

MAHON, SPAIN

Latitude = 39.87 N

Longitude = 4.23 E

Period of Record = 1973 to 1996

WMO No. 083140

Elevation = 269 feet

Average Pressure = 29.71 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	90	73	95	8.8	S
0.4% Occurrence	87	72	97	9.6	S
1.0% Occurrence	84	72	99	10.0	S
2.0% Occurrence	82	71	99	10.2	S
Mean Daily Range	10	-	-	-	-
97.5% Occurrence	45	43	37	9.6	N
99.0% Occurrence	43	40	33	9.8	N
99.6% Occurrence	41	39	31	9.7	N
Median of Extreme Lows	33	32	26	9.0	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	78	83	134	9.1	S
0.4% Occurrence	76	82	124	9.0	S
1.0% Occurrence	75	80	120	8.7	S
2.0% Occurrence	74	80	116	8.6	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	142	81	0.94	7.5	S
0.4% Occurrence	132	80	0.88	7.1	S
1.0% Occurrence	125	78	0.83	7.6	S
2.0% Occurrence	118	77	0.78	7.7	S
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		3	453	344	1762

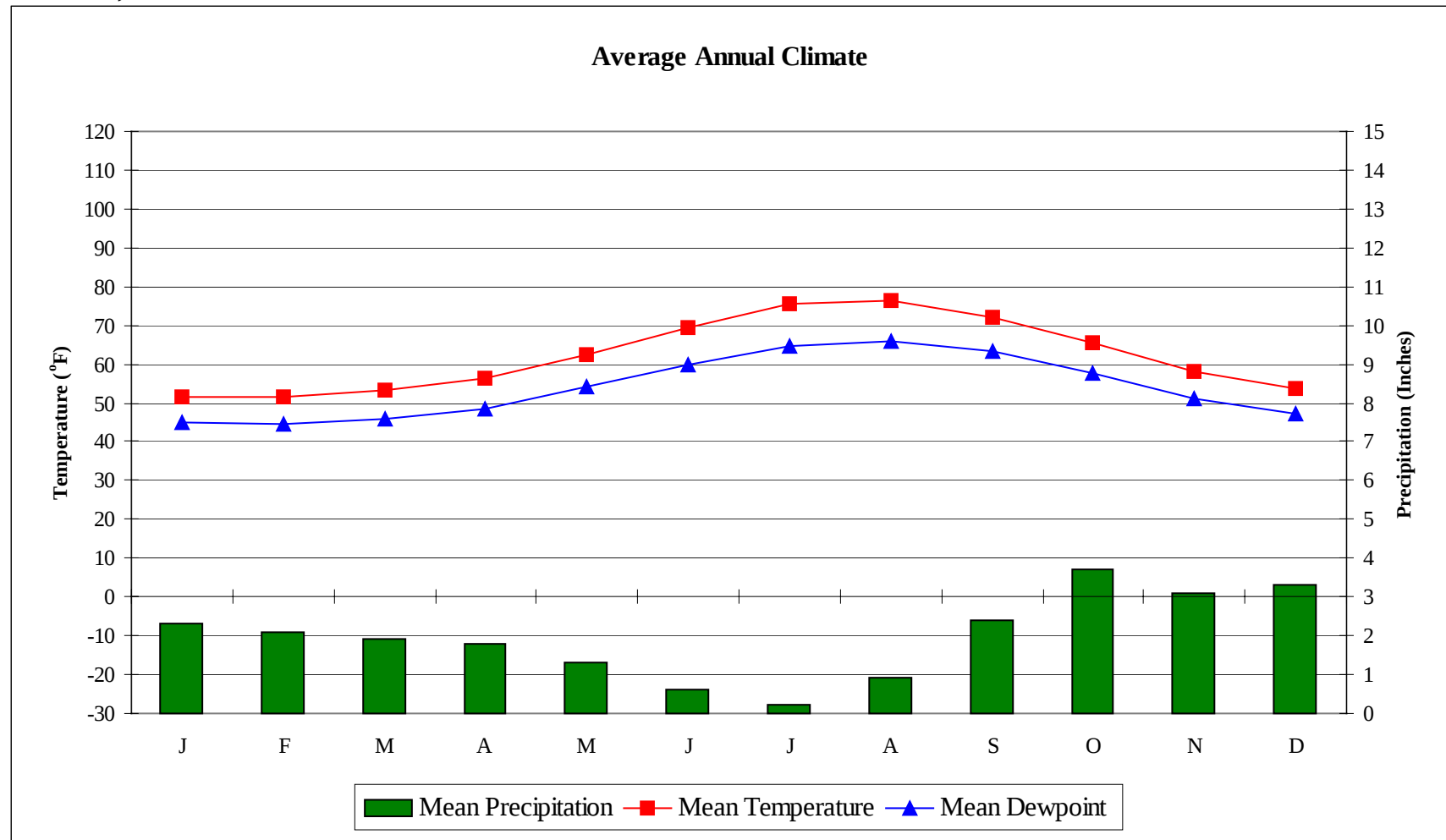
Other Site Data

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	2.1 + 0.4
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 (#)
64.8	N/A	N/A	0

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

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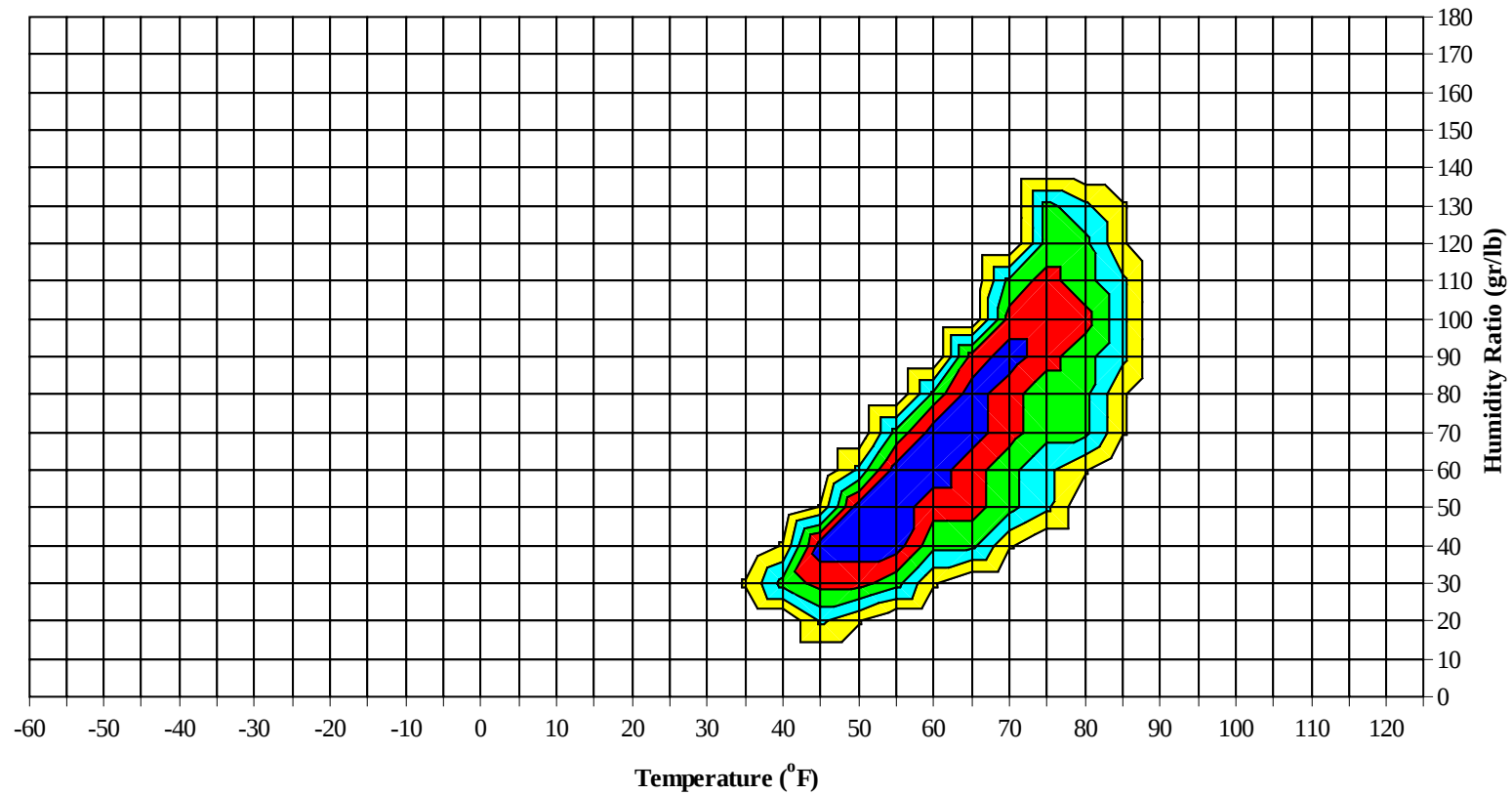
WMO No. 083140



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Long Term Psychrometric Summary

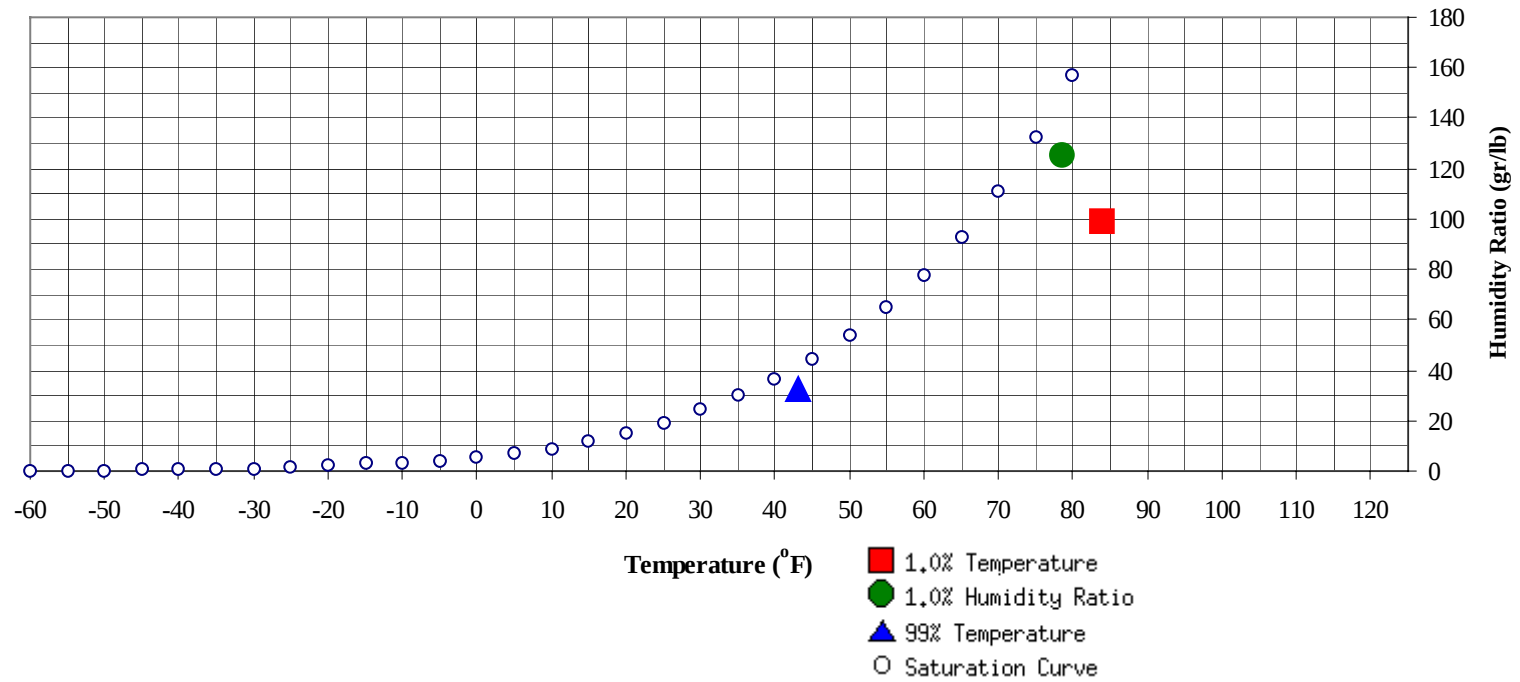


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

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Psychrometric Summary of Peak Design Values



	(°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	43	32.8	15.4		125.3	78.5	74.7	73.4	38.5

	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
1.0% Dry Bulb	84	98.9	72	35.7

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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		
100 / 104															
95 / 99															
90 / 94															
85 / 89															
80 / 84															
75 / 79															
70 / 74							0	0	0	61.5		1	0	1	57.0
65 / 69							1	0	1	54.8	0	4	1	5	57.6
60 / 64	1	14	3	18	56.2	1	17	4	22	55.6	0	45	13	58	55.4
55 / 59	30	98	55	184	52.8	21	88	53	162	52.5	37	109	85	231	52.7
50 / 54	92	90	113	295	48.8	87	75	99	261	48.8	118	68	107	292	48.8
45 / 49	90	35	62	187	44.1	84	35	52	171	43.8	77	19	39	134	44.0
40 / 44	28	7	12	47	39.8	22	6	12	40	39.6	15	2	4	21	40.0
35 / 39	5	3	3	10	35.7	8	2	3	13	35.7	1	0	0	1	37.0
30 / 34	1	1	0	2	31.2	1	0	1	2	32.8	0			0	31.0
25 / 29			0	0	28.0										

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		
100 / 104															
95 / 99															
90 / 94															
85 / 89												2	0	2	70.3
80 / 84							0	0	0	66.2	0	20	5	25	68.2
75 / 79		0		0	60.0	0	9	2	11	64.0	3	69	30	103	66.7
70 / 74		3	1	4	59.6	1	53	18	72	62.2	40	102	85	227	64.8
65 / 69	0	15	3	18	57.6	12	74	44	130	60.5	82	35	72	189	62.7
60 / 64	2	88	36	125	55.8	86	82	106	273	58.4	97	10	44	151	59.5
55 / 59	89	98	121	309	53.1	108	25	65	197	54.4	16	1	4	21	55.3
50 / 54	111	31	65	207	49.2	38	4	13	54	50.3	1	0	0	1	50.6
45 / 49	34	5	13	51	44.4	3	1	1	5	45.8					
40 / 44	3	1	1	5	40.5										
35 / 39	0	0		0	37.0										
30 / 34	0	0		0											
25 / 29															

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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		
100 / 104			0	0	73.0										
95 / 99		1	0	1	70.3		0		0	72.3					
90 / 94		5	1	6	72.5		4	1	5	72.8		0		0	78.0
85 / 89	0	22	5	27	71.7	0	24	5	29	72.9		2	0	2	73.8
80 / 84	3	88	39	130	70.9	4	101	44	150	72.0	0	35	6	41	72.0
75 / 79	43	96	96	236	69.3	73	93	118	284	70.3	12	112	65	189	69.6
70 / 74	134	33	86	253	67.1	135	22	68	225	67.4	105	66	111	282	66.8
65 / 69	51	3	16	70	63.5	32	3	10	44	63.3	77	16	37	130	63.0
60 / 64	16	1	4	21	59.8	4	1	2	7	60.5	41	7	18	67	59.0
55 / 59	0	0		0	56.8	0			0	56.0	5	1	3	9	55.0
50 / 54											0		0	0	51.0
45 / 49															
40 / 44															
35 / 39															
30 / 34															
25 / 29															

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 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		
100 / 104															
95 / 99															
90 / 94															
85 / 89															
80 / 84	0	2	0	2	69.8										
75 / 79	1	24	5	30	68.7		0		0	64.0					
70 / 74	22	90	49	161	65.9		8	1	9	64.3			0	0	69.0
65 / 69	63	66	73	202	62.5	7	43	12	62	61.8	0	4	0	4	60.7
60 / 64	93	46	76	215	58.6	49	95	71	215	58.2	13	48	17	78	57.5
55 / 59	52	16	36	103	53.7	93	57	90	240	53.5	56	104	85	245	53.2
50 / 54	16	4	8	28	49.8	65	29	49	142	48.8	109	70	101	280	48.9
45 / 49	1	0	1	2	44.6	24	7	15	46	44.0	61	21	39	121	44.1
40 / 44						2	1	2	5	38.4	8	2	5	15	39.9
35 / 39						0	0	0	0	35.9	1	0	1	2	36.4
30 / 34						0		0	0	32.0					
25 / 29															

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

Period of Record = 1973 to 1996

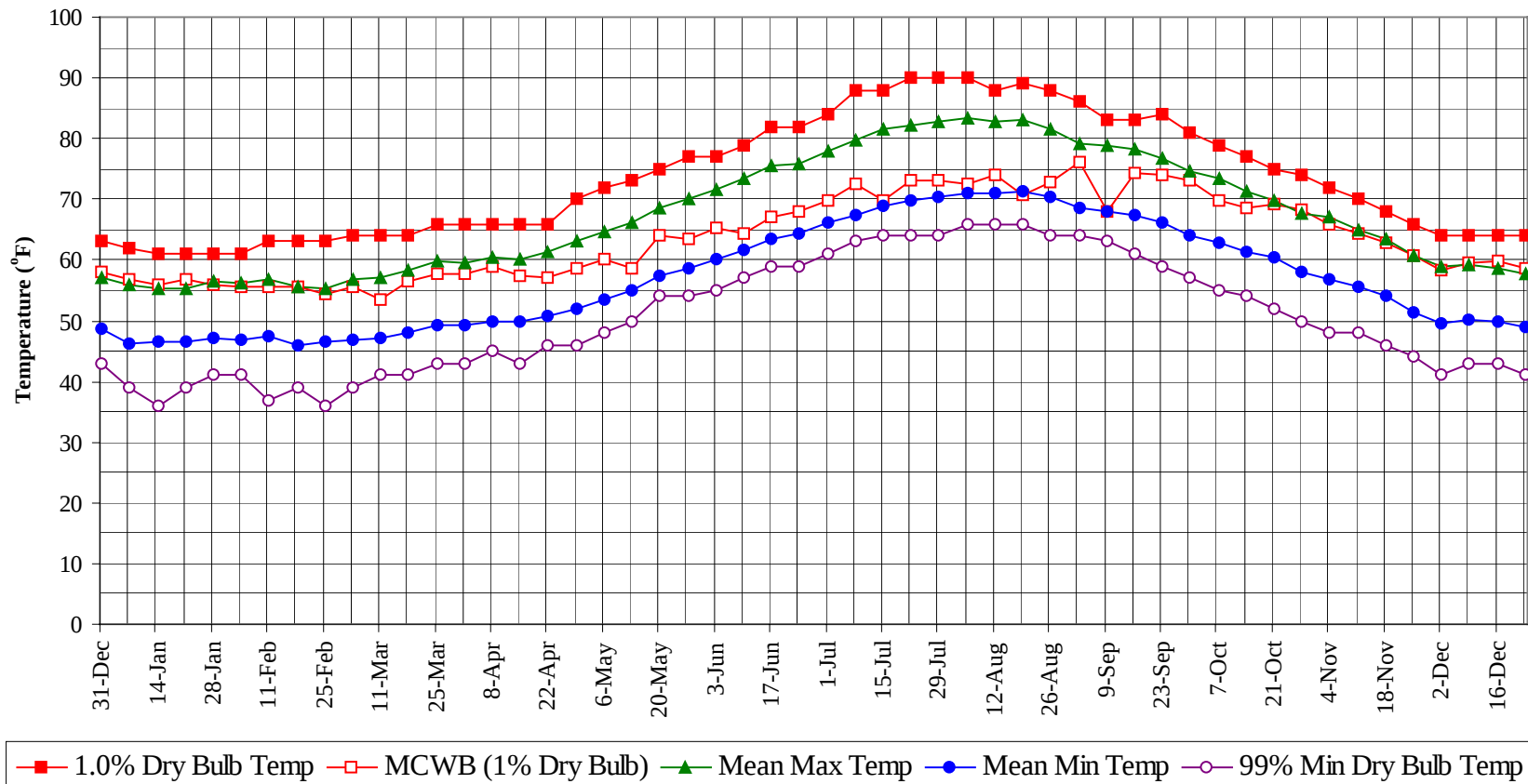
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
100 / 104			0	0	73.0
95 / 99		1	0	1	70.6
90 / 94		9	2	11	72.7
85 / 89	0	50	11	61	72.3
80 / 84	9	247	96	352	71.3
75 / 79	140	402	319	861	69.3
70 / 74	461	377	423	1260	66.1
65 / 69	338	264	271	874	62.2
60 / 64	414	455	393	1262	58.0
55 / 59	502	597	594	1693	53.3
50 / 54	609	370	548	1528	48.9
45 / 49	355	122	218	695	44.1
40 / 44	76	19	36	131	39.8
35 / 39	15	5	8	28	35.9
30 / 34	2	1	1	4	31.9
25 / 29			0	0	28.0

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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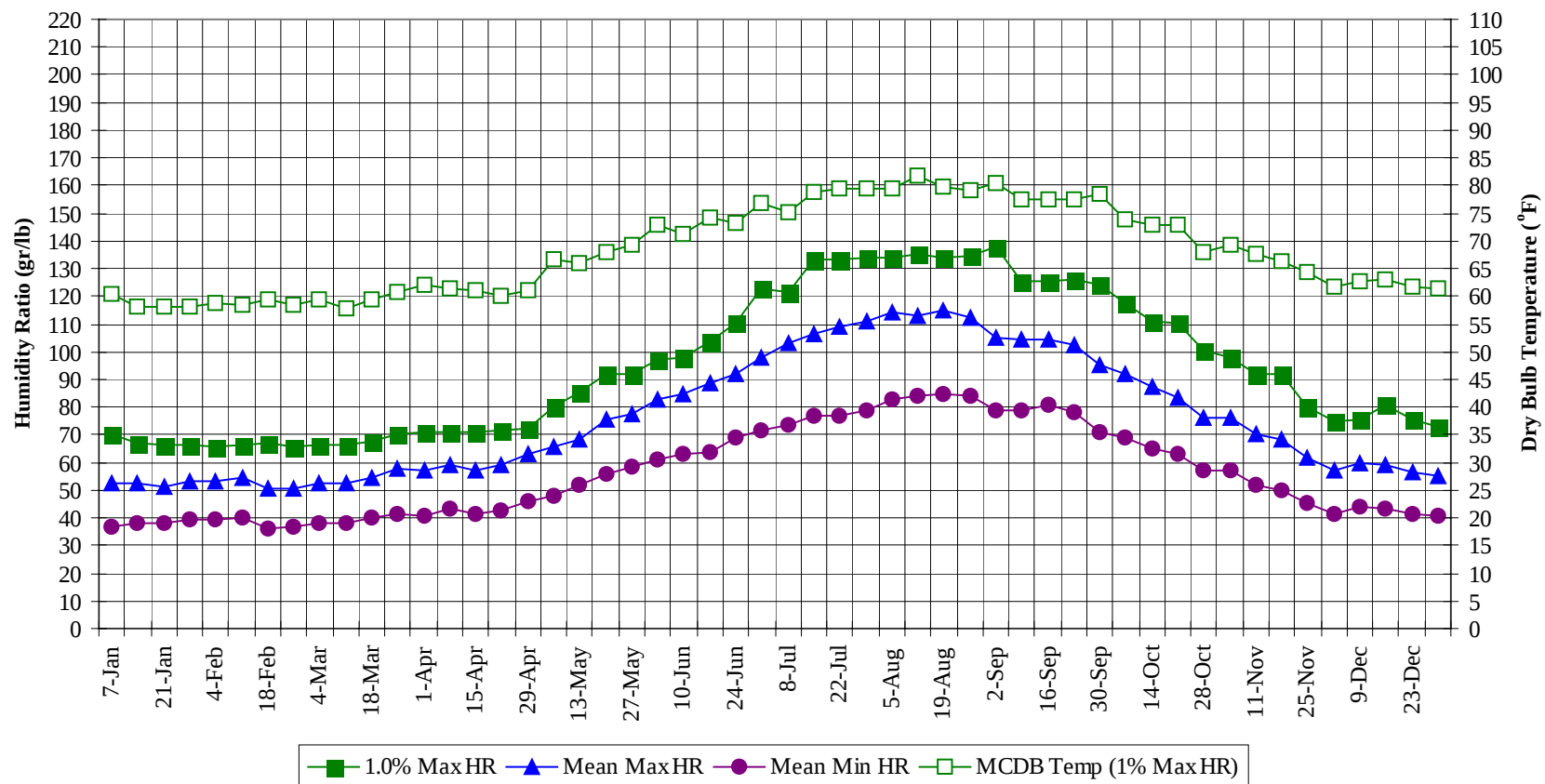
Annual Summary of Temperatures



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Long Term Humidity and Dry Bulb Temperature Summary



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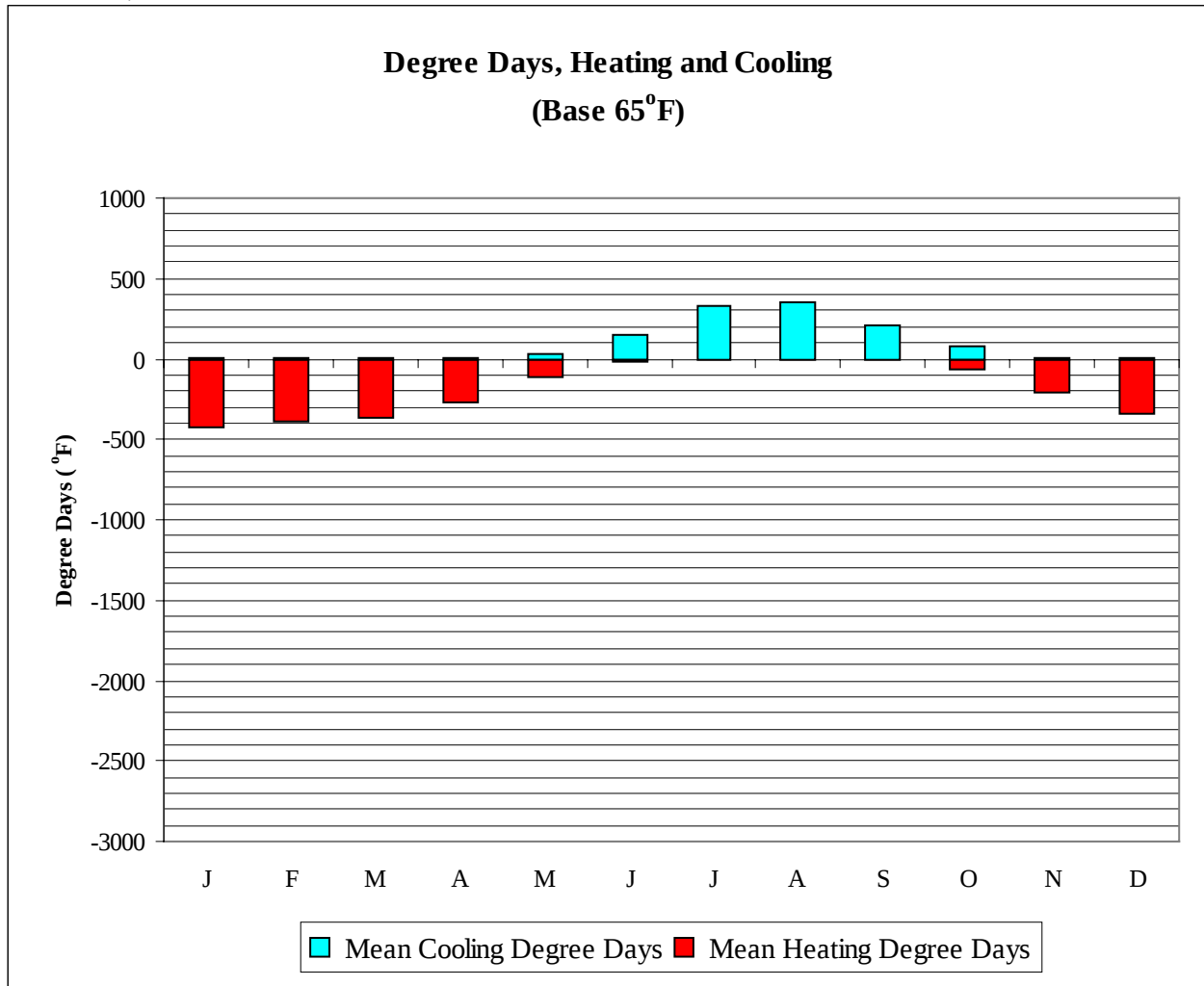
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Long Term Dry Bulb Temperature and Humidity Summary

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	62.0	56.7	56.0	46.2	39.0	70.0	60.3	52.3	37.1
14-Jan	61.0	55.9	55.4	46.5	36.0	67.2	58.1	52.6	38.4
21-Jan	61.0	56.7	55.4	46.5	39.0	66.5	58.0	51.1	38.1
28-Jan	61.0	56.0	56.5	47.0	41.0	66.5	58.1	53.0	39.4
4-Feb	61.0	55.6	56.3	46.9	41.0	65.8	58.6	53.2	39.1
11-Feb	63.0	55.5	56.7	47.4	37.0	66.5	58.5	54.5	39.9
18-Feb	63.0	55.7	55.5	46.0	39.0	67.2	59.3	50.3	36.2
25-Feb	63.0	54.3	55.4	46.5	36.0	65.8	58.5	50.7	36.6
4-Mar	64.0	55.6	56.8	46.9	39.0	66.5	59.3	52.5	38.4
11-Mar	64.0	53.6	57.2	47.3	41.0	66.5	57.9	52.3	38.1
18-Mar	64.0	56.6	58.2	47.9	41.0	67.9	59.5	54.7	40.2
25-Mar	66.0	57.6	59.9	49.1	43.0	70.0	60.7	57.7	41.5
1-Apr	66.0	57.7	59.5	49.2	43.0	70.7	62.0	57.1	40.8
8-Apr	66.0	59.0	60.4	49.7	45.0	70.7	61.3	59.2	43.5
15-Apr	66.0	57.6	60.1	49.9	43.0	70.7	61.1	57.2	41.7
22-Apr	66.0	57.0	61.5	50.8	46.0	71.4	60.2	59.1	42.5
29-Apr	70.0	58.7	63.1	52.0	46.0	72.1	61.0	63.1	45.9
6-May	72.0	60.0	64.6	53.5	48.0	79.8	66.8	65.7	48.0
13-May	73.0	58.8	66.1	55.1	50.0	85.4	65.9	68.6	52.1
20-May	75.0	64.0	68.7	57.4	54.0	91.7	67.8	75.8	55.7
27-May	77.0	63.4	70.1	58.5	54.0	91.7	69.1	77.4	58.5
3-Jun	77.0	65.1	71.6	60.1	55.0	97.3	72.9	82.9	61.4
10-Jun	79.0	64.5	73.4	61.5	57.0	98.0	71.2	85.0	62.9
17-Jun	82.0	67.1	75.6	63.5	59.0	103.6	74.1	88.6	63.8
24-Jun	82.0	67.9	76.0	64.3	59.0	110.6	73.1	91.9	68.7
1-Jul	84.0	69.8	78.1	66.1	61.0	122.5	76.9	98.2	71.7
8-Jul	88.0	72.5	79.7	67.5	63.0	121.8	75.3	102.8	73.7
15-Jul	88.0	69.7	81.5	69.0	64.0	133.0	78.7	106.3	76.6
22-Jul	90.0	73.0	82.3	69.8	64.0	133.0	79.5	108.8	77.0
29-Jul	90.0	73.1	82.9	70.5	64.0	133.7	79.5	110.7	78.9
5-Aug	90.0	72.6	83.3	71.0	66.0	133.7	79.3	114.3	82.5
12-Aug	88.0	74.0	82.7	71.0	66.0	135.1	81.7	113.1	83.8
19-Aug	89.0	70.7	83.2	71.2	66.0	133.7	79.8	115.2	84.6
26-Aug	88.0	72.8	81.5	70.4	64.0	134.4	79.3	112.4	84.3
2-Sep	86.0	76.0	79.1	68.7	64.0	137.9	80.6	105.0	78.5
9-Sep	83.0	68.0	79.0	67.8	63.0	125.3	77.4	104.4	79.0
16-Sep	83.0	74.3	78.2	67.4	61.0	125.3	77.5	104.5	80.8
23-Sep	84.0	74.2	76.8	66.3	59.0	126.0	77.4	102.4	78.1
30-Sep	81.0	73.0	74.7	64.1	57.0	123.9	78.6	95.1	70.7
7-Oct	79.0	69.8	73.3	62.9	55.0	117.6	74.0	92.3	69.1
14-Oct	77.0	68.7	71.2	61.5	54.0	111.3	72.8	87.5	65.3
21-Oct	75.0	69.1	69.7	60.4	52.0	110.6	72.8	83.3	63.2
28-Oct	74.0	68.3	67.7	57.9	50.0	100.8	68.0	76.0	57.4
4-Nov	72.0	65.9	67.0	56.8	48.0	98.0	69.3	76.1	57.3
11-Nov	70.0	64.4	64.9	55.5	48.0	91.7	67.6	70.6	52.2
18-Nov	68.0	62.9	63.4	54.0	46.0	91.7	66.4	68.3	49.7
25-Nov	66.0	60.6	60.8	51.3	44.0	79.8	64.4	62.0	45.5
2-Dec	64.0	58.4	59.0	49.6	41.0	74.9	61.8	57.3	41.4
9-Dec	64.0	59.6	59.3	50.1	43.0	75.6	62.6	59.5	43.8
16-Dec	64.0	59.7	58.7	50.0	43.0	80.5	63.2	59.4	43.2
23-Dec	64.0	58.7	57.8	49.0	41.0	75.6	61.8	56.4	41.3
31-Dec	63.0	58.0	57.1	48.7	43.0	72.8	61.4	55.3	41.0

MAHON, SPAIN

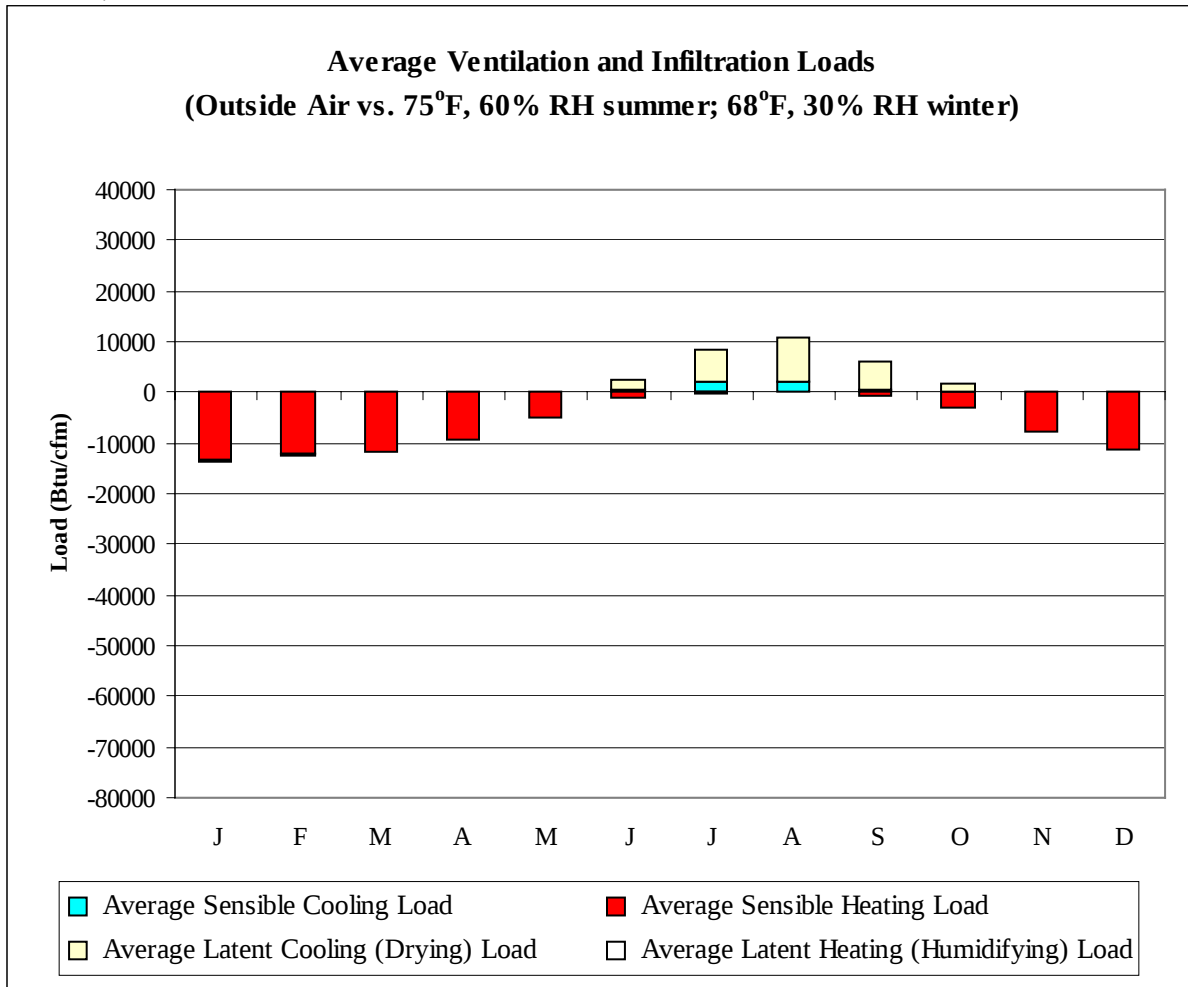
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	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	424
FEB	0	384
MAR	1	360
APR	2	269
MAY	34	115
JUN	149	17
JUL	326	1
AUG	352	0
SEP	213	7
OCT	73	67
NOV	6	212
DEC	0	343
ANN	1156	2199

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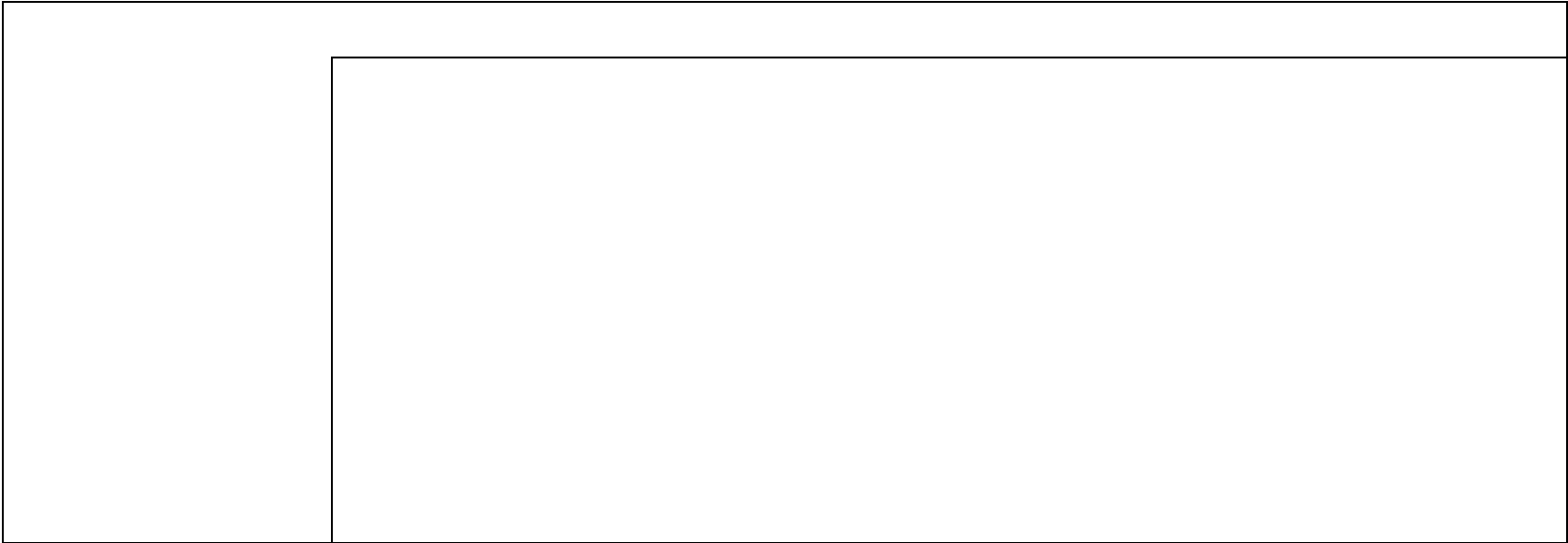
WMO No. 083140



	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	-13400	0	-128
FEB	0	-12161	0	-168
MAR	0	-11729	0	-117
APR	0	-9272	0	-39
MAY	14	-4848	238	-5
JUN	350	-1135	2127	0
JUL	1914	-135	6679	0
AUG	2142	-53	8573	0
SEP	620	-530	5613	0
OCT	42	-3089	1852	-1
NOV	0	-7673	136	-43
DEC	0	-11258	4	-62
ANN	5082	-75283	25222	-563

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

No Solar Radiation
Data Available

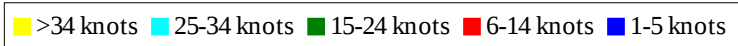
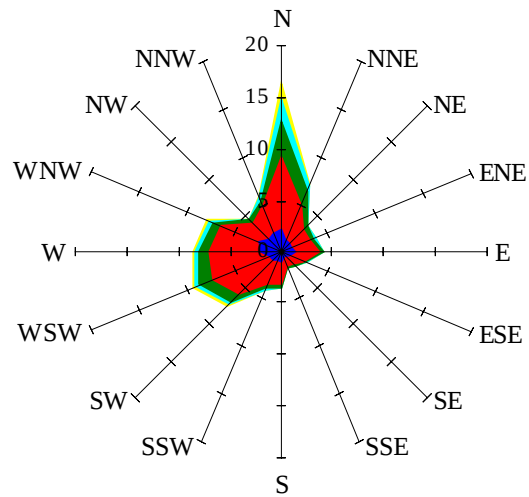


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

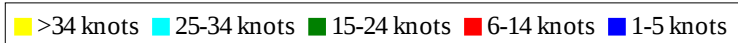
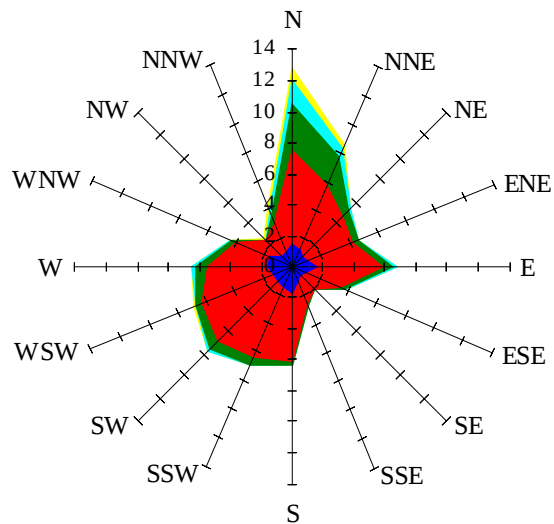
Labels of Percent Frequency on North Axis



Percent Calm = 8.71

Wind Summary - March, April, and May

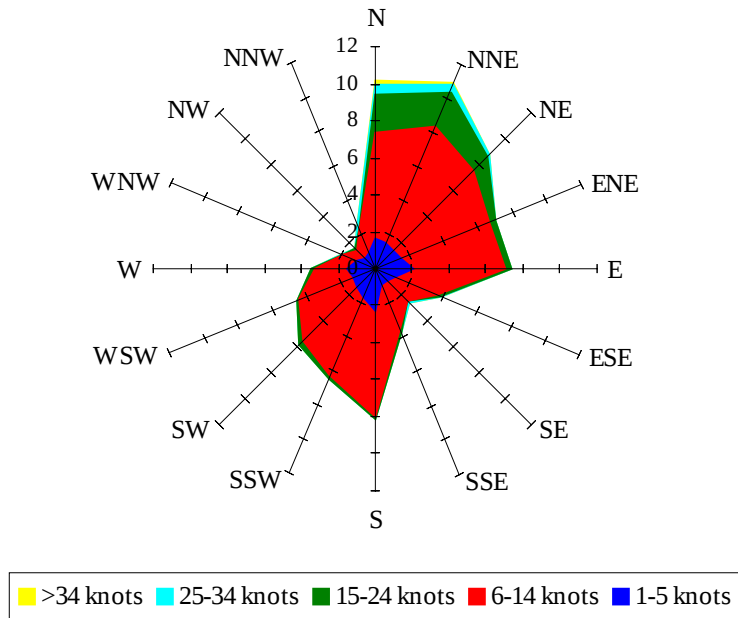
Labels of Percent Frequency on North Axis



Percent Calm = 8.86

Wind Summary - June, July, and August

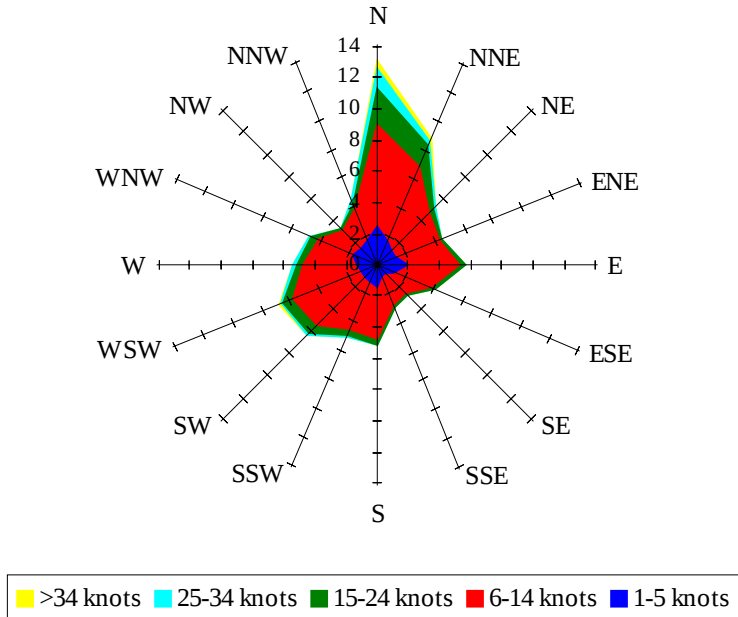
Labels of Percent Frequency on North Axis



Percent Calm = 11.49

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 12.68