

ELEFSIS, GREECE

Latitude = 38.07 N

Longitude = 23.55 E

Period of Record = 1973 to 1996

WMO No. 167180

Elevation = 102 feet

Average Pressure = 29.83 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	74	78	10.2	N
0.4% Occurrence	97	70	68	12.2	N
1.0% Occurrence	95	69	65	12.6	N
2.0% Occurrence	91	68	69	12.1	N
Mean Daily Range	15	-	-	-	-
97.5% Occurrence	39	36	25	7.4	N
99.0% Occurrence	36	33	23	6.8	N
99.6% Occurrence	34	31	21	6.9	N
Median of Extreme Lows	30	28	18	10.7	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	75	89	108	8.7	S
0.4% Occurrence	75	89	108	8.7	S
1.0% Occurrence	73	87	98	9.1	S
2.0% Occurrence	71	85	90	8.7	S
	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	111	84	0.74	7.0	S
0.4% Occurrence	111	84	0.74	7.0	S
1.0% Occurrence	104	82	0.69	5.9	N
2.0% Occurrence	97	79	0.65	6.4	N
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		154	1397	103	1027

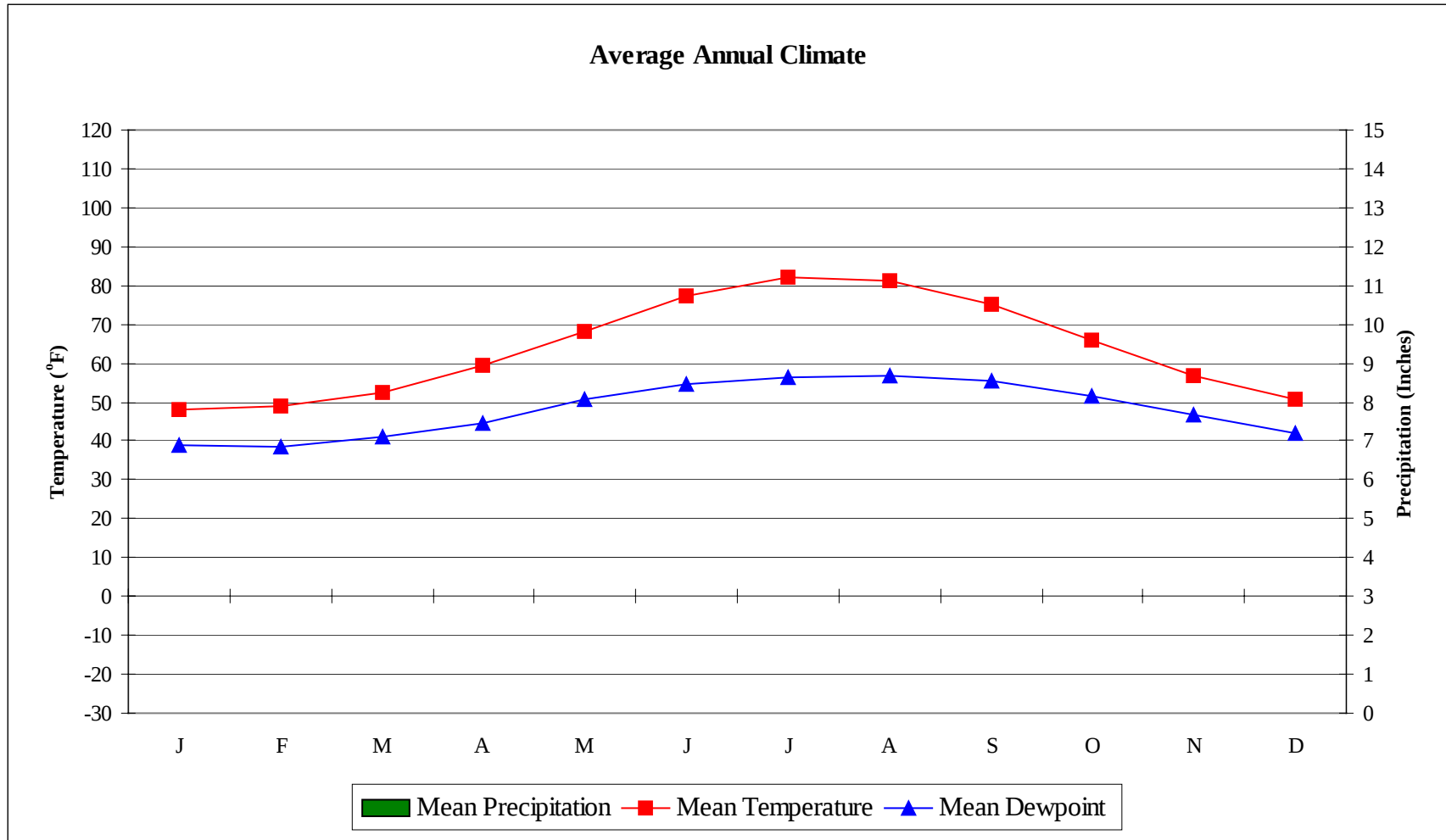
Other Site Data

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
8	N/A	N/A	0.4 + 1.5
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 (#)
66.4	N/A	N/A	2

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

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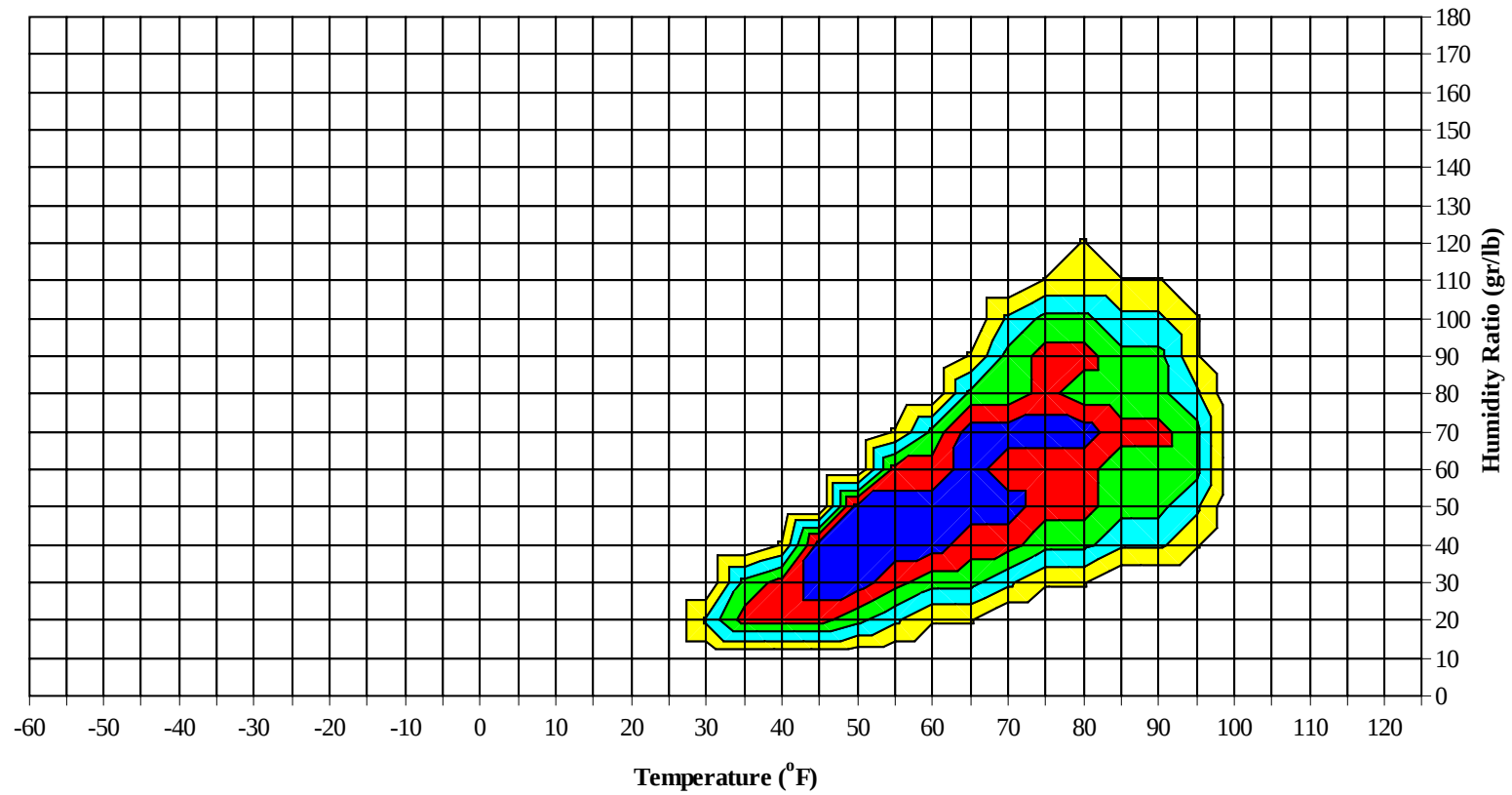


No Precipitation Data Available

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Long Term Psychrometric Summary

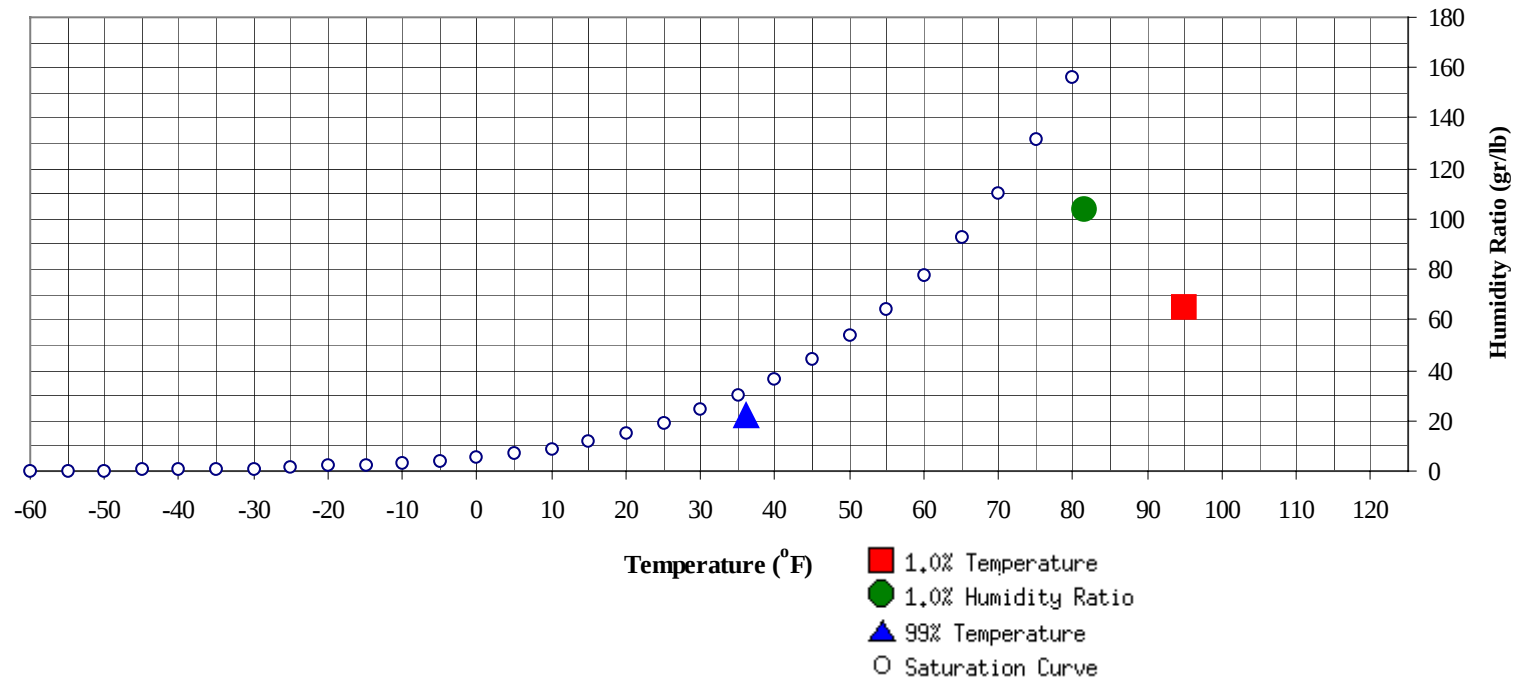


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

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Psychrometric Summary of Peak Design Values



99% Dry Bulb	(°F)	MCHR (gr/lb)	Enthalpy (btu/lb)	1.0% Humidity Ratio	(gr/lb)	MCDB (°F)	MCWB (°F)	MC Dewpt (°F)	Enthalpy (btu/lb)
	36	22.3	12.1		103.6	81.6	72	68	35.8

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	95	65	69.2	33.0

ELEFSIS, GREECE

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

Period of Record = 1973 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		
115 / 119															
110 / 114															
105 / 109															
100 / 104															
95 / 99															
90 / 94															
85 / 89												0		0	67.0
80 / 84												0		0	62.5
75 / 79												1	0	1	58.2
70 / 74		0	0	0	58.6		1	0	1	58.5		7	2	9	56.8
65 / 69		1	0	1	58.5		4	1	5	55.7	0	21	6	27	55.7
60 / 64	0	22	7	29	54.1	1	28	10	39	53.5	2	57	33	92	53.6
55 / 59	11	56	35	102	50.9	12	55	41	108	50.9	23	65	65	154	50.4
50 / 54	41	75	73	190	46.9	39	59	66	164	46.7	76	56	77	210	46.9
45 / 49	91	55	76	222	42.6	79	49	61	189	42.4	89	27	43	160	42.7
40 / 44	51	22	31	104	38.5	51	17	27	95	38.4	33	8	12	53	38.6
35 / 39	43	13	23	79	34.7	30	9	15	54	34.3	18	4	8	30	34.5
30 / 34	9	3	3	15	30.7	9	2	4	15	29.8	6	1	2	9	30.4
25 / 29	1	0	0	1	26.3	2	1	0	3	25.6	0			0	26.0
20 / 24						0	0		0	21.0					

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.

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Dry-Bulb Temperature Hours For An Average Year (Sheet 2 of 5)

Period of Record = 1973 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		
115 / 119															
110 / 114															
105 / 109												0	0	0	78.5
100 / 104												1	0	1	73.1
95 / 99							1	0	1	66.4		9	2	11	69.4
90 / 94							4	1	5	66.7	0	36	10	46	68.3
85 / 89		0		0	62.0		10	2	12	65.4	1	46	18	65	66.9
80 / 84		1	0	1	62.2	0	40	12	52	64.1	10	83	56	149	65.3
75 / 79		15	3	18	59.1	4	67	35	106	62.0	47	47	77	171	63.5
70 / 74	0	43	15	58	57.4	22	68	63	153	59.8	91	13	56	160	61.6
65 / 69	1	49	25	75	55.7	41	31	52	124	58.0	57	3	15	75	59.3
60 / 64	20	74	71	165	53.7	94	22	60	176	55.7	30	1	5	36	57.0
55 / 59	76	41	78	194	51.0	71	4	22	96	52.2	4	0	1	5	52.8
50 / 54	102	16	43	161	47.6	15	0	2	17	47.5	0		0	0	49.2
45 / 49	37	1	6	44	43.6	1		0	1	42.9			0	0	47.0
40 / 44	4	0	0	4	39.1										
35 / 39	0		0	0	35.8										
30 / 34															
25 / 29															
20 / 24															

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Dry-Bulb Temperature Hours For An Average Year (Sheet 3 of 5)

Period of Record = 1973 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		
115 / 119		0		0	75.0										
110 / 114		0	0	0	72.8										
105 / 109		2	0	2	73.8		0		0	70.9					
100 / 104	0	4	2	6	72.1		2	0	2	70.2		0		0	69.0
95 / 99	0	26	8	34	70.1		23	5	28	69.5		4	1	5	69.2
90 / 94	2	71	29	101	68.8	0	68	23	91	68.5	0	18	4	22	68.1
85 / 89	4	64	39	106	67.6	2	62	34	99	67.8	1	34	10	45	67.2
80 / 84	34	61	83	178	66.2	34	67	88	190	66.4	4	86	41	131	66.1
75 / 79	113	18	71	202	64.4	105	22	77	204	64.7	28	63	81	172	64.2
70 / 74	79	2	16	97	62.2	88	3	19	110	62.7	96	27	72	195	61.9
65 / 69	13	0	1	14	59.3	16	0	2	18	60.8	66	6	21	93	59.5
60 / 64	3	0	0	3	57.4	2		0	2	59.6	38	3	9	50	56.5
55 / 59	0			0	54.0						6	0	1	7	52.4
50 / 54											0			0	46.0
45 / 49															
40 / 44															
35 / 39															
30 / 34															
25 / 29															
20 / 24															

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Dry-Bulb Temperature Hours For An Average Year (Sheet 4 of 5)

Period of Record = 1973 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		
115 / 119															
110 / 114															
105 / 109															
100 / 104															
95 / 99		0	0	0	66.5										
90 / 94		1	0	1	67.6										
85 / 89		4	1	5	66.5										
80 / 84	0	21	5	26	66.1		1		1	64.2					
75 / 79	2	51	21	74	64.0		2	0	2	63.8					
70 / 74	18	71	56	145	61.3	0	22	5	27	61.5		0	0	0	58.6
65 / 69	37	40	51	128	59.1	4	37	17	58	59.4		7	1	8	58.7
60 / 64	99	36	69	203	56.2	27	69	56	152	56.3	3	38	16	57	55.6
55 / 59	61	18	33	112	52.2	67	63	80	210	52.0	22	76	58	157	51.8
50 / 54	26	5	12	43	47.6	92	35	60	187	47.5	75	68	85	228	47.6
45 / 49	5	1	1	7	43.8	34	9	17	60	42.4	89	39	58	186	42.9
40 / 44	1			1	39.9	10	2	5	17	38.4	34	13	18	65	38.5
35 / 39						5	0	1	6	35.1	21	5	12	38	34.4
30 / 34						0	0	0	0	31.8	3	1	1	5	31.1
25 / 29											0			0	28.0
20 / 24															

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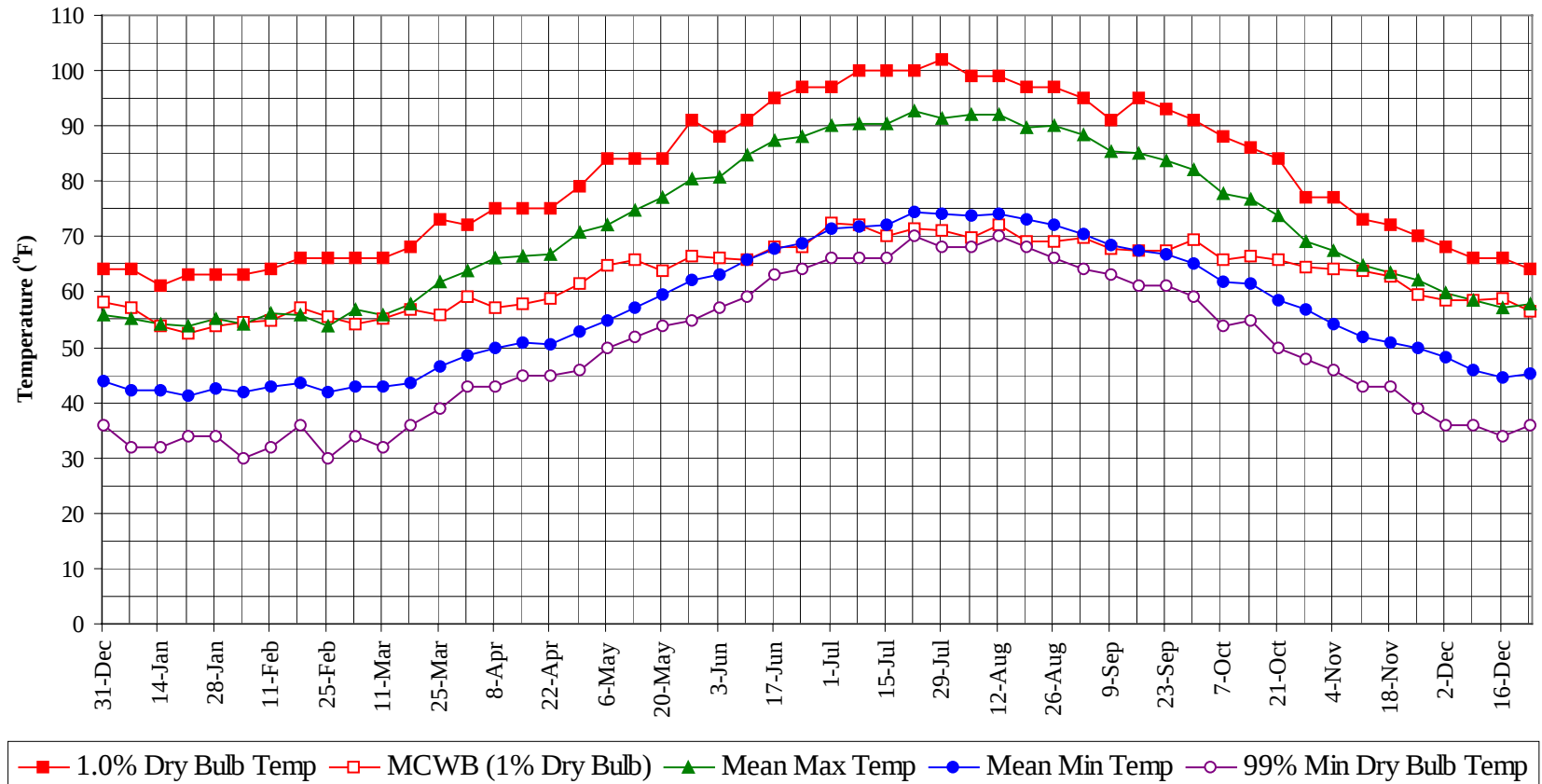
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)

Period of Record = 1973 to 1996

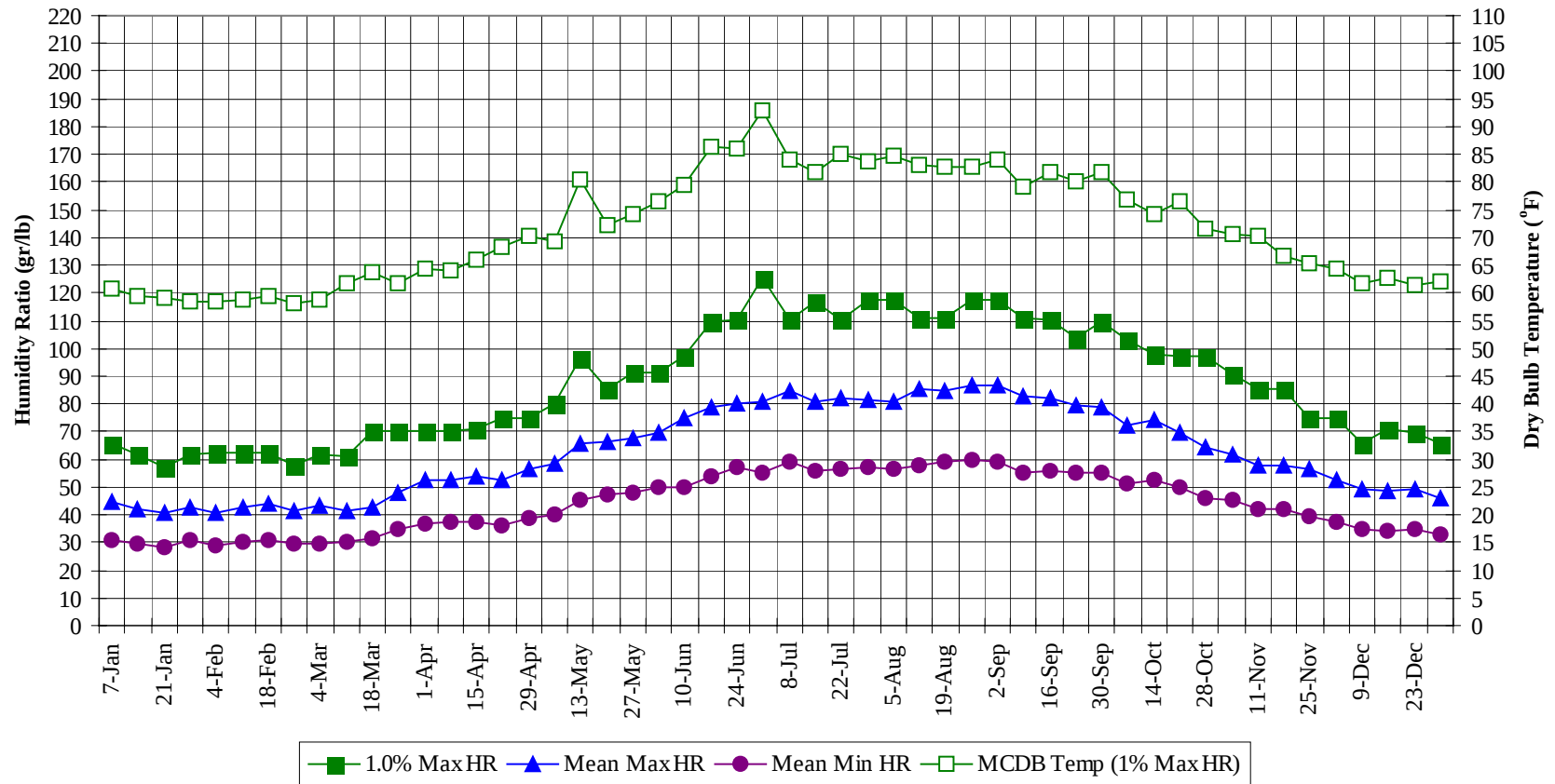
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
115 / 119	0			0	75.0
110 / 114	0			0	72.8
105 / 109	2			1	73.6
100 / 104	0	7	2	9	71.6
95 / 99	0	62	16	78	69.7
90 / 94	3	199	68	270	68.5
85 / 89	7	221	102	330	67.3
80 / 84	83	360	284	727	65.9
75 / 79	301	287	364	952	63.8
70 / 74	394	256	302	952	61.2
65 / 69	236	198	191	624	58.5
60 / 64	317	349	334	1000	55.3
55 / 59	352	380	413	1146	51.4
50 / 54	465	315	419	1199	47.2
45 / 49	428	180	264	872	42.7
40 / 44	185	62	92	340	38.5
35 / 39	119	32	58	208	34.5
30 / 34	28	8	10	46	30.4
25 / 29	3	1	1	5	25.9
20 / 24	0	0		0	21.0
	</				

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

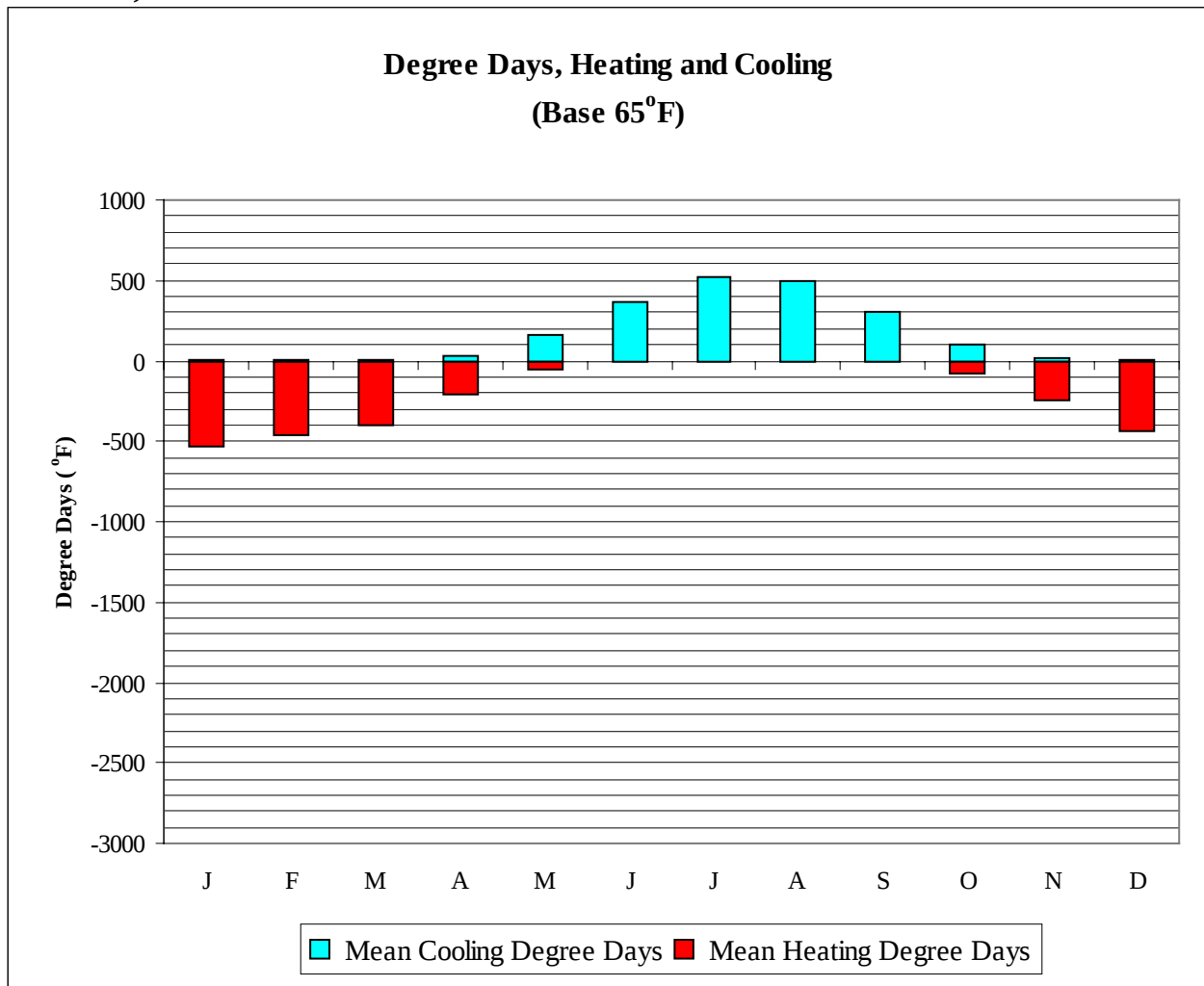


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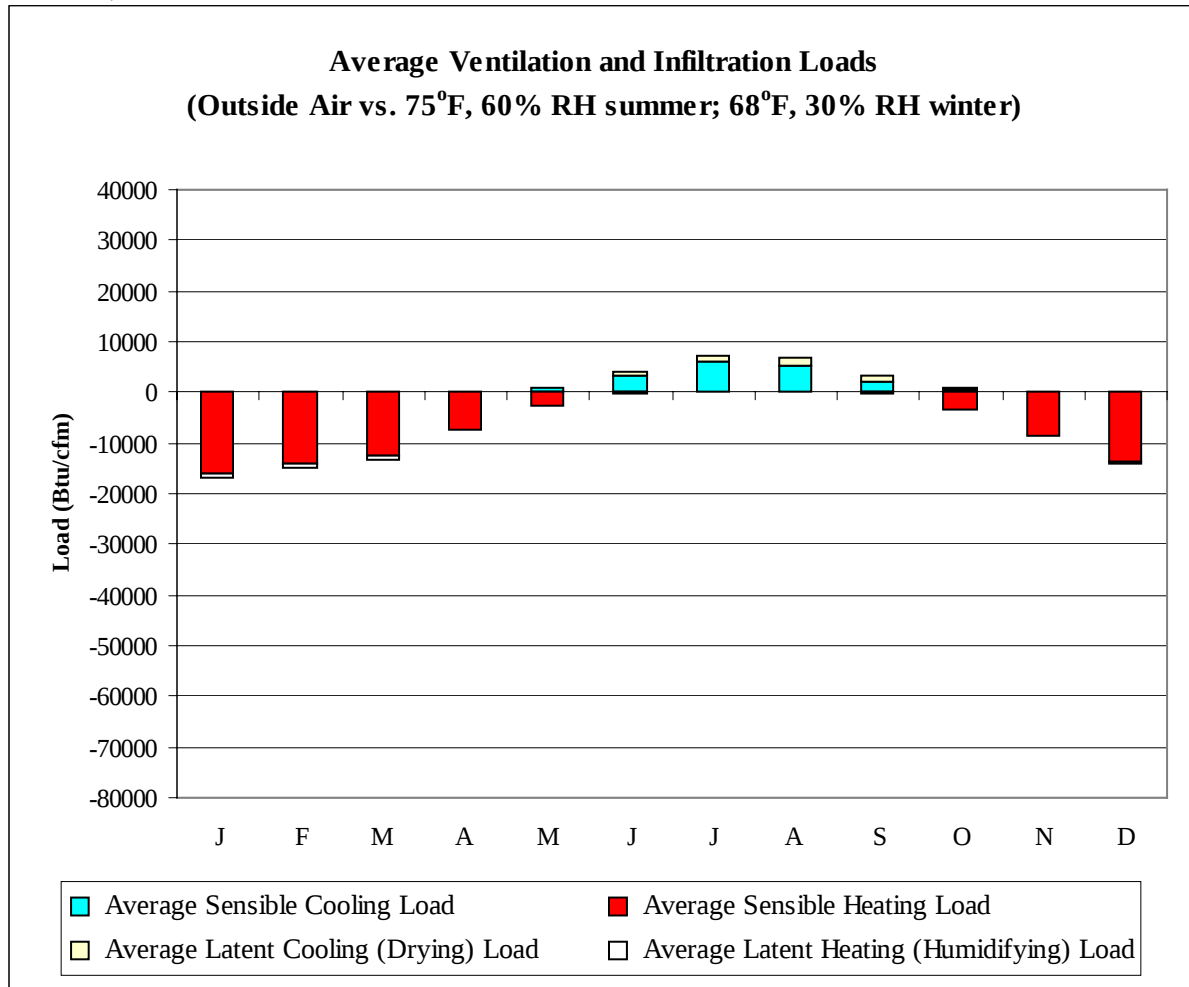
WMO No. 167180

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	64.0	57.0	55.2	42.0	32.0	65.8	60.9	44.4	31.1
14-Jan	61.0	54.0	54.2	42.1	32.0	61.6	59.4	42.1	29.5
21-Jan	63.0	52.6	54.0	41.3	34.0	57.4	59.2	40.5	28.1
28-Jan	63.0	53.8	55.2	42.7	34.0	61.6	58.6	42.4	30.7
4-Feb	63.0	54.5	54.1	41.7	30.0	62.3	58.3	41.0	28.7
11-Feb	64.0	54.8	56.2	42.8	32.0	62.3	58.6	43.0	30.2
18-Feb	66.0	57.3	56.0	43.6	36.0	62.3	59.6	43.7	30.9
25-Feb	66.0	55.5	54.0	41.9	30.0	58.1	58.2	41.1	29.3
4-Mar	66.0	54.0	56.9	42.8	34.0	61.6	58.9	43.1	29.5
11-Mar	66.0	55.2	55.9	42.9	32.0	60.9	61.6	41.6	30.2
18-Mar	68.0	56.9	57.9	43.6	36.0	70.0	63.6	43.0	31.6
25-Mar	73.0	55.9	61.8	46.6	39.0	70.0	61.7	48.2	34.9
1-Apr	72.0	59.2	63.9	48.5	43.0	70.0	64.3	52.3	36.7
8-Apr	75.0	57.2	66.1	49.7	43.0	70.0	63.9	52.8	37.3
15-Apr	75.0	57.8	66.4	50.7	45.0	70.7	66.1	54.1	37.7
22-Apr	75.0	58.9	66.7	50.4	45.0	74.9	68.2	52.9	36.3
29-Apr	79.0	61.3	70.7	52.8	46.0	74.9	70.1	56.2	38.9
6-May	84.0	64.7	72.2	55.0	50.0	79.8	69.2	58.2	40.3
13-May	84.0	65.7	74.9	57.3	52.0	96.6	80.6	65.4	45.5
20-May	84.0	63.7	77.2	59.4	54.0	85.4	72.1	66.1	47.2
27-May	91.0	66.5	80.4	62.1	55.0	91.0	74.1	67.4	47.8
3-Jun	88.0	66.2	80.9	63.3	57.0	91.0	76.5	69.8	49.7
10-Jun	91.0	65.7	84.8	65.9	59.0	97.3	79.5	74.6	49.8
17-Jun	95.0	68.1	87.3	67.7	63.0	109.9	86.5	78.7	53.7
24-Jun	97.0	68.2	88.0	68.8	64.0	110.6	86.0	80.2	56.9
1-Jul	97.0	72.6	90.2	71.4	66.0	125.3	93.1	80.7	54.9
8-Jul	100.0	72.1	90.4	71.8	66.0	110.6	84.1	85.0	59.3
15-Jul	100.0	70.0	90.4	72.2	66.0	116.9	81.6	80.9	55.6
22-Jul	100.0	71.3	92.8	74.6	70.0	110.6	85.0	82.3	56.5
29-Jul	102.0	71.2	91.5	74.0	68.0	117.6	83.8	81.5	57.4
5-Aug	99.0	69.8	91.9	73.8	68.0	117.6	84.8	80.7	56.7
12-Aug	99.0	72.1	92.0	74.2	70.0	111.3	83.1	85.2	58.0
19-Aug	97.0	69.2	89.9	73.2	68.0	111.3	82.8	84.9	59.3
26-Aug	97.0	69.2	90.0	72.1	66.0	117.6	82.7	86.4	59.6
2-Sep	95.0	69.9	88.4	70.5	64.0	117.6	83.9	86.4	59.4
9-Sep	91.0	67.7	85.3	68.5	63.0	111.3	79.2	82.6	55.4
16-Sep	95.0	67.6	85.2	67.6	61.0	110.6	81.8	82.0	55.9
23-Sep	93.0	67.6	83.8	66.7	61.0	103.6	80.3	79.8	54.9
30-Sep	91.0	69.5	82.0	65.3	59.0	109.9	81.6	78.6	55.2
7-Oct	88.0	66.0	77.8	61.8	54.0	102.9	77.0	72.2	51.3
14-Oct	86.0	66.4	76.9	61.6	55.0	98.0	74.3	74.2	52.4
21-Oct	84.0	66.0	73.8	58.5	50.0	97.3	76.6	69.4	50.0
28-Oct	77.0	64.3	69.2	56.7	48.0	97.3	71.7	64.2	46.2
4-Nov	77.0	64.0	67.6	54.2	46.0	90.3	70.7	61.6	45.3
11-Nov	73.0	63.8	64.9	51.7	43.0	85.4	70.3	57.9	41.9
18-Nov	72.0	62.8	63.6	50.8	43.0	85.4	66.8	58.0	42.3
25-Nov	70.0	59.6	62.3	49.7	39.0	74.9	65.2	56.5	39.7
2-Dec	68.0	58.4	60.0	48.1	36.0	74.9	64.3	52.5	37.8
9-Dec	66.0	58.6	58.4	45.9	36.0	65.8	61.7	49.3	34.9
16-Dec	66.0	58.8	57.1	44.5	34.0	70.7	62.7	48.5	33.9
23-Dec	64.0	56.4	57.8	45.3	36.0	69.3	61.5	49.5	34.8
31-Dec	64.0	58.2	55.7	44.0	36.0	65.8	62.1	46.3	33.0



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	527
FEB	1	460
MAR	5	398
APR	29	204
MAY	157	55
JUN	369	4
JUL	523	0
AUG	493	0
SEP	302	6
OCT	106	76
NOV	12	246
DEC	0	432
ANN	1998	2408



	Average Sensible Cooling Load	Average Sensible Heating Load	Average Latent Cooling Load	Average Latent Heating Load
	(Btu/cfm)	(Btu/cfm)	(Btu/cfm)	(Btu/cfm)
JAN	0	-16062	0	-759
FEB	0	-14112	0	-808
MAR	3	-12635	0	-492
APR	32	-7236	2	-120
MAY	816	-2490	114	-41
JUN	3390	-301	732	-5
JUL	6000	-21	1210	-2
AUG	5378	-18	1428	-1
SEP	2300	-401	1001	-5
OCT	381	-3236	441	-15
NOV	7	-8414	52	-157
DEC	0	-13578	0	-498
ANN	18307	-78504	4980	-2903

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

No Solar Radiation
Data Available

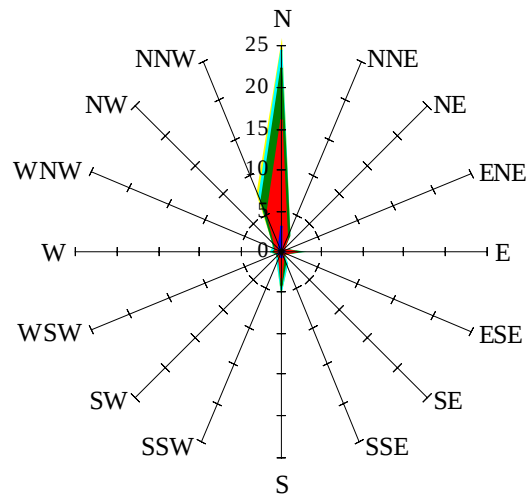


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

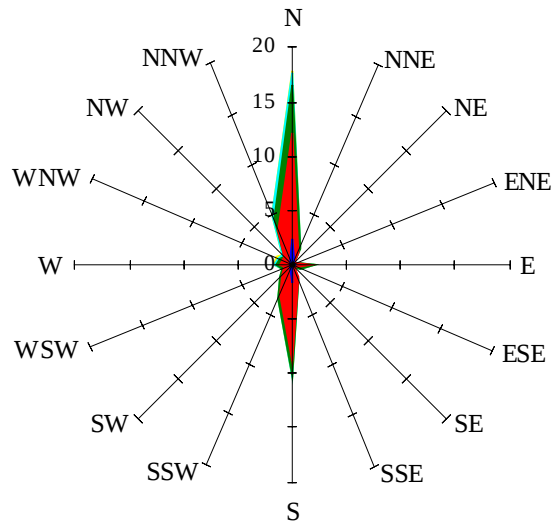
Labels of Percent Frequency on North Axis



Percent Calm = 49.12

Wind Summary - March, April, and May

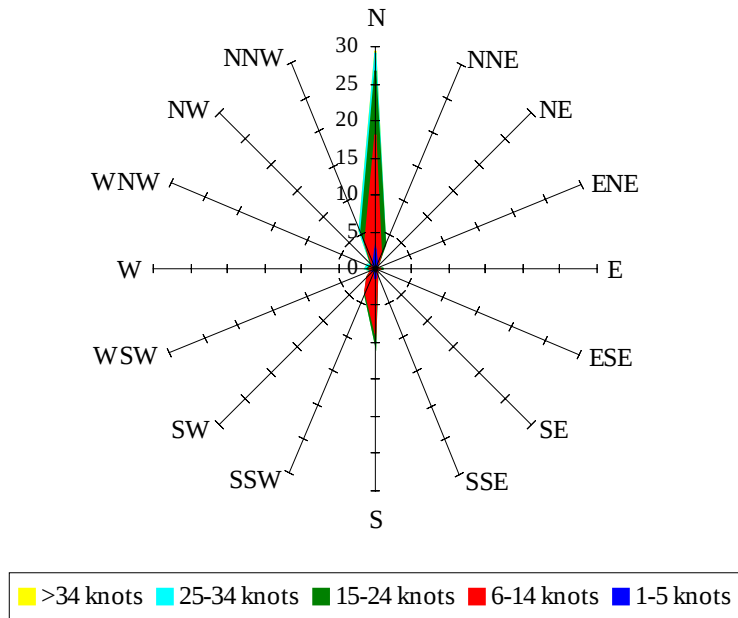
Labels of Percent Frequency on North Axis



Percent Calm = 49.45

Wind Summary - June, July, and August

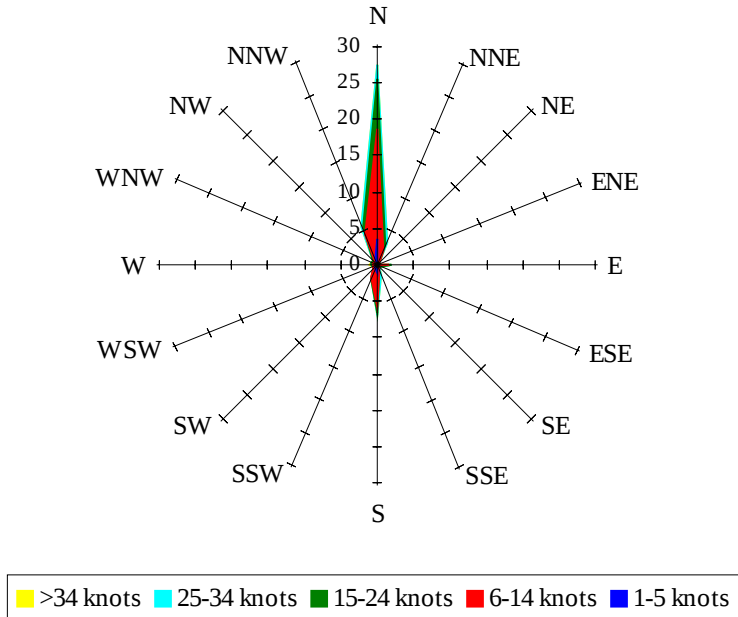
Labels of Percent Frequency on North Axis



Percent Calm = 38.51

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 45.50