

AMSTERDAM, NETHERLANDS

Latitude = 52.30 N

Longitude = 4.77 E

Period of Record = 1973 to 1996

WMO No. 062400

Elevation = -7 feet

Average Pressure = 29.96 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	87	69	75	10.7	ESE
0.4% Occurrence	81	67	75	10.5	E
1.0% Occurrence	77	65	75	10.2	E
2.0% Occurrence	73	63	73	10.4	NE
Mean Daily Range	12	-	-	-	-
97.5% Occurrence	27	26	18	10.0	E
99.0% Occurrence	22	21	14	10.6	E
99.6% Occurrence	18	17	11	11.4	E
Median of Extreme Lows	15	14	10	11.4	ENE
	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	73	82	104	9.6	E
0.4% Occurrence	69	77	91	9.6	E
1.0% Occurrence	67	74	86	9.8	NE
2.0% Occurrence	65	71	81	10.0	W
	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	110	77	0.74	9.7	E
0.4% Occurrence	96	73	0.65	9.5	E
1.0% Occurrence	90	70	0.61	9.5	WSW
2.0% Occurrence	85	68	0.57	9.5	WSW
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		0	49	3	105

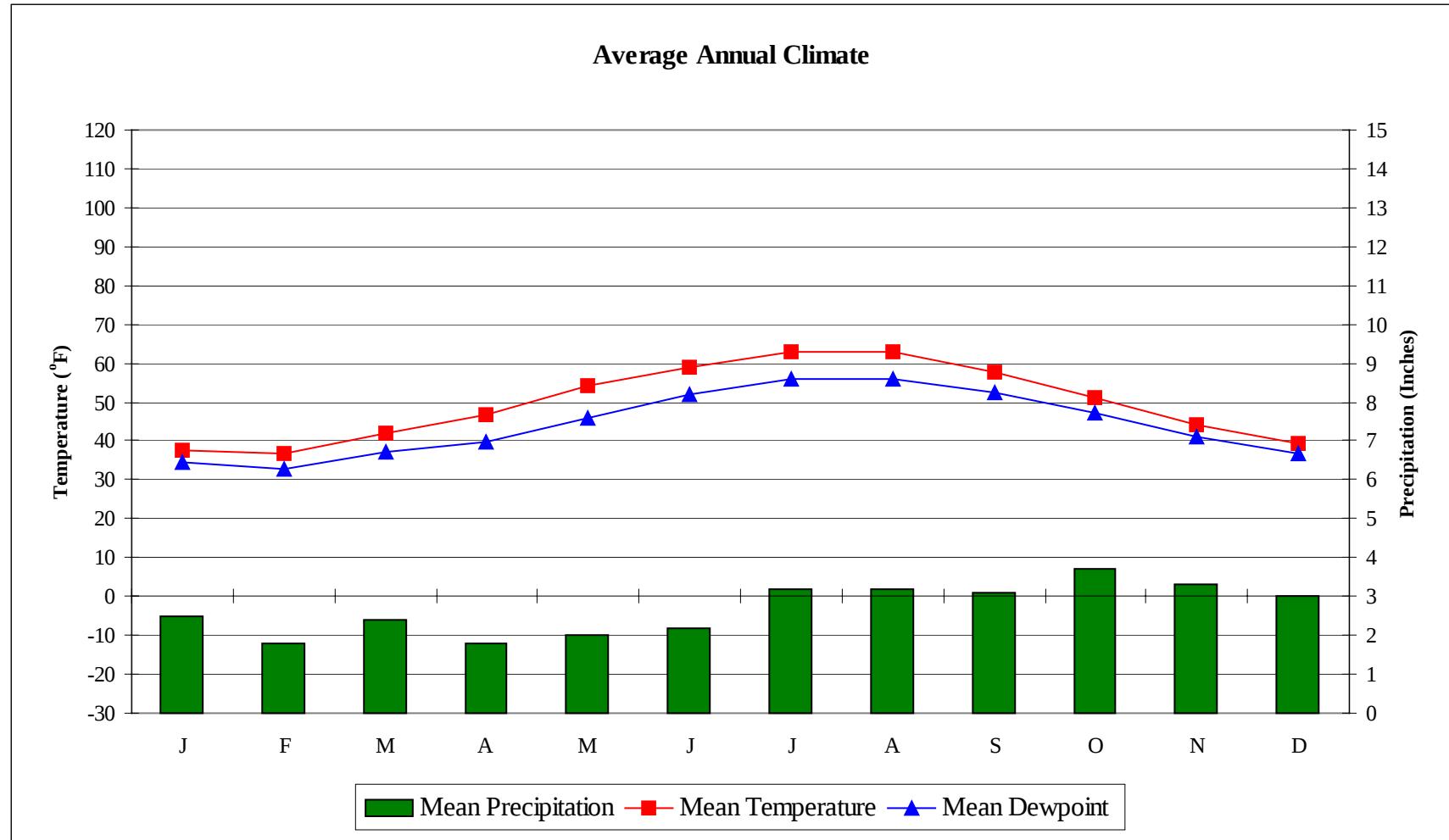
Other Site Data

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
6	N/A	N/A	0.2 + 0.0
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 (#)
52.1	N/A	N/A	25

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

AMSTERDAM, NETHERLANDS

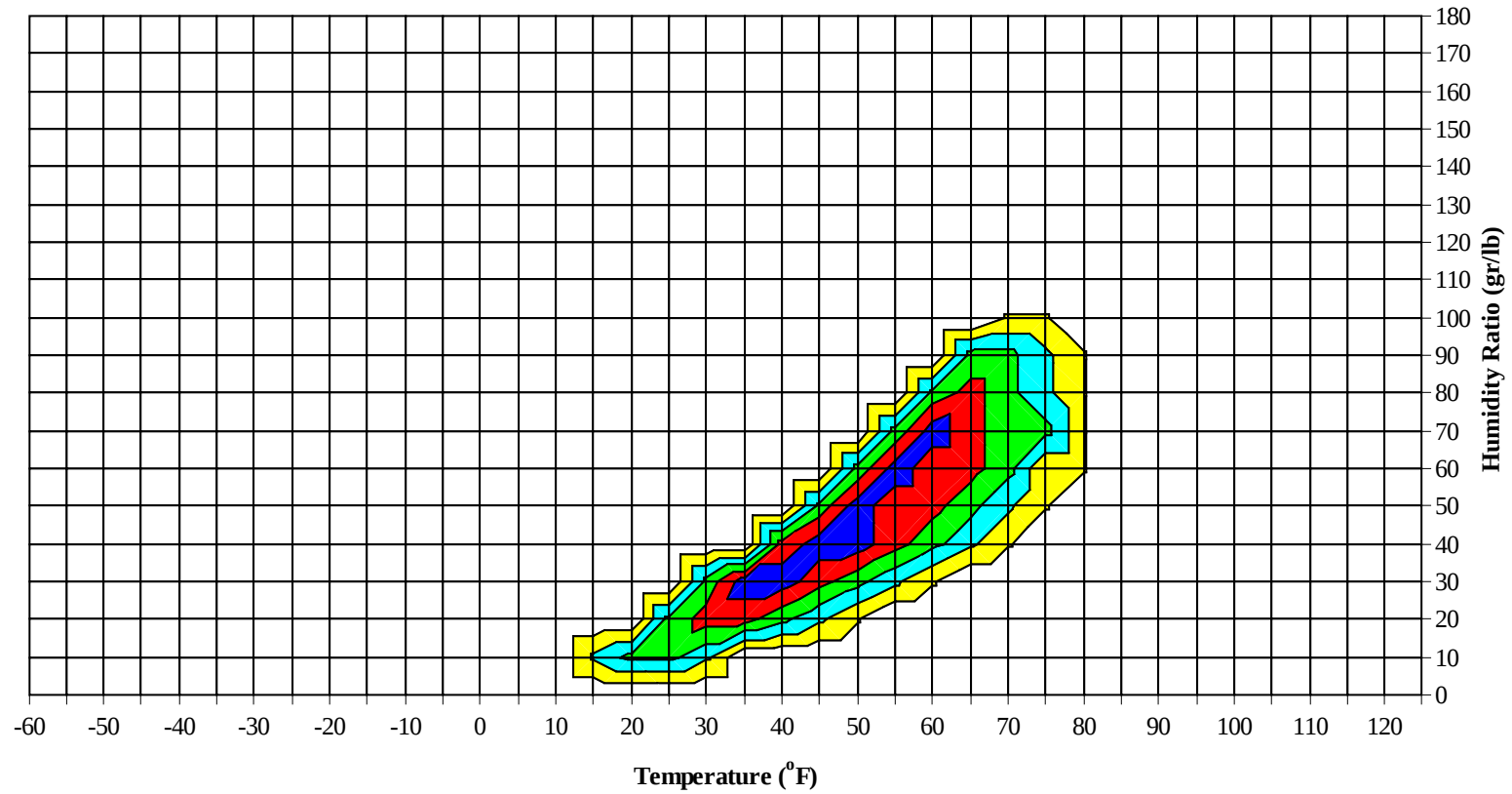
WMO No. 062400



AMSTERDAM, NETHERLANDS

WMO No. 062400

Long Term Psychrometric Summary

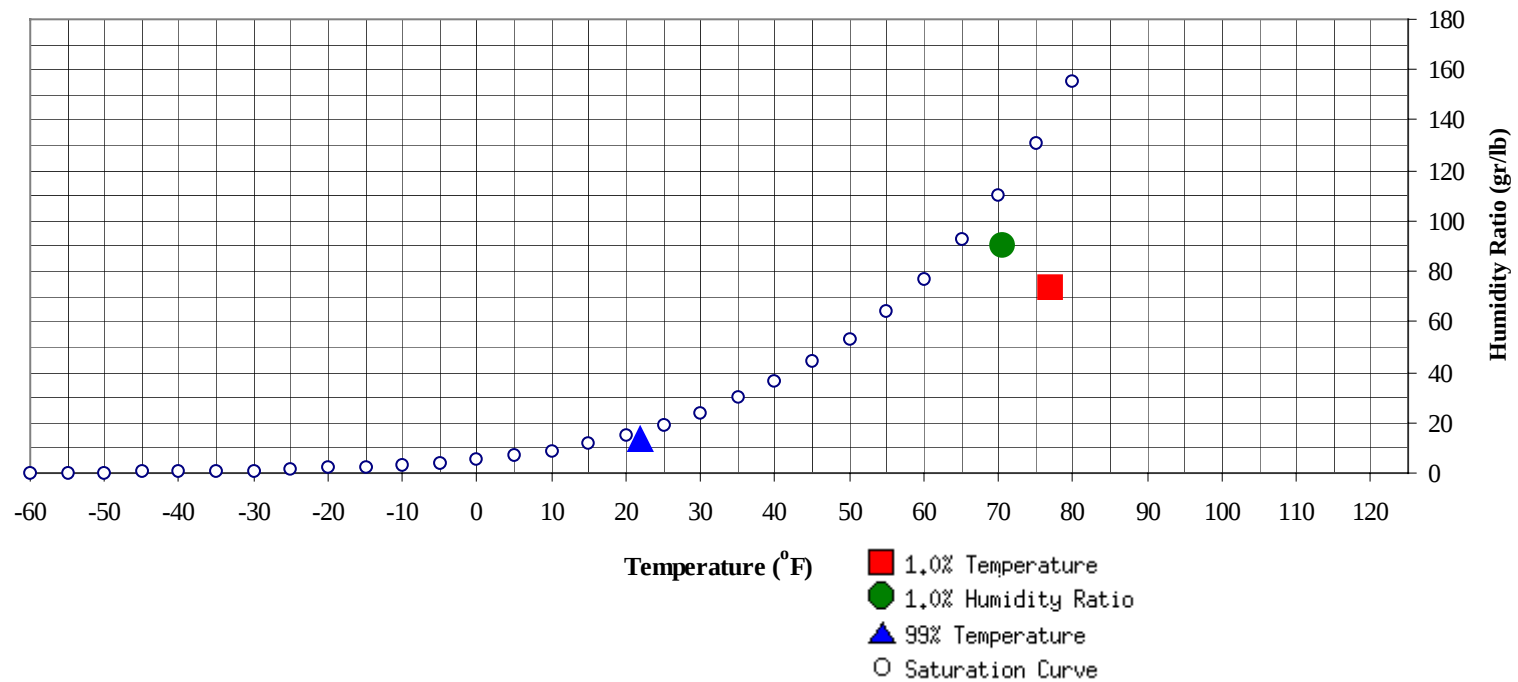


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

AMSTERDAM, NETHERLANDS

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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)
	22	13.3	7.3		90.3	70.4	66.4	64.3	31.0

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	77	73.9	65.2	30.0

AMSTERDAM, NETHERLANDS

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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		
90 / 94															
85 / 89															
80 / 84															
75 / 79															
70 / 74												0		0	58.0
65 / 69												1	0	1	56.0
60 / 64							0	0	0	54.5	0	3	1	4	53.4
55 / 59	0	0	0	0	51.7	0	1	1	2	52.7	0	11	7	18	51.1
50 / 54	7	11	9	27	49.3	3	12	6	21	48.3	8	37	22	67	48.1
45 / 49	35	52	43	130	44.9	22	43	33	98	44.5	44	77	64	185	44.2
40 / 44	60	64	61	184	40.5	42	49	49	140	40.3	67	68	74	209	40.1
35 / 39	59	56	61	176	36.2	51	51	55	157	35.7	69	37	59	165	35.9
30 / 34	42	32	39	113	31.5	54	39	46	139	30.9	43	11	17	71	31.3
25 / 29	20	17	18	55	26.0	28	19	22	69	25.8	13	3	4	20	25.5
20 / 24	12	9	10	31	21.0	14	6	8	28	20.8	3	0	0	3	20.8
15 / 19	8	5	5	18	16.2	7	3	2	12	16.5	1			1	18.0
10 / 14	4	1	2	7	11.6	3	0	1	4	12.2					
5 / 9	1	0	1	2	6.9	0			0	7.6					
0 / 4		0		0	3.0										

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		
90 / 94												1	0	1	67.9
85 / 89												1	0	1	68.2
80 / 84							3	1	4	63.2		6	3	9	66.7
75 / 79		1	1	2	58.8		8	4	12	61.2	0	15	7	22	65.0
70 / 74		3	1	4	57.5	0	15	8	23	59.2	2	26	15	43	62.5
65 / 69	0	8	3	11	55.5	2	22	14	38	57.1	9	32	21	62	60.2
60 / 64	1	16	8	25	53.5	11	43	29	83	55.0	28	65	50	143	57.3
55 / 59	4	33	21	58	50.4	32	66	54	152	52.2	83	72	81	235	54.1
50 / 54	22	60	45	127	47.4	77	62	72	212	49.0	85	21	52	158	50.4
45 / 49	66	73	73	212	44.0	80	26	49	155	45.2	28	2	10	40	46.4
40 / 44	76	37	57	170	40.1	35	2	14	51	41.1	5		1	6	41.8
35 / 39	52	8	27	87	36.1	10	0	2	12	37.1	1		0	1	37.9
30 / 34	17	1	4	22	31.7	1	0	0	1	32.6					
25 / 29	2		0	2	26.7										
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															

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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		
90 / 94		0	0	0	69.8		1	0	1	70.2					
85 / 89		3	1	4	68.8		2	1	3	68.8					
80 / 84		11	4	15	68.5		8	3	11	67.1		1	0	1	65.9
75 / 79	0	23	12	35	66.7	0	21	8	29	65.5		3	1	4	66.3
70 / 74	5	38	23	66	64.1	3	45	24	72	63.4		14	4	18	63.3
65 / 69	19	57	40	116	61.5	16	71	42	129	61.3		2	37	15	54
60 / 64	70	88	82	240	58.7	74	81	89	244	58.8	31	96	62	189	58.3
55 / 59	108	27	68	203	55.3	103	18	63	184	55.4	83	71	91	245	54.5
50 / 54	39	2	16	57	51.4	41	1	17	59	51.3	84	16	53	153	50.8
45 / 49	7		1	8	47.1	10		1	11	47.1	30	2	13	45	46.3
40 / 44	0			0	43.6	0			0	42.4	8		2	10	42.2
35 / 39						0			0		1		0	1	38.4
30 / 34															
25 / 29															
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															

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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		
90 / 94															
85 / 89															
80 / 84															
75 / 79		0		0	67.5										
70 / 74		2	0	2	64.0										
65 / 69	0	7	2	9	60.9										
60 / 64	5	32	15	52	58.2		1		1	57.1					
55 / 59	38	80	57	175	54.3	6	17	10	33	53.9	1	2	2	5	53.1
50 / 54	77	77	84	238	49.9	39	57	44	140	49.9	16	22	19	57	49.5
45 / 49	65	37	58	160	45.4	60	73	69	203	44.8	47	60	50	157	45.1
40 / 44	37	10	24	71	41.2	57	48	55	160	40.9	54	58	58	170	40.8
35 / 39	22	3	7	32	37.1	43	27	37	107	36.4	52	51	53	156	36.3
30 / 34	4	0	1	5	32.5	24	13	19	56	31.6	47	38	43	128	31.4
25 / 29						9	3	4	16	26.7	22	13	16	51	26.1
20 / 24						1	1	1	3	22.3	5	3	3	11	21.6
15 / 19											3	2	3	8	16.7
10 / 14											1	0	1	2	12.8
5 / 9											0		0	0	8.3
0 / 4															

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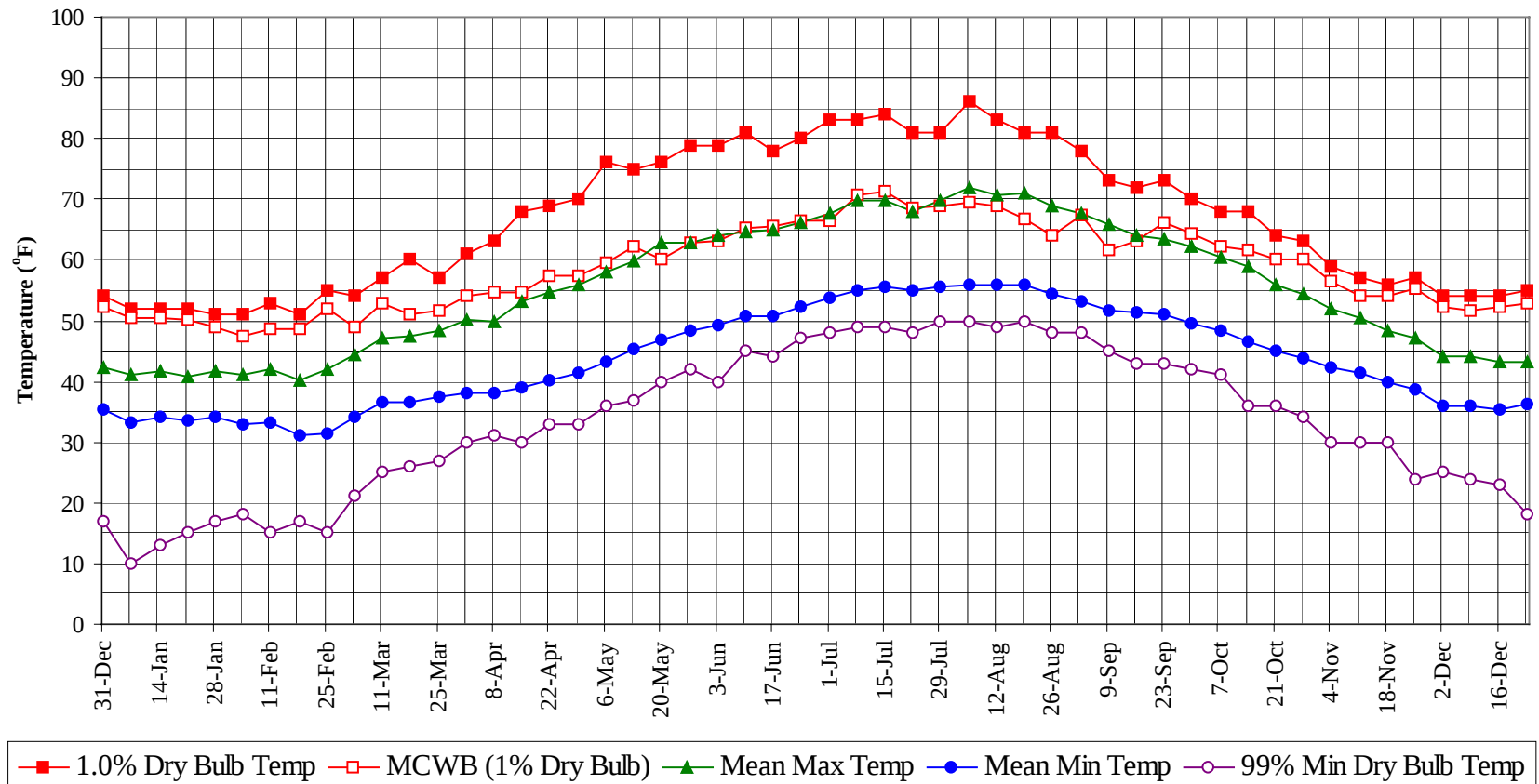
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)

Period of Record = 1973 to 1996

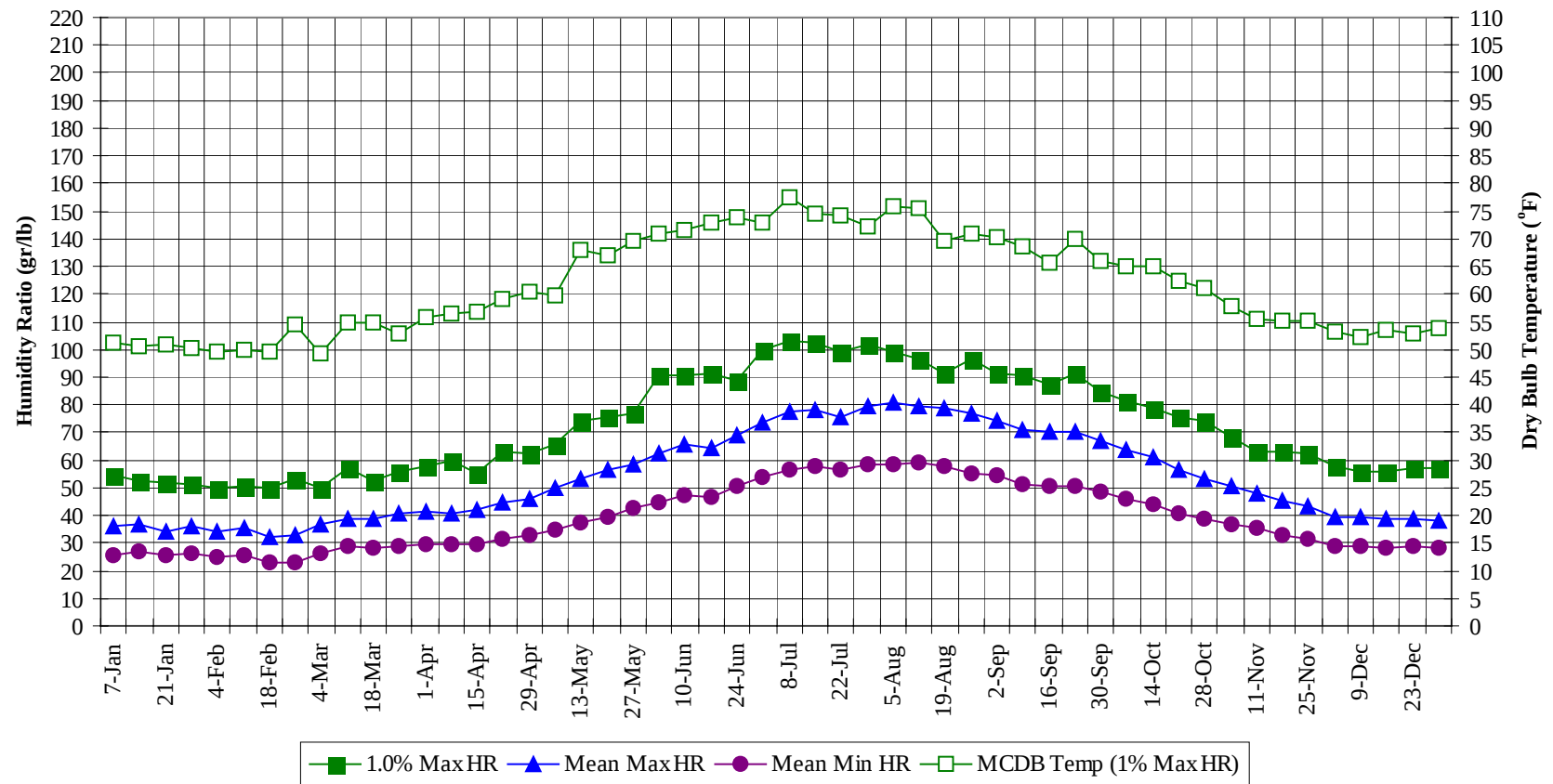
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
90 / 94		1	0	1	69.2
85 / 89		6	3	9	68.7
80 / 84		28	11	39	67.2
75 / 79	1	71	33	105	65.2
70 / 74	10	143	74	227	62.9
65 / 69	48	233	138	419	60.6
60 / 64	220	424	335	979	57.9
55 / 59	459	401	453	1313	54.1
50 / 54	496	379	440	1315	49.7
45 / 49	495	447	466	1408	44.9
40 / 44	442	334	397	1173	40.5
35 / 39	359	234	302	895	36.2
30 / 34	235	134	168	537	31.3
25 / 29	94	54	64	212	26.0
20 / 24	34	20	22	76	21.0
15 / 19	19	10	10	39	16.4
10 / 14	7	2	3	12	11.9
5 / 9	2	0	1	3	7.1
0 / 4		0		0	3.0

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Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary

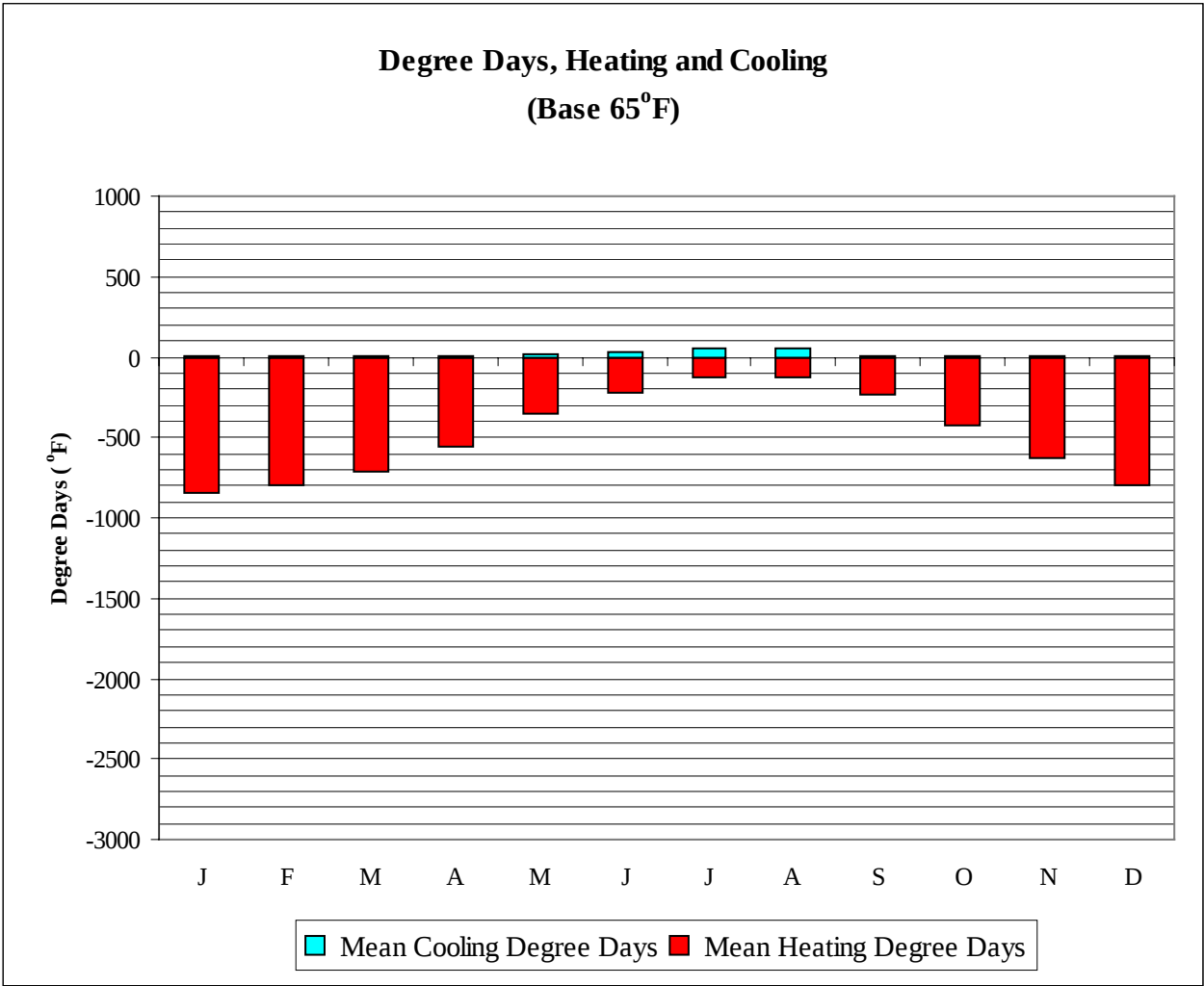


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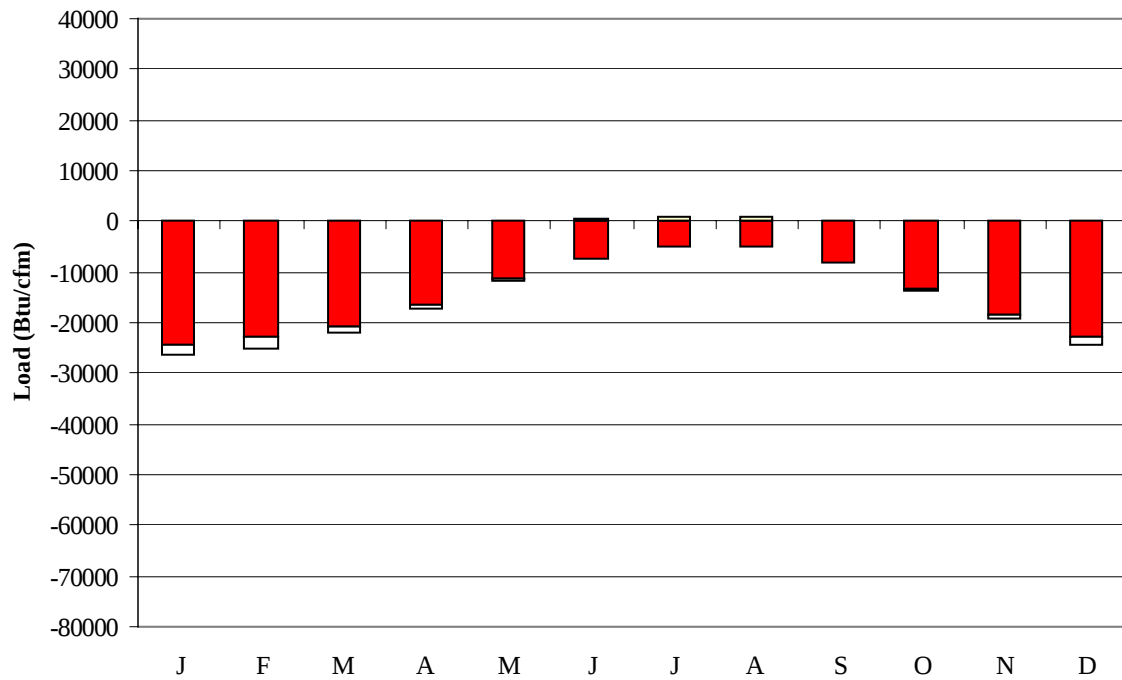
Long Term Dry Bulb Temperature and Humidity Summary

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	52.0	50.6	41.0	33.1	10.0	54.6	51.4	36.1	25.7
14-Jan	52.0	50.3	41.8	34.1	13.0	52.5	50.6	36.7	26.7
21-Jan	52.0	50.0	40.9	33.6	15.0	51.8	50.9	34.4	25.7
28-Jan	51.0	49.0	41.7	34.1	17.0	51.1	50.1	36.1	26.2
4-Feb	51.0	47.5	41.1	33.1	18.0	49.7	49.6	34.2	25.3
11-Feb	53.0	48.6	41.9	33.4	15.0	50.4	49.8	35.2	25.8
18-Feb	51.0	48.7	40.3	31.2	17.0	49.7	49.5	31.9	22.8
25-Feb	55.0	52.0	42.1	31.5	15.0	53.2	54.4	32.6	23.1
4-Mar	54.0	49.1	44.3	34.3	21.0	49.7	49.3	36.6	26.2
11-Mar	57.0	52.8	47.0	36.5	25.0	57.4	54.7	39.0	28.6
18-Mar	60.0	51.0	47.4	36.5	26.0	52.5	54.7	38.7	28.2
25-Mar	57.0	51.8	48.4	37.4	27.0	56.0	52.7	40.4	28.9
1-Apr	61.0	54.1	50.3	38.1	30.0	57.8	55.7	41.6	29.9
8-Apr	63.0	54.7	50.0	38.0	31.0	59.5	56.4	40.5	29.5
15-Apr	68.0	54.6	53.0	39.0	30.0	55.3	56.9	42.1	29.4
22-Apr	69.0	57.4	54.6	40.1	33.0	63.0	59.2	44.6	31.8
29-Apr	70.0	57.4	56.0	41.3	33.0	62.3	60.6	46.2	32.6
6-May	76.0	59.4	58.0	43.1	36.0	65.8	59.7	49.9	35.0
13-May	75.0	62.3	59.9	45.4	37.0	74.2	68.1	53.0	37.4
20-May	76.0	60.1	62.8	46.8	40.0	75.6	66.9	56.5	39.4
27-May	79.0	62.7	63.0	48.3	42.0	77.0	69.8	58.2	42.4
3-Jun	79.0	63.0	64.1	49.2	40.0	90.3	71.1	62.1	44.4
10-Jun	81.0	65.3	64.7	50.9	45.0	90.3	71.6	65.8	47.6
17-Jun	78.0	65.5	64.9	50.8	44.0	91.0	72.8	64.5	46.4
24-Jun	80.0	66.5	66.2	52.2	47.0	88.9	73.9	69.2	50.7
1-Jul	83.0	66.4	67.7	53.8	48.0	100.1	73.0	73.6	53.7
8-Jul	83.0	70.6	69.9	55.1	49.0	102.9	77.5	77.2	56.6
15-Jul	84.0	71.2	69.6	55.5	49.0	102.2	74.6	78.3	58.0
22-Jul	81.0	68.7	68.0	54.8	48.0	99.4	74.4	75.8	56.8
29-Jul	81.0	68.8	69.9	55.7	50.0	101.5	72.2	79.4	58.6
5-Aug	86.0	69.6	72.0	56.0	50.0	99.4	76.0	80.6	58.5
12-Aug	83.0	69.0	70.7	55.9	49.0	96.6	75.4	79.2	59.0
19-Aug	81.0	66.6	70.9	55.9	50.0	91.0	69.6	78.7	57.5
26-Aug	81.0	64.0	69.0	54.4	48.0	96.6	70.8	77.0	55.4
2-Sep	78.0	67.5	67.5	53.3	48.0	91.0	70.4	74.2	54.3
9-Sep	73.0	61.7	65.8	51.7	45.0	90.3	68.7	70.9	51.2
16-Sep	72.0	63.1	64.0	51.2	43.0	87.5	65.7	70.3	50.6
23-Sep	73.0	66.1	63.6	51.1	43.0	91.0	70.1	70.0	50.6
30-Sep	70.0	64.4	62.3	49.6	42.0	84.7	65.9	67.0	48.7
7-Oct	68.0	62.4	60.5	48.4	41.0	81.2	65.0	63.9	46.2
14-Oct	68.0	61.8	59.0	46.6	36.0	79.1	65.2	60.9	43.9
21-Oct	64.0	60.1	56.0	45.0	36.0	75.6	62.5	56.4	40.7
28-Oct	63.0	60.0	54.4	43.8	34.0	74.2	60.9	53.0	38.8
4-Nov	59.0	56.4	52.1	42.3	30.0	68.6	57.9	50.6	36.7
11-Nov	57.0	54.1	50.4	41.4	30.0	63.0	55.5	48.0	35.3
18-Nov	56.0	54.2	48.3	39.9	30.0	63.0	55.3	45.2	33.1
25-Nov	57.0	55.4	47.1	38.8	24.0	62.3	55.2	43.6	31.5
2-Dec	54.0	52.1	44.0	36.0	25.0	58.1	53.3	39.4	28.6
9-Dec	54.0	51.7	44.2	36.0	24.0	56.0	52.1	39.4	28.7
16-Dec	54.0	52.1	43.2	35.4	23.0	56.0	53.7	38.7	28.1
23-Dec	55.0	52.8	43.1	36.2	18.0	57.4	52.9	38.8	28.9
31-Dec	54.0	52.3	42.4	35.5	17.0	57.4	54.0	37.8	28.2



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	848
FEB	0	793
MAR	0	710
APR	2	551
MAY	18	357
JUN	35	216
JUL	58	128
AUG	54	125
SEP	10	230
OCT	1	428
NOV	0	627
DEC	0	791
ANN	178	5804

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



■ Average Sensible Cooling Load ■ Average Sensible Heating Load
■ Average Latent Cooling (Drying) Load ■ Average Latent Heating (Humidifying) Load

	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	-24401	0	-1945
FEB	0	-22762	0	-2279
MAR	0	-20803	0	-1100
APR	3	-16582	0	-573
MAY	42	-11461	23	-82
JUN	128	-7562	228	-1
JUL	232	-5116	805	0
AUG	181	-5049	585	-2
SEP	9	-8131	186	0
OCT	0	-13472	10	-56
NOV	0	-18582	0	-552
DEC	0	-22921	0	-1431
ANN	595	-176842	1837	-8021

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

No Solar Radiation
Data Available

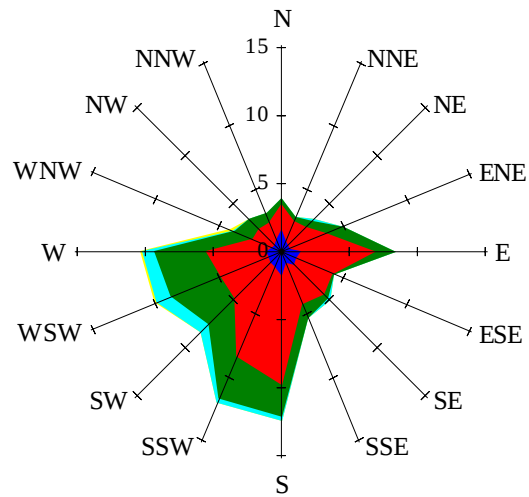


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

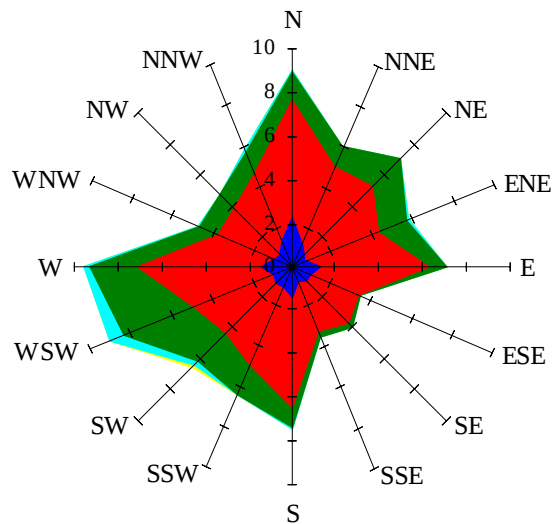
Labels of Percent Frequency on North Axis



Percent Calm = 0.43

Wind Summary - March, April, and May

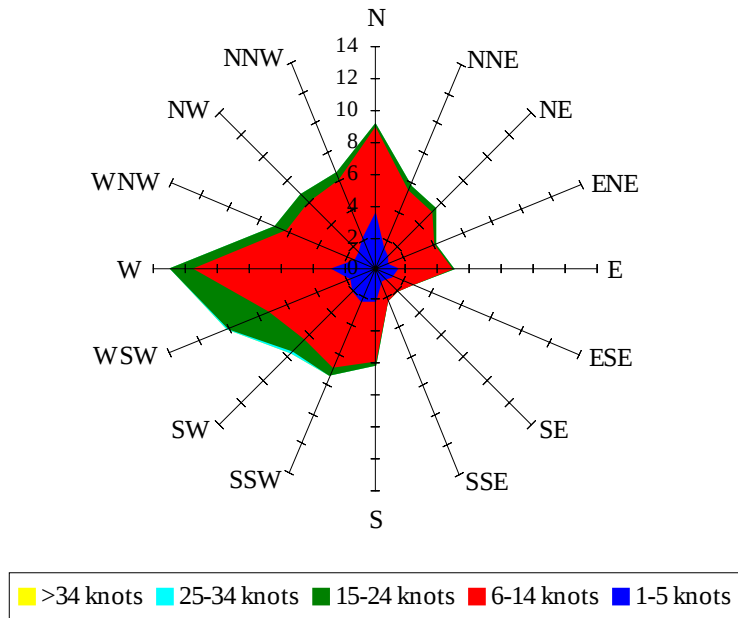
Labels of Percent Frequency on North Axis



Percent Calm = 0.36

Wind Summary - June, July, and August

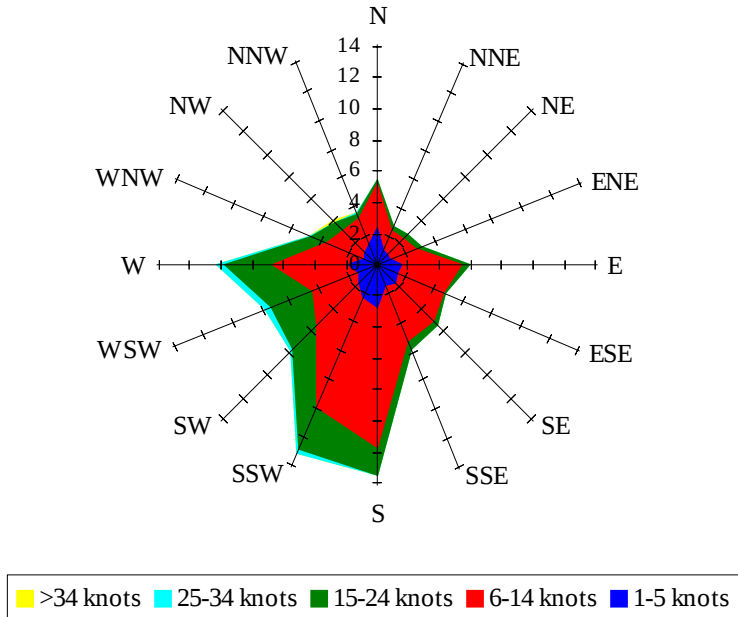
Labels of Percent Frequency on North Axis



Percent Calm = 0.56

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 0.54