

IWACUNI JP

Latitude = 34.15 N

Longitude = 132.23 E

Period of Record = 1973 to 1996

WMO No. 477640

Elevation = 7 feet

Average Pressure = 29.92 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	93	79	127	7.0	WSW
0.4% Occurrence	90	78	126	6.5	S
1.0% Occurrence	88	78	127	6.1	S
2.0% Occurrence	86	77	125	5.6	S
Mean Daily Range	14	-	-	-	-
97.5% Occurrence	34	31	20	4.6	WNW
99.0% Occurrence	31	28	18	4.8	NNW
99.6% Occurrence	28	25	15	4.9	WNW
Median of Extreme Lows	26	24	14	4.9	W
	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	82	88	152	5.6	S
0.4% Occurrence	80	87	141	5.6	S
1.0% Occurrence	79	86	137	5.3	S
2.0% Occurrence	78	85	133	5.1	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	169	86	1.11	4.4	E
0.4% Occurrence	146	85	0.97	3.9	SSE
1.0% Occurrence	141	84	0.94	4.6	S
2.0% Occurrence	134	82	0.88	4.7	S
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		9	916	1178	2215

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	4.1 + 0.9
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 (#)
62.7	N/A	N/A	16

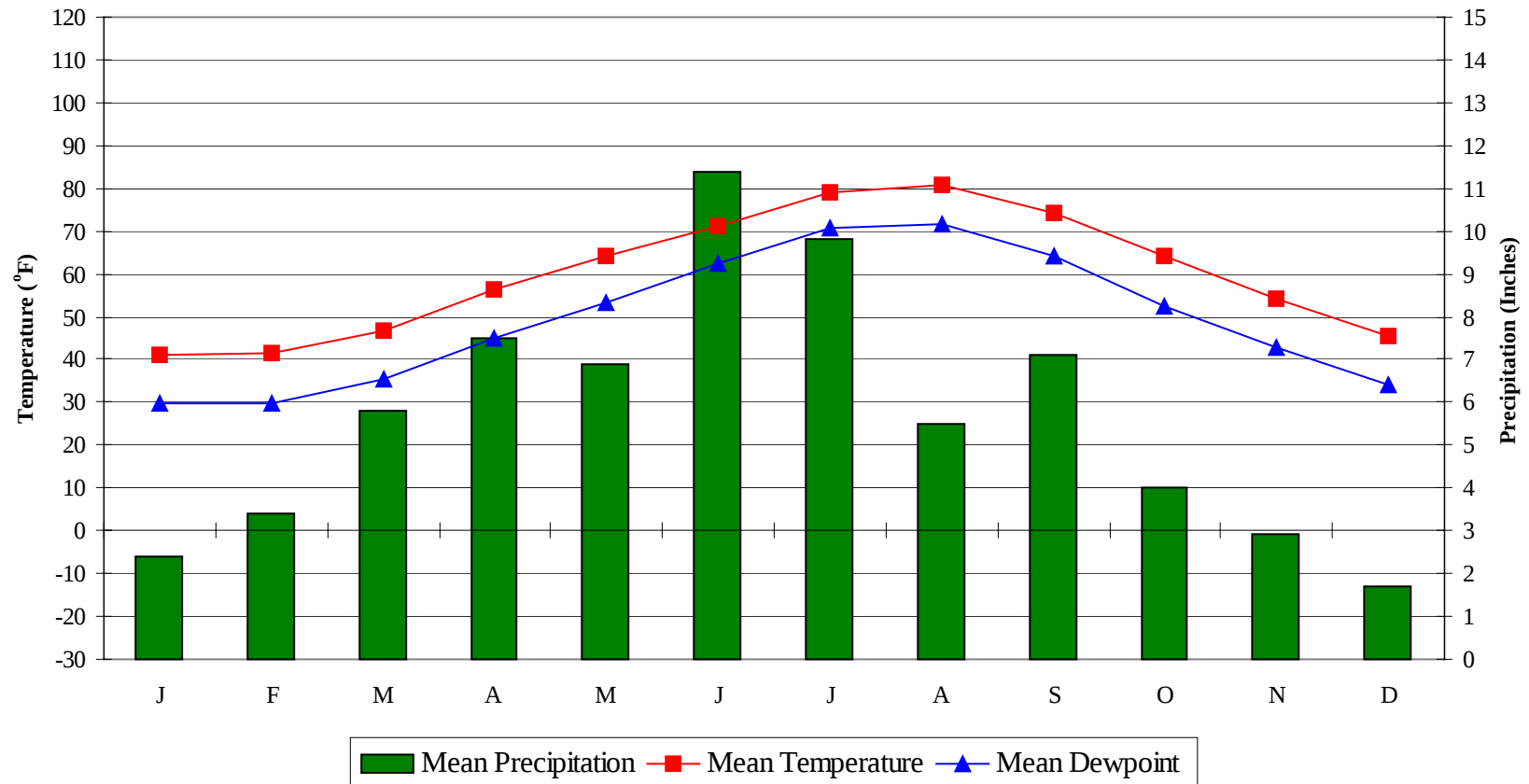
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.

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Average Annual Climate

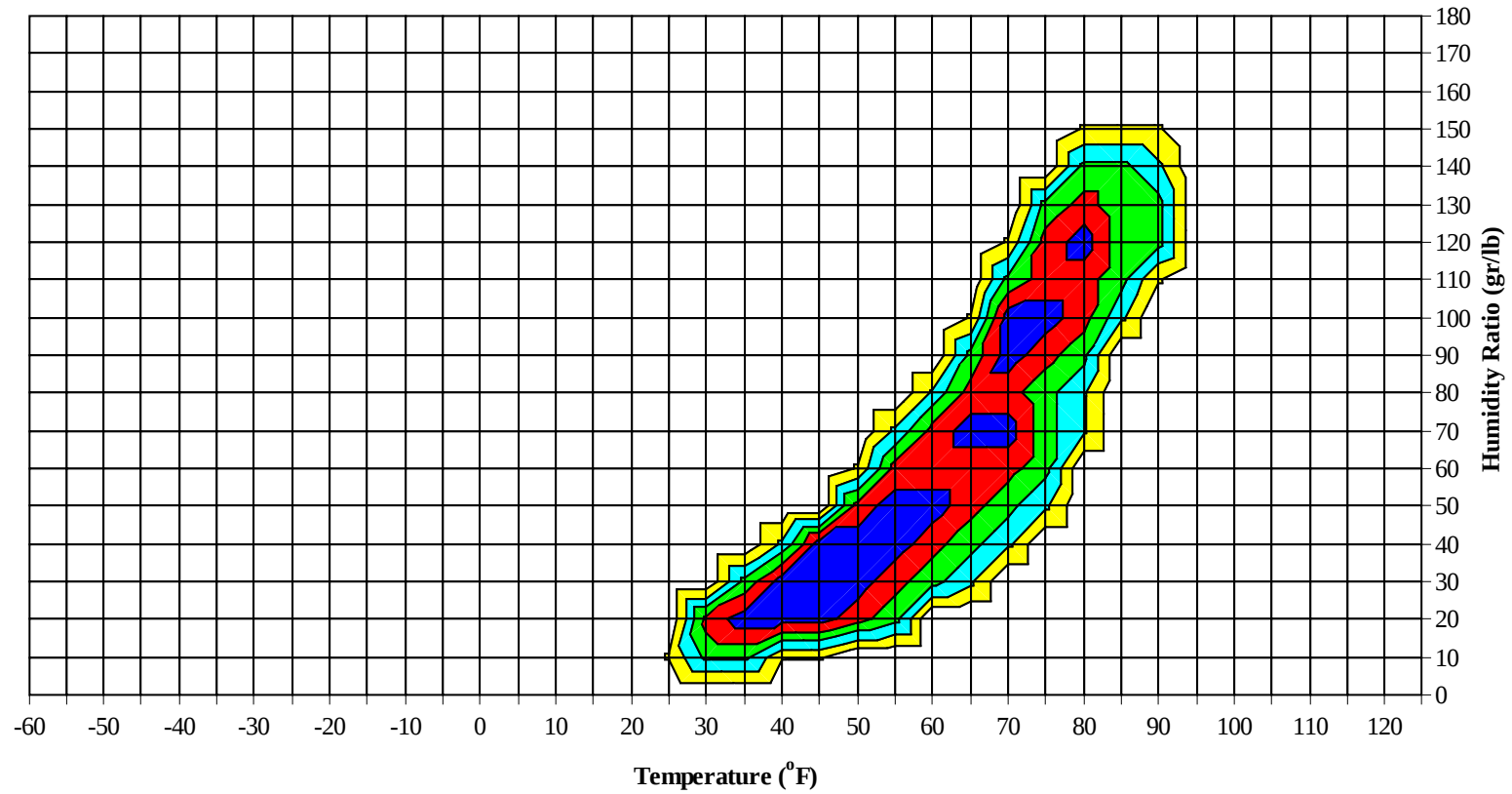


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Long Term Psychrometric Summary



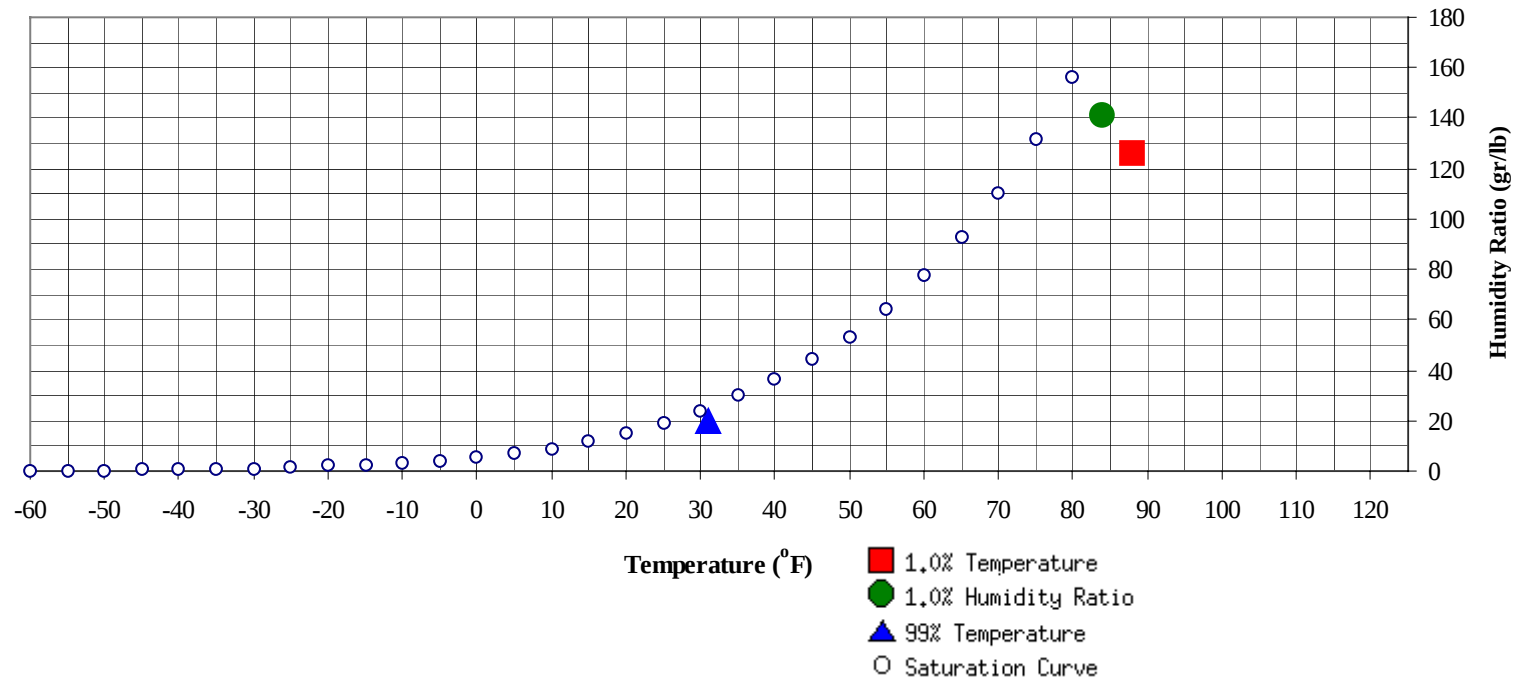
- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

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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)
	31	19.5	10.4		141.4	83.9	78.8	77	42.3

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	88	125.9	77.4	40.9

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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		
95 / 99															
90 / 94															
85 / 89															
80 / 84															
75 / 79															
70 / 74							0	0	0			0	0	0	60.9
65 / 69							0	0	0	57.8		0	1	0	1 57.8
60 / 64		1		1	52.4	0	3	1	4	54.2		2	13	5	20 54.1
55 / 59	0	13	2	15	49.2	1	13	5	19	49.9		7	45	28	80 49.8
50 / 54	6	43	18	67	45.1	9	45	23	77	45.1		32	96	69	197 45.7
45 / 49	30	93	61	185	40.9	24	79	60	163	40.6		59	66	80	205 41.6
40 / 44	41	52	58	151	37.1	39	45	53	137	37.1		55	18	39	113 37.9
35 / 39	83	38	75	196	33.1	74	29	53	156	33.1		66	7	21	94 33.9
30 / 34	78	7	31	116	29.4	63	8	24	95	29.1		24	1	5	30 29.8
25 / 29	10	0	2	12	25.4	11	1	4	16	24.8		2	0	0	2 24.9
20 / 24	0	0	0	0	21.0	2	0	1	3	20.6		0	0	0	0 22.0
15 / 19	0	0	0	0		0	1	0	1	18.3		0	0	0	0
10 / 14	0	0	0	0		0	0	0	0			0	1	0	1
5 / 9	0	0	0	0		1	0	0	1			0	0	1	1
0 / 4	0			0								0	0	0	0
-5 / -1												0	0	0	0
-10 / -6												0	0	0	0
-15 / -11												0	0	0	0
-20 / -16												0	0	0	0
-25 / -21												0	0	0	0
-30 / -26												0	0	0	0
-35 / -31													0	0	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		
95 / 99															
90 / 94											0	1		1	76.4
85 / 89											0	3	1	4	74.6
80 / 84		0	0	0	62.0	0	2	1	3	67.3	1	22	10	33	72.1
75 / 79		1	0	1	62.9	0	23	10	33	65.0	13	92	54	158	69.0
70 / 74	0	14	6	20	60.8	8	78	45	131	62.6	75	93	107	274	66.4
65 / 69	4	36	18	58	58.3	32	72	68	172	60.3	85	25	54	164	63.5
60 / 64	20	78	57	154	55.3	86	58	83	227	57.3	57	5	15	77	59.2
55 / 59	62	69	84	215	51.6	81	14	36	131	52.8	9		0	9	53.8
50 / 54	74	34	50	158	47.1	33	1	5	39	48.2					
45 / 49	48	7	20	75	42.2	7		0	7	43.5					
40 / 44	19	1	5	25	38.3	0			0	38.0					
35 / 39	12	0	1	13	34.2										
30 / 34															
25 / 29															
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															
-35 / -31															

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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		
95 / 99		1	0	1	79.2		1	0	1	79.1			0	0	80.0
90 / 94		20	7	27	78.5	0	27	7	34	78.2		3	0	3	77.0
85 / 89	1	57	26	84	77.5	2	83	34	118	77.0	0	19	4	23	75.9
80 / 84	33	87	87	206	75.1	52	104	118	274	75.0	8	67	32	107	73.0
75 / 79	122	58	86	266	72.5	147	28	78	254	72.7	48	91	78	218	69.7
70 / 74	73	22	39	134	68.9	43	5	11	59	69.2	80	46	83	210	66.1
65 / 69	18	2	4	24	65.0	4		0	4	63.5	59	11	31	101	62.7
60 / 64	1		0	1	61.5	0			0	59.4	35	2	11	48	58.7
55 / 59											8		1	9	54.1
50 / 54											1			1	48.9
45 / 49															
40 / 44															
35 / 39															
30 / 34															
25 / 29															
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															
-35 / -31															

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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		
95 / 99															
90 / 94															
85 / 89		0		0	73.5										
80 / 84		4	0	4	69.0										
75 / 79	2	35	9	46	66.1		0	0	0	66.7					
70 / 74	10	92	41	143	62.6	0	12	2	14	61.8					
65 / 69	29	60	60	149	60.1	3	31	8	42	58.7		1		1	57.2
60 / 64	77	43	83	203	56.6	17	72	41	130	55.1	1	11	1	13	53.6
55 / 59	78	12	41	131	52.3	44	69	64	177	50.8	4	47	15	66	49.7
50 / 54	37	1	13	51	47.8	64	39	67	170	46.4	20	79	47	146	45.5
45 / 49	13	0	2	15	43.5	64	15	40	119	42.1	49	66	81	196	41.3
40 / 44	1		0	1	39.8	34	3	13	50	38.2	60	28	53	141	37.8
35 / 39	0			0	36.8	15	0	4	19	34.8	87	13	40	140	33.8
30 / 34						0	0		0	32.3	26	2	10	38	29.8
25 / 29											2	0	1	3	26.2
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															
-15 / -11															
-20 / -16															
-25 / -21															
-30 / -26															
-35 / -31															

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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		
95 / 99		2	0	2	79.2
90 / 94	0	51	15	66	78.2
85 / 89	3	162	65	229	77.1
80 / 84	94	287	250	631	74.5
75 / 79	335	332	319	986	70.8
70 / 74	293	366	337	995	65.6
65 / 69	235	243	246	724	61.2
60 / 64	299	287	301	887	56.6
55 / 59	297	283	277	857	51.4
50 / 54	276	334	290	900	46.2
45 / 49	292	320	339	952	41.4
40 / 44	248	144	217	609	37.6
35 / 39	330	85	188	604	33.5
30 / 34	187	18	69	274	29.4
25 / 29	24	2	7	33	25.2
20 / 24	2	0	1	3	20.7
15 / 19	0	1	0	1	18.3
10 / 14	0	1	0	1	
5 / 9	1	1	1	3	
0 / 4	0	0	0	0	
-5 / -1	0	0	0	0	
-10 / -6	0	0	0	0	
-15 / -11	0	0	0	0	
-20 / -16	0	0	0	0	
-25 / -21	0	0	0	0	
-30 / -26	0	0	0	0	
-35 / -31		0	0	0	

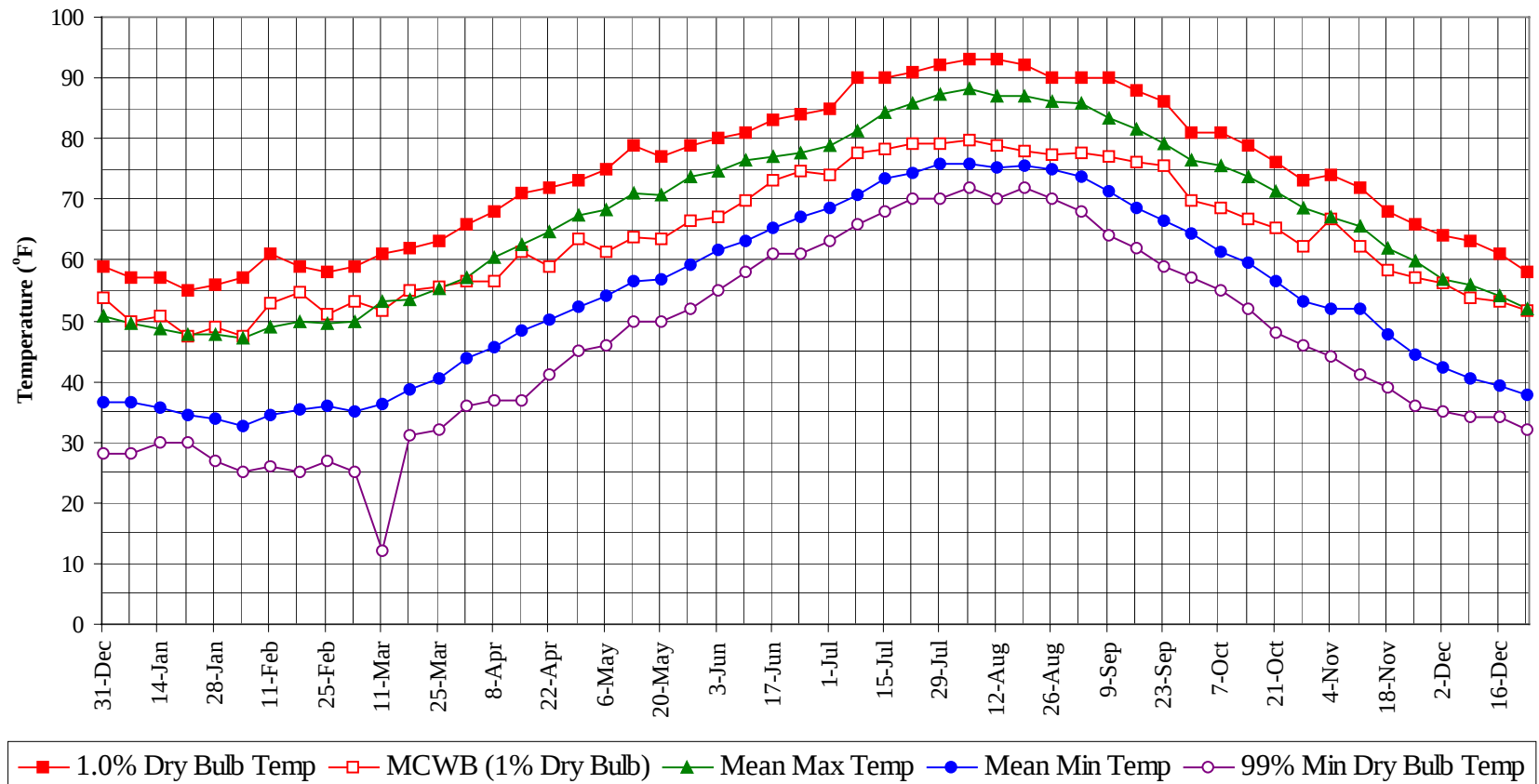
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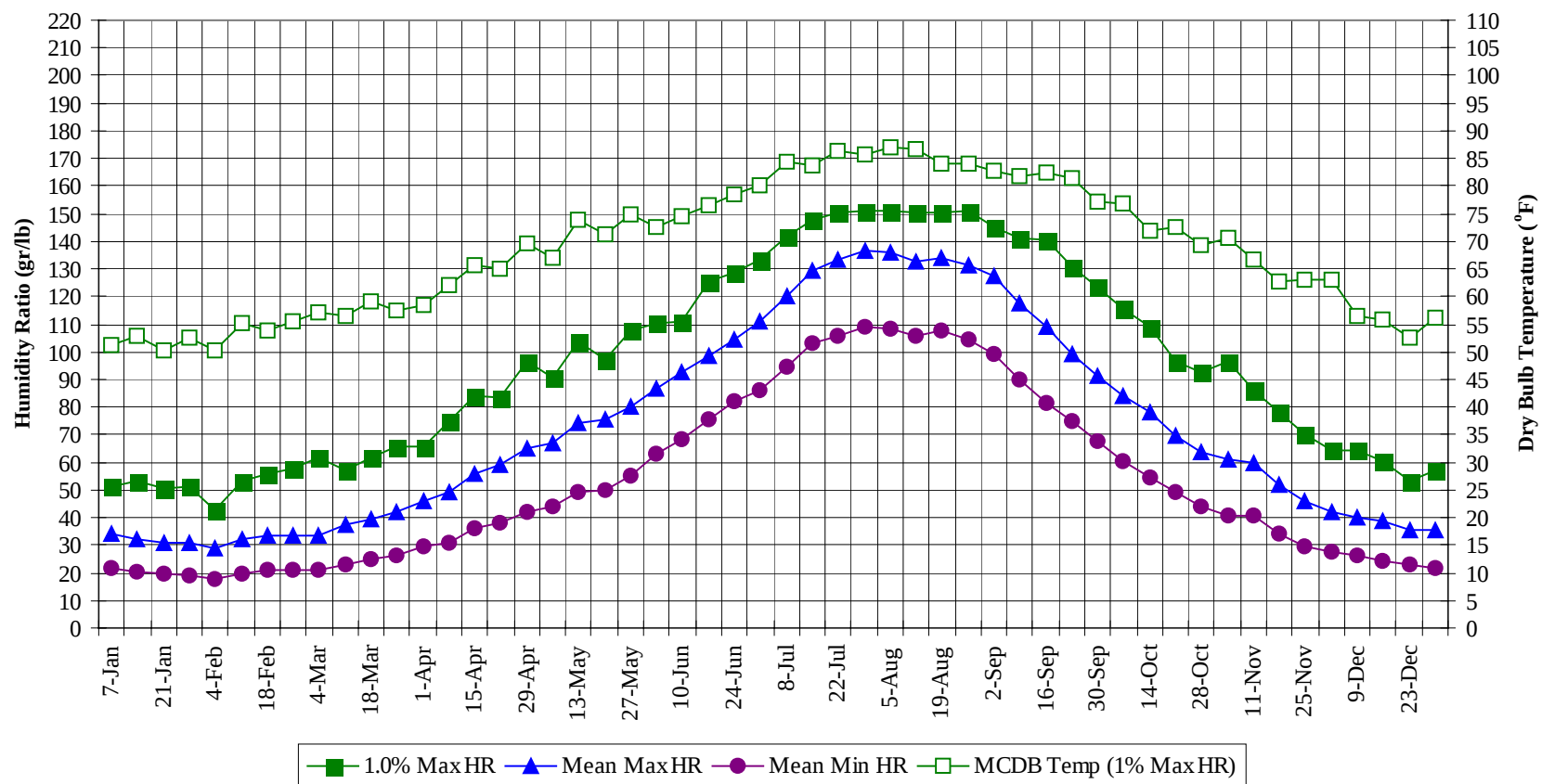
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Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary



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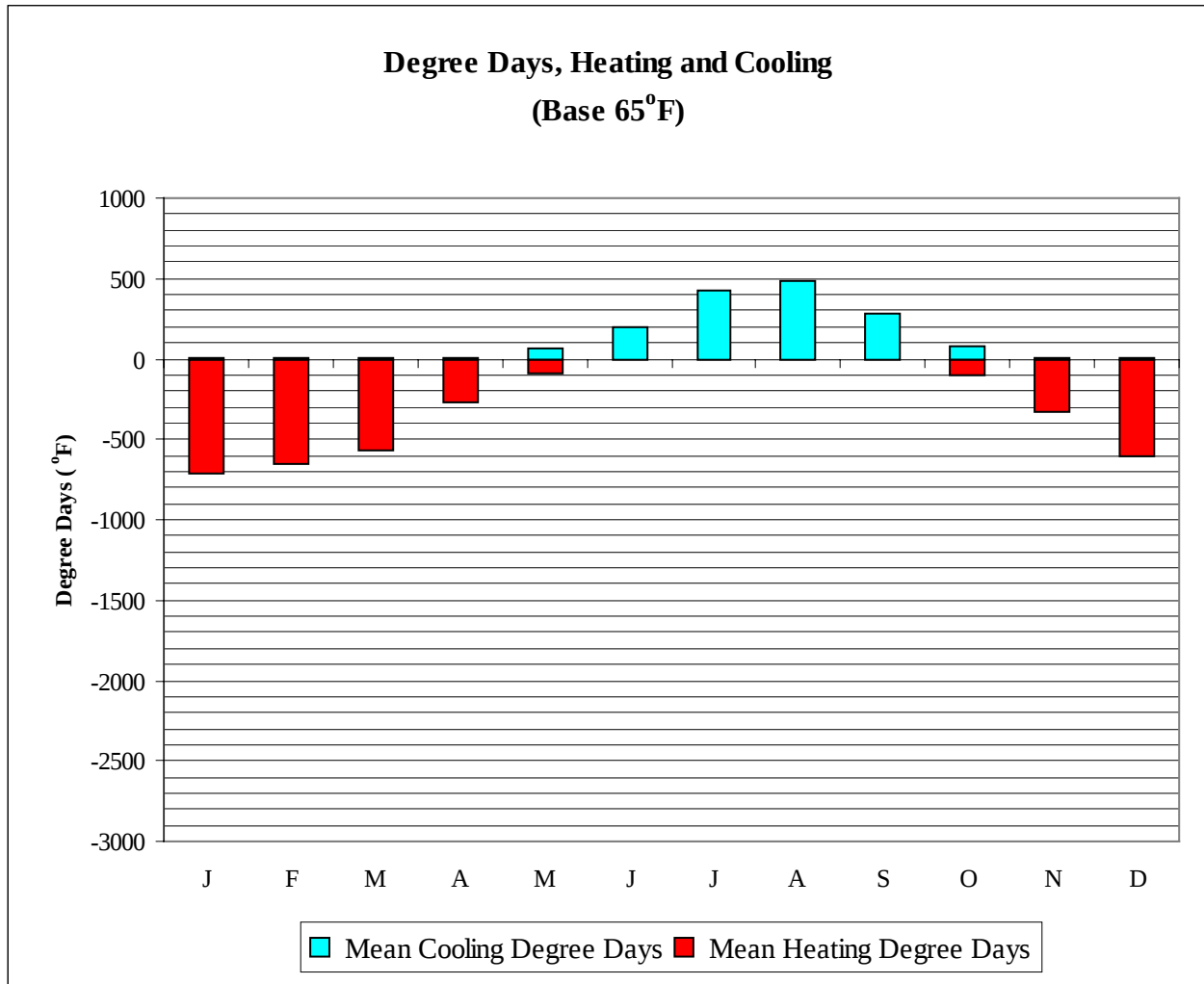
Long Term Dry Bulb Temperature and Humidity Summary

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	57.0	49.7	49.4	36.6	28.0	51.1	51.2	34.0	21.7
14-Jan	57.0	50.9	48.7	35.6	30.0	53.2	52.9	32.2	20.6
21-Jan	55.0	47.3	47.9	34.4	30.0	50.4	50.3	30.9	19.5
28-Jan	56.0	49.0	47.8	33.7	27.0	51.1	52.6	30.6	19.3
4-Feb	57.0	47.5	47.1	32.6	25.0	42.7	50.3	28.6	17.9
11-Feb	61.0	53.0	49.0	34.4	26.0	53.2	55.3	32.1	19.7
18-Feb	59.0	54.8	49.8	35.2	25.0	56.0	54.0	33.7	21.1
25-Feb	58.0	51.2	49.5	35.9	27.0	58.1	55.5	33.6	21.0
4-Mar	59.0	53.1	49.7	35.2	25.0	61.6	57.3	33.5	21.0
11-Mar	61.0	51.6	53.2	36.2	12.0	57.4	56.3	37.7	22.9
18-Mar	62.0	55.0	53.5	38.7	31.0	61.6	59.1	39.5	25.0
25-Mar	63.0	55.7	55.3	40.6	32.0	65.8	57.5	42.3	26.4
1-Apr	66.0	56.6	57.0	43.8	36.0	65.8	58.6	45.8	29.5
8-Apr	68.0	56.4	60.5	45.5	37.0	74.9	62.1	49.5	30.9
15-Apr	71.0	61.4	62.6	48.5	37.0	84.0	65.6	55.7	36.1
22-Apr	72.0	59.0	64.6	50.3	41.0	83.3	65.0	59.4	38.1
29-Apr	73.0	63.5	67.5	52.2	45.0	96.6	69.7	65.3	41.7
6-May	75.0	61.3	68.2	54.1	46.0	90.3	67.0	66.8	43.8
13-May	79.0	63.8	71.0	56.5	50.0	103.6	73.8	74.5	49.5
20-May	77.0	63.6	70.8	56.8	50.0	97.3	71.2	75.8	49.9
27-May	79.0	66.4	73.6	59.1	52.0	107.8	75.0	80.4	55.4
3-Jun	80.0	67.0	74.7	61.6	55.0	110.6	72.5	86.6	63.0
10-Jun	81.0	69.9	76.4	63.1	58.0	111.3	74.5	92.4	68.1
17-Jun	83.0	73.0	77.1	65.2	61.0	125.3	76.5	98.7	75.2
24-Jun	84.0	74.6	77.7	67.2	61.0	128.8	78.4	104.4	82.4
1-Jul	85.0	74.0	79.0	68.7	63.0	133.0	80.1	110.9	86.3
8-Jul	90.0	77.6	81.3	70.8	66.0	142.1	84.5	120.0	94.7
15-Jul	90.0	78.2	84.4	73.4	68.0	147.7	83.7	129.1	103.0
22-Jul	91.0	79.1	85.8	74.3	70.0	150.5	86.3	133.0	105.6
29-Jul	92.0	79.3	87.4	75.7	70.0	151.2	85.7	136.6	108.7
5-Aug	93.0	79.7	88.1	75.9	72.0	151.2	86.9	135.8	108.0
12-Aug	93.0	78.7	87.2	75.1	70.0	150.5	86.6	132.9	105.5
19-Aug	92.0	77.9	87.0	75.7	72.0	150.5	84.1	134.1	107.9
26-Aug	90.0	77.4	86.2	75.0	70.0	151.2	84.1	131.2	104.2
2-Sep	90.0	77.8	85.8	73.8	68.0	144.9	82.9	127.1	99.0
9-Sep	90.0	77.0	83.4	71.2	64.0	141.4	81.8	117.6	89.7
16-Sep	88.0	76.1	81.6	68.6	62.0	140.7	82.3	109.0	81.4
23-Sep	86.0	75.5	79.2	66.3	59.0	130.9	81.3	99.2	74.6
30-Sep	81.0	69.9	76.6	64.3	57.0	123.2	77.1	91.5	67.4
7-Oct	81.0	68.7	75.6	61.4	55.0	115.5	76.7	84.2	60.6
14-Oct	79.0	66.9	73.6	59.4	52.0	109.2	71.8	78.0	54.5
21-Oct	76.0	65.3	71.4	56.4	48.0	96.6	72.5	69.8	49.2
28-Oct	73.0	62.2	68.7	53.1	46.0	92.4	69.2	63.8	43.7
4-Nov	74.0	66.7	67.1	51.8	44.0	96.6	70.5	60.9	41.0
11-Nov	72.0	62.2	65.6	51.8	41.0	86.1	66.6	59.7	41.0
18-Nov	68.0	58.4	61.9	47.8	39.0	78.4	62.6	51.7	34.3
25-Nov	66.0	57.2	59.9	44.3	36.0	70.0	63.1	46.0	29.6
2-Dec	64.0	56.2	56.8	42.2	35.0	64.4	63.0	42.3	27.3
9-Dec	63.0	53.8	56.0	40.6	34.0	64.4	56.6	40.4	26.1
16-Dec	61.0	53.0	53.9	39.3	34.0	60.2	55.9	38.8	24.1
23-Dec	58.0	51.7	52.1	37.8	32.0	53.2	52.5	35.6	22.8
31-Dec	59.0	53.8	50.7	36.5	28.0	57.4	56.3	35.2	21.9

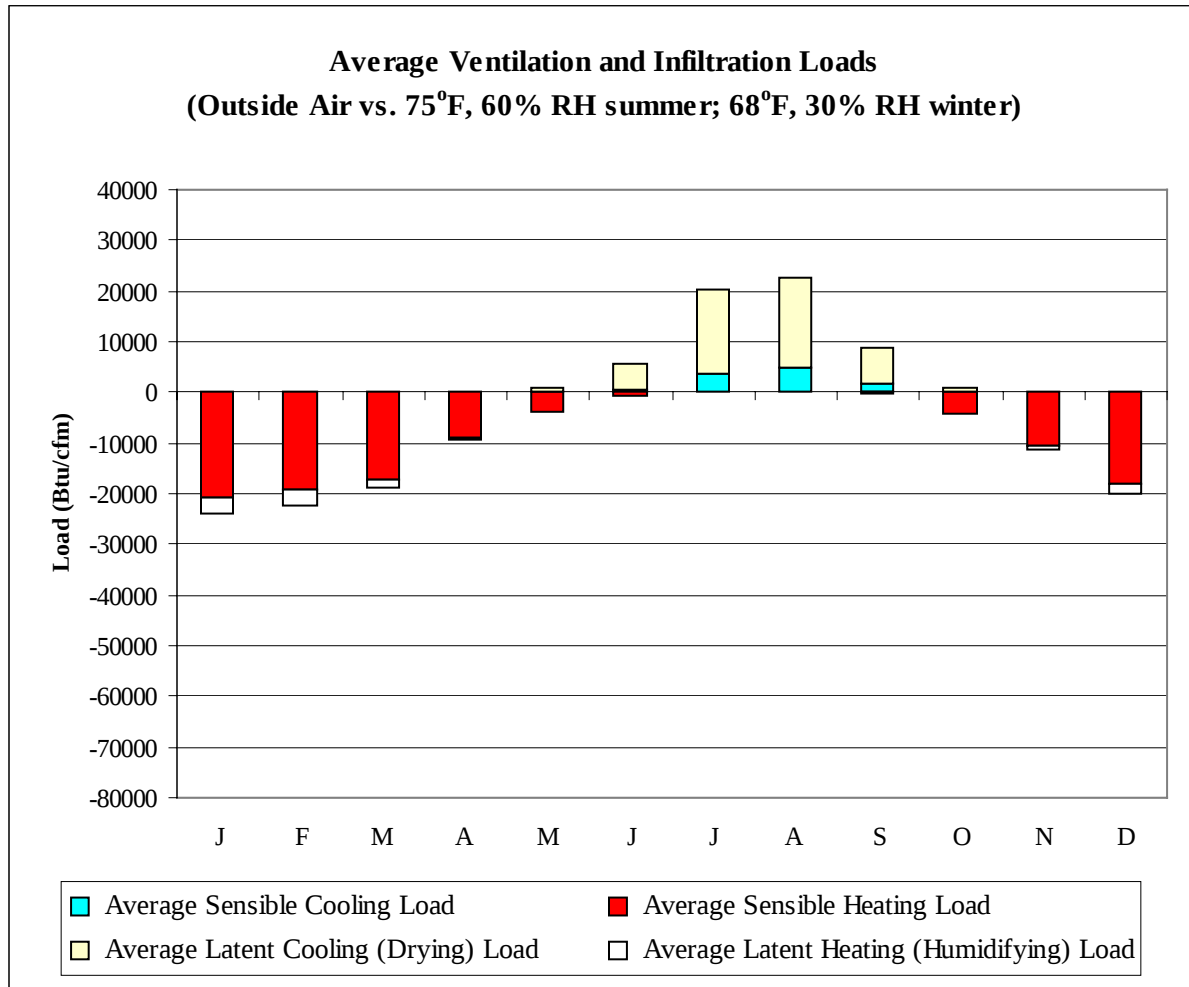
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	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	713
FEB	0	658
MAR	0	567
APR	10	268
MAY	65	89
JUN	194	8
JUL	428	0
AUG	489	0
SEP	277	6
OCT	74	100
NOV	6	325
DEC	0	606
ANN	1542	3340



	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	-20815	0	-3211
FEB	0	-19245	0	-3014
MAR	0	-17090	1	-1690
APR	3	-9113	84	-398
MAY	58	-3840	721	-31
JUN	528	-631	5191	0
JUL	3673	-17	16658	0
AUG	4807	-3	17962	0
SEP	1563	-435	7339	0
OCT	91	-4095	825	-19
NOV	0	-10636	57	-504
DEC	0	-18105	0	-2046
ANN	10723	-104025	48838	-10913

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

No Solar Radiation
Data Available

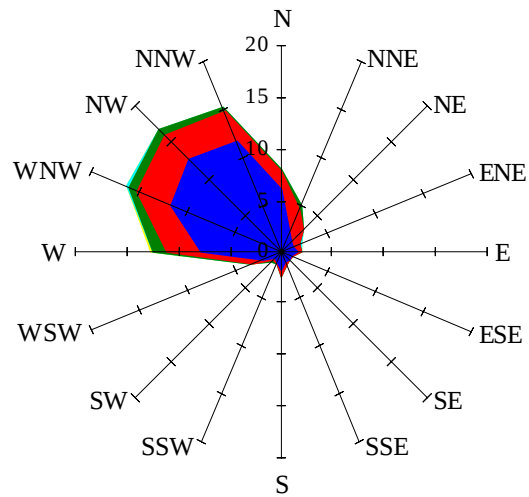


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

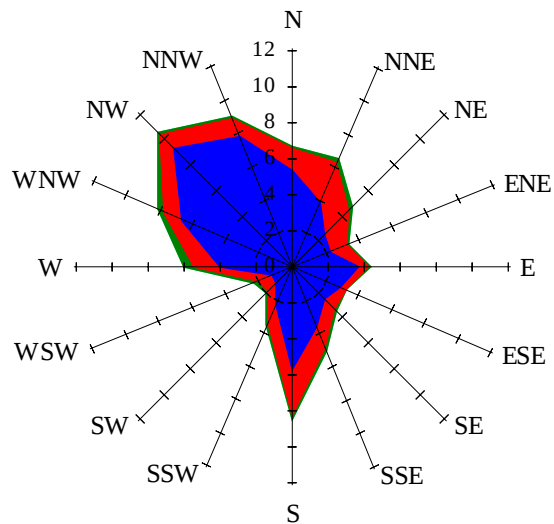
Labels of Percent Frequency on North Axis



Percent Calm = 7.41

Wind Summary - March, April, and May

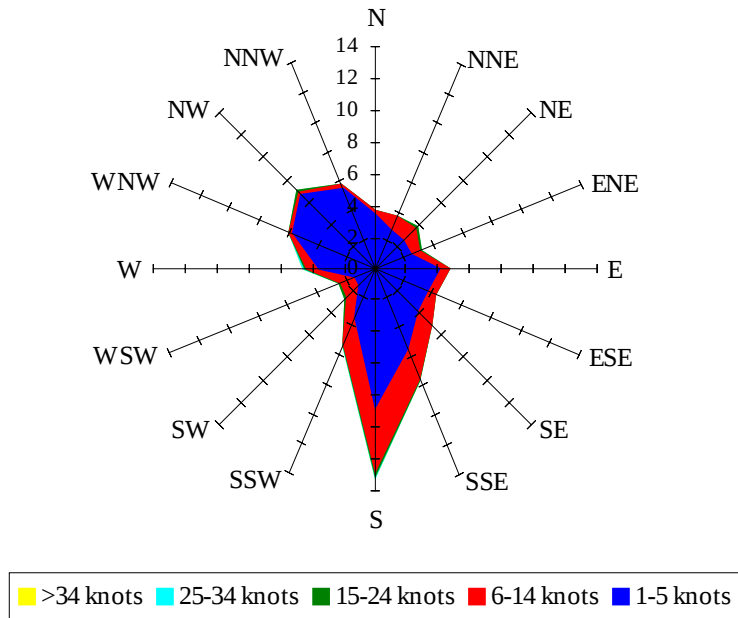
Labels of Percent Frequency on North Axis



Percent Calm = 13.40

Wind Summary - June, July, and August

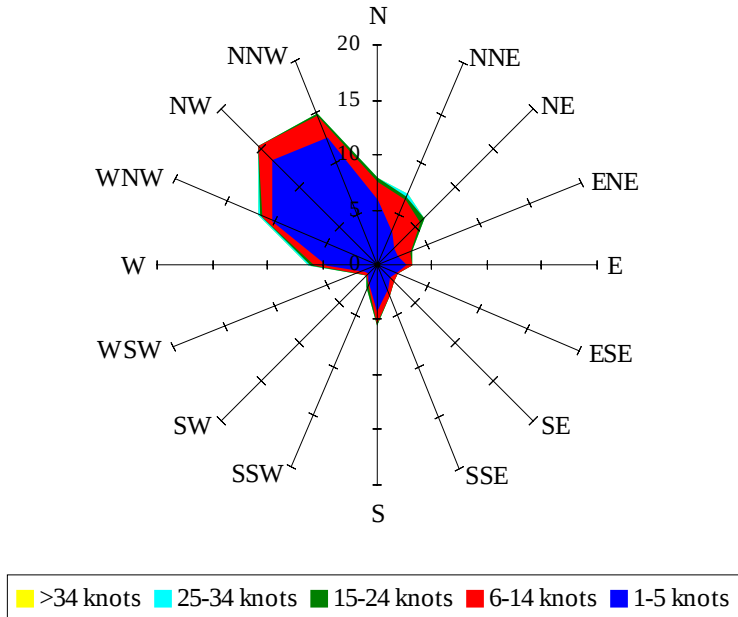
Labels of Percent Frequency on North Axis



Percent Calm = 18.21

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 7.85