

ESKISEHIR, TURKEY

Latitude = 39.78 N

Longitude = 30.57 E

Period of Record = 1973 to 1996

WMO No. 171240

Elevation = 2576 feet

Average Pressure = 27.29 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	69	72	8.6	W
0.4% Occurrence	90	67	74	8.7	NW
1.0% Occurrence	88	67	75	8.7	NW
2.0% Occurrence	84	65	73	8.7	NW
Mean Daily Range	21	-	-	-	-
97.5% Occurrence	21	20	14	5.6	E
99.0% Occurrence	16	15	11	4.1	E
99.6% Occurrence	12	11	9	3.5	ESE
Median of Extreme Lows	5	4	6	3.2	SE
	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	86	111	9.8	NW
0.4% Occurrence	70	84	96	9.4	NW
1.0% Occurrence	68	82	88	9.1	NW
2.0% Occurrence	67	81	84	9.0	NW
	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	113	82	0.69	10.2	NW
0.4% Occurrence	104	80	0.63	10.8	NW
1.0% Occurrence	95	76	0.57	9.1	W
2.0% Occurrence	89	74	0.54	9.0	W
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		18	448	13	212

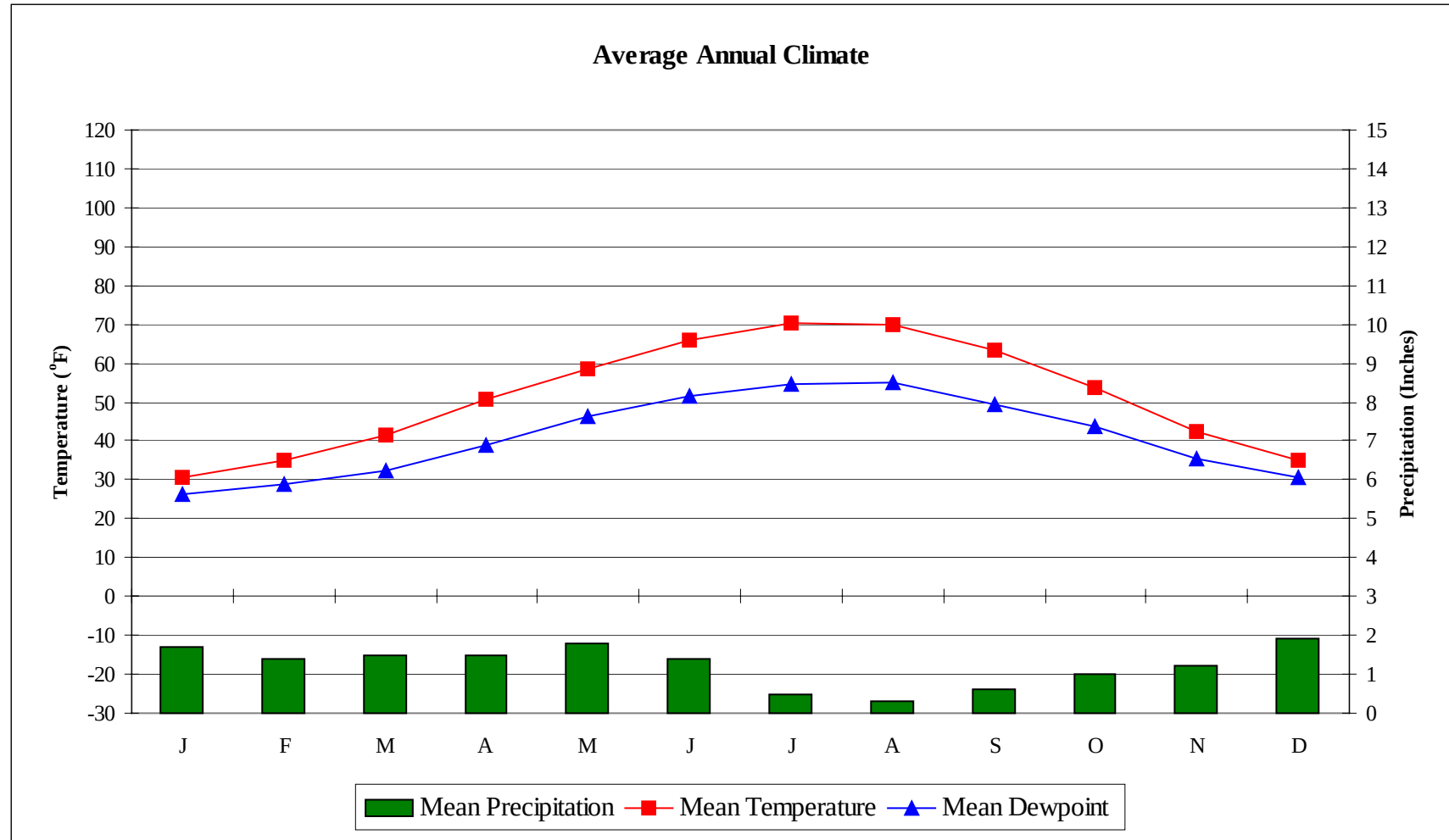
Other Site Data

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	0.1 + 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 (#)
54.1	N/A	N/A	64

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

ESKISEHIR, TURKEY

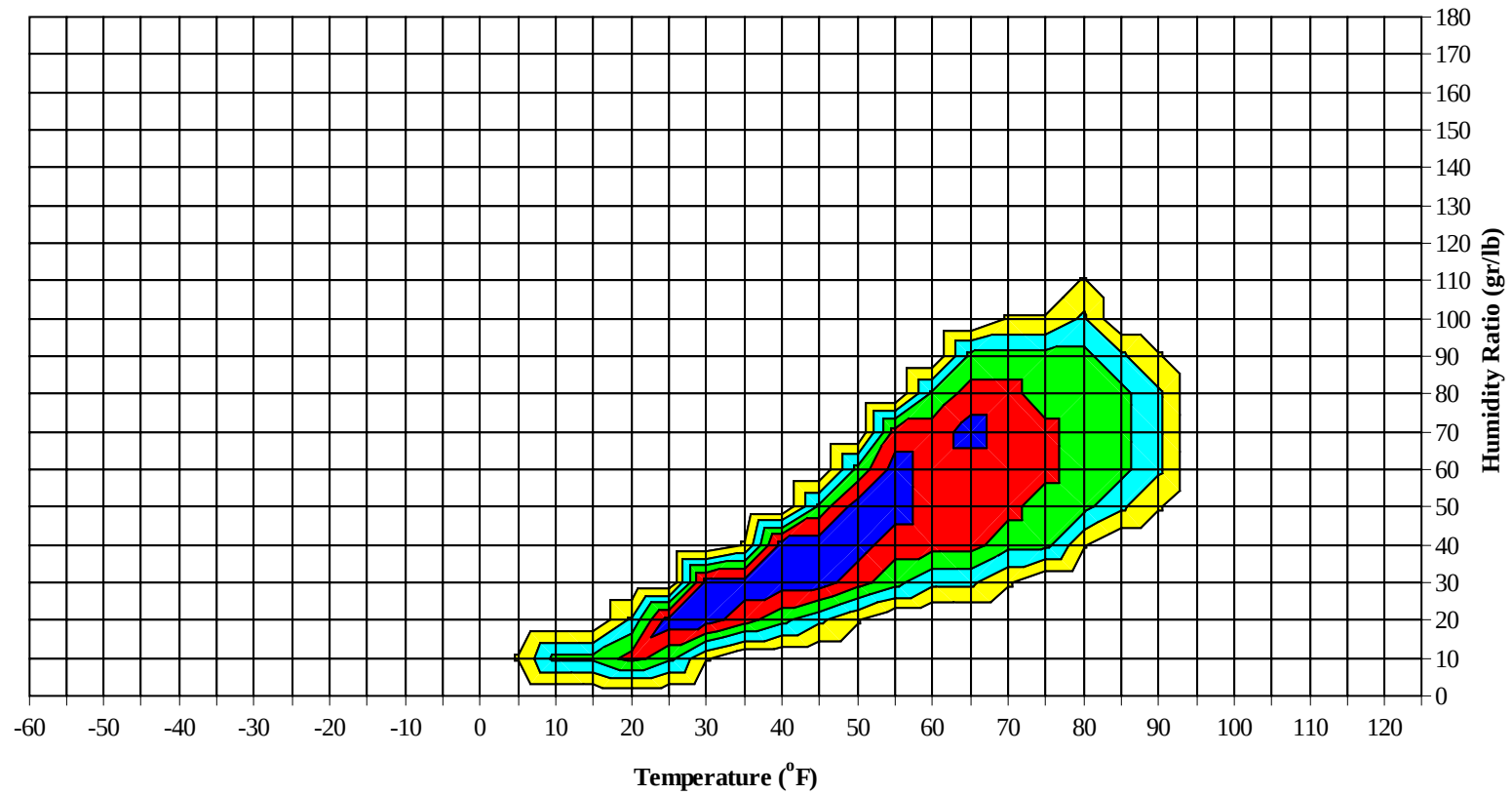
WMO No. 171240



ESKISEHIR, TURKEY

WMO No. 171240

Long Term Psychrometric Summary

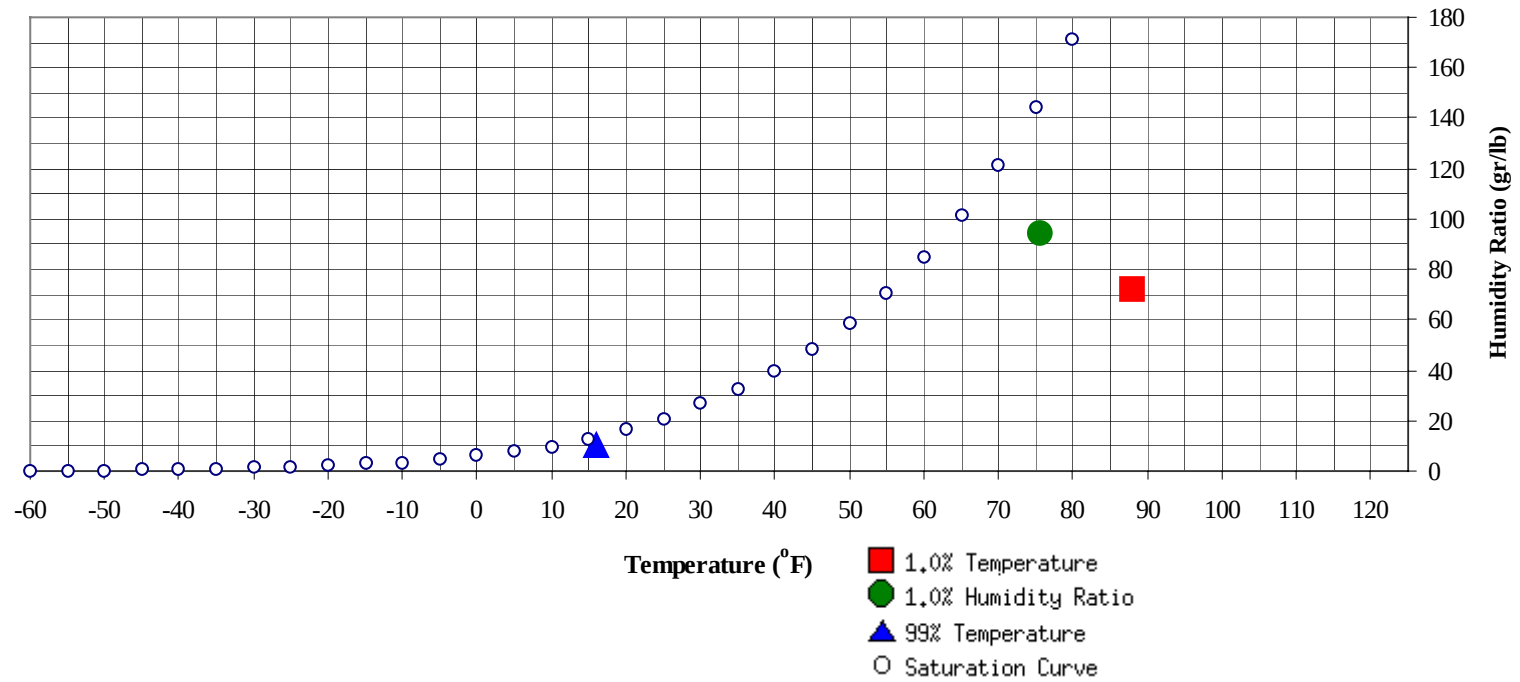


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

ESKISEHIR, TURKEY

WMO No. 171240

Psychrometric Summary of Peak Design Values



	(°F)	MCHR	Enthalpy	1.0% Humidity Ratio	(gr/lb)	MCDB	MCWB	MC Dewpt	Enthalpy
		(gr/lb)	(btu/lb)			(°F)	(°F)	(°F)	(btu/lb)
99% Dry Bulb	16	10.7	5.5		94.5	75.6	66.7	62.6	32.9

1.0% Dry Bulb	(°F)	MCHR	MCWB	Enthalpy
		(gr/lb)	(°F)	(btu/lb)
	88	72.5	66.4	32.5

ESKISEHIR, TURKEY

WMO No. 171240

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												1	0	1	57.6
70 / 74												4	1	5	54.3
65 / 69							1	0	1	51.1		10	5	15	52.6
60 / 64		0		0	52.0		4	1	5	49.5		22	9	31	50.1
55 / 59	0	1	1	2	48.0	0	13	5	17	47.4	1	33	19	53	47.3
50 / 54	1	8	3	12	45.8	2	23	14	39	44.8	6	39	32	78	44.9
45 / 49	5	19	14	37	42.5	11	32	26	70	41.7	23	42	46	111	41.8
40 / 44	15	25	20	60	39.3	16	29	29	74	38.7	35	29	36	100	38.6
35 / 39	32	52	43	127	35.1	40	43	46	129	35.0	63	35	44	143	35.1
30 / 34	63	68	71	202	30.5	59	41	51	151	30.3	61	23	35	119	30.3
25 / 29	53	38	46	137	25.6	46	24	30	101	25.5	38	8	15	61	25.6
20 / 24	30	20	26	76	21.0	24	7	12	43	20.9	13	1	3	17	21.0
15 / 19	27	11	17	55	16.8	15	4	7	26	16.6	6	0	1	7	16.6
10 / 14	15	4	6	25	11.5	8	2	3	13	11.3	2	0	1	3	11.8
5 / 9	5	1	2	8	6.1	2	0	1	3	6.0	1		0	1	6.1
0 / 4	2		0	2	2.1	1	0	0	1	1.4	0		0	0	1.8
-5 / -1						0	0	0	0	-3.3					
-10 / -6						0	0		0	-8.5					

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.

ESKISEHIR, TURKEY

WMO No. 171240

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												1	0	1	68.0
90 / 94							1		1	66.9		6	2	8	66.4
85 / 89		0		0	62.0		2	1	3	65.1		12	5	17	65.5
80 / 84		3	1	4	59.3		10	4	14	62.8		35	15	50	64.0
75 / 79		9	3	12	57.8		30	11	41	60.6	0	62	28	90	61.9
70 / 74		21	8	29	55.7	0	52	22	74	58.0	6	57	42	104	60.1
65 / 69	0	23	13	36	53.7	3	41	26	70	56.2	16	34	43	92	58.3
60 / 64	2	44	25	70	51.2	14	50	49	113	54.4	48	25	58	130	56.4
55 / 59	13	48	40	101	48.9	50	37	65	153	51.9	92	7	38	137	53.5
50 / 54	31	42	48	121	46.3	81	17	47	145	48.6	60	0	10	69	49.7
45 / 49	63	32	51	146	43.0	65	5	20	90	44.3	18	0	1	19	45.1
40 / 44	50	14	29	92	39.3	23	1	3	27	40.0	2		0	2	41.2
35 / 39	55	5	20	80	35.7	12	0	1	13	36.1	0		0	0	36.5
30 / 34	23	0	3	25	30.8	1		0	1	31.4					
25 / 29	4		0	4	26.4	0			0	28.0					
20 / 24	0			0	21.0										
15 / 19	0			0	19.0										
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															

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WMO No. 171240

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		3	1	4	69.5		3	1	4	67.6					
90 / 94		16	6	22	67.4		14	6	20	67.7		2	0	2	66.9
85 / 89		29	11	40	66.4		28	11	39	67.0		9	2	11	64.9
80 / 84	0	59	28	87	65.2	0	62	25	87	65.2	0	31	10	41	63.7
75 / 79	2	69	42	113	63.5	0	67	40	107	63.4	0	51	21	71	61.6
70 / 74	16	47	58	120	61.5	10	47	59	115	61.7	1	57	35	93	59.5
65 / 69	42	15	49	106	60.0	37	19	48	103	60.1	5	37	38	81	57.7
60 / 64	95	7	41	143	57.6	98	7	43	148	57.8	33	32	62	127	55.8
55 / 59	71	2	12	85	54.2	79	1	14	94	54.4	73	15	45	133	52.9
50 / 54	20		1	21	49.7	22		1	23	50.3	71	5	21	97	48.9
45 / 49	2			2	45.4	3			3	45.5	40	0	7	47	44.7
40 / 44	0			0	41.0						11		0	11	40.3
35 / 39											5			5	36.3
30 / 34											1			1	31.9
25 / 29															
20 / 24															
15 / 19															
10 / 14															
5 / 9															
0 / 4															
-5 / -1															
-10 / -6															

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ESKISEHIR, TURKEY

WMO No. 171240

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		1	0	1	64.4										
80 / 84		5	1	6	62.6										
75 / 79		21	5	26	59.8										
70 / 74		33	9	42	58.1		1	0	1	55.6					
65 / 69	0	28	16	44	56.1		4	0	4	55.2					
60 / 64	4	46	32	82	54.2	0	17	3	20	52.7		1		1	51.4
55 / 59	22	50	59	130	51.6	1	38	14	52	49.7	0	7	1	8	49.1
50 / 54	63	36	62	161	48.5	11	51	40	102	46.8	5	19	12	36	46.4
45 / 49	69	19	38	126	44.1	36	51	54	141	43.2	13	30	23	67	43.3
40 / 44	38	5	16	58	40.0	42	29	42	113	39.4	23	32	26	81	39.5
35 / 39	31	4	9	44	36.0	54	28	43	126	35.5	44	61	59	164	35.3
30 / 34	17	0	2	19	30.8	49	16	29	93	30.5	80	63	74	217	30.7
25 / 29	5	0	0	5	26.7	29	4	13	46	25.7	51	26	36	114	25.8
20 / 24	0			0	22.0	14	1	1	16	20.9	15	5	11	31	21.1
15 / 19						5	0	0	5	17.2	13	2	4	19	16.8
10 / 14						0			0	12.8	4	1	2	7	11.5
5 / 9											1	0	0	1	6.7
0 / 4											0			0	1.9
-5 / -1															
-10 / -6															

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ESKISEHIR, TURKEY

WMO No. 171240

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

Period of Record = 1973 to 1996

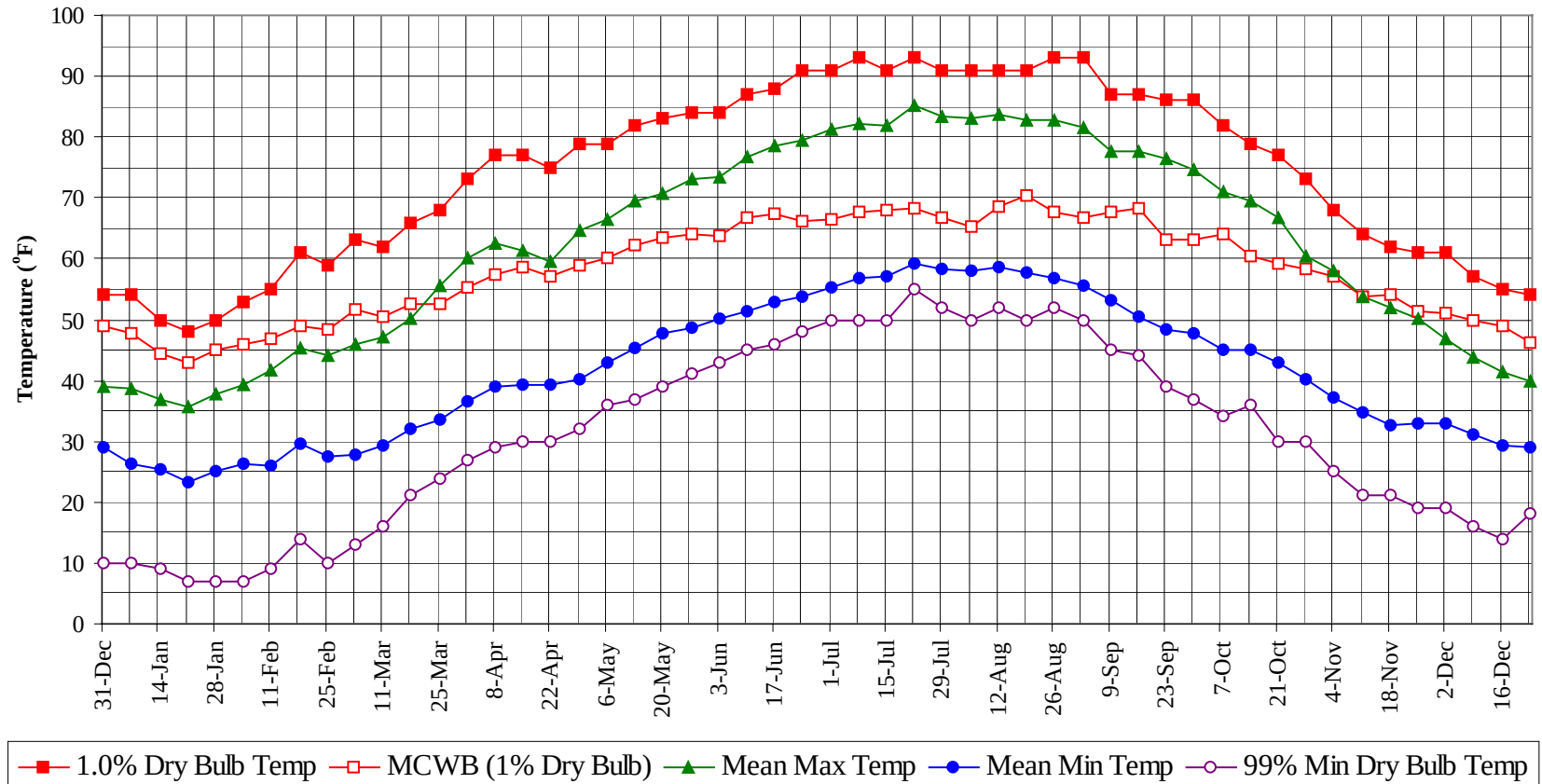
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
95 / 99		7	2	9	68.5
90 / 94		39	14	53	67.4
85 / 89		82	30	112	66.3
80 / 84	0	208	84	292	64.6
75 / 79	2	313	149	465	62.3
70 / 74	31	322	233	586	59.9
65 / 69	103	215	237	555	58.0
60 / 64	292	254	323	869	55.5
55 / 59	405	249	314	967	51.9
50 / 54	373	239	286	898	47.7
45 / 49	346	229	277	852	43.2
40 / 44	251	163	202	615	39.3
35 / 39	335	227	264	826	35.3
30 / 34	352	211	266	828	30.5
25 / 29	226	101	142	468	25.7
20 / 24	95	34	54	184	21.0
15 / 19	66	19	30	115	16.8
10 / 14	29	7	11	48	11.5
5 / 9	10	1	3	14	6.2
0 / 4	4	0	0	4	1.8
-5 / -1	0	0	0	0	-3.3
-10 / -6	0	0		0	-8.5
		</			

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ESKISEHIR, TURKEY

WMO No. 171240

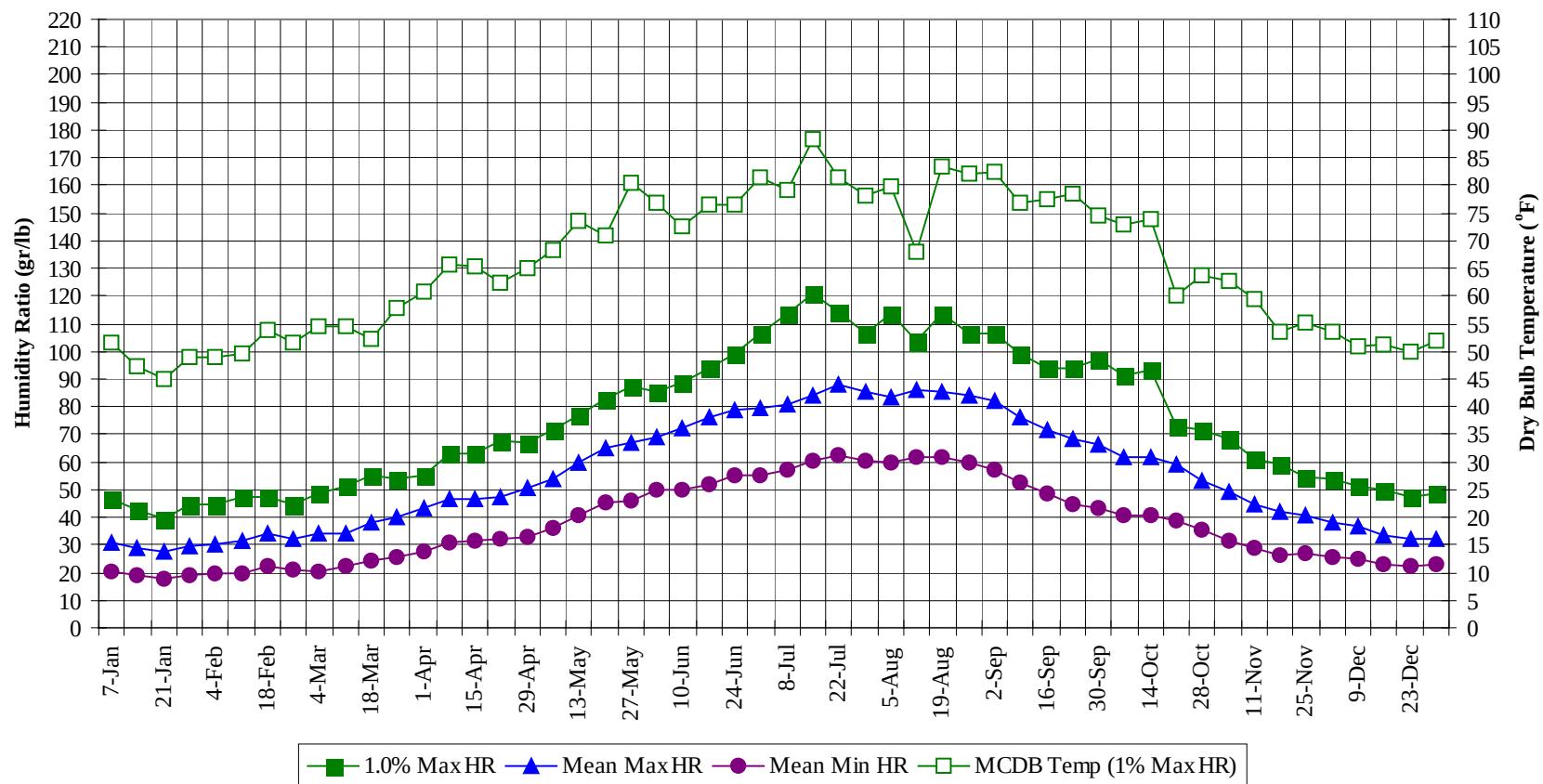
Annual Summary of Temperatures



ESKISEHIR, TURKEY

WMO No. 171240

Long Term Humidity and Dry Bulb Temperature Summary

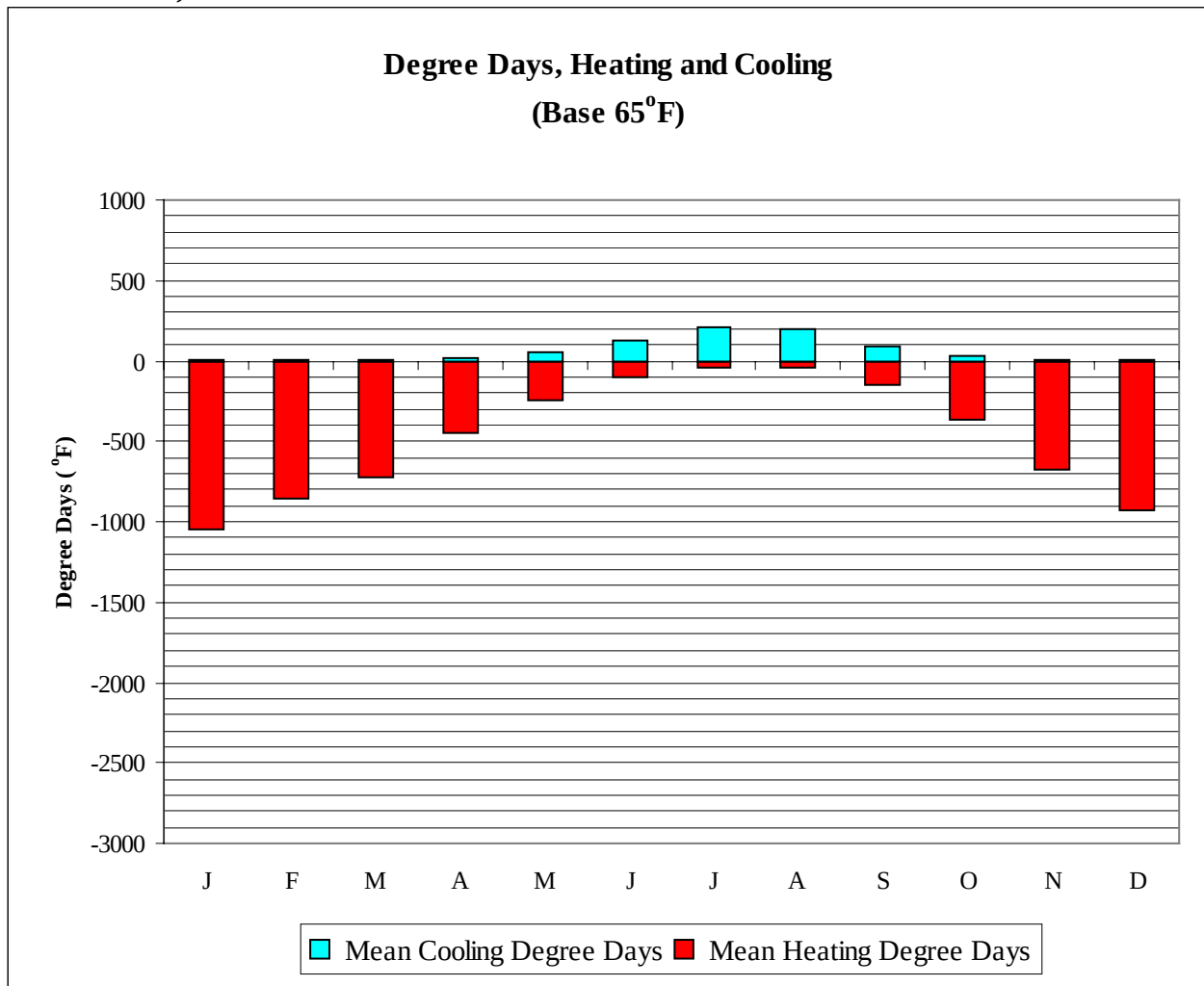


ESKISEHIR, TURKEY

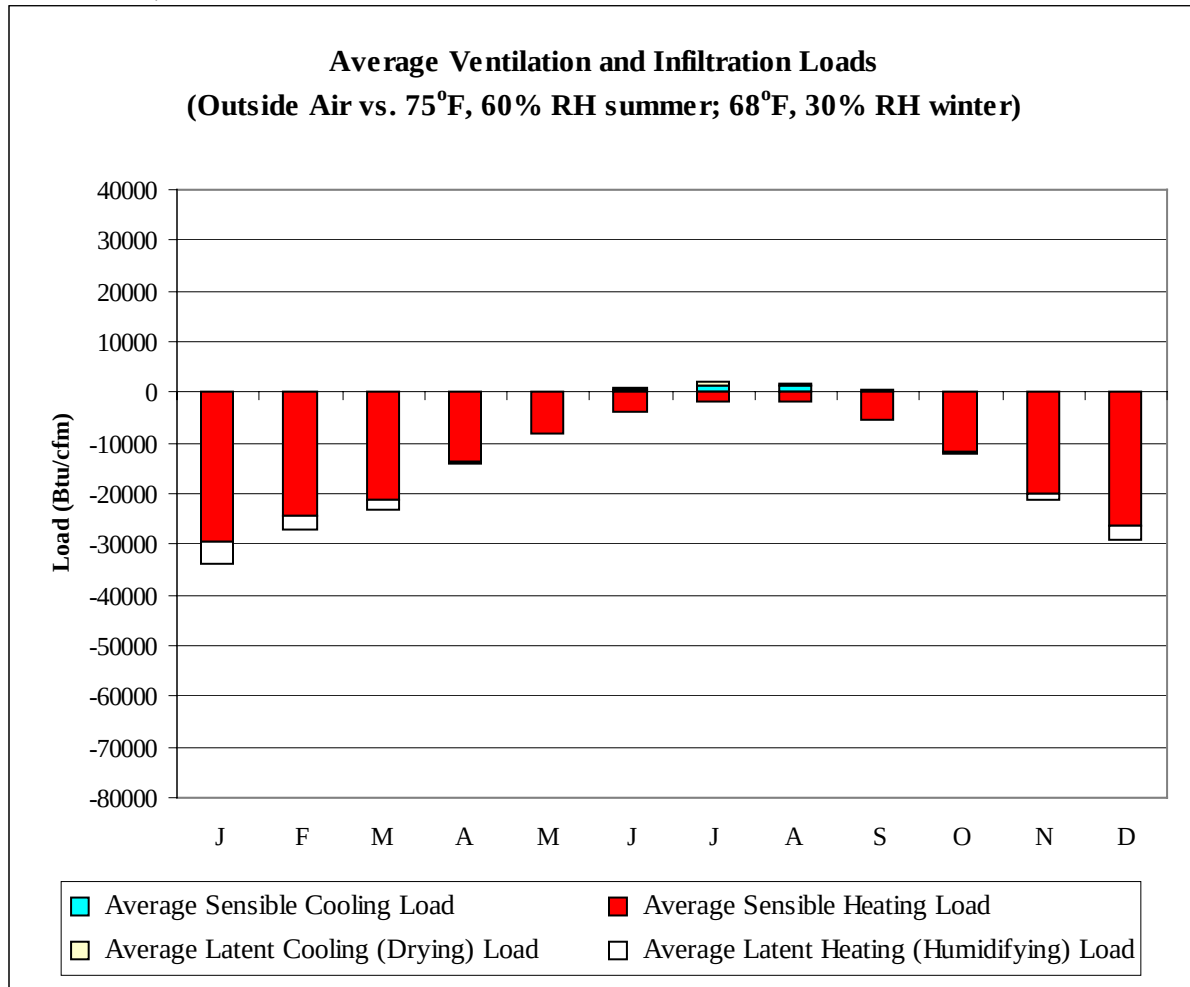
WMO No. 171240

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	54.0	47.7	38.5	26.4	10.0	46.9	51.5	31.0	20.6
14-Jan	50.0	44.4	36.8	25.4	9.0	42.7	47.4	29.0	19.3
21-Jan	48.0	42.9	35.7	23.3	7.0	39.2	44.9	27.3	17.5
28-Jan	50.0	44.9	37.8	24.9	7.0	44.8	48.9	29.4	19.1
4-Feb	53.0	46.0	39.4	26.3	7.0	44.8	48.9	30.3	20.0
11-Feb	55.0	46.8	41.7	26.0	9.0	47.6	49.7	31.6	20.0
18-Feb	61.0	49.0	45.3	29.5	14.0	47.6	53.7	34.2	22.2
25-Feb	59.0	48.4	44.1	27.5	10.0	44.8	51.5	32.4	20.8
4-Mar	63.0	51.5	46.0	27.7	13.0	48.3	54.5	34.0	20.6
11-Mar	62.0	50.5	47.1	29.3	16.0	51.1	54.5	34.4	22.3
18-Mar	66.0	52.5	50.3	32.0	21.0	55.3	52.3	37.9	24.5
25-Mar	68.0	52.6	55.7	33.5	24.0	53.9	57.8	40.0	25.8
1-Apr	73.0	55.4	60.2	36.6	27.0	55.3	60.8	43.2	27.7
8-Apr	77.0	57.5	62.5	39.1	29.0	63.0	65.6	46.5	30.7
15-Apr	77.0	58.6	61.4	39.2	30.0	63.0	65.3	46.9	31.2
22-Apr	75.0	57.0	59.4	39.3	30.0	67.9	62.3	47.3	32.0
29-Apr	79.0	58.8	64.7	40.2	32.0	67.2	65.1	50.8	32.9
6-May	79.0	60.0	66.5	42.9	36.0	71.4	68.3	53.7	36.1
13-May	82.0	62.2	69.4	45.4	37.0	77.0	73.6	60.0	40.8
20-May	83.0	63.5	70.8	47.7	39.0	82.6	70.8	65.2	45.0
27-May	84.0	64.1	73.0	48.7	41.0	87.5	80.3	67.1	46.0
3-Jun	84.0	63.8	73.6	50.1	43.0	85.4	77.0	69.0	49.7
10-Jun	87.0	66.7	76.6	51.4	45.0	88.9	72.5	72.1	49.9
17-Jun	88.0	67.3	78.5	52.9	46.0	93.8	76.5	76.4	52.2
24-Jun	91.0	66.2	79.3	53.9	48.0	99.4	76.4	78.8	55.0
1-Jul	91.0	66.6	81.2	55.3	50.0	106.4	81.6	79.7	55.1
8-Jul	93.0	67.6	82.1	56.7	50.0	113.4	79.2	81.1	57.0
15-Jul	91.0	67.9	82.0	57.2	50.0	121.1	88.3	84.3	60.2
22-Jul	93.0	68.4	85.3	59.4	55.0	114.1	81.5	88.0	62.1
29-Jul	91.0	66.6	83.3	58.4	52.0	106.4	78.1	85.1	60.2
5-Aug	91.0	65.1	83.0	57.9	50.0	113.4	79.7	83.2	59.6
12-Aug	91.0	68.6	83.8	58.7	52.0	103.6	68.0	85.8	62.0
19-Aug	91.0	70.5	82.8	57.7	50.0	113.4	83.5	85.4	61.5
26-Aug	93.0	67.8	82.8	56.8	52.0	106.4	82.2	84.0	59.9
2-Sep	93.0	66.9	81.5	55.7	50.0	106.4	82.3	82.1	57.4
9-Sep	87.0	67.6	77.7	53.1	45.0	99.4	76.8	76.3	52.9
16-Sep	87.0	68.3	77.7	50.4	44.0	93.8	77.5	71.8	48.5
23-Sep	86.0	63.2	76.4	48.4	39.0	93.8	78.5	68.3	44.8
30-Sep	86.0	63.3	74.6	47.7	37.0	97.3	74.6	66.3	43.3
7-Oct	82.0	64.2	70.9	44.9	34.0	91.0	73.0	61.9	40.8
14-Oct	79.0	60.3	69.4	44.9	36.0	93.1	73.8	61.9	40.8
21-Oct	77.0	59.2	66.9	43.1	30.0	72.8	60.2	58.9	38.9
28-Oct	73.0	58.3	60.6	40.2	30.0	71.4	63.7	52.9	35.3
4-Nov	68.0	57.2	58.0	37.2	25.0	68.6	62.8	49.4	31.7
11-Nov	64.0	53.7	53.8	34.9	21.0	60.9	59.3	44.7	29.0
18-Nov	62.0	54.0	52.0	32.6	21.0	58.8	53.6	41.7	26.4
25-Nov	61.0	51.3	50.0	33.1	19.0	54.6	55.3	40.8	27.0
2-Dec	61.0	51.0	46.8	32.8	19.0	53.9	53.6	38.3	25.5
9-Dec	57.0	49.8	43.9	31.0	16.0	51.1	50.9	36.7	24.9
16-Dec	55.0	48.8	41.4	29.3	14.0	49.7	51.4	33.5	22.9
23-Dec	54.0	46.3	39.8	28.9	18.0	47.6	49.9	32.5	22.4
31-Dec	54.0	49.1	39.0	29.0	10.0	48.3	52.0	32.2	22.7



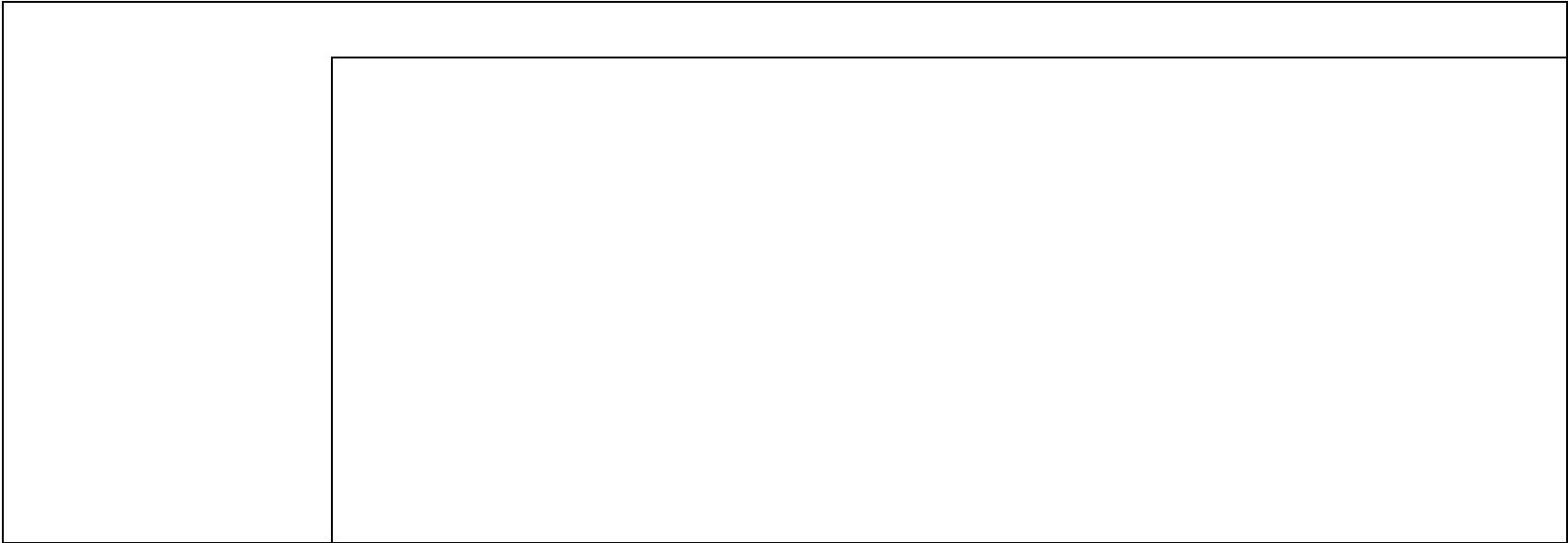
	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	1048
FEB	0	852
MAR	2	726
APR	15	446
MAY	48	243
JUN	124	97
JUL	212	44
AUG	203	45
SEP	95	145
OCT	24	371
NOV	0	681
DEC	0	925
ANN	725	5623



	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	-29551	0	-4118
FEB	0	-24263	0	-2990
MAR	0	-21157	0	-2112
APR	36	-13713	0	-554
MAY	170	-8212	8	-57
JUN	698	-3801	86	-1
JUL	1485	-1954	497	0
AUG	1379	-2021	385	-1
SEP	489	-5209	103	-25
OCT	67	-11670	18	-279
NOV	0	-19922	0	-1314
DEC	0	-26376	0	-2561
ANN	4324	-167849	1097	-14012

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

No Solar Radiation
Data Available

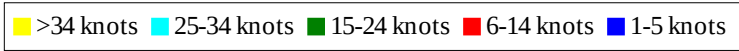
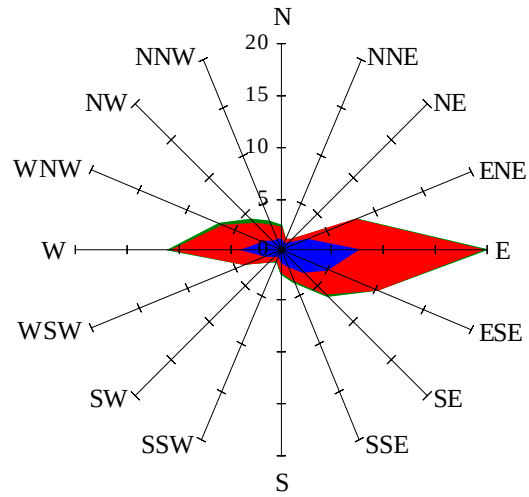


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

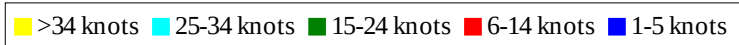
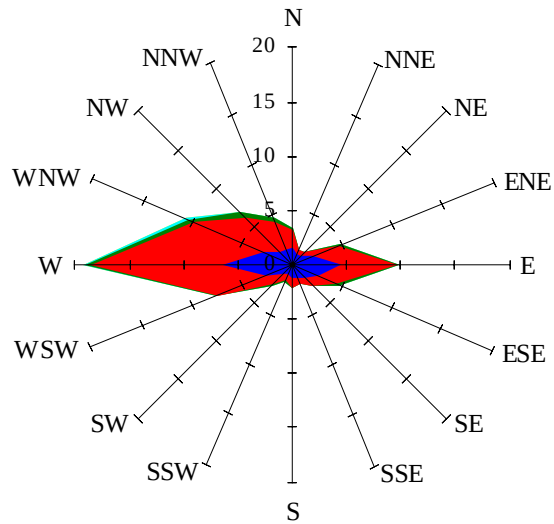
Labels of Percent Frequency on North Axis



Percent Calm = 14.61

Wind Summary - March, April, and May

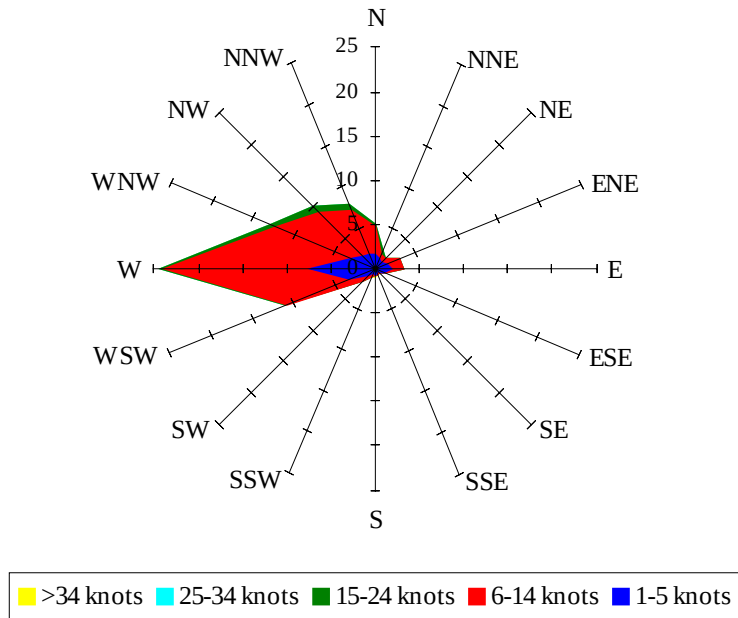
Labels of Percent Frequency on North Axis



Percent Calm = 15.80

Wind Summary - June, July, and August

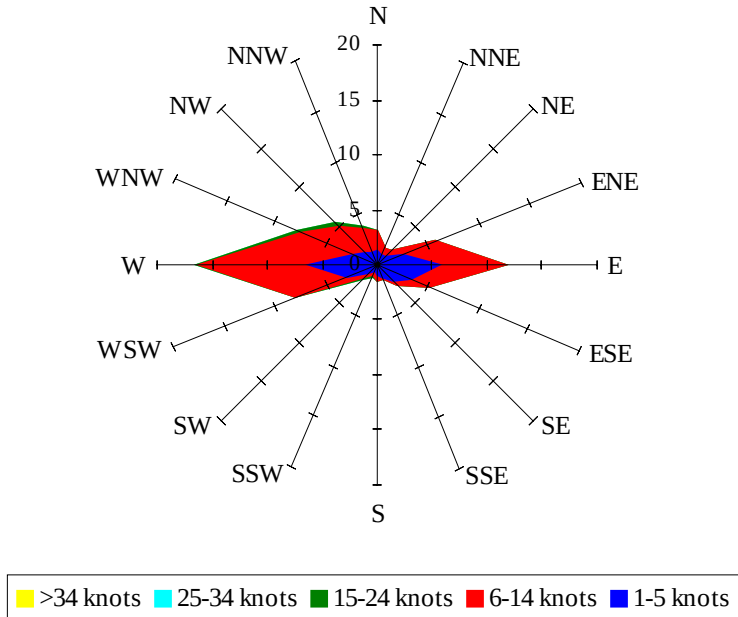
Labels of Percent Frequency on North Axis



Percent Calm = 13.85

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 21.50