

BALIKESIR, TURKEY

Latitude = 39.62 N

Longitude = 27.92 E

Period of Record = 1973 to 1996

WMO No. 171500

Elevation = 335 feet

Average Pressure = 29.58 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	102	70	61	7.1	NNE
0.4% Occurrence	95	69	66	8.8	N
1.0% Occurrence	91	68	68	10.8	N
2.0% Occurrence	88	68	70	12.5	N
Mean Daily Range	21	-	-	-	-
97.5% Occurrence	28	27	19	3.4	N
99.0% Occurrence	25	24	16	2.7	N
99.6% Occurrence	23	22	15	1.5	N
Median of Extreme Lows	18	17	12	1.9	S
	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	75	91	102	10.6	N
0.4% Occurrence	72	88	91	11.9	N
1.0% Occurrence	71	86	89	12.1	N
2.0% Occurrence	70	84	87	12.0	N
	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	0.72	12.0	N
0.4% Occurrence	99	77	0.65	9.4	N
1.0% Occurrence	96	76	0.64	10.2	N
2.0% Occurrence	92	76	0.61	9.2	N
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		69	814	20	621

Other Site Data

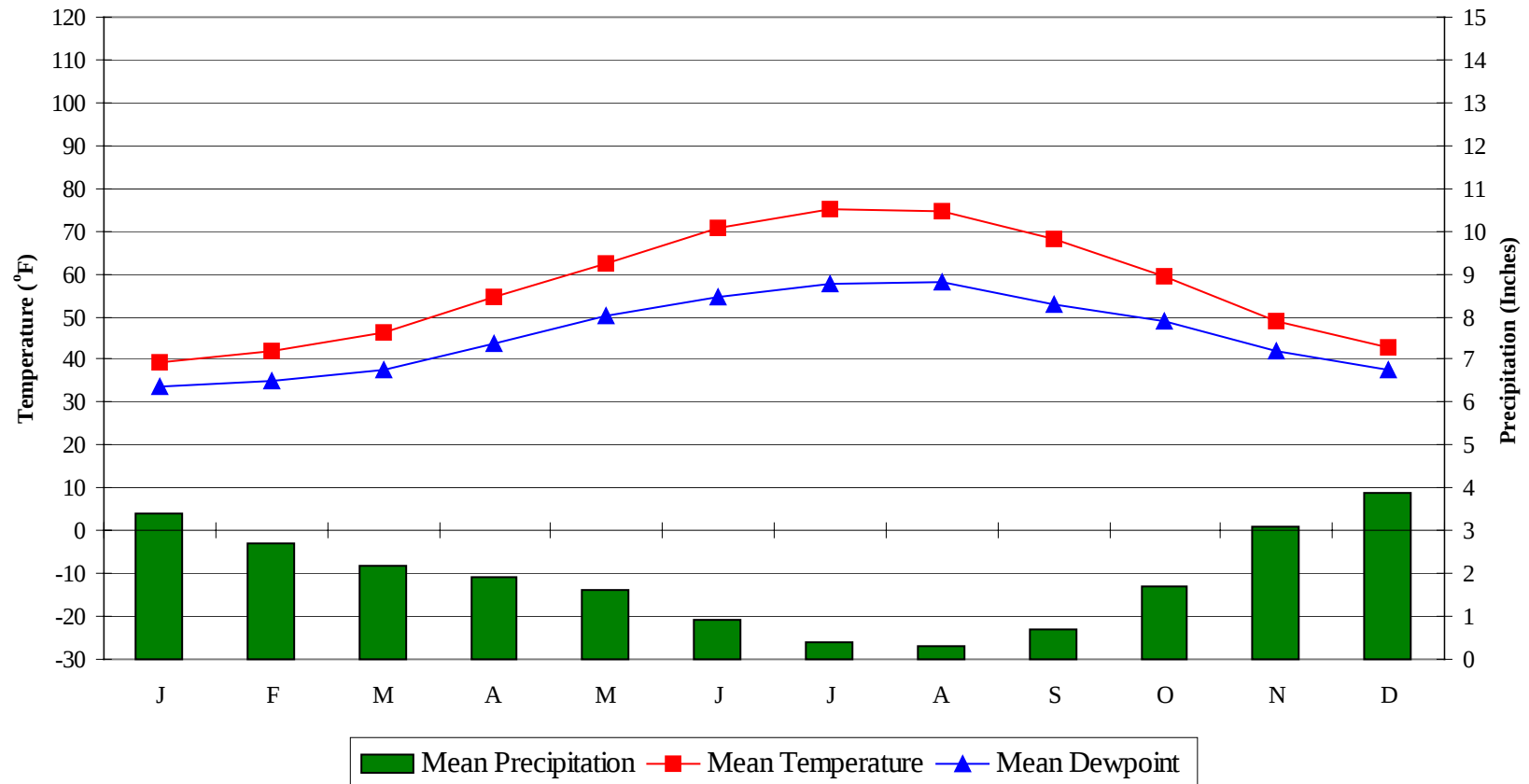
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
7	N/A	N/A	0.2 + 0.7
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
59.6	N/A	N/A	39

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

BALIKESIR, TURKEY

WMO No. 171500

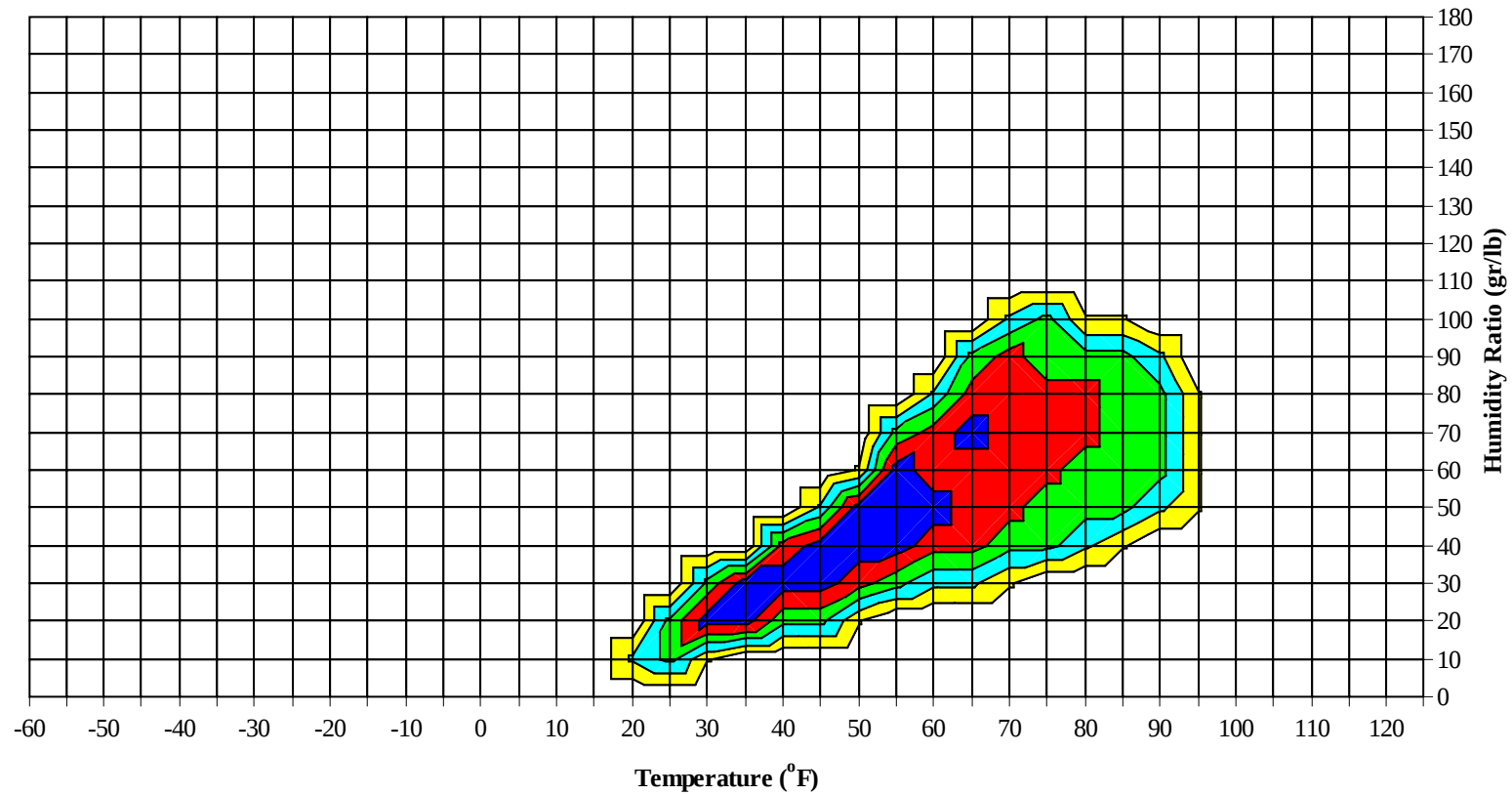
Average Annual Climate



BALIKESIR, TURKEY

WMO No. 171500

Long Term Psychrometric Summary

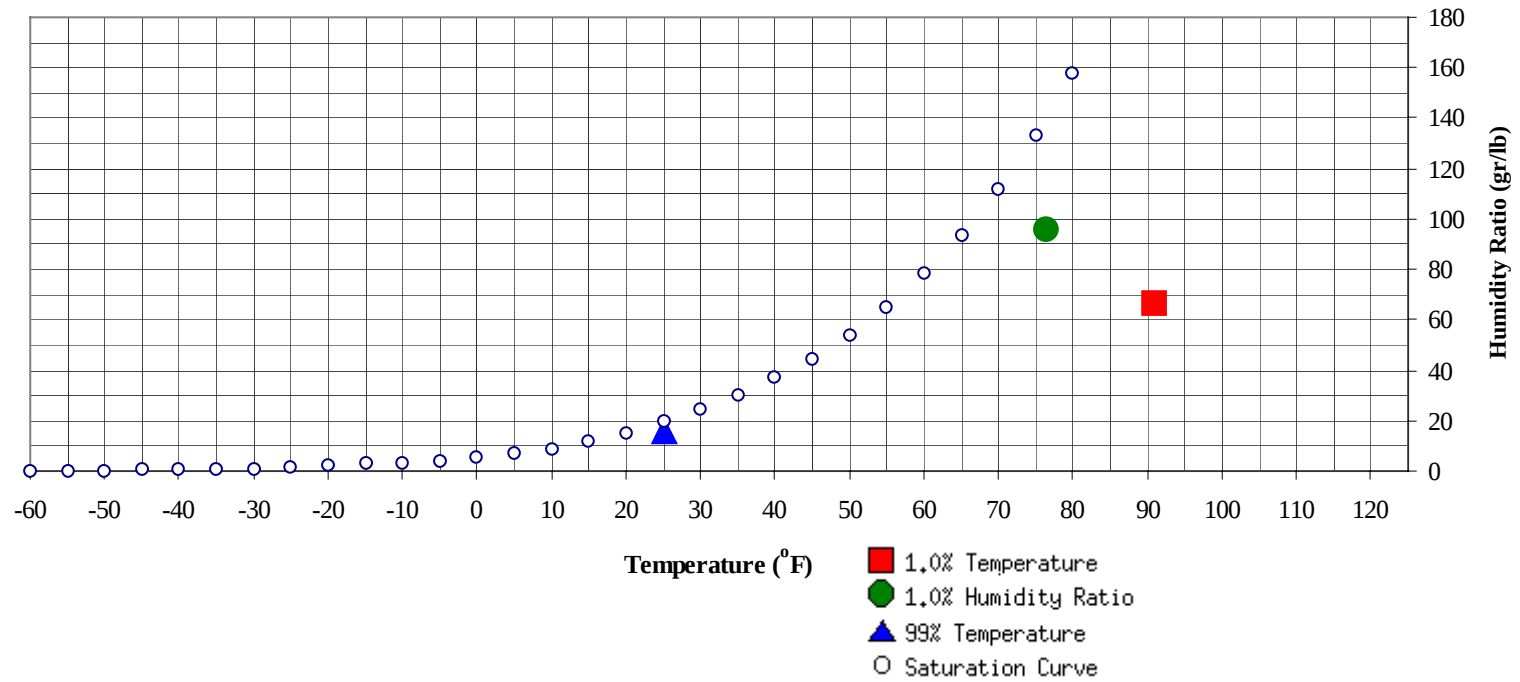


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

BALIKESIR, TURKEY

WMO No. 171500

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)
	25	16	8.5		95.9	76.4	69	65.5	33.3

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	91	66.8	68.1	32.4

BALIKESIR, TURKEY

WMO No. 171500

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		
105 / 109															
100 / 104															
95 / 99															
90 / 94															
85 / 89												0		0	61.7
80 / 84												0	0	0	60.5
75 / 79												2	1	3	58.1
70 / 74							2	0	2	55.0		0	9	4	13
65 / 69		1	0	1	56.3	0	5	2	7	54.0		0	14	6	19
60 / 64	1	7	2	10	53.4	1	15	7	23	52.1	1	25	16	42	52.5
55 / 59	5	18	11	33	50.9	6	22	16	44	49.9	5	35	27	67	49.9
50 / 54	14	24	21	58	47.5	14	31	27	72	46.8	16	47	42	105	47.0
45 / 49	21	47	34	102	43.4	29	46	43	119	43.4	52	54	59	165	43.5
40 / 44	35	50	48	133	39.4	40	37	44	121	39.4	60	33	46	139	39.5
35 / 39	61	57	70	188	35.2	51	38	44	133	35.1	59	19	30	107	35.5
30 / 34	53	32	45	130	30.8	44	19	28	91	30.4	34	7	14	55	30.9
25 / 29	38	9	16	63	25.9	25	7	10	42	25.9	19	2	3	24	25.9
20 / 24	15	2	2	19	21.2	9	1	2	12	21.2	4	0	0	4	21.6
15 / 19	6	0	0	6	17.2	4	0	1	5	16.6	0			0	18.5
10 / 14	0			0	12.8	2		0	2	12.3					
5 / 9						0		0	0	6.3					

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.

BALIKESIR, TURKEY

WMO No. 171500

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		
105 / 109															
100 / 104															
95 / 99							1	0	1	67.9		1	0	1	70.1
90 / 94							3	1	4	67.5		6	2	8	69.1
85 / 89		2	0	2	61.4		6	3	9	66.2		22	9	31	67.9
80 / 84		5	2	7	62.0		23	8	31	64.5	0	27	12	39	66.8
75 / 79		16	6	21	59.7		0	45	19	62.4	0	58	27	85	65.5
70 / 74	0	30	14	44	57.6	2	58	33	93	60.4	3	65	45	113	63.6
65 / 69	1	31	17	49	55.7	8	39	35	81	58.4	22	39	54	115	62.1
60 / 64	6	44	36	87	53.8	35	42	62	139	56.7	40	14	41	94	60.7
55 / 59	21	47	48	115	51.2	71	24	52	148	53.6	80	6	38	124	58.1
50 / 54	54	42	58	155	48.2	79	6	29	114	49.6	64	1	11	76	54.2
45 / 49	76	20	42	138	44.2	37	1	6	44	44.8	26	0	2	28	49.7
40 / 44	47	2	13	62	40.1	13	0	1	14	40.4	5		0	5	45.2
35 / 39	27	1	4	32	36.5	3		0	3	36.4	0			0	40.9
30 / 34	8		0	8	31.4	1		0	1	31.4	0			0	38.0
25 / 29	0			0	27.4										
20 / 24															
15 / 19															
10 / 14															
5 / 9															

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WMO No. 171500

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		
105 / 109		0	0	0	71.4		0	0	0	72.6					
100 / 104		3	1	4	70.9		1	1	2	69.5		0		0	69.0
95 / 99		10	3	13	69.9		6	2	8	69.4		2	0	2	67.3
90 / 94		29	9	38	68.9		25	7	32	68.5		11	3	14	66.4
85 / 89	0	47	18	65	67.9	0	46	17	62	68.0		19	6	24	66.0
80 / 84	1	87	46	133	66.5	0	87	40	128	66.9		48	17	65	64.6
75 / 79	12	52	64	128	65.2	9	57	66	132	65.5	1	66	35	102	62.9
70 / 74	66	16	74	157	63.9	67	22	76	165	64.3	11	52	58	120	61.6
65 / 69	73	3	24	100	61.6	76	3	30	108	61.9	34	22	52	107	60.1
60 / 64	65	1	9	75	58.6	67	1	9	77	58.9	74	14	44	133	57.5
55 / 59	25	0	0	25	54.1	24		1	25	54.4	62	5	20	87	53.4
50 / 54	5		0	5	50.3	5		0	5	50.7	43	1	5	49	49.5
45 / 49	0			0	46.0	0			0	44.0	13	0	0	13	44.8
40 / 44											2			2	40.2
35 / 39											0			0	38.0
30 / 34															
25 / 29															
20 / 24															
15 / 19															
10 / 14															
5 / 9															

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BALIKESIR, TURKEY

WMO No. 171500

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		
105 / 109															
100 / 104															
95 / 99		0	0	0	66.1										
90 / 94		2	0	2	65.2										
85 / 89		5	1	6	64.3										
80 / 84		17	4	21	63.9		0		0	62.0					
75 / 79	0	27	10	37	62.1		2		2	58.8					
70 / 74	2	40	20	61	60.6	0	9	1	10	59.0		0		0	56.9
65 / 69	5	38	29	71	58.4	0	17	4	21	56.8	0	2	0	2	56.3
60 / 64	30	53	60	143	56.6	5	37	17	58	54.6	2	17	4	23	54.1
55 / 59	68	39	64	171	53.2	19	54	41	115	52.2	13	25	21	60	51.5
50 / 54	68	20	40	127	49.2	46	53	66	165	48.7	23	38	31	93	48.4
45 / 49	45	7	17	69	44.6	55	36	51	142	44.0	37	55	51	143	44.1
40 / 44	18	1	3	22	40.2	38	18	29	84	39.7	42	42	49	133	39.9
35 / 39	11	0	1	12	36.8	37	11	21	68	35.8	54	41	51	146	35.8
30 / 34	2		0	2	31.1	20	3	8	31	30.9	47	20	30	97	31.1
25 / 29	0			0	28.0	15	1	2	19	26.1	23	5	10	38	26.1
20 / 24						4		0	4	21.3	7	1	1	9	21.6
15 / 19						0			0	18.5	1	0		1	17.9
10 / 14															
5 / 9															

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WMO No. 171500

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

Period of Record = 1973 to 1996

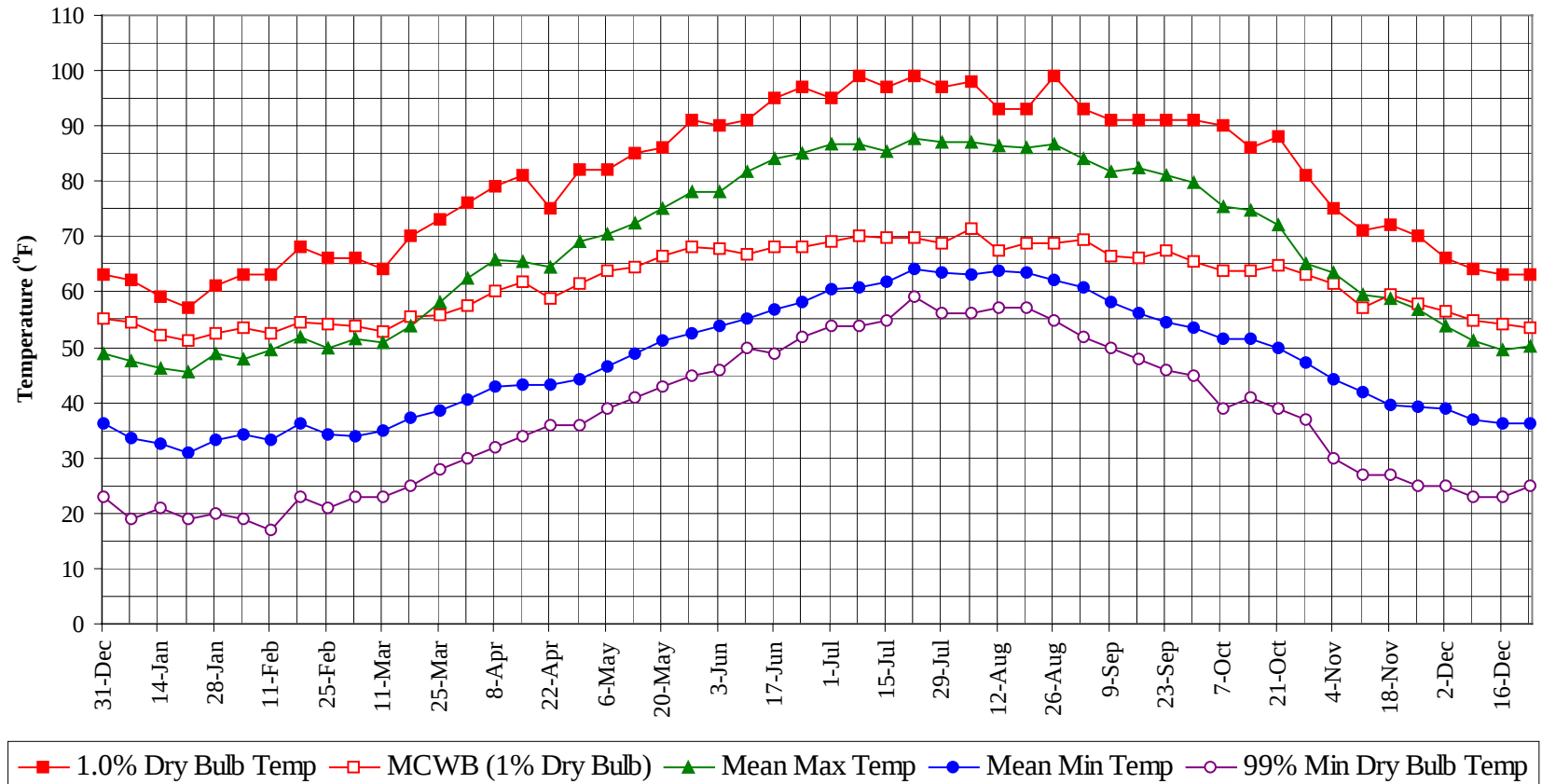
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
105 / 109		1	0	1	72.0
100 / 104		5	2	7	70.3
95 / 99		27	8	35	69.3
90 / 94		94	29	122	68.1
85 / 89	0	153	56	209	67.3
80 / 84	1	331	143	475	65.8
75 / 79	24	334	245	604	63.9
70 / 74	169	278	334	781	62.1
65 / 69	237	185	237	660	59.7
60 / 64	366	260	303	930	56.5
55 / 59	381	267	309	957	52.5
50 / 54	390	258	318	966	48.4
45 / 49	368	265	303	936	43.9
40 / 44	295	182	234	712	39.6
35 / 39	304	166	223	692	35.5
30 / 34	211	82	128	421	30.8
25 / 29	122	25	40	188	26.0
20 / 24	37	4	5	46	21.3
15 / 19	11	1	1	13	17.0
10 / 14	2		0	2	12.3
5 / 9	0		0	0	6.3

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.

BALIKESIR, TURKEY

WMO No. 171500

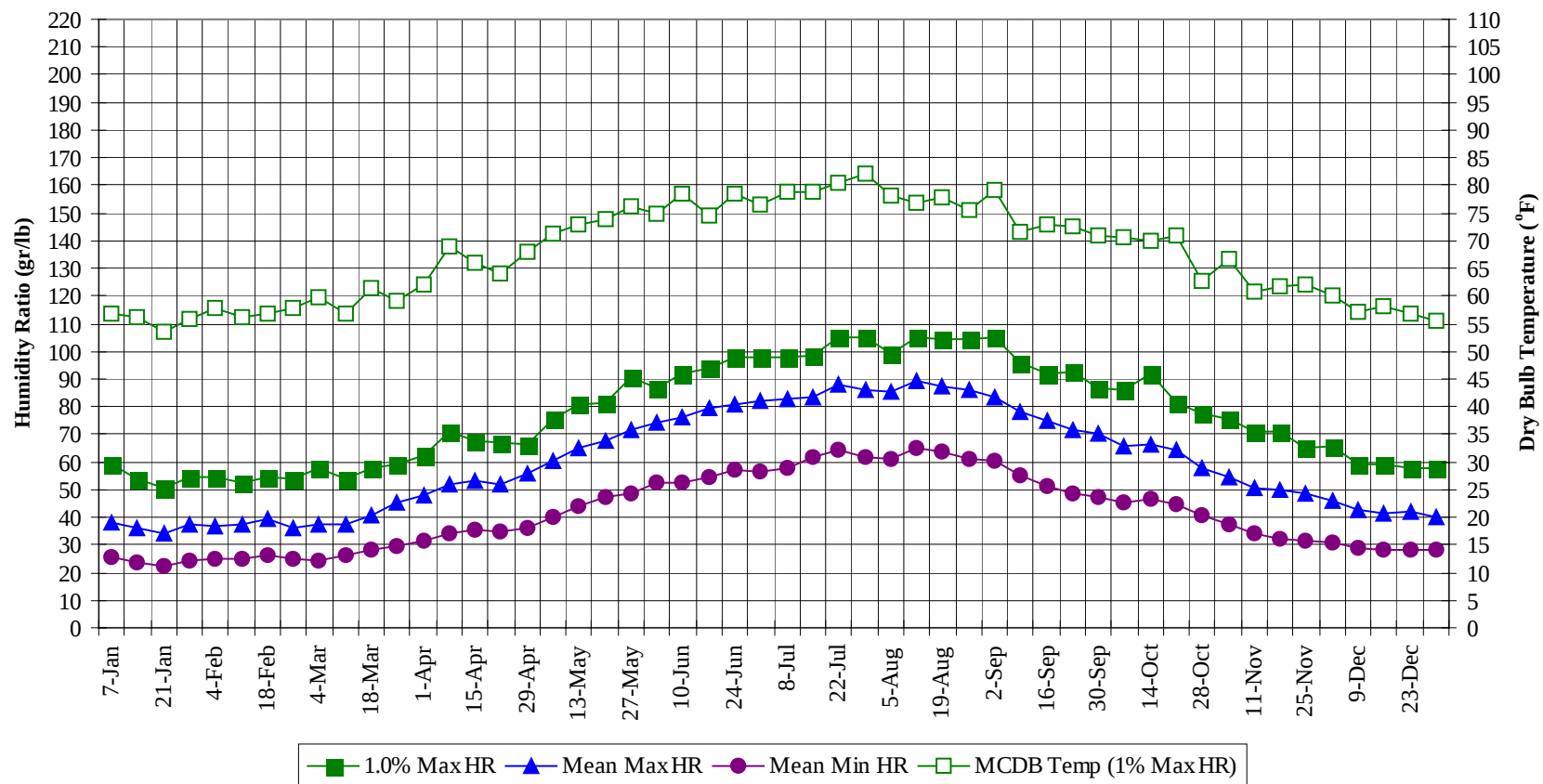
Annual Summary of Temperatures



BALIKESIR, TURKEY

WMO No. 171500

Long Term Humidity and Dry Bulb Temperature Summary



BALIKESIR, TURKEY

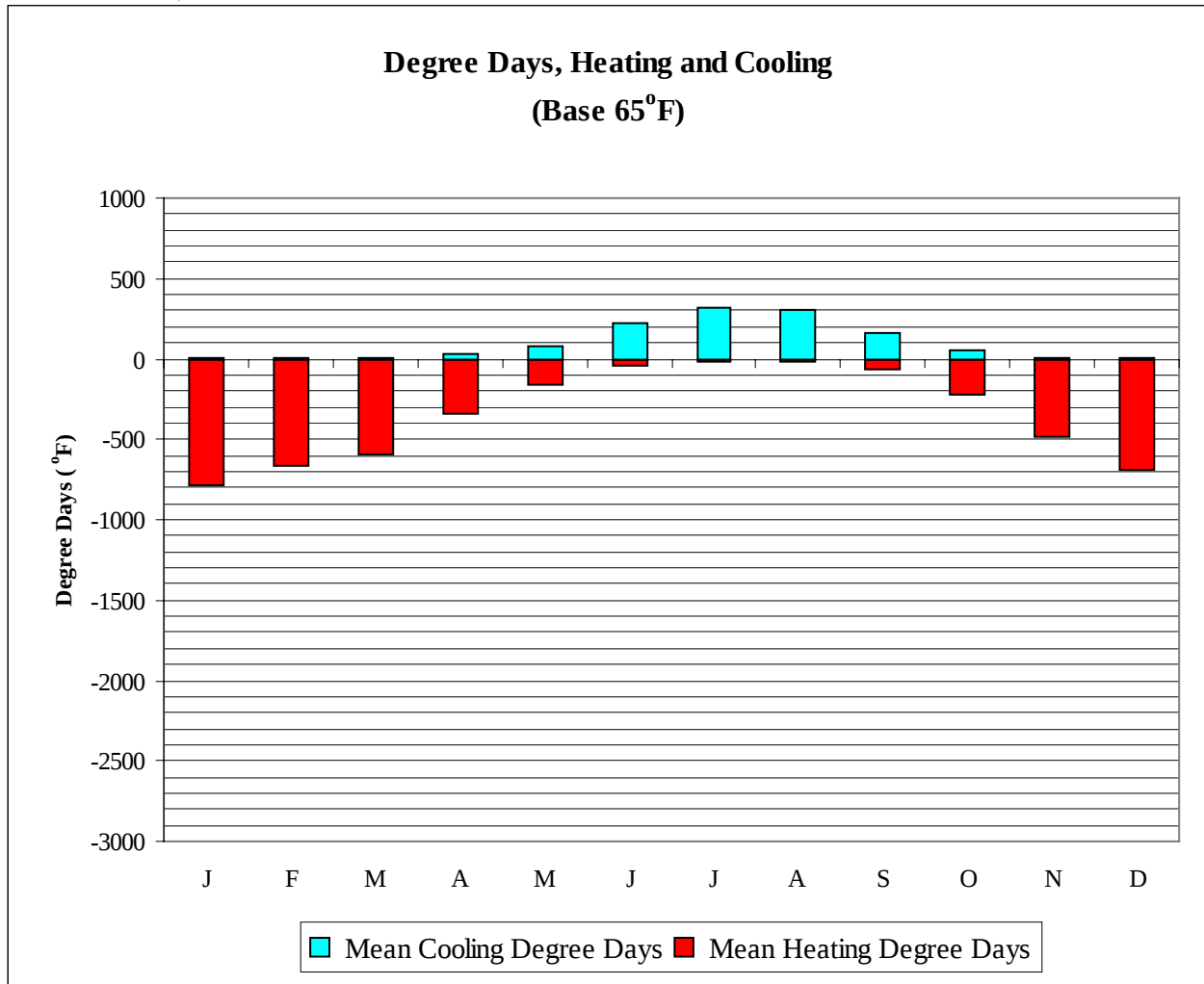
WMO No. 171500

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	54.4	47.6	33.6	19.0	58.8	56.9	38.4	25.5
14-Jan	59.0	52.3	46.4	32.4	21.0	53.9	56.0	36.3	23.9
21-Jan	57.0	51.1	45.4	31.1	19.0	50.4	53.5	34.4	22.5
28-Jan	61.0	52.5	48.7	33.2	20.0	54.6	55.9	37.2	24.5
4-Feb	63.0	53.5	47.9	34.1	19.0	54.6	57.9	36.7	25.2
11-Feb	63.0	52.4	49.5	33.3	17.0	52.5	56.0	37.6	24.7
18-Feb	68.0	54.5	51.8	36.2	23.0	54.6	57.0	39.3	26.6
25-Feb	66.0	54.1	50.0	34.2	21.0	53.9	57.9	36.4	24.7
4-Mar	66.0	53.8	51.4	34.0	23.0	58.1	59.6	37.4	24.5
11-Mar	64.0	53.0	51.0	35.0	23.0	53.9	57.0	37.3	26.2
18-Mar	70.0	55.4	53.8	37.2	25.0	58.1	61.3	40.8	28.1
25-Mar	73.0	55.9	58.3	38.6	28.0	58.8	59.2	45.0	29.6
1-Apr	76.0	57.5	62.6	40.6	30.0	62.3	62.1	48.1	31.2
8-Apr	79.0	60.2	65.9	42.8	32.0	70.7	68.9	52.1	34.4
15-Apr	81.0	61.8	65.4	43.3	34.0	67.9	65.9	53.3	35.5
22-Apr	75.0	58.9	64.5	43.0	36.0	67.2	64.0	52.0	35.0
29-Apr	82.0	61.6	69.2	44.3	36.0	66.5	67.9	55.5	36.2
6-May	82.0	63.8	70.4	46.6	39.0	75.6	71.4	60.2	40.0
13-May	85.0	64.5	72.5	49.0	41.0	80.5	72.9	65.1	44.0
20-May	86.0	66.4	75.0	51.1	43.0	81.2	73.9	67.7	47.0
27-May	91.0	68.2	78.0	52.5	45.0	90.3	76.3	71.8	48.8
3-Jun	90.0	67.7	78.0	54.0	46.0	86.8	74.9	74.2	52.4
10-Jun	91.0	66.8	81.9	55.3	50.0	91.7	78.6	76.0	52.4
17-Jun	95.0	68.2	84.2	56.7	49.0	93.8	74.5	79.3	54.2
24-Jun	97.0	68.1	85.0	58.2	52.0	98.0	78.5	80.8	57.0
1-Jul	95.0	69.2	86.7	60.4	54.0	98.0	76.6	81.9	56.5
8-Jul	99.0	70.1	86.9	60.7	54.0	98.0	78.9	82.9	57.7
15-Jul	97.0	69.6	85.6	61.7	55.0	98.7	78.9	83.7	62.1
22-Jul	99.0	69.8	87.9	64.1	59.0	105.0	80.6	88.1	64.3
29-Jul	97.0	68.8	87.2	63.5	56.0	105.0	82.0	86.1	61.8
5-Aug	98.0	71.5	86.9	63.1	56.0	99.4	78.2	85.1	61.3
12-Aug	93.0	67.6	86.6	63.9	57.0	105.0	76.8	89.0	65.0
19-Aug	93.0	68.8	86.0	63.6	57.0	104.3	77.7	87.6	64.0
26-Aug	99.0	68.7	86.6	62.0	55.0	104.3	75.5	86.3	61.2
2-Sep	93.0	69.5	84.1	61.0	52.0	105.0	79.1	83.1	60.6
9-Sep	91.0	66.4	81.8	58.3	50.0	95.9	71.5	78.1	55.2
16-Sep	91.0	66.2	82.3	56.1	48.0	91.7	73.0	74.7	51.0
23-Sep	91.0	67.4	81.2	54.5	46.0	92.4	72.4	71.8	48.6
30-Sep	91.0	65.6	79.8	53.4	45.0	86.8	71.1	70.5	47.5
7-Oct	90.0	63.9	75.6	51.4	39.0	86.1	70.6	65.4	45.4
14-Oct	86.0	63.7	74.7	51.5	41.0	91.7	70.0	66.6	46.6
21-Oct	88.0	64.9	72.0	50.0	39.0	81.2	71.0	64.5	44.8
28-Oct	81.0	63.1	65.0	47.0	37.0	77.7	62.7	58.1	40.8
4-Nov	75.0	61.4	63.3	44.3	30.0	75.6	66.6	54.7	37.6
11-Nov	71.0	57.0	59.5	41.8	27.0	70.7	60.9	50.8	33.8
18-Nov	72.0	59.4	58.9	39.5	27.0	70.7	61.9	49.6	32.1
25-Nov	70.0	57.7	56.9	39.1	25.0	65.1	62.2	48.4	31.7
2-Dec	66.0	56.5	53.8	39.0	25.0	65.8	60.0	46.0	30.7
9-Dec	64.0	54.7	51.1	36.7	23.0	58.8	57.1	42.7	28.7
16-Dec	63.0	54.3	49.4	36.3	23.0	58.8	58.3	41.2	28.2
23-Dec	63.0	53.5	50.3	36.1	25.0	58.1	56.9	42.0	28.2
31-Dec	63.0	55.2	48.7	36.1	23.0	58.1	55.7	40.2	28.0

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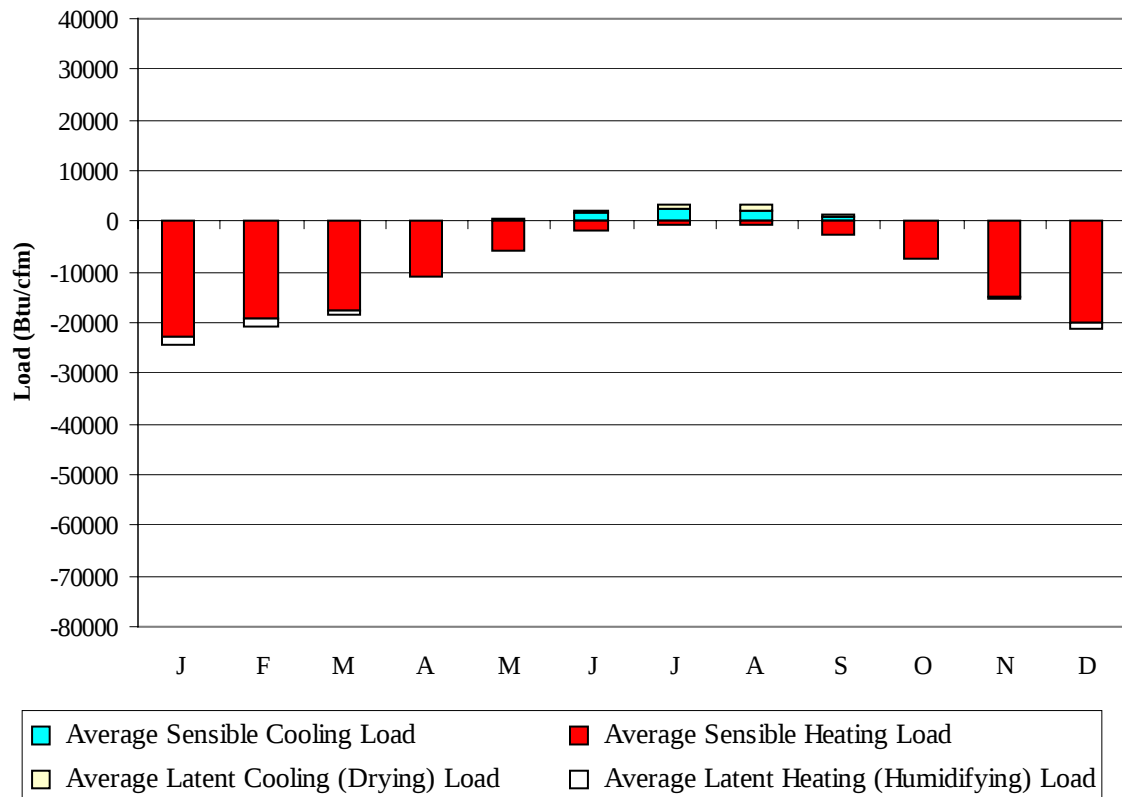


	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	782
FEB	1	661
MAR	5	591
APR	25	340
MAY	81	159
JUN	221	44
JUL	319	13
AUG	304	13
SEP	165	63
OCT	52	217
NOV	4	485
DEC	0	685
ANN	1177	4053

BALIKESIR, TURKEY

WMO No. 171500

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	-22668	0	-1716
FEB	0	-19287	0	-1329
MAR	5	-17646	0	-829
APR	78	-10863	0	-120
MAY	385	-5762	47	-17
JUN	1643	-1910	307	0
JUL	2563	-685	918	0
AUG	2278	-677	1064	0
SEP	976	-2591	229	-7
OCT	250	-7444	44	-31
NOV	1	-14792	1	-446
DEC	0	-20150	0	-880
ANN	8179	-124475	2610	-5375

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

No Solar Radiation
Data Available

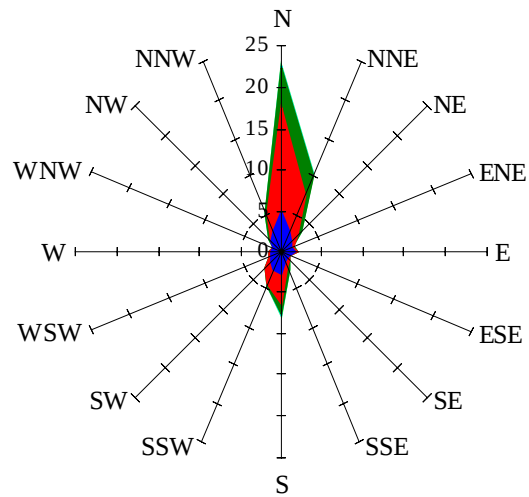


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

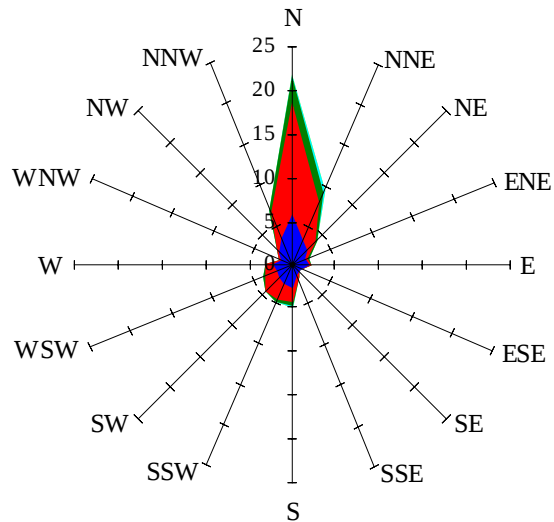
Labels of Percent Frequency on North Axis



Percent Calm = 29.68

Wind Summary - March, April, and May

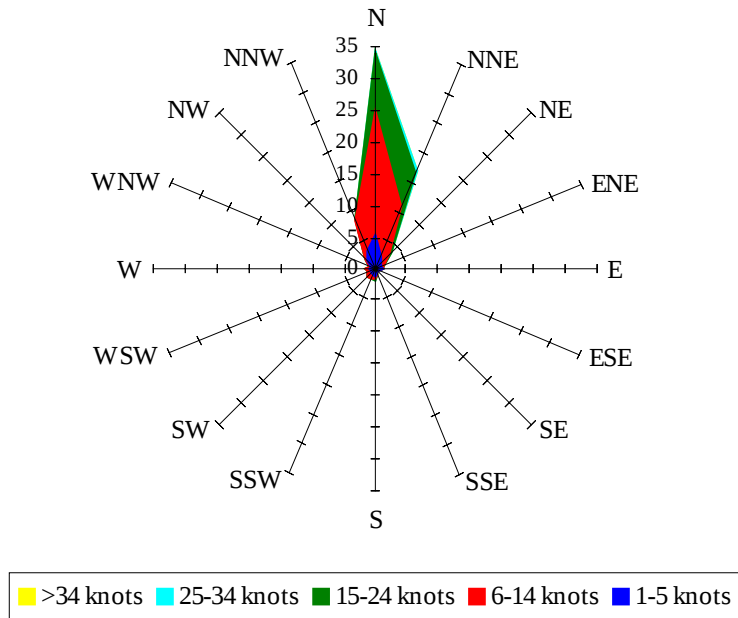
Labels of Percent Frequency on North Axis



Percent Calm = 27.42

Wind Summary - June, July, and August

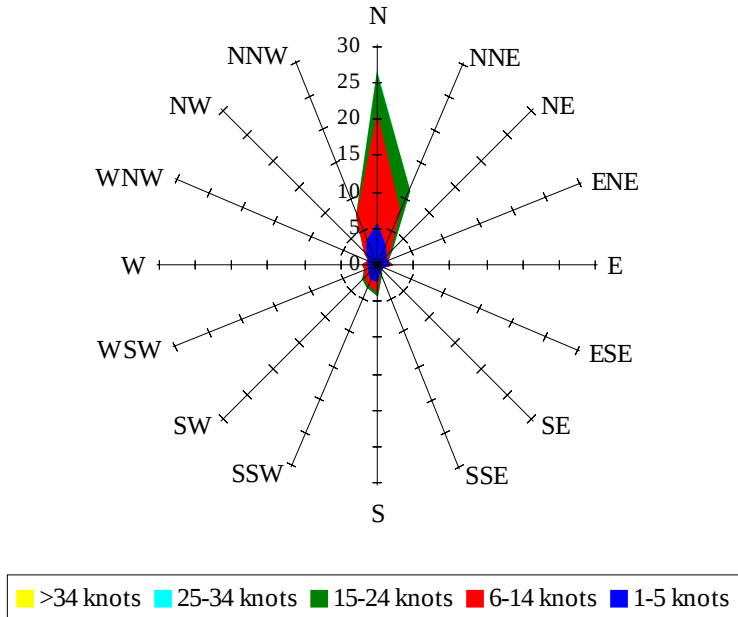
Labels of Percent Frequency on North Axis



Percent Calm = 21.27

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 29.70