

LAUGHLIN AFB TX

Latitude = 29.37 N

Longitude = 100.70 W

Period of Record = 1967 to 1996

WMO No. 722615

Elevation = 1083 feet

Average Pressure = 28.83 inches Hg

Design Criteria Data

	Design Value	Mean Coincident (Average) Values			
		Wet Bulb Temperature (°F)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Dry Bulb Temperature (T)	(°F)				
Median of Extreme Highs	104	73	77	10.6	SE
0.4% Occurrence	102	74	83	10.3	SSE
1.0% Occurrence	100	73	83	10.6	SE
2.0% Occurrence	97	73	87	10.1	SE
Mean Daily Range	21	-	-	-	-
97.5% Occurrence	37	33	22	5.9	N
99.0% Occurrence	33	29	18	5.9	N
99.6% Occurrence	29	26	14	6.2	N
Median of Extreme Lows	22	18	8	8.5	N
	Design Value	Mean Coincident (Average) Values			
		Dry Bulb Temperature (°F)	Humidity Ratio (gr/lb)	Wind Speed (mph)	Prevailing Direction (NSEW)
Wet Bulb Temperature (T_{wb})	(°F)				
Median of Extreme Highs	80	95	136	10.6	SE
0.4% Occurrence	78	92	128	9.6	SE
1.0% Occurrence	77	91	122	9.8	SE
2.0% Occurrence	76	89	118	9.7	SE
	Design Value	Mean Coincident (Average) Values			
		Dry Bulb Temperature (°F)	Vapor Pressure (in. Hg)	Wind Speed (mph)	Prevailing Direction (NSEW)
Humidity Ratio (HR)	(gr/lb)				
Median of Extreme Highs	144	90	0.92	8.1	E
0.4% Occurrence	133	83	0.85	9.5	ESE
1.0% Occurrence	129	83	0.82	9.2	ESE
2.0% Occurrence	124	82	0.79	9.6	ESE
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		539	2476	1217	3478

Other Site Data

Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
10	4.0	90	3.6 + 3.0
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
71.9	0	4	10

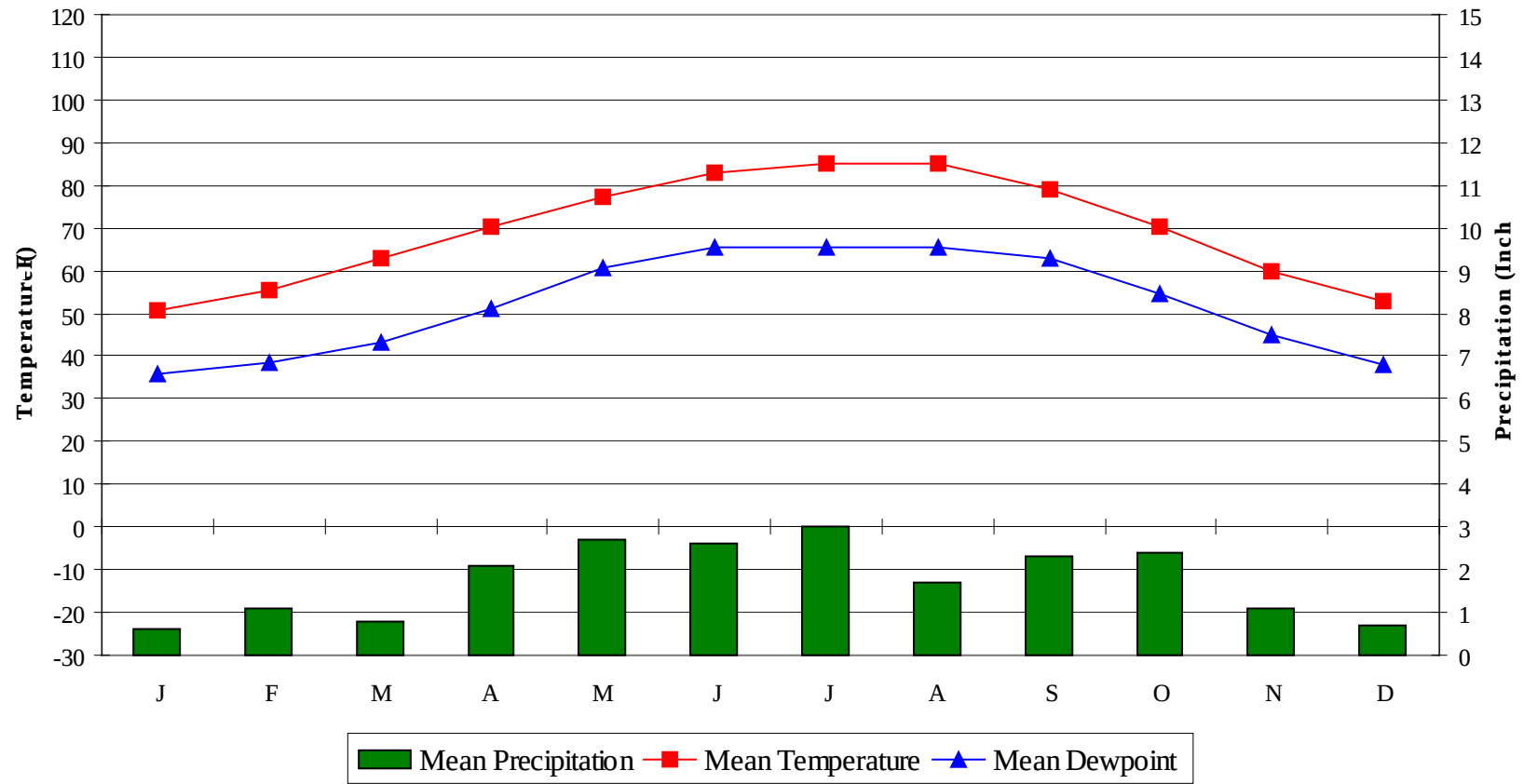
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.

LAUGHLIN AFB

TX

WMO No. 722615

Average Annual Climate

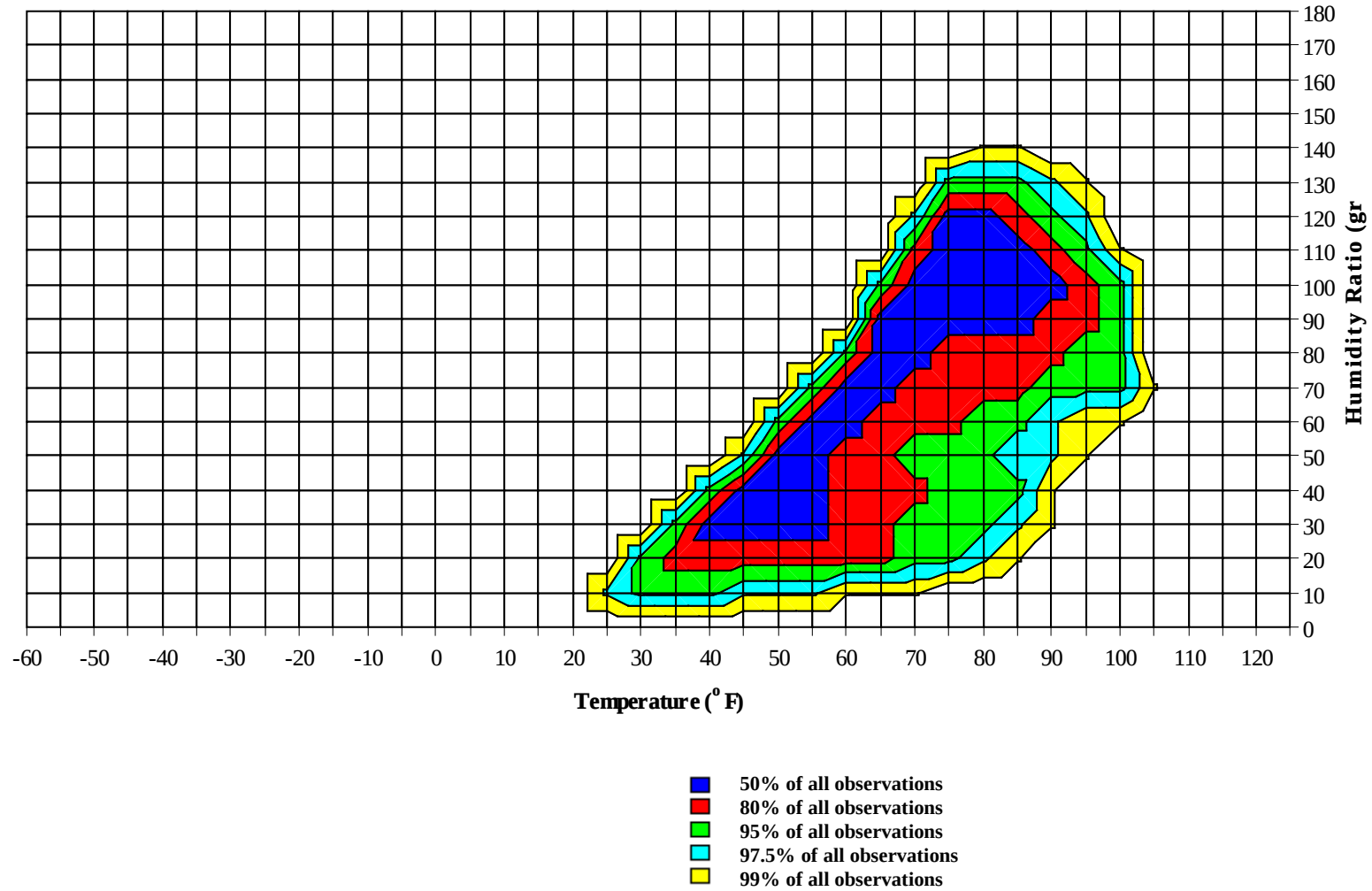


LAUGHLIN AFB

TX

WMO No. 722615

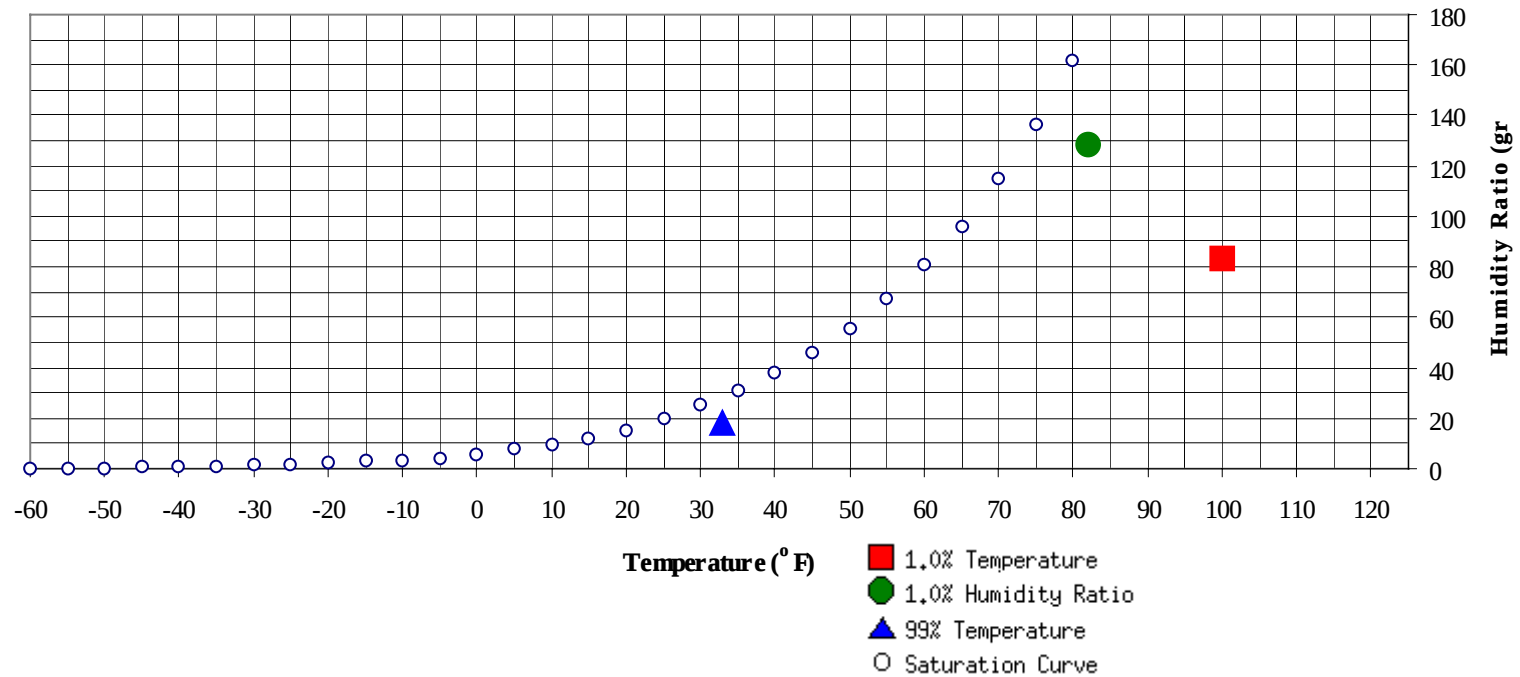
Long Term Psychrometric Summary



LAUGHLIN AFB

TX

WMO No. 722615

Psychrometric Summary of Peak Design Values

	(°F)	MCHR (gr/lb)	Enthalpy (btu/lb)	1.0% Humidity Ratio	(gr/lb)	MCDB (°F)	MCWB (°F)	MC Dewpt (°F)	Enthalpy (btu/lb)
99% Dry Bulb	33	18.2	10.7		128.8	82.1	75.5	73.1	39.9

	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
1.0% Dry Bulb	100	83.1	73	37.1

LAUGHLIN AFB

TX

WMO No. 722615

Dry-Bulb Temperature Hours For An Average Year (Sheet 1 of 5)

Period of Record = 1967 to 1996

Temperature Range (°F)	January					February					March				
	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00		
110 / 114															
105 / 109															
100 / 104							0	0	0	63.4					
95 / 99							0	0	0	62.4		1	0	1	62.1
90 / 94							1	0	1	59.8		3	2	5	62.6
85 / 89		0	0	0	58.2		3	2	5	59.3		8	6	14	62.5
80 / 84		2	1	3	58.1		7	4	11	59.0		19	13	32	61.9
75 / 79		7	3	10	57.2		12	9	21	57.7	1	32	27	60	60.7
70 / 74	0	18	11	29	56.4	1	21	15	37	56.4	9	43	42	93	59.3
65 / 69	3	22	16	42	55.1	9	31	29	69	55.7	31	47	46	123	57.1
60 / 64	9	35	30	74	52.5	18	36	36	90	53.4	44	38	42	124	54.0
55 / 59	22	38	42	102	49.2	31	35	39	105	50.1	50	25	33	108	49.7
50 / 54	37	41	43	121	45.4	40	31	38	109	45.7	45	18	21	83	45.5
45 / 49	51	35	40	126	41.7	47	24	28	100	42.0	33	9	10	52	41.1
40 / 44	51	26	33	110	38.0	38	14	13	65	37.7	21	5	6	32	36.9
35 / 39	41	15	17	73	33.3	23	6	6	34	33.1	11	1	1	13	32.6
30 / 34	24	7	8	38	28.9	12	3	3	18	28.9	3	0	0	3	28.4
25 / 29	10	3	2	15	24.5	4	1	1	6	24.3	1			1	22.9
20 / 24	2	0	0	2	19.9	1	0	0	1	18.9					
15 / 19	0			0	16.8	0	0	0	0	14.7					
10 / 14															

Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

LAUGHLIN AFB

TX

WMO No. 722615

Dry-Bulb Temperature Hours For An Average Year (Sheet 2 of 5)**Period of Record = 1967 to 1996**

Temperature Range (°F)	April					May					June				
	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00		
110 / 114												0	0	0	71.0
105 / 109							0	0	0	69.6		2	2	4	73.2
100 / 104		1	1	2	66.3		3	3	6	71.1		10	9	20	74.0
95 / 99		4	2	6	66.1		11	9	20	71.8		27	25	52	73.7
90 / 94		10	7	17	65.1		24	22	46	70.9	1	50	47	99	73.0
85 / 89		22	18	40	65.4	1	44	39	84	70.2	7	59	54	121	72.3
80 / 84	0	38	31	69	64.7	12	57	51	119	69.0	41	51	51	144	71.6
75 / 79	6	50	46	103	63.9	43	56	54	153	68.0	93	29	32	153	70.4
70 / 74	36	49	53	139	62.7	83	35	44	162	66.0	71	9	15	95	67.9
65 / 69	64	35	39	139	59.7	67	14	19	100	62.2	21	2	4	27	63.8
60 / 64	55	16	24	95	55.2	28	4	5	37	57.5	5	0	0	5	58.9
55 / 59	38	8	12	58	50.3	12	1	1	13	52.3	1			1	54.6
50 / 54	26	4	5	34	46.2	3		0	3	48.2					
45 / 49	10	1	1	12	41.1	0			0	45.1					
40 / 44	4		0	4	37.2										
35 / 39	1			1	32.2										
30 / 34	0			0	29.8										
25 / 29															
20 / 24															
15 / 19															
10 / 14															

Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

LAUGHLIN AFB

TX

WMO No. 722615

Dry-Bulb Temperature Hours For An Average Year (Sheet 3 of 5)**Period of Record = 1967 to 1996**

Temperature Range (°F)	July					August					September				
	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00		
110 / 114		0	0	0	73.6										
105 / 109		2	2	4	73.9		1	0	1	74.4		0		0	76.5
100 / 104		15	13	28	73.1		13	10	23	73.7		2	1	3	73.3
95 / 99		43	40	84	72.9		46	38	84	73.1		14	8	22	72.7
90 / 94	1	58	54	113	72.7	0	67	53	120	72.6		38	23	62	72.4
85 / 89	12	56	57	125	72.2	7	54	64	125	72.0	0	58	43	101	71.2
80 / 84	62	47	47	156	71.7	64	47	50	161	71.6	15	56	61	132	70.3
75 / 79	116	21	25	162	70.9	123	18	27	169	70.5	81	43	54	179	69.5
70 / 74	53	5	9	67	69.1	49	3	6	57	68.6	80	17	31	128	66.8
65 / 69	4	1	1	6	65.6	4	0	0	4	65.5	32	7	11	49	60.9
60 / 64	0	0		0	62.0						19	3	4	26	56.0
55 / 59											10	2	2	13	51.9
50 / 54											3	0	1	4	48.3
45 / 49															
40 / 44															
35 / 39															
30 / 34															
25 / 29															
20 / 24															
15 / 19															
10 / 14															

Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

LAUGHLIN AFB

TX

WMO No. 722615

Dry-Bulb Temperature Hours For An Average Year (Sheet 4 of 5)**Period of Record = 1967 to 1996**

Temperature Range (°F)	October					November					December				
	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00			01 To 08	09 To 16	17 To 00		
110 / 114															
105 / 109															
100 / 104		0	0	0	69.0										
95 / 99		2	1	3	69.8		0		0	64.0					
90 / 94		10	4	14	70.0		0	0	0	64.8		0		0	58.6
85 / 89		28	14	42	68.7		3	1	4	64.2		1	0	1	58.4
80 / 84	1	44	29	74	67.3		13	4	17	64.3		2	1	3	59.0
75 / 79	15	57	48	120	65.9	1	28	15	44	63.4		9	3	12	59.9
70 / 74	43	49	55	148	63.7	12	41	30	83	61.9	1	21	10	32	58.9
65 / 69	61	31	47	140	60.2	23	44	41	107	58.7	9	32	24	64	57.2
60 / 64	55	16	27	98	55.9	39	40	46	124	54.7	17	42	37	96	53.7
55 / 59	37	8	13	58	51.4	41	29	39	108	50.3	28	46	49	123	50.2
50 / 54	20	2	6	28	46.9	40	21	30	90	45.6	38	37	48	122	45.8
45 / 49	11	1	2	14	43.1	35	13	20	68	42.0	53	29	36	118	41.7
40 / 44	3	0	1	4	38.1	26	5	10	40	37.6	44	17	22	83	37.3
35 / 39	2	0	0	2	33.0	16	3	5	24	33.2	31	8	11	50	32.9
30 / 34	0			0	30.6	6	1	1	8	29.0	17	3	5	25	27.8
25 / 29	0			0	26.8	2		0	2	25.0	8	1	2	10	23.2
20 / 24						0			0	22.0	2	1	1	4	18.0
15 / 19											1	0		1	13.8
10 / 14											0			0	10.0

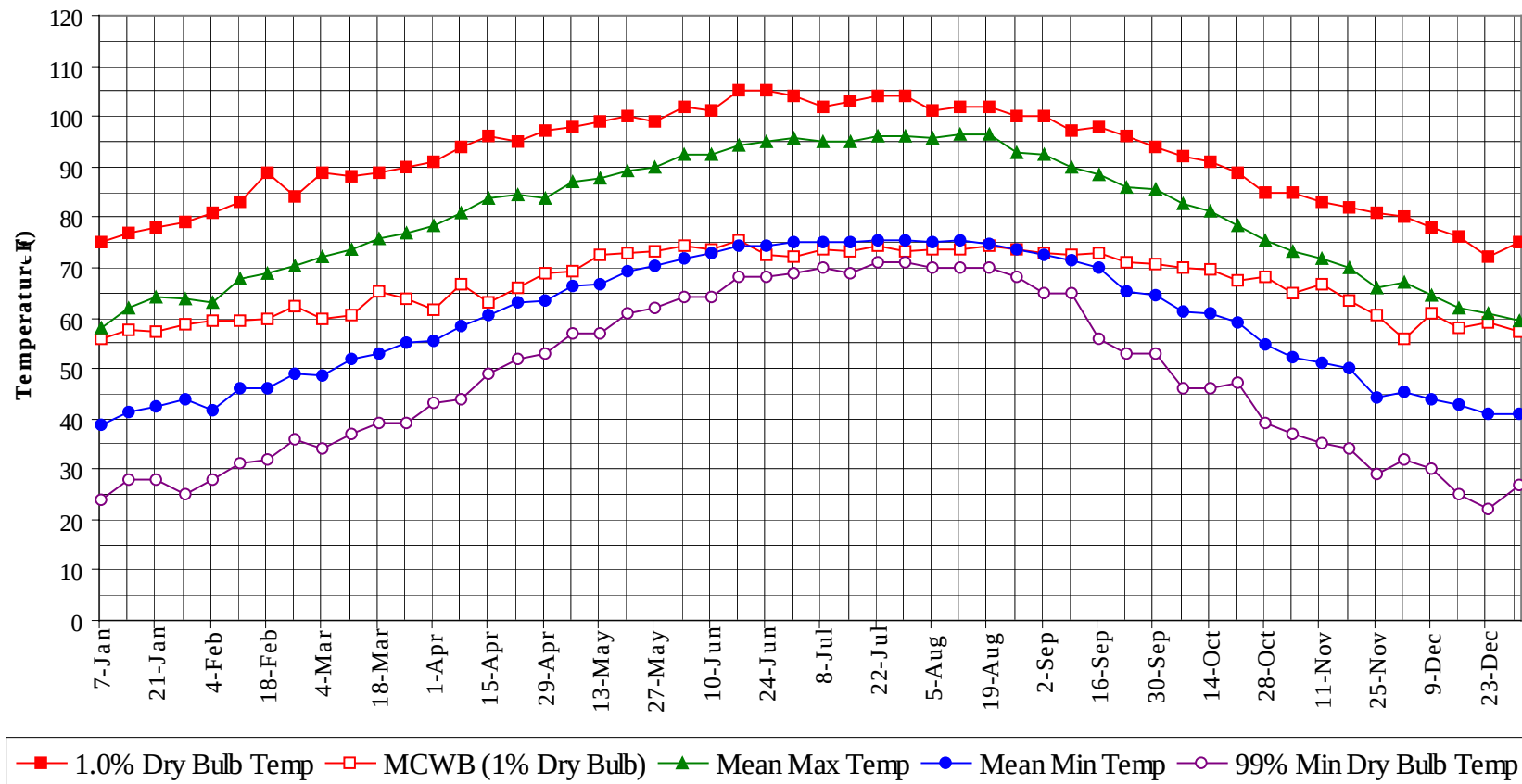
Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

LAUGHLIN AFB TX WMO No. 722615
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)
Period of Record = 1967 to 1996

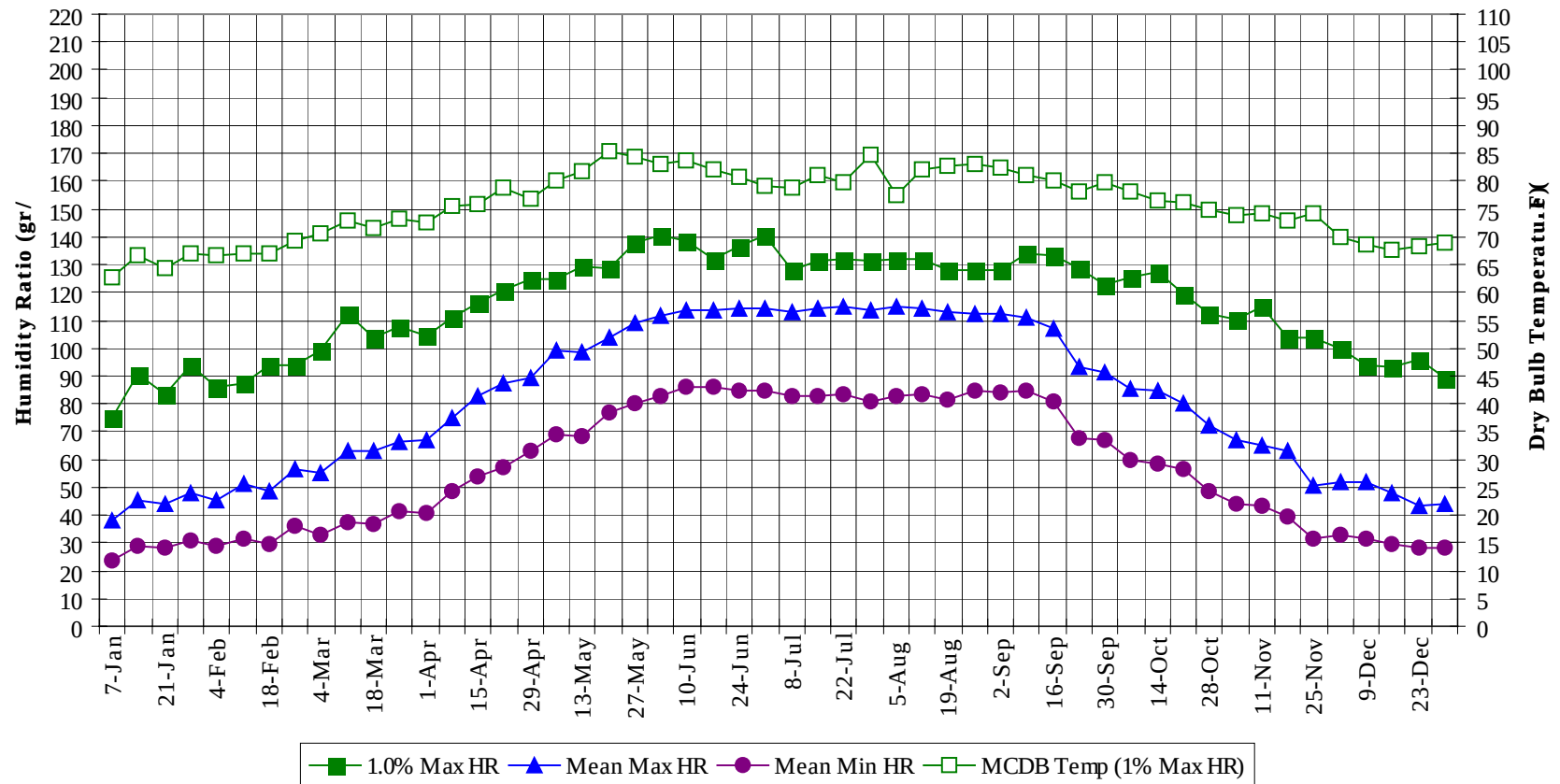
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
110 / 114		0	0	0	72.6
105 / 109		6	4	10	73.7
100 / 104		45	36	81	73.2
95 / 99		147	122	269	72.8
90 / 94	2	262	210	474	72.0
85 / 89	28	336	297	661	70.8
80 / 84	197	383	343	923	69.5
75 / 79	485	361	344	1191	67.7
70 / 74	441	312	323	1075	64.1
65 / 69	327	266	279	871	59.1
60 / 64	287	230	252	770	54.5
55 / 59	267	191	232	690	50.2
50 / 54	248	153	192	593	45.7
45 / 49	237	113	139	490	41.8
40 / 44	183	66	85	333	37.6
35 / 39	123	32	39	195	33.1
30 / 34	62	12	16	90	28.6
25 / 29	24	5	4	33	24.1
20 / 24	5	1	1	7	19.0
15 / 19	2	0	0	2	14.7
10 / 14	0			0	10.0

Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary



LAUGHLIN AFB

TX

WMO No. 722615

Long Term Dry Bulb Temperature and Humidity Summary

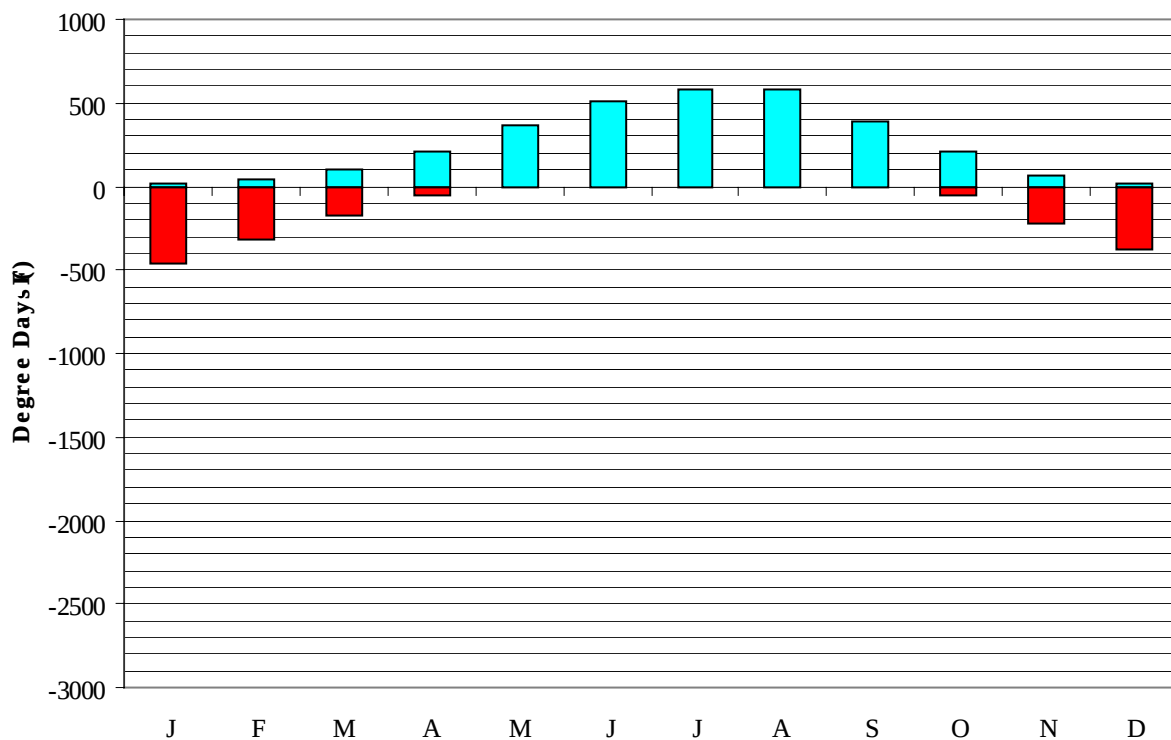
Week Ending	1.0% Temp (°F)	MCWB @ 1% Temp (°F)	Mean Max Temp (°F)	Mean Min Temp (°F)	99% Temp (°F)	1.0% HR (gr/lb)	MCDB @ 1% HR (°F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	75.0	55.9	58.0	38.7	24.0	74.9	62.6	38.1	23.8
14-Jan	77.0	57.6	62.1	41.5	28.0	90.3	66.5	45.4	28.6
21-Jan	78.0	57.4	64.2	42.3	28.0	83.3	64.4	44.3	28.2
28-Jan	79.0	58.6	64.0	43.7	25.0	93.8	66.9	48.2	30.7
4-Feb	81.0	59.5	62.9	41.7	28.0	86.1	66.6	45.3	28.7
11-Feb	83.0	59.3	67.8	46.1	31.0	87.5	67.0	51.1	31.4
18-Feb	89.0	59.7	68.9	46.0	32.0	93.8	67.0	48.6	29.7
25-Feb	84.0	62.2	70.3	48.9	36.0	93.8	69.3	56.8	35.9
4-Mar	89.0	59.9	72.3	48.5	34.0	99.4	70.5	55.1	32.9
11-Mar	88.0	60.7	73.7	51.8	37.0	112.0	72.9	62.9	37.4
18-Mar	89.0	65.3	75.8	52.9	39.0	103.6	71.7	62.9	37.0
25-Mar	90.0	63.7	76.8	54.9	39.0	107.8	73.3	66.3	41.4
1-Apr	91.0	61.8	78.4	55.4	43.0	104.3	72.7	67.2	40.8
8-Apr	94.0	66.6	80.7	58.2	44.0	111.3	75.4	75.0	48.3
15-Apr	96.0	63.1	83.8	60.6	49.0	116.2	75.8	82.8	53.6
22-Apr	95.0	66.1	84.6	63.1	52.0	121.1	78.7	87.2	57.4
29-Apr	97.0	68.9	83.8	63.5	53.0	124.6	77.0	89.6	63.1
6-May	98.0	69.3	86.9	66.4	57.0	124.6	80.2	98.9	69.1
13-May	99.0	72.6	87.7	66.8	57.0	129.5	81.9	98.6	68.1
20-May	100.0	72.9	89.3	69.3	61.0	128.8	85.3	103.7	77.1
27-May	99.0	73.3	90.0	70.5	62.0	137.9	84.4	108.9	80.3
3-Jun	102.0	74.2	92.5	71.8	64.0	140.7	83.2	111.7	82.8
10-Jun	101.0	73.4	92.6	72.7	64.0	138.6	83.9	113.6	85.9
17-Jun	105.0	75.4	94.4	74.2	68.0	132.3	82.0	113.8	86.0
24-Jun	105.0	72.5	95.0	74.3	68.0	136.5	80.8	114.5	84.8
1-Jul	104.0	72.3	95.8	75.1	69.0	140.7	79.2	114.2	84.6
8-Jul	102.0	73.7	95.0	75.2	70.0	128.1	78.8	112.8	82.7
15-Jul	103.0	73.3	95.1	74.9	69.0	131.6	81.0	114.6	82.5
22-Jul	104.0	74.4	96.0	75.3	71.0	132.3	79.9	115.2	83.4
29-Jul	104.0	73.4	96.1	75.4	71.0	131.6	84.9	113.8	81.0
5-Aug	101.0	73.6	95.8	75.1	70.0	132.3	77.6	114.9	82.7
12-Aug	102.0	73.5	96.4	75.5	70.0	132.3	82.2	114.0	83.1
19-Aug	102.0	74.4	96.3	74.9	70.0	128.1	82.8	113.2	81.3
26-Aug	100.0	73.7	92.8	73.6	68.0	128.1	83.0	112.5	85.0
2-Sep	100.0	72.7	92.5	72.5	65.0	128.1	82.3	112.5	84.3
9-Sep	97.0	72.5	90.0	71.6	65.0	133.7	81.1	111.3	84.9
16-Sep	98.0	73.0	88.3	69.9	56.0	133.0	80.0	107.3	80.6
23-Sep	96.0	71.2	86.0	65.3	53.0	128.8	78.3	93.0	67.6
30-Sep	94.0	70.5	85.7	64.4	53.0	122.5	79.7	91.3	66.7
7-Oct	92.0	69.9	82.6	61.4	46.0	125.3	78.3	85.5	59.8
14-Oct	91.0	69.8	81.1	60.8	46.0	127.4	76.6	84.6	58.7
21-Oct	89.0	67.4	78.3	59.1	47.0	119.7	76.2	80.0	56.2
28-Oct	85.0	68.2	75.3	54.9	39.0	112.0	75.0	72.5	48.9
4-Nov	85.0	64.8	73.2	52.2	37.0	110.6	73.7	66.8	44.3
11-Nov	83.0	66.7	71.7	51.3	35.0	114.8	74.4	65.0	43.5
18-Nov	82.0	63.6	69.9	49.9	34.0	103.6	72.9	62.7	39.5
25-Nov	81.0	60.4	66.1	44.3	29.0	103.6	74.4	50.9	31.5
2-Dec	80.0	55.9	67.2	45.2	32.0	100.1	69.9	52.0	32.8
9-Dec	78.0	61.0	64.5	43.9	30.0	93.8	68.8	51.6	31.6
16-Dec	76.0	57.8	61.8	42.9	25.0	93.1	67.7	47.7	29.8
23-Dec	72.0	59.1	60.8	41.1	22.0	95.9	68.2	43.6	28.0
31-Dec	75.0	57.2	59.6	41.0	27.0	89.6	69.0	44.2	27.9

LAUGHLIN AFB

TX

WMO No. 722615

Degree Days, Heating and Cooling
(Base 65°F)



■ Mean Cooling Degree Days ■ Mean Heating Degree Days

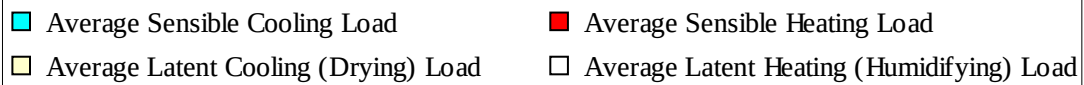
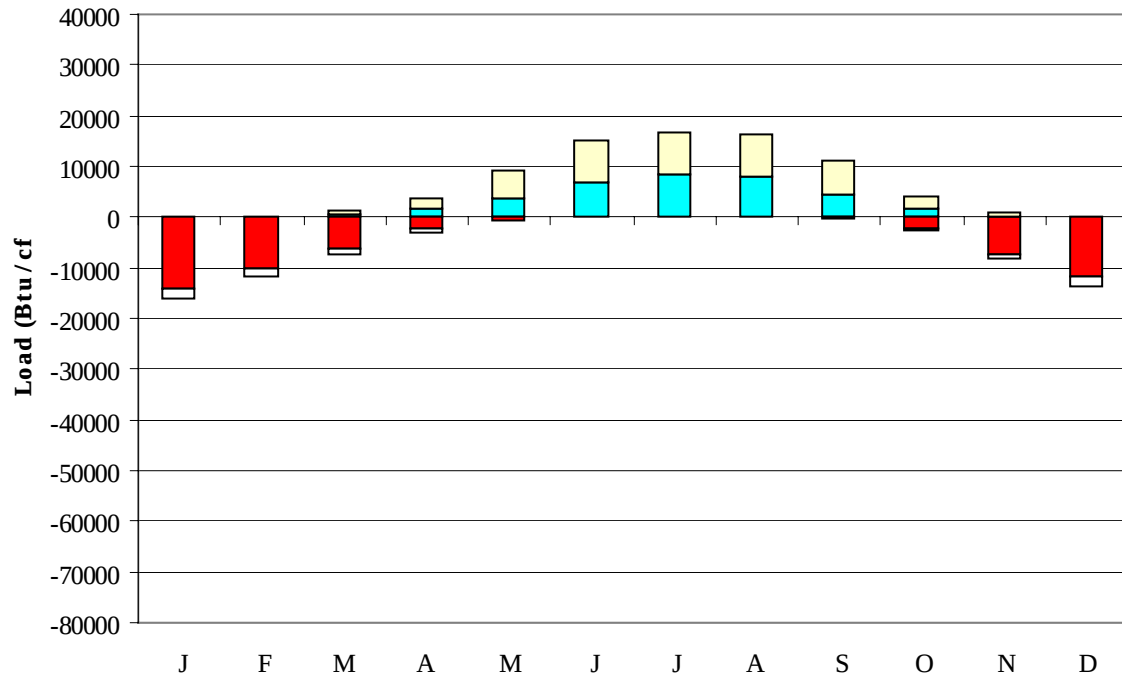
	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	17	459
FEB	36	313
MAR	104	178
APR	211	57
MAY	360	9
JUN	506	1
JUL	579	0
AUG	578	0
SEP	394	9
OCT	210	57
NOV	66	220
DEC	20	375
ANN	3080	1678

LAUGHLIN AFB

TX

WMO No. 722615

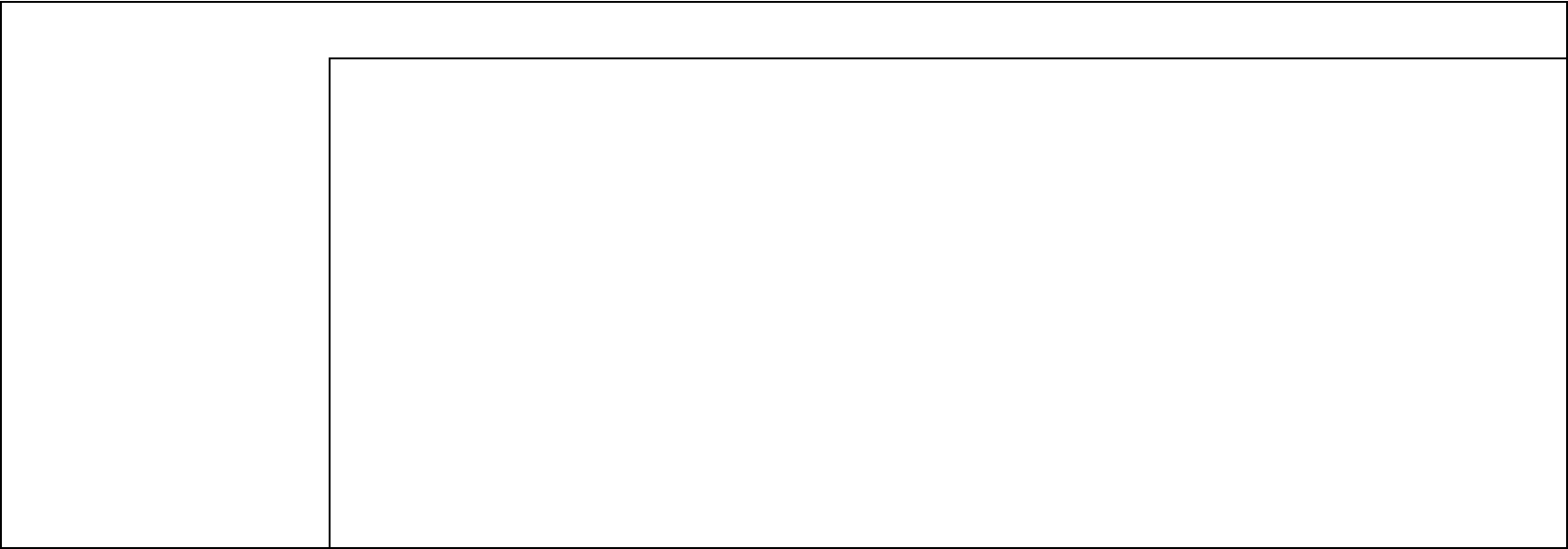
Average Ventilation and Infiltration Loads
(Outside Air vs. 75°F, 60% RH summer; 68°F, 30% RH winter)



	Average Sensible Cooling Load (Btu/cfm)	Average Sensible Heating Load (Btu/cfm)	Average Latent Cooling Load (Btu/cfm)	Average Latent Heating Load (Btu/cfm)
JAN	35	-14114	38	-2113
FEB	195	-9967	85	-1581
MAR	627	-6095	574	-1224
APR	1736	-2251	1824	-587
MAY	3788	-486	5324	-50
JUN	6766	-57	8267	0
JUL	8235	-3	8413	0
AUG	8165	-2	8041	0
SEP	4369	-399	6753	-16
OCT	1591	-2279	2530	-193
NOV	254	-7334	678	-981
DEC	46	-11793	167	-1832
ANN	35807	-54780	42694	-8577

Average Annual Solar Radiation – Nearest Available Site
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

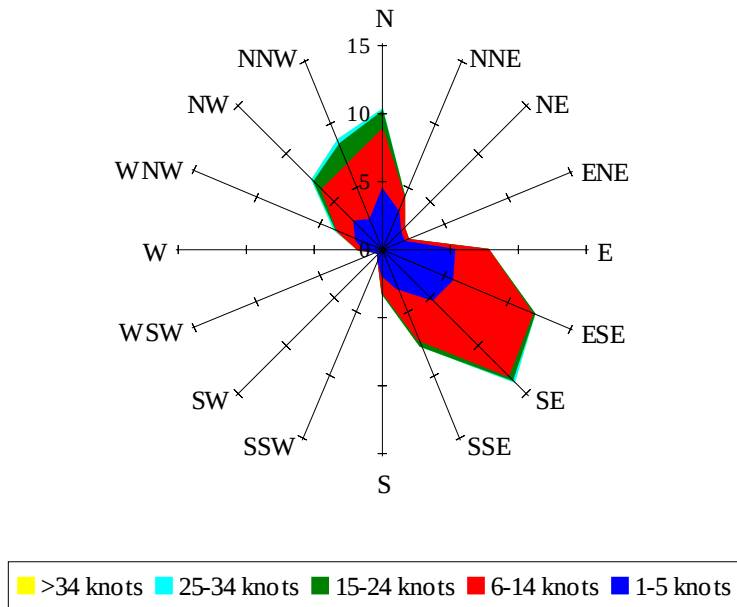
No Solar Radiation
Data Available



Average Annual Solar Heat and Illumination – Nearest Available Site

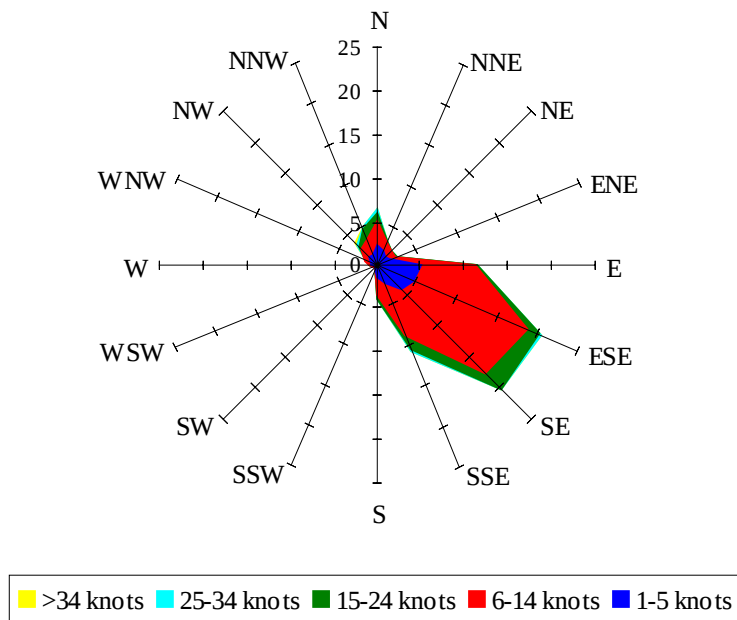
(Source: National Renewable Energy Laboratory, Golden CO, 1995)

Wind Summary - December, January, and February **Labels of Percent Frequency on North Axis**



Percent Calm = 13.75

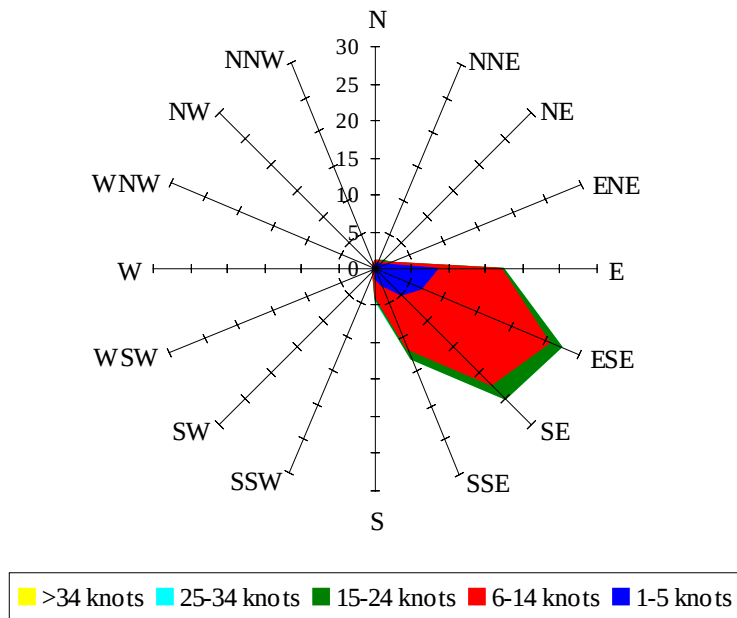
Wind Summary - March, April, and May **Labels of Percent Frequency on North Axis**



Percent Calm = 7.19

Wind Summary - June, July, and August

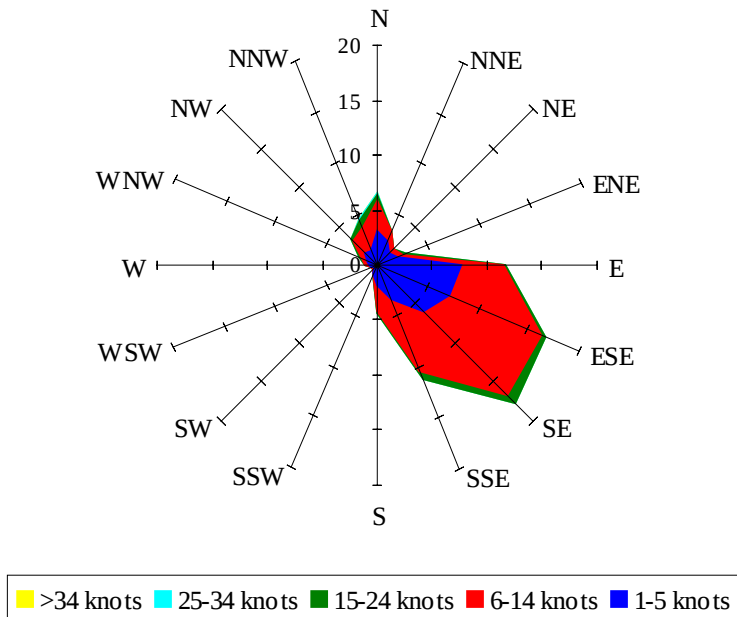
Labels of Percent Frequency on North Axis



Percent Calm = 4.50

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 11.26