	2241.35	1227.42
1905000	3.2087	1.2633	6.2047	2241.98	1227.77
1910000	3.1544	1.2419	6.0996	2242.63	1228.13
1915000	3.1010	1.2209	5.9964	2243.29	1228.49
1920000	3.0487	1.2003	5.8953	2243.97	1228.87
1925000	2.9974-9	1.1801-10	5.7961-11	2244.66	1229.26
1930000	2.9469	1.1602	5.6983	2245.38	1229.65
1935000	2.8973	1.1407	5.6025	2246.11	1230.06
1940000	2.8488	1.1216	5.5087	2246.85	1230.47
1945000	2.8011	1.1028	5.4164	2247.61	1230.89
1950000	2.7541-9	1.0843-10	5.3255-11	2248.38	1231.32
1955000	2.7081	1.0662	5.2366	2249.17	1231.76
1960000	2.6629	1.0484	5.1492	2249.97	1232.21
1965000	2.6184	1.0309	5.0633	2250.79	1232.66
1970000	2.5747	1.0137	4.9788	2251.33	1232.96
1975000	2.5321-9	9.9689-11	4.8962-11	2251.21	1232.90
1980000	2.4900	9.8034	4.8149	2251.11	1232.84
1985000	2.4487	9.6408	4.7351	2251.02	1232.79
1990000	2.4081	9.4810	4.6566	2250.95	1232.75
1995000	2.3683	9.3241	4.5795	2250.89	1232.72

ALTITUDE Feet	PRESSURE			TEMPERATURE	
	P, mm Hg	P, in. Hg	P, psia	t, °F	t, °C
2000000	2.3291-9	9.1699-11	4.5038-11	2250.84	1232.69
2010000	2.2529	8.8697	4.3563	2250.77	1232.65
2020000	2.1792	8.5799	4.2140	2250.75	1232.64
2030000	2.1082	8.3001	4.0766	2250.77	1232.65
2040000	2.0396	8.0301	3.9440	2250.82	1232.68
2050000	1.9734-9	7.7694-11	3.8159-11	2250.91	1232.73
2060000	1.9094	7.5176	3.6922	2251.03	1232.79
2070000	1.8477	7.2746	3.5729	2251.17	1232.87
2080000	1.7881	7.0399	3.4576	2251.34	1232.97
2090000	1.7305	6.8133	3.3463	2251.53	1233.07
2100000	1.6749-9	6.5944-11	3.2388-11	2251.73	1233.18
2110000	1.6212	6.3830	3.1350	2251.94	1233.30
2120000	1.5694	6.1788	3.0347	2252.16	1233.42
2130000	1.5193	5.9816	2.9378	2252.39	1233.55
2140000	1.4709	5.7910	2.8442	2252.62	1233.68
2150000	1.4241-9	5.6069-11	2.7538-11	2252.85	1233.80
2160000	1.3789	5.4291	2.6665	2253.07	1233.93
2170000	1.3353	5.2572	2.5820	2253.29	1234.05
2180000	1.2931	5.0911	2.5005	2253.49	1234.16
2190000	1.2523	4.9307	2.4217	2253.68	1234.27
2200000	1.2130-9	4.7756-11	2.3456-11	2253.85	1234.36
2210000	1.1749	4.6257	2.2719	2254.00	1234.45
2220000	1.1381	4.4808	2.2007	2254.13	1234.52
2230000	1.1025	4.3407	2.1319	2254.23	1234.57
2240000	1.0681	4.2053	2.0654	2254.30	1234.61
2250000	1.0348-9	4.0744-11	2.0011-11	2254.34	1234.63
2260000	1.0027	3.9478	1.9389	2254.35	1234.64
2270000	9.7165-10	3.8254	1.8788	2254.32	1234.62
2280000	9.4160	3.7071	1.8207	2254.25	1234.58
2290000	9.1252	3.5926	1.7645	2254.13	1234.52
2300000	8.8440-10	3.4819-11	1.7101-11	2253.98	1234.43
2310000	8.5722	3.3749	1.6575	2253.77	1234.32
2320000	8.3091	3.2713	1.6067	2253.53	1234.18

