

IRUMA JP	
Latitude = 35.83 N	WMO No. 476430
Longitude = 139.42 E	Elevation = 305 feet
Period of Record = 1973 to 1996	Average Pressure = 29.57 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	97	79	123	7.9	S
0.4% Occurrence	93	78	124	8.4	S
1.0% Occurrence	90	77	123	8.8	S
2.0% Occurrence	88	76	120	8.6	S
Mean Daily Range	16	-	-	-	-
97.5% Occurrence	28	25	15	4.4	W
99.0% Occurrence	27	25	15	4.4	W
99.6% Occurrence	23	21	12	3.5	W
Median of Extreme Lows	19	17	10	3.1	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	92	146	7.2	S
0.4% Occurrence	79	87	135	7.5	S
1.0% Occurrence	78	86	133	7.5	S
2.0% Occurrence	77	84	130	7.1	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	153	84	0.99	6.4	S
0.4% Occurrence	144	84	0.94	6.5	S
1.0% Occurrence	135	82	0.88	6.8	S
2.0% Occurrence	134	82	0.88	6.1	S
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		40	627	901	1929

Other Site Data

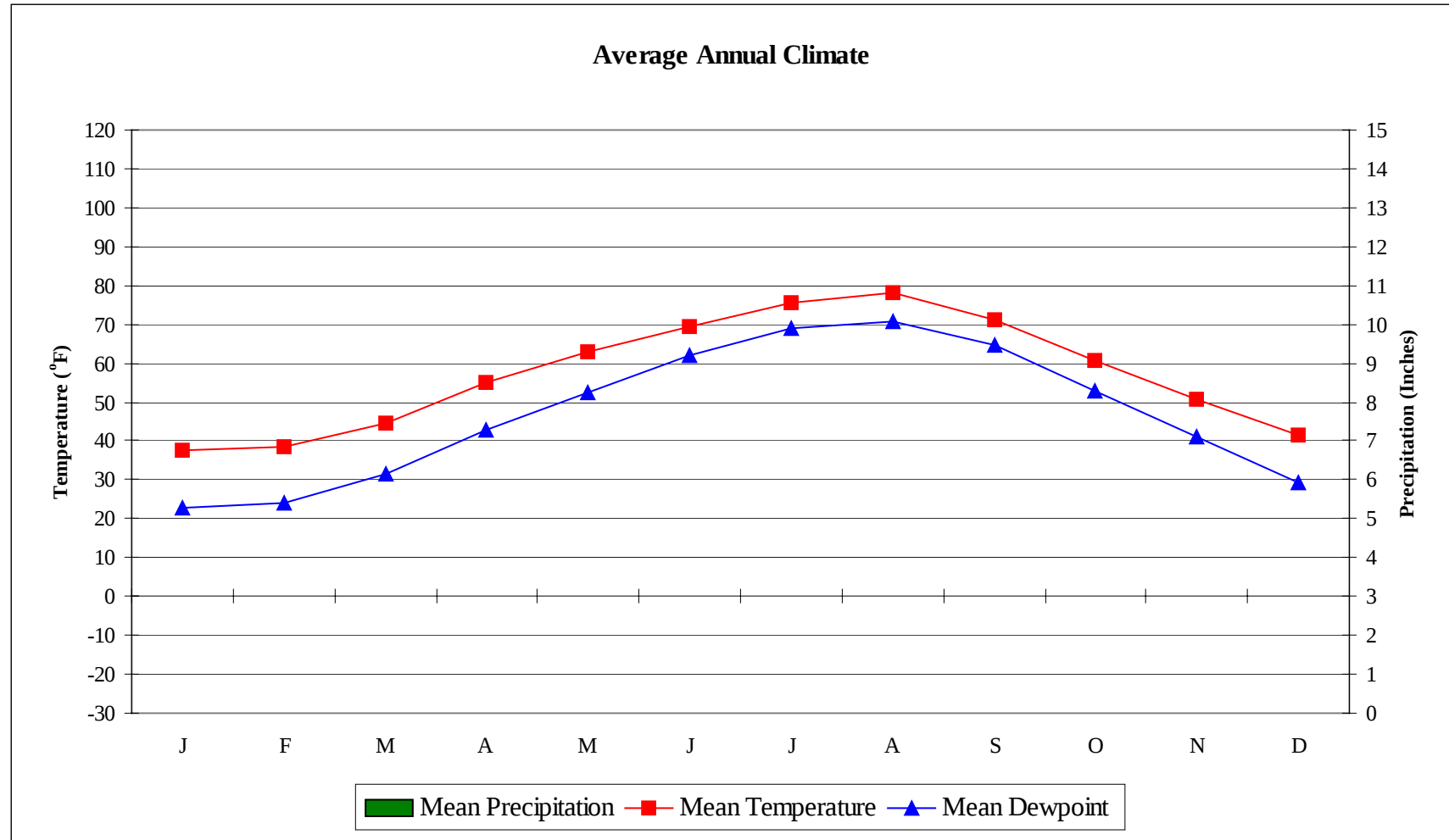
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
7	N/A	N/A	3.8 + 0.7
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
59.7	N/A	N/A	58

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

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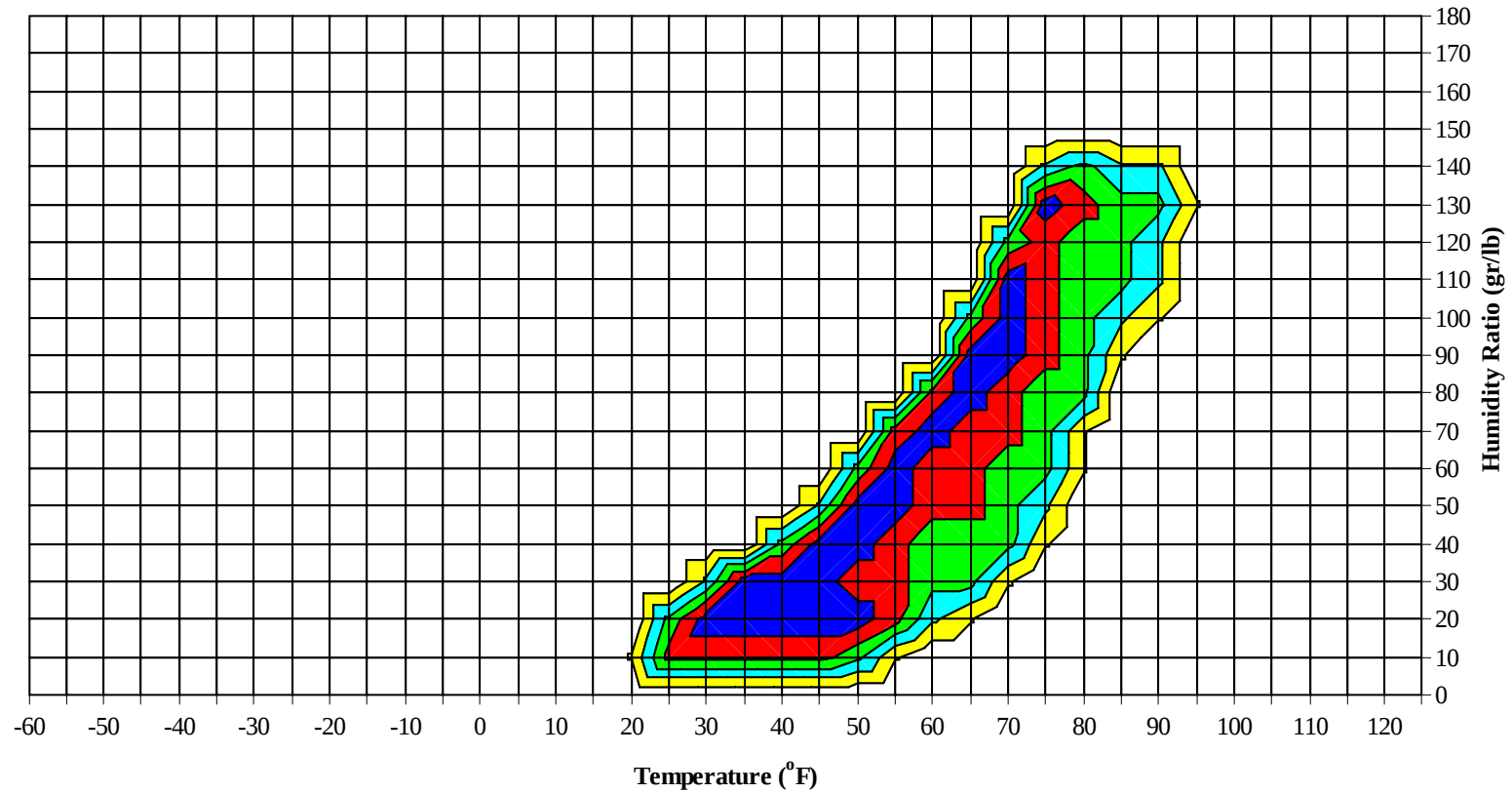
No Precipitation Data Available

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Long Term Psychrometric Summary



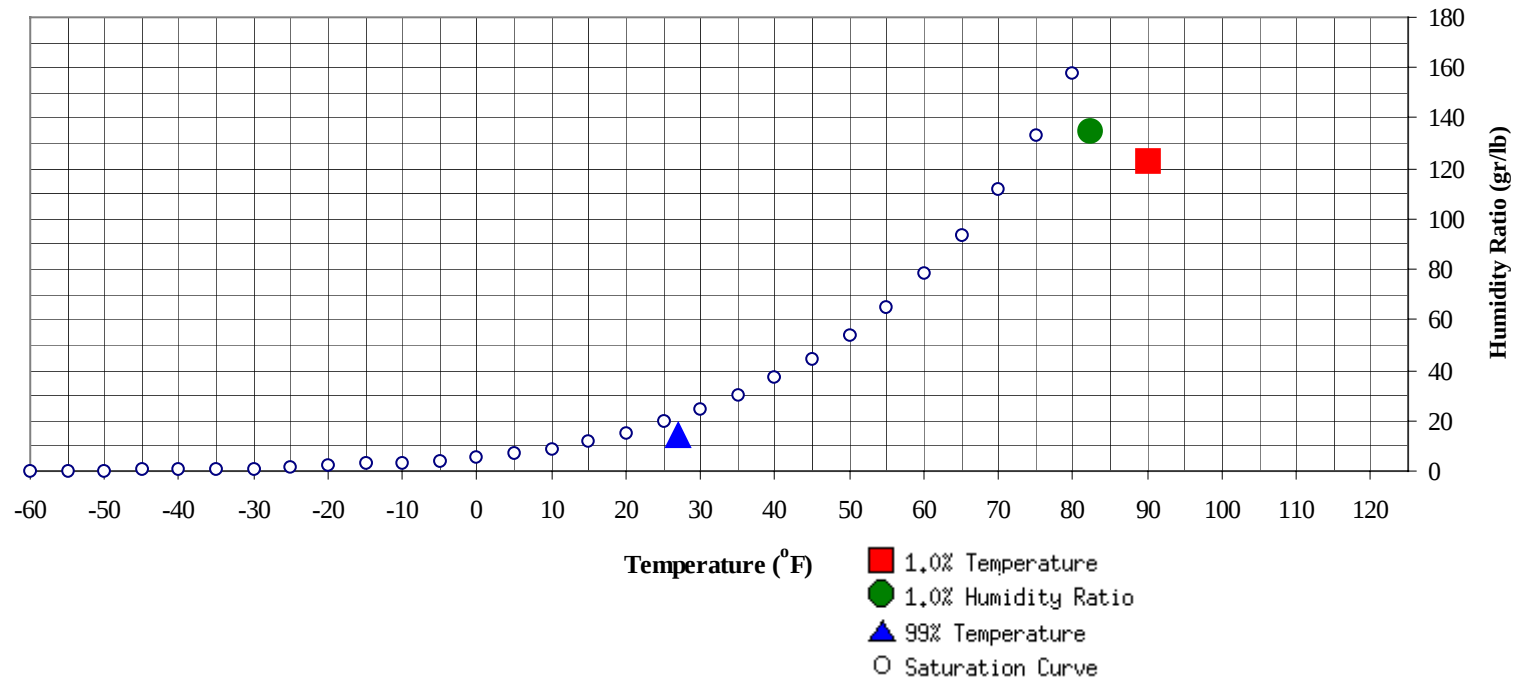
- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

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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)
	27	13.9	8.6		135.1	82.2	77.1	75.2	40.9

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	90	122.6	77.2	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		
100 / 104															
95 / 99															
90 / 94															
85 / 89															
80 / 84															
75 / 79												0		0	57.2
70 / 74							1		1	57.8	0	2	0	2	56.2
65 / 69		0		0	48.1		1	0	1	55.2	0	5	1	6	53.5
60 / 64		2		2	49.0		4	1	5	50.8	0	19	4	23	50.2
55 / 59		8	1	9	45.4	1	12	3	16	46.5	2	38	16	56	47.2
50 / 54	0	36	5	41	41.4	1	33	11	45	42.0	10	65	42	117	43.9
45 / 49	5	78	25	108	37.9	9	68	31	108	38.6	41	66	66	173	40.8
40 / 44	14	56	39	109	35.4	15	46	38	99	35.8	48	32	54	134	37.8
35 / 39	49	49	87	185	32.4	49	43	72	165	32.7	83	18	51	151	34.1
30 / 34	87	18	71	175	28.5	85	16	54	155	28.7	50	4	14	68	29.8
25 / 29	75	2	20	97	24.3	52	1	13	67	24.1	12		1	13	24.6
20 / 24	16		1	17	20.3	10	0	0	10	19.9	1			1	19.8
15 / 19	2			2	17.5	1			1	17.3	0			0	17.0

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	09	17			01	09	17			01	09	17		
	To 08	To 16	To 00			To 08	To 16	To 00			To 08	To 16	To 00		
100 / 104															
95 / 99											0 76.7				
90 / 94						0 0 0 70.0					4 1 5 74.9				
85 / 89						1 0 1 67.2					0 8 2 10 72.7				
80 / 84	2 2 62.3					15 1 16 65.2					1 36 10 47 70.0				
75 / 79	11 1 12 60.6					0 45 9 54 63.1					9 62 32 103 68.4				
70 / 74	0 33 7 40 58.0					3 65 32 100 61.2					37 62 72 172 66.5				
65 / 69	1 32 14 47 56.1					13 43 43 99 59.8					65 34 58 156 64.6				
60 / 64	12 54 42 108 54.2					65 46 81 192 57.7					94 29 53 175 61.0				
55 / 59	40 53 64 157 51.4					93 23 58 174 53.8					31 4 12 47 56.1				
50 / 54	73 37 58 168 47.8					58 8 21 87 49.6					3 0 1 4 52.3				
45 / 49	63 16 37 116 42.9					15 1 3 19 44.4									
40 / 44	27 3 11 41 38.5					1 0 1 39.4									
35 / 39	18 1 4 23 34.4					0 0 38.0									
30 / 34	5 0 1 6 30.1														
25 / 29															
20 / 24															
15 / 19															

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WMO No. 476430

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	81.0		1	0	1	78.5					
95 / 99		6	0	6	79.6		10	1	11	78.3		1	0	1	77.8
90 / 94		35	5	40	78.0	0	49	6	55	77.7		7	0	7	76.7
85 / 89	0	37	12	49	76.3	1	49	16	66	76.3	0	19	2	21	74.7
80 / 84	8	49	43	100	74.6	14	62	63	138	75.1	1	40	15	56	72.7
75 / 79	59	49	76	184	72.8	101	47	103	250	73.5	21	57	49	127	70.5
70 / 74	92	44	67	203	69.7	101	25	47	173	70.0	65	64	75	204	67.6
65 / 69	53	20	31	104	65.9	25	6	10	41	66.0	64	32	57	153	64.8
60 / 64	31	8	13	52	62.2	6	1	2	9	63.0	69	19	35	123	61.2
55 / 59	4	1	1	6	57.2	0			0	59.0	17	2	6	25	56.4
50 / 54	0			0	54.0						2	0	0	2	51.2
45 / 49											0			0	46.5
40 / 44															
35 / 39															
30 / 34															
25 / 29															
20 / 24															
15 / 19															

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		0		0	72.9										
80 / 84	0	2	0	2	69.3		0		0	68.0					
75 / 79	0	18	3	21	65.8		1	0	1	62.7					
70 / 74	3	54	18	75	62.9		8	0	8	59.4		0		0	56.5
65 / 69	12	50	30	92	60.7	0	14	2	16	56.8		1	0	1	55.2
60 / 64	60	79	82	221	58.5	3	46	14	63	54.3	0	8	0	8	51.2
55 / 59	85	36	76	197	54.3	21	77	47	145	51.3	1	35	4	40	46.8
50 / 54	56	8	33	97	49.7	58	61	73	192	47.8	4	69	20	93	43.2
45 / 49	25	0	6	31	44.0	58	27	61	146	42.9	20	74	54	148	40.2
40 / 44	6		0	6	40.0	42	6	26	74	38.8	30	35	55	120	37.2
35 / 39	1		0	1	36.8	42	1	15	58	35.1	81	23	77	181	33.8
30 / 34						14	0	1	15	30.6	77	4	33	114	29.6
25 / 29						1		0	1	26.7	31	0	5	36	25.1
20 / 24											4			4	20.5
15 / 19											0			0	18.0

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WMO No. 476430

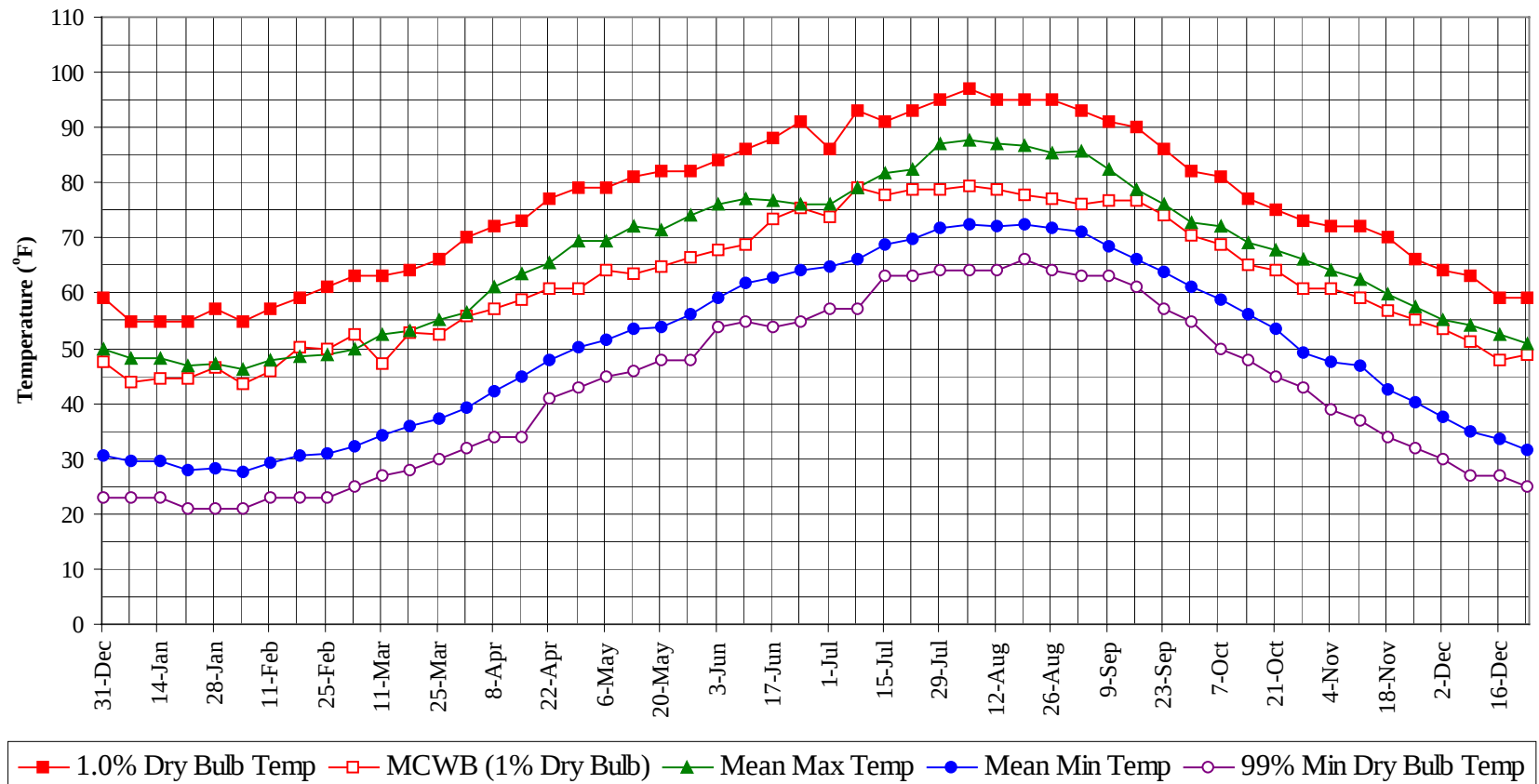
Dry-Bulb Temperature Hours For An Average Year (Sheet 5 of 5)

Period of Record = 1973 to 1996

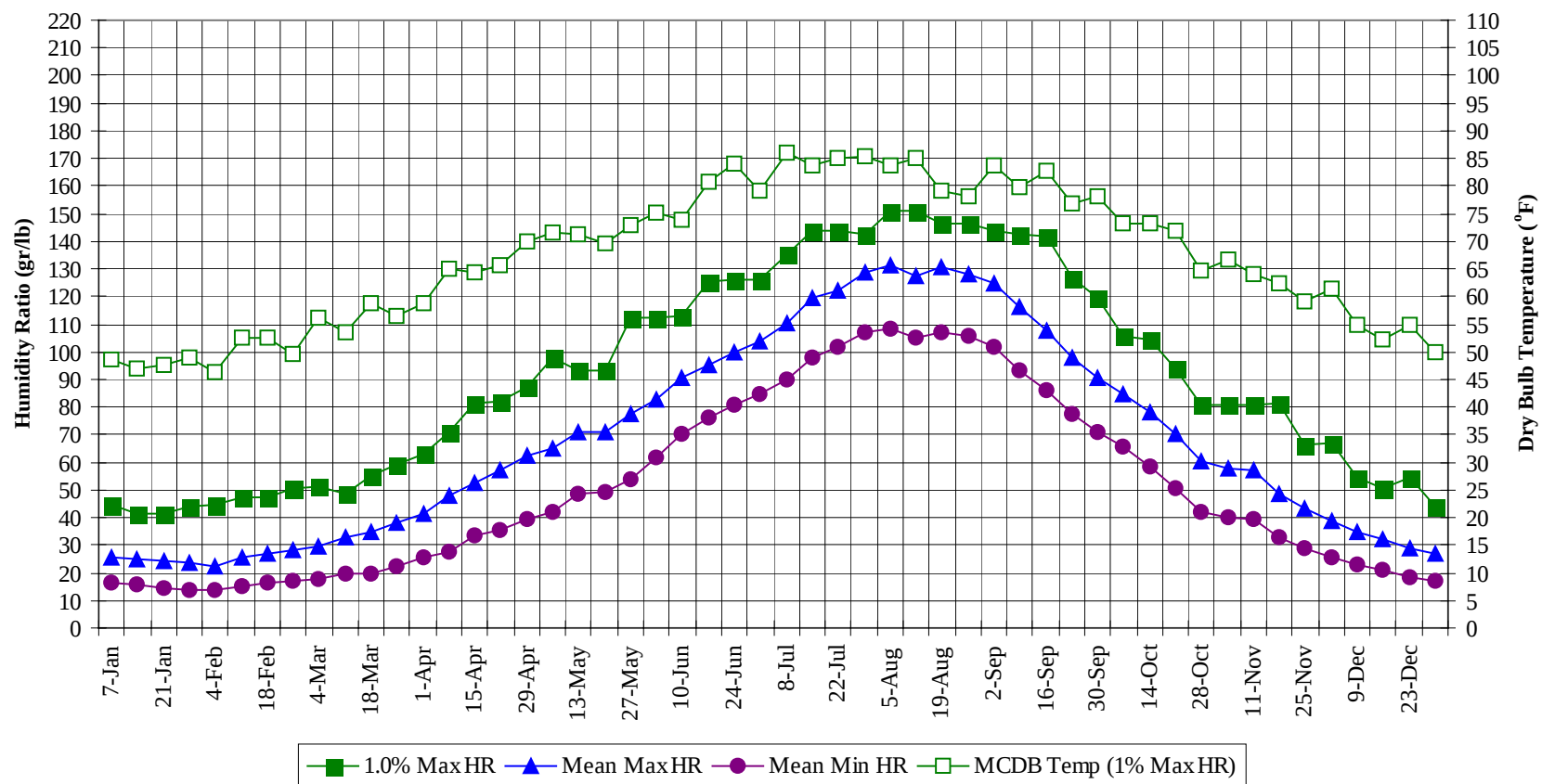
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
100 / 104		1	0	1	78.7
95 / 99		18	1	19	78.7
90 / 94	0	95	12	107	77.6
85 / 89	1	114	32	147	75.7
80 / 84	24	205	132	361	73.4
75 / 79	192	288	272	752	70.9
70 / 74	301	357	317	976	66.8
65 / 69	233	236	246	715	62.9
60 / 64	340	313	327	979	58.3
55 / 59	292	289	287	868	52.3
50 / 54	267	316	264	848	46.5
45 / 49	236	330	284	851	40.9
40 / 44	185	177	225	587	37.1
35 / 39	325	135	307	767	33.4
30 / 34	319	43	174	535	29.0
25 / 29	170	3	39	212	24.4
20 / 24	31	0	1	32	20.2
15 / 19	4			4	17.4

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



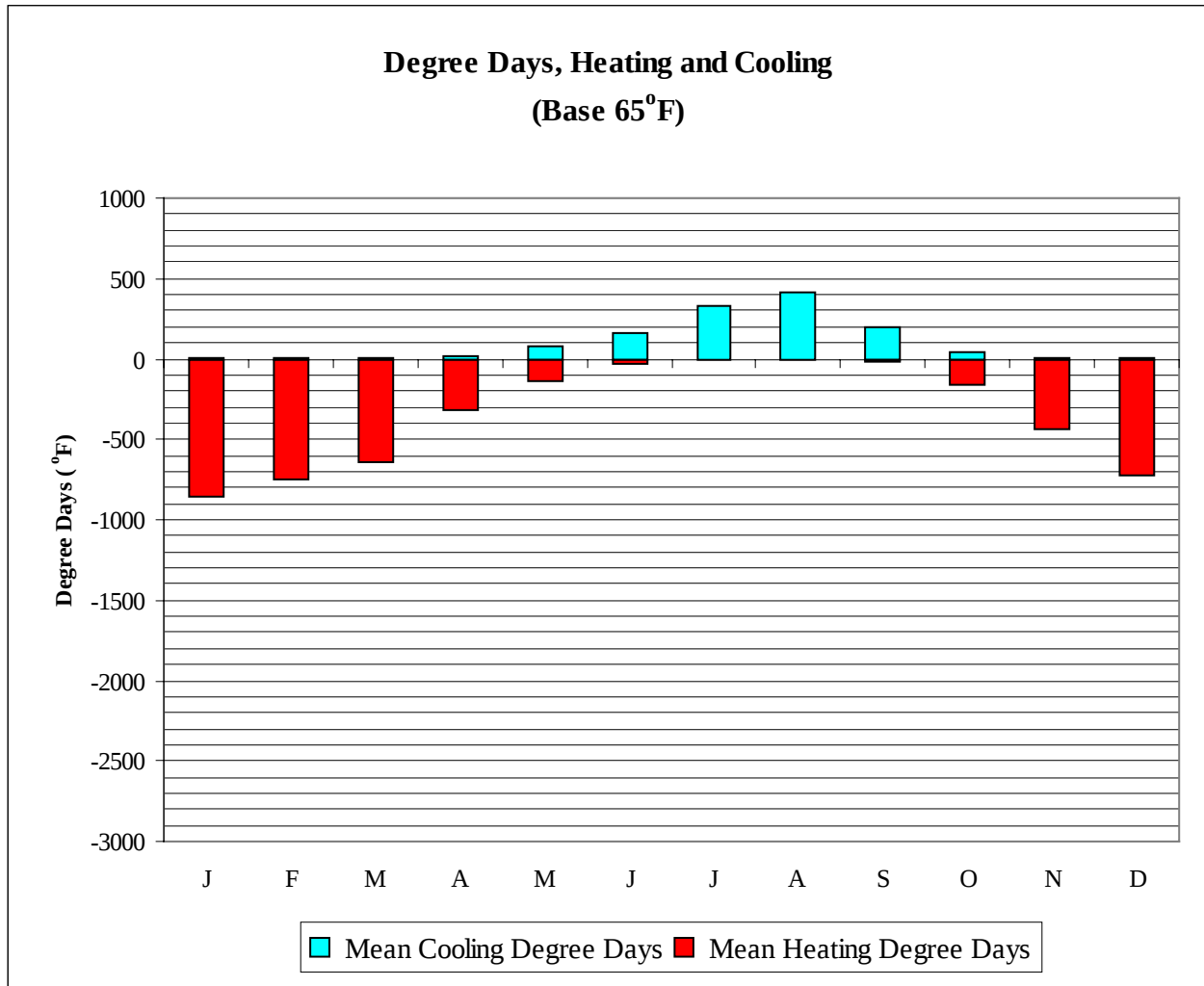
IRUMA**JP****WMO No. 476430****Long Term Dry Bulb Temperature and Humidity Summary**

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	55.0	43.9	48.2	29.7	23.0	44.8	48.7	25.6	16.2
14-Jan	55.0	44.5	48.1	29.5	23.0	41.3	47.1	24.8	15.5
21-Jan	55.0	44.5	46.7	27.8	21.0	41.3	47.7	24.1	14.8
28-Jan	57.0	46.7	47.1	28.2	21.0	44.1	49.1	23.5	14.0
4-Feb	55.0	43.6	46.3	27.7	21.0	44.8	46.4	22.5	13.9
11-Feb	57.0	46.0	47.8	29.1	23.0	47.6	52.4	25.5	15.2
18-Feb	59.0	50.1	48.5	30.6	23.0	47.6	52.7	27.1	16.4
25-Feb	61.0	49.8	48.7	30.9	23.0	50.4	49.6	28.4	17.3
4-Mar	63.0	52.4	50.0	32.1	25.0	51.1	56.3	29.5	17.5
11-Mar	63.0	47.3	52.6	34.1	27.0	48.3	53.5	32.7	19.5
18-Mar	64.0	52.7	53.3	35.8	28.0	55.3	58.6	34.6	19.8
25-Mar	66.0	52.5	55.0	37.3	30.0	58.8	56.5	38.2	22.5
1-Apr	70.0	55.7	56.6	39.2	32.0	63.0	58.9	41.4	25.5
8-Apr	72.0	57.1	61.1	42.2	34.0	70.7	65.1	47.9	27.6
15-Apr	73.0	59.0	63.4	44.8	34.0	81.2	64.4	52.7	33.2
22-Apr	77.0	60.8	65.6	47.7	41.0	81.9	65.8	57.3	35.3
29-Apr	79.0	60.7	69.6	50.1	43.0	87.5	70.0	62.4	39.5
6-May	79.0	64.1	69.3	51.4	45.0	98.0	71.7	65.1	42.1
13-May	81.0	63.3	72.0	53.5	46.0	93.1	71.3	71.1	48.4
20-May	82.0	64.8	71.5	54.0	48.0	93.1	69.6	71.2	48.9
27-May	82.0	66.4	74.2	56.1	48.0	112.0	73.0	77.2	53.6
3-Jun	84.0	67.8	76.0	59.0	54.0	112.0	75.2	82.9	61.6
10-Jun	86.0	68.9	77.1	61.8	55.0	112.7	74.0	90.6	70.3
17-Jun	88.0	73.4	76.9	62.8	54.0	125.3	80.9	95.4	76.2
24-Jun	91.0	75.6	76.0	64.0	55.0	126.0	84.1	99.6	80.9
1-Jul	86.0	73.9	76.0	64.7	57.0	126.0	79.0	103.5	84.5
8-Jul	93.0	79.1	79.0	66.3	57.0	135.1	86.0	110.3	90.1
15-Jul	91.0	77.6	81.9	68.7	63.0	143.5	83.8	119.8	97.8
22-Jul	93.0	78.6	82.6	69.8	63.0	143.5	85.1	122.4	101.5
29-Jul	95.0	78.7	87.2	71.8	64.0	142.8	85.5	128.9	106.8
5-Aug	97.0	79.3	87.8	72.4	64.0	151.2	83.6	131.5	108.3
12-Aug	95.0	78.7	87.0	72.2	64.0	151.2	85.0	127.5	104.9
19-Aug	95.0	77.8	86.7	72.4	66.0	146.3	79.1	130.6	107.0
26-Aug	95.0	77.0	85.6	71.9	64.0	146.3	78.1	128.1	105.9
2-Sep	93.0	76.3	85.6	71.1	63.0	143.5	83.8	124.8	101.9
9-Sep	91.0	76.9	82.4	68.6	63.0	142.8	79.9	116.3	93.4
16-Sep	90.0	76.9	78.9	66.2	61.0	142.1	82.8	107.8	86.2
23-Sep	86.0	74.1	76.0	63.7	57.0	126.7	76.7	97.9	77.6
30-Sep	82.0	70.5	72.8	61.1	55.0	119.7	78.1	90.8	70.6
7-Oct	81.0	68.8	72.2	58.9	50.0	105.7	73.4	84.4	65.5
14-Oct	77.0	65.0	69.2	56.2	48.0	104.3	73.3	78.0	58.5
21-Oct	75.0	64.3	67.8	53.4	45.0	93.8	72.0	70.0	50.9
28-Oct	73.0	60.8	66.2	49.3	43.0	80.5	64.8	60.5	41.9
4-Nov	72.0	60.9	64.2	47.5	39.0	80.5	66.7	57.9	40.3
11-Nov	72.0	59.3	62.5	47.0	37.0	80.5	63.9	57.3	39.4
18-Nov	70.0	57.0	59.7	42.7	34.0	81.2	62.3	48.6	32.9
25-Nov	66.0	55.1	57.6	40.4	32.0	66.5	59.1	43.2	29.0
2-Dec	64.0	53.5	55.1	37.5	30.0	67.2	61.3	38.6	25.4
9-Dec	63.0	51.3	54.3	34.8	27.0	54.6	55.0	34.7	23.1
16-Dec	59.0	47.8	52.4	33.6	27.0	50.4	52.1	32.2	20.7
23-Dec	59.0	48.9	51.0	31.6	25.0	54.6	54.8	28.8	18.5
31-Dec	59.0	47.7	50.0	30.5	23.0	44.1	50.0	26.8	17.1

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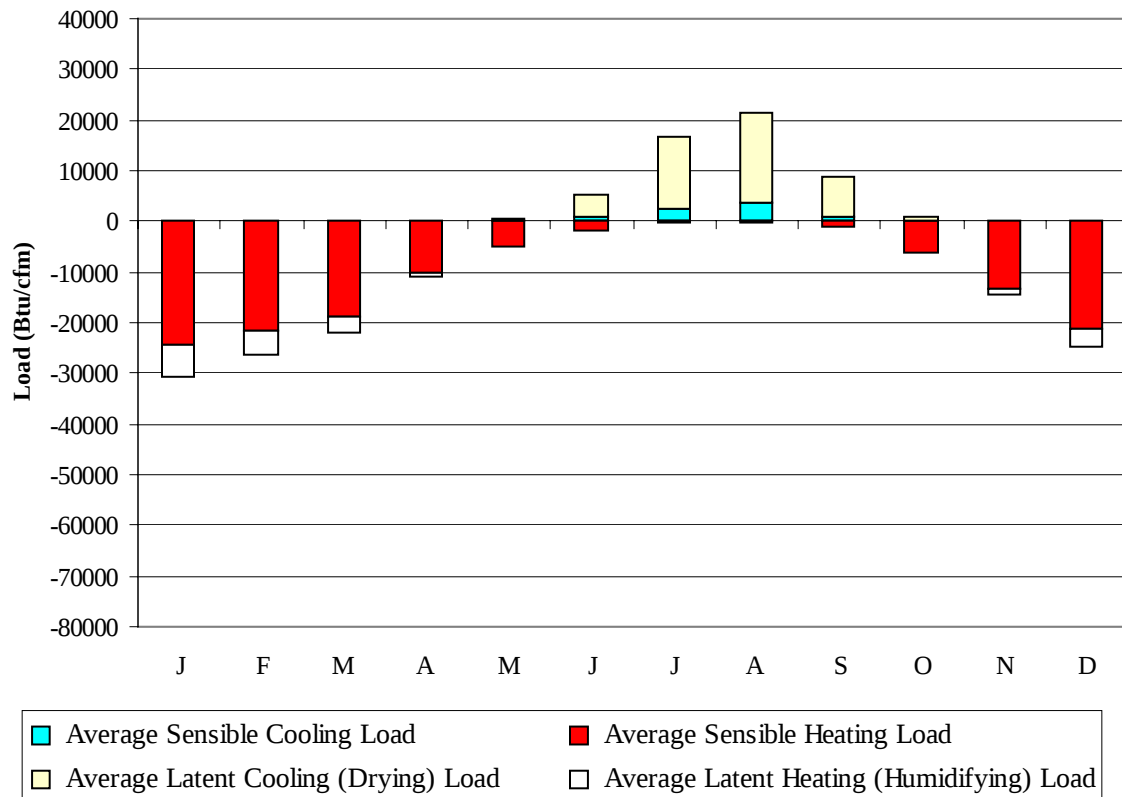
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WMO No. 476430



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	853
FEB	0	743
MAR	1	635
APR	20	315
MAY	73	134
JUN	158	31
JUL	325	5
AUG	413	1
SEP	200	17
OCT	39	167
NOV	4	432
DEC	0	720
ANN	1233	4053

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 Load	Average Latent Heating Load
	(Btu/cfm)	(Btu/cfm)	(Btu/cfm)	(Btu/cfm)
JAN	0	-24510	0	-5953
FEB	0	-21450	0	-5041
MAR	0	-18861	0	-3012
APR	28	-10224	48	-837
MAY	226	-5102	493	-84
JUN	755	-1680	4566	0
JUL	2573	-410	14202	0
AUG	3668	-77	17714	0
SEP	1074	-1087	7782	0
OCT	53	-6239	704	-52
NOV	2	-13471	13	-890
DEC	0	-21075	0	-3761
ANN	8379	-124186	45522	-19630

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

No Solar Radiation
Data Available

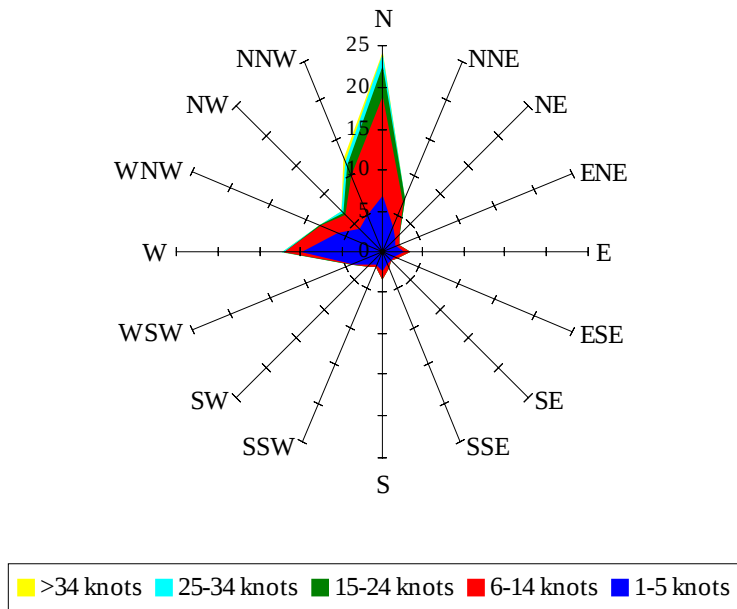


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

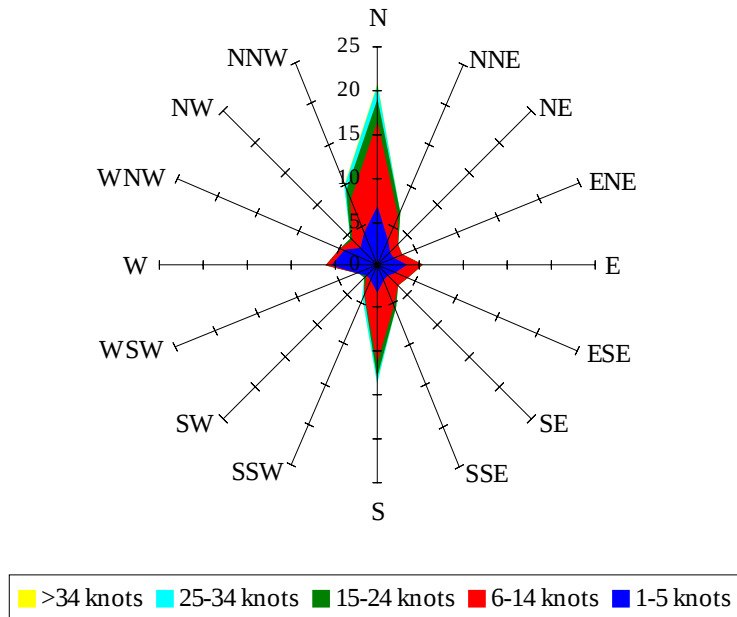
Labels of Percent Frequency on North Axis



Percent Calm = 5.44

Wind Summary - March, April, and May

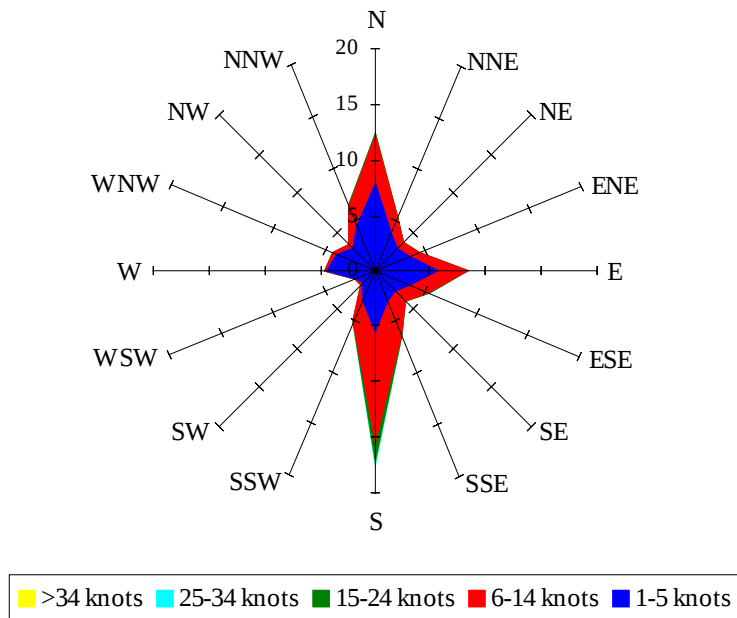
Labels of Percent Frequency on North Axis



Percent Calm = 4.34

Wind Summary - June, July, and August

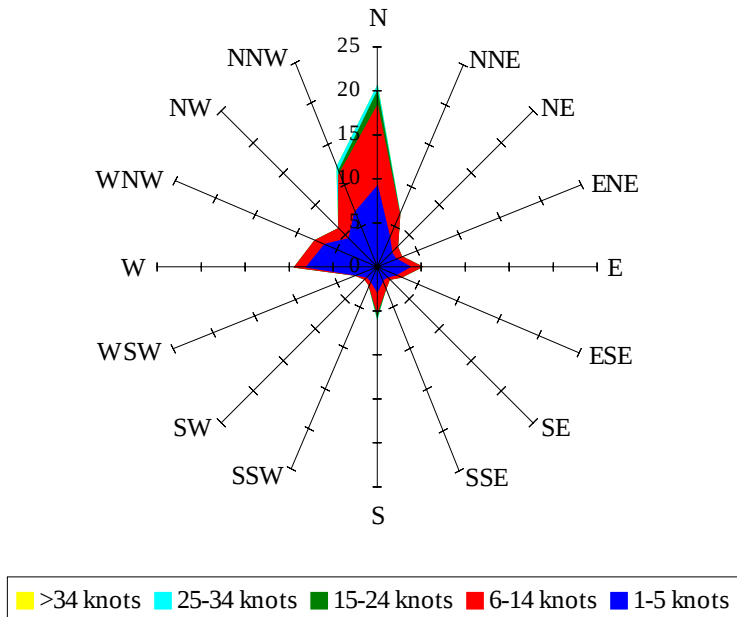
Labels of Percent Frequency on North Axis



Percent Calm = 6.30

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 6.07