

SINOP, TURKEY

Latitude = 42.03 N

Longitude = 35.17 E

Period of Record = 1973 to 1996

WMO No. 170260

Elevation = 105 feet

Average Pressure = 29.85 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	86	69	86	7.6	SSE
0.4% Occurrence	82	70	91	7.1	ESE
1.0% Occurrence	80	70	93	7.7	ESE
2.0% Occurrence	79	70	95	7.9	WNW
Mean Daily Range	8	-	-	-	-
97.5% Occurrence	36	33	23	9.4	WNW
99.0% Occurrence	34	31	21	10.0	WNW
99.6% Occurrence	31	29	19	10.5	NNW
Median of Extreme Lows	28	26	17	10.9	NNW
	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	76	80	125	8.1	NNE
0.4% Occurrence	74	78	118	8.2	WNW
1.0% Occurrence	72	77	110	7.9	WNW
2.0% Occurrence	71	76	105	7.7	WNW
	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	127	78	0.84	9.1	WNW
0.4% Occurrence	120	78	0.80	7.9	WNW
1.0% Occurrence	115	76	0.76	7.9	WNW
2.0% Occurrence	110	75	0.73	7.9	WNW
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		0	102	86	863

Other Site Data

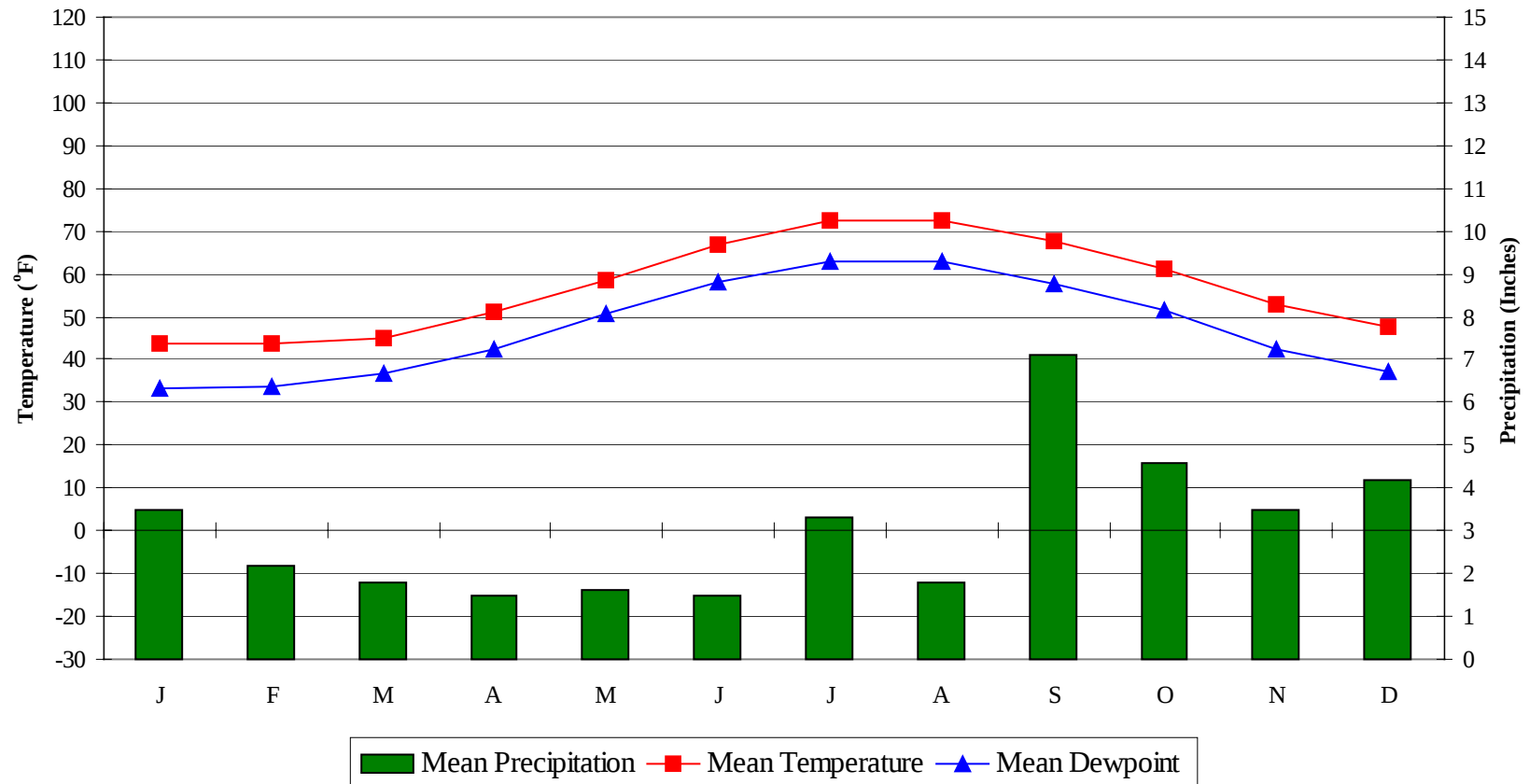
Weather Region	Rain Rate 100 Year Recurrence (in./hr)	Basic Wind Speed 3 sec gust @ 33 ft 50 Year Recurrence (mph)	Ventilation Cooling Load Index (Ton-hr/cfm/yr) Base 75°F-RH 60% Latent + Sensible
8	N/A	N/A	0.4 + 0.1
Ground Water Temperature (°F) 50 Foot Depth *	Frost Depth 50 Year Recurrence (in.)	Ground Snow Load 50 Year Recurrence (lb/ft ²)	Average Annual Freeze-Thaw Cycles (#)
59.0	N/A	N/A	3

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

SINOP, TURKEY

WMO No. 170260

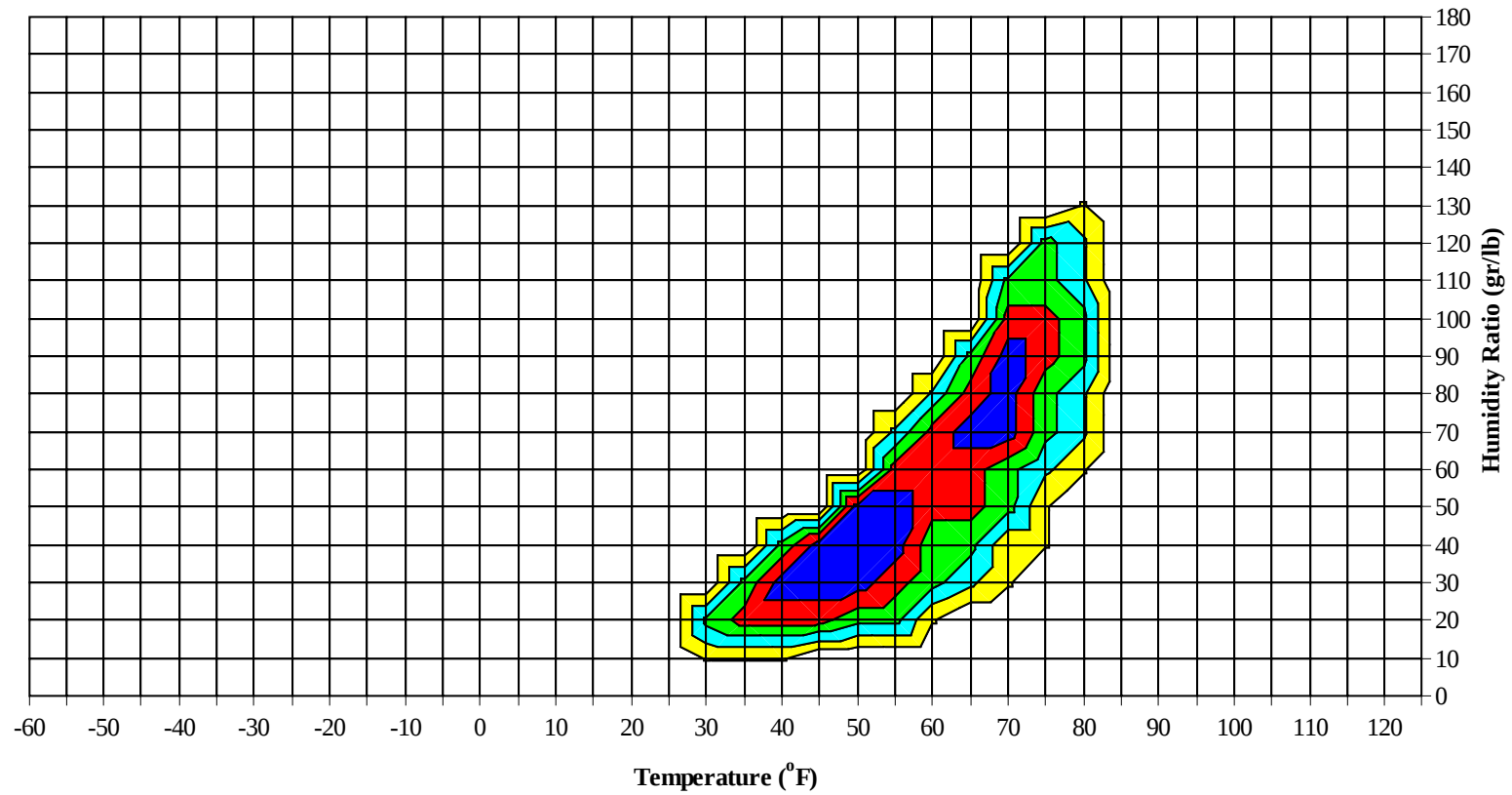
Average Annual Climate



SINOP, TURKEY

WMO No. 170260

Long Term Psychrometric Summary

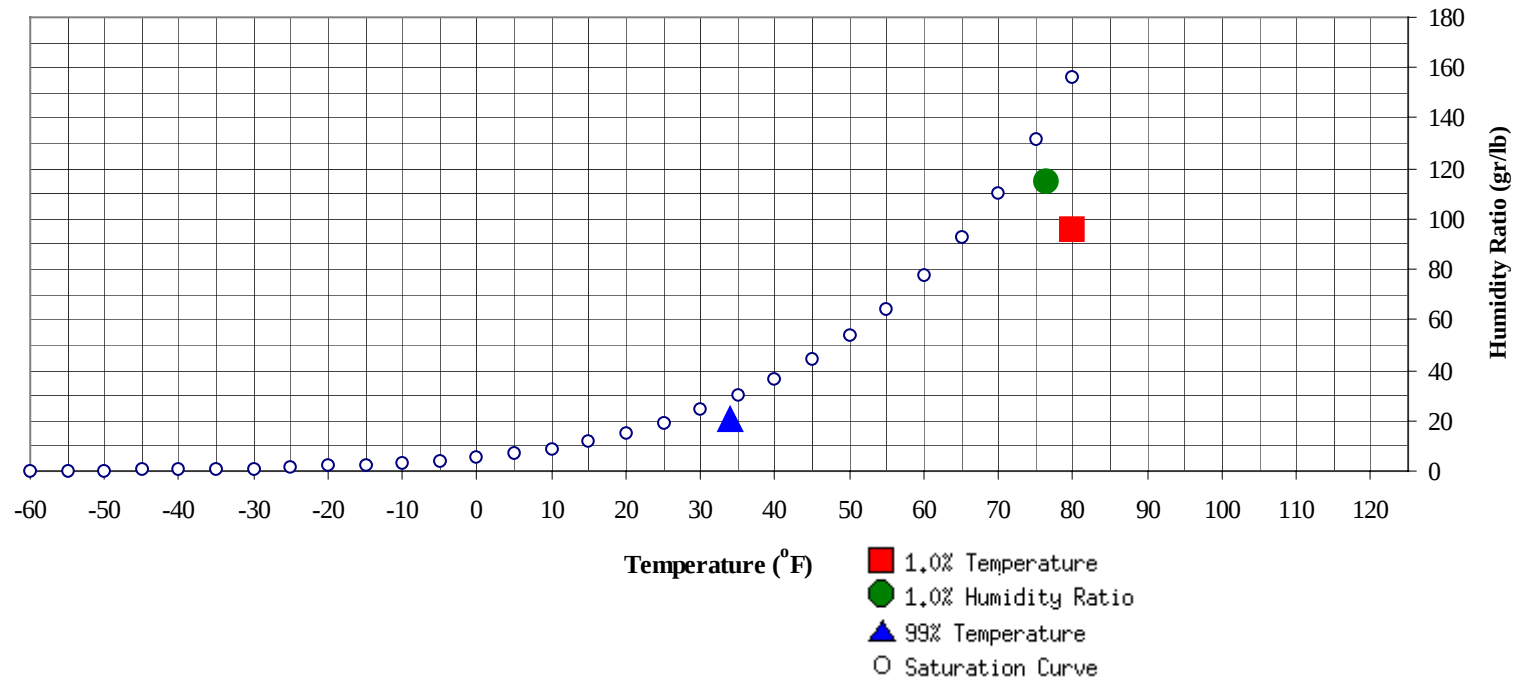


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

SINOP, TURKEY

WMO No. 170260

Psychrometric Summary of Peak Design Values



	(°F)	MCHR (gr/lb)	Enthalpy (btu/lb)	1.0% Humidity Ratio	(gr/lb)	MCDB (°F)	MCWB (°F)	MC Dewpt (°F)	Enthalpy (btu/lb)
99% Dry Bulb	34	20.7	11.3		114.8	76.5	72.6	70.9	36.3

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	80	95.9	70.1	34.2

SINOP, TURKEY

WMO No. 170260

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							1		1	53.2		0	0	0	54.8
65 / 69		1	0	1	51.0							1	0	1	52.1
60 / 64						1	4	1	5	50.8	1	2	1	4	51.0
55 / 59	1	6	2	9	50.0	3	11	4	17	48.9	2	13	4	19	50.0
50 / 54	7	19	10	36	47.0	11	17	12	40	46.6	7	19	9	36	47.9
45 / 49	22	30	25	78	45.0	19	28	21	68	44.4	20	43	29	91	45.6
40 / 44	58	75	70	203	42.3	45	67	57	169	42.5	74	96	89	259	43.0
35 / 39	76	64	74	214	38.3	71	54	70	194	38.9	97	50	81	228	39.3
30 / 34	65	40	52	158	34.1	52	29	42	123	33.9	39	19	29	87	34.8
25 / 29	17	10	13	39	30.1	19	11	14	44	29.5	7	5	6	19	30.1
20 / 24	3	1	2	6	25.3	3	2	3	8	25.8	1	0	0	1	25.7
15 / 19						1	0	1	2	20.6					
						0			0	18.0					

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.

SINOP, TURKEY

WMO No. 170260

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															
85 / 89															
80 / 84	0	1	0	1	60.4	0	1	0	1	65.4	0	6	1	7	66.1
75 / 79	0	1	1	2	57.8	1	4	1	5	62.4	2	37	12	51	66.2
70 / 74	1	4	1	5	55.6	2	16	6	24	61.1	29	91	57	177	64.4
65 / 69	2	7	4	13	54.6	7	42	21	69	59.6	76	73	86	235	62.1
60 / 64	5	20	7	32	52.0	49	86	65	200	56.8	103	30	74	208	59.1
55 / 59	23	56	35	113	50.2	101	75	98	274	53.5	29	2	11	42	54.7
50 / 54	74	87	86	247	47.8	73	23	52	148	49.7	1		0	1	48.8
45 / 49	103	57	91	251	44.4	15	1	5	22	45.1	0			0	42.0
40 / 44	32	6	16	53	40.3	1			1	41.3					
35 / 39	1	0	0	1	35.0	0			0	37.0					
30 / 34	0			0	32.0										
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.

SINOP, TURKEY

WMO No. 170260

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	71.0		0		0	66.0					
85 / 89		2	0	2	71.3	0	2	1	3	70.0		0	0	0	61.5
80 / 84		27	7	35	70.1	1	41	13	55	70.8	1	6	1	8	69.7
75 / 79	18	122	70	210	68.8	25	114	70	209	69.3	1	44	12	57	68.0
70 / 74	122	82	120	324	66.3	114	77	115	306	66.1	33	108	69	211	64.8
65 / 69	85	10	44	139	62.9	84	11	43	138	62.7	88	51	91	230	61.7
60 / 64	22	3	7	33	59.2	24	2	7	33	59.1	94	24	54	172	57.8
55 / 59	1			1	54.8	0		0	0	54.8	19	6	10	35	53.7
50 / 54						0		0	0	48.0	4	1	3	8	48.5
45 / 49															
40 / 44															
35 / 39															
30 / 34															
25 / 29															
20 / 24															
15 / 19															

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SINOP, TURKEY

WMO No. 170260

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			0	0	65.0										
85 / 89		1	0	1	63.4										
80 / 84	0	2	0	2	63.0		0		0	63.0					
75 / 79	1	9	2	12	62.7		1		1	59.0					
70 / 74	6	34	12	51	62.7	1	8	1	10	56.2			1	0	1 53.7
65 / 69	27	64	36	127	60.6	3	14	5	21	54.5			1	5	1 7 52.1
60 / 64	88	73	95	257	57.6	15	43	23	81	54.2			4	17	6 27 50.1
55 / 59	79	43	65	187	52.9	60	69	69	199	51.8			21	31	21 72 47.9
50 / 54	37	17	28	82	47.6	78	52	72	202	47.7			48	68	56 172 46.4
45 / 49	10	3	9	22	42.9	48	35	46	129	42.4			86	77	90 253 42.8
40 / 44	1		1	2	37.4	26	15	18	59	38.7			56	31	47 134 38.5
35 / 39			0	0	39.0	8	3	6	17	36.0			31	17	25 73 34.4
30 / 34						1	0	1	2	32.2			2	1	2 5 31.0
25 / 29															
20 / 24															
15 / 19															

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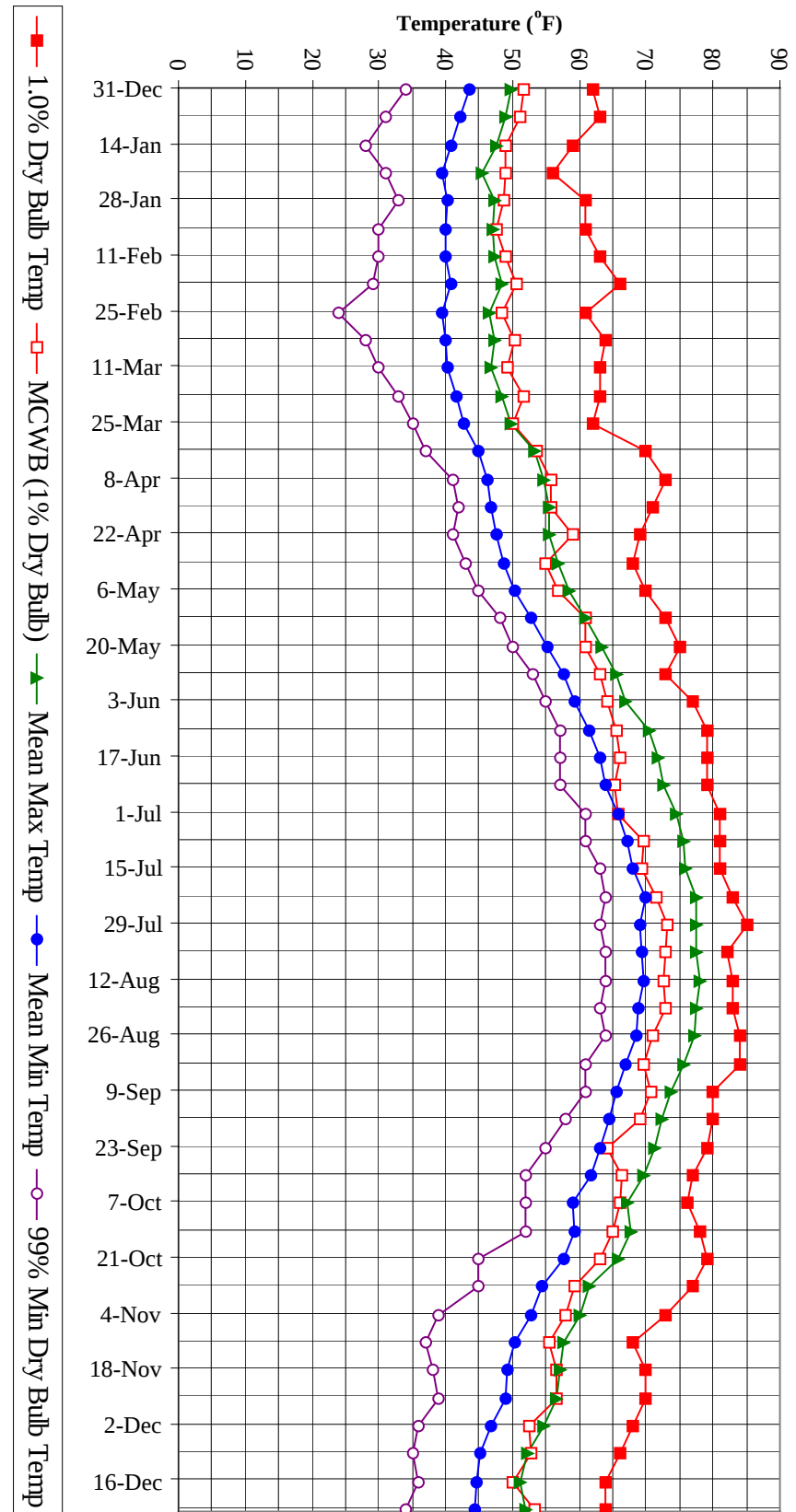
WMO No. 170260

Period of Record = 1973 to 1996

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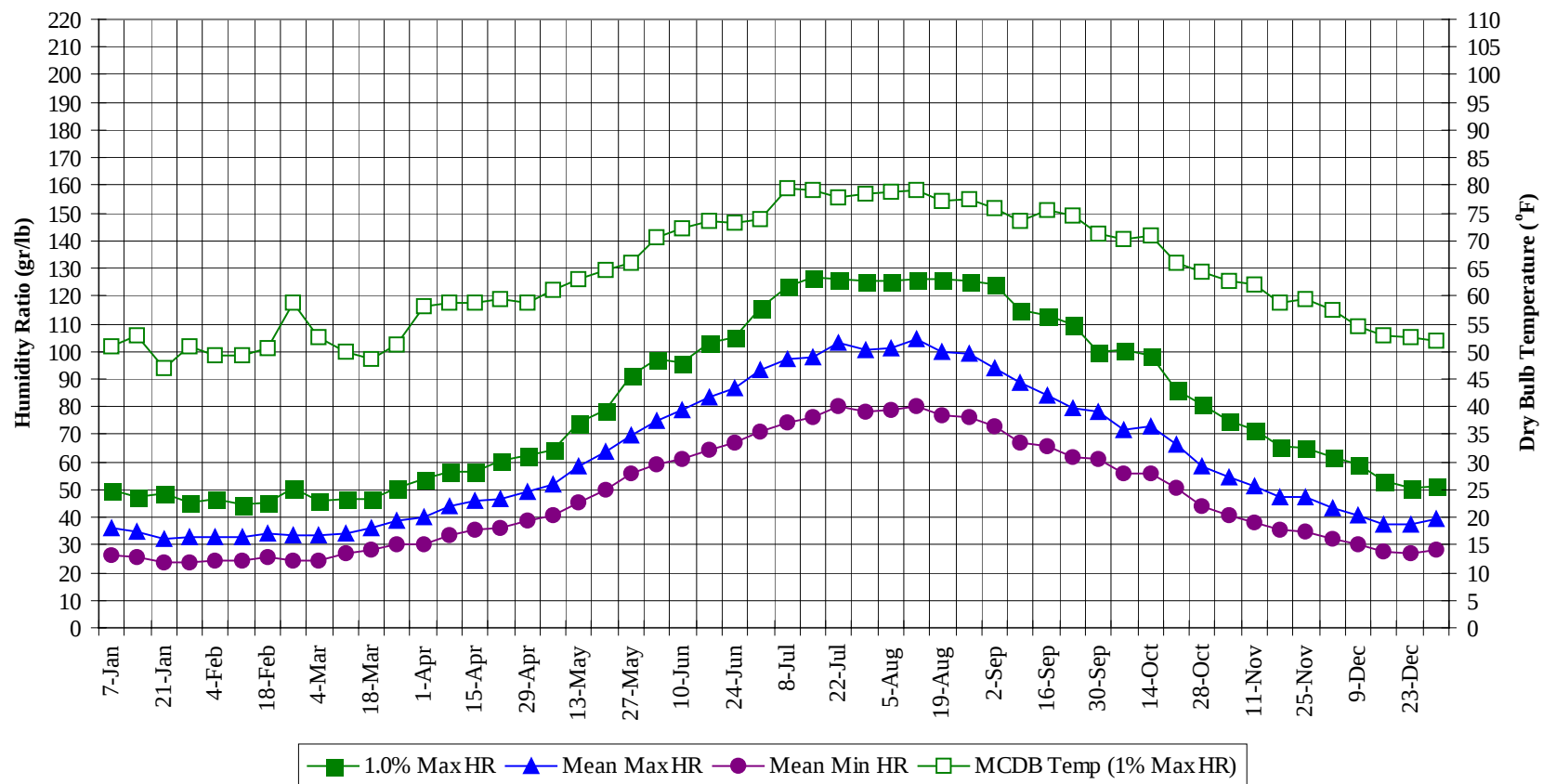
Annual Summary of Temperatures



SINOP, TURKEY

WMO No. 170260

Long Term Humidity and Dry Bulb Temperature Summary



SINOP, TURKEY

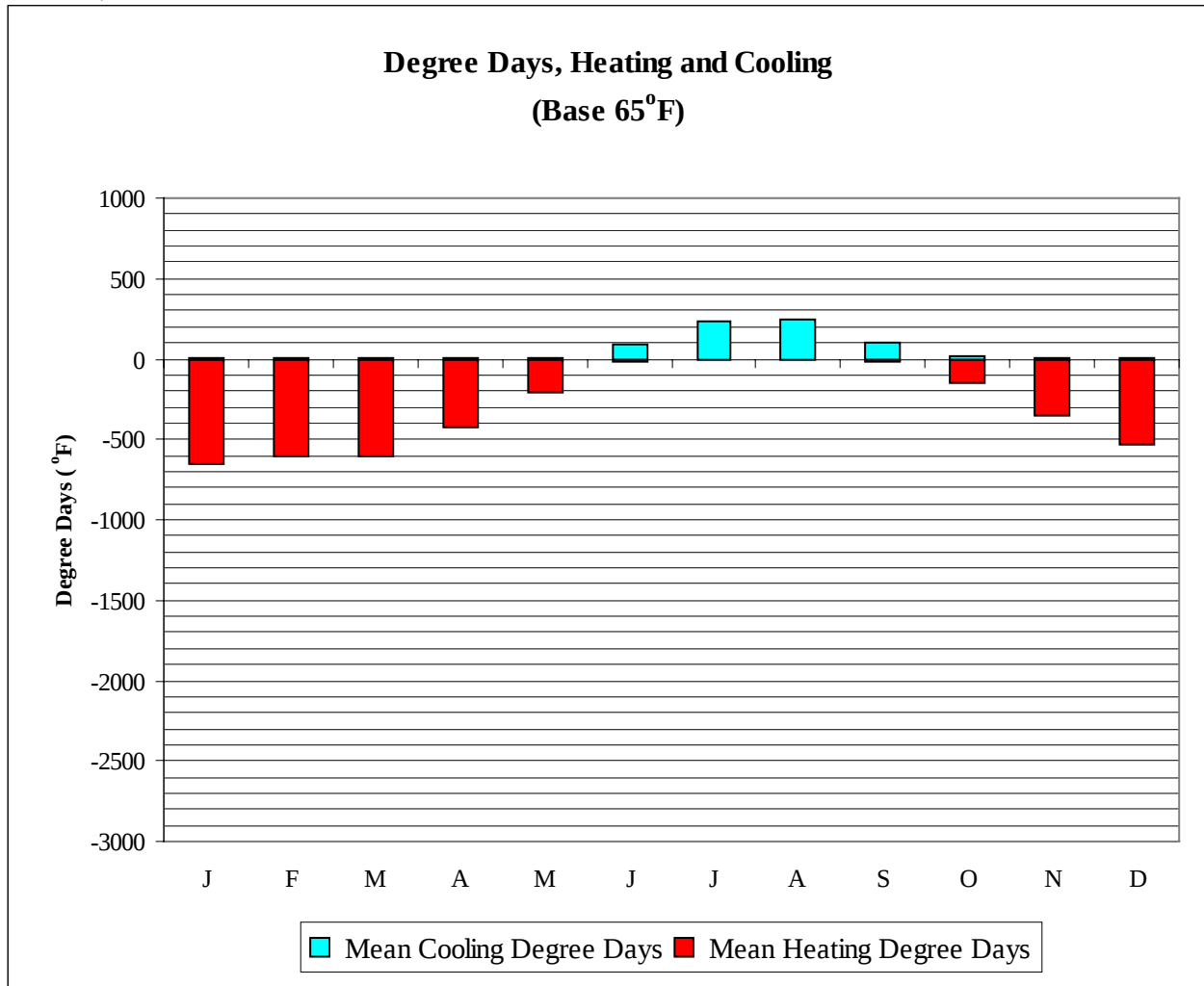
WMO No. 170260

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	63.0	51.3	49.0	42.1	31.0	49.7	50.9	36.0	26.4
14-Jan	59.0	48.9	47.6	40.7	28.0	47.6	52.8	34.6	25.4
21-Jan	56.0	49.0	45.4	39.3	31.0	48.3	47.0	32.3	23.5
28-Jan	61.0	48.6	47.4	40.3	33.0	45.5	50.8	32.9	23.6
4-Feb	61.0	47.6	46.9	40.0	30.0	46.9	49.3	33.0	24.2
11-Feb	63.0	48.9	47.4	40.0	30.0	44.8	49.4	33.1	24.5
18-Feb	66.0	50.7	48.4	40.8	29.0	45.5	50.5	34.4	25.6
25-Feb	61.0	48.5	46.4	39.3	24.0	50.4	58.7	33.2	24.5
4-Mar	64.0	50.3	47.4	40.0	28.0	46.2	52.5	33.5	24.4
11-Mar	63.0	49.3	46.7	40.2	30.0	46.9	49.9	34.3	26.7
18-Mar	63.0	51.6	48.4	41.6	33.0	46.9	48.6	36.2	28.3
25-Mar	62.0	50.0	49.8	42.8	35.0	50.4	51.3	39.0	30.3
1-Apr	70.0	53.7	53.3	44.9	37.0	53.9	58.2	40.2	30.3
8-Apr	73.0	55.8	54.8	46.3	41.0	56.7	58.6	43.9	33.7
15-Apr	71.0	55.7	55.4	46.9	42.0	56.7	58.6	46.0	35.5
22-Apr	69.0	59.0	55.5	47.5	41.0	60.2	59.4	46.7	35.9
29-Apr	68.0	54.8	56.7	48.7	43.0	62.3	58.7	49.3	38.6
6-May	70.0	56.9	58.5	50.4	45.0	64.4	61.2	51.7	40.5
13-May	73.0	60.8	61.0	52.8	48.0	74.2	63.0	58.1	45.3
20-May	75.0	61.0	63.3	55.3	50.0	79.1	64.6	64.0	49.9
27-May	73.0	63.0	65.6	57.7	53.0	91.0	66.1	69.9	55.9
3-Jun	77.0	64.1	67.0	59.3	55.0	97.3	70.6	74.6	59.3
10-Jun	79.0	65.6	70.3	61.4	57.0	95.9	72.1	78.7	60.8
17-Jun	79.0	66.2	71.9	63.0	57.0	102.9	73.7	83.5	64.2
24-Jun	79.0	65.3	72.6	63.9	57.0	105.0	73.1	86.5	66.9
1-Jul	81.0	65.9	74.4	65.9	61.0	115.5	74.0	93.2	70.9
8-Jul	81.0	69.5	75.6	67.3	61.0	123.2	79.3	97.1	74.0
15-Jul	81.0	69.3	75.9	67.9	63.0	126.7	79.0	97.9	75.9
22-Jul	83.0	71.5	77.5	69.8	64.0	126.0	77.7	102.8	79.9
29-Jul	85.0	73.3	77.5	69.1	63.0	125.3	78.5	100.7	78.2
5-Aug	82.0	73.0	77.4	69.3	64.0	125.3	78.8	101.4	78.7
12-Aug	83.0	72.6	78.0	69.7	64.0	126.0	79.1	104.6	79.9
19-Aug	83.0	73.0	77.5	68.9	63.0	126.0	77.3	99.8	76.7
26-Aug	84.0	71.0	77.2	68.6	64.0	125.3	77.4	99.2	76.0
2-Sep	84.0	69.6	75.6	66.9	61.0	123.9	75.8	94.1	73.1
9-Sep	80.0	70.7	73.8	65.7	61.0	114.8	73.6	88.5	67.1
16-Sep	80.0	69.0	72.4	64.3	58.0	112.7	75.4	83.8	65.6
23-Sep	79.0	64.2	71.1	63.0	55.0	109.9	74.4	79.5	61.7
30-Sep	77.0	66.3	69.6	61.7	52.0	100.1	71.1	78.5	61.1
7-Oct	76.0	66.0	67.1	59.0	52.0	100.8	70.4	71.7	55.5
14-Oct	78.0	65.0	67.7	59.3	52.0	98.7	71.0	72.7	55.8
21-Oct	79.0	63.1	65.7	57.6	45.0	86.1	66.0	66.4	50.4
28-Oct	77.0	59.3	61.5	54.3	45.0	80.5	64.2	58.7	44.3
4-Nov	73.0	57.9	60.0	52.7	39.0	74.9	62.9	54.2	40.4
11-Nov	68.0	55.6	57.6	50.2	37.0	71.4	62.2	51.3	38.1
18-Nov	70.0	56.6	57.1	49.3	38.0	65.8	58.8	47.5	35.2
25-Nov	70.0	56.7	56.5	48.9	39.0	65.1	59.3	47.4	35.1
2-Dec	68.0	52.5	54.7	46.8	36.0	61.6	57.6	43.4	32.0
9-Dec	66.0	52.7	52.1	45.0	35.0	58.8	54.4	40.8	30.1
16-Dec	64.0	50.0	51.2	44.6	36.0	53.2	52.9	37.7	27.8
23-Dec	64.0	53.3	52.0	44.2	34.0	50.4	52.6	37.6	27.0
31-Dec	62.0	51.7	49.9	43.5	34.0	51.1	52.0	39.2	28.2

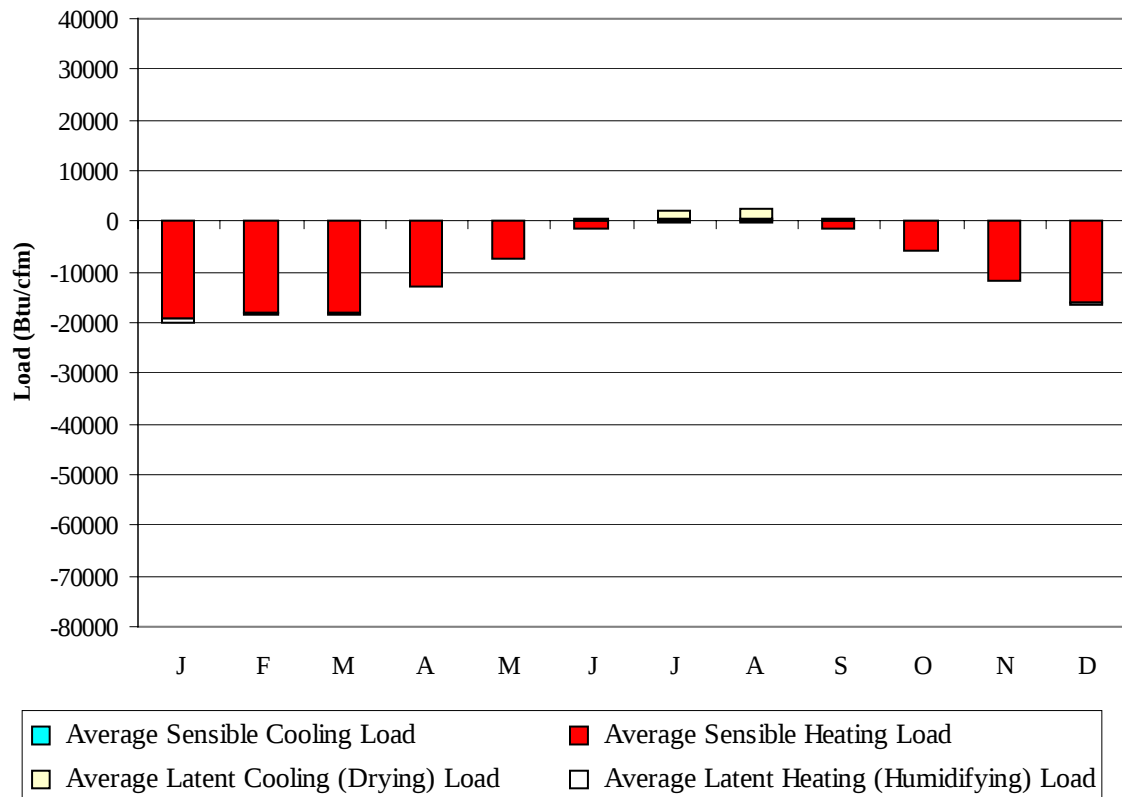
SINOP, TURKEY

WMO No. 170260



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	653
FEB	0	609
MAR	0	609
APR	3	420
MAY	9	205
JUN	93	23
JUL	234	1
AUG	247	1
SEP	106	22
OCT	23	150
NOV	2	359
DEC	0	535
ANN	719	3587

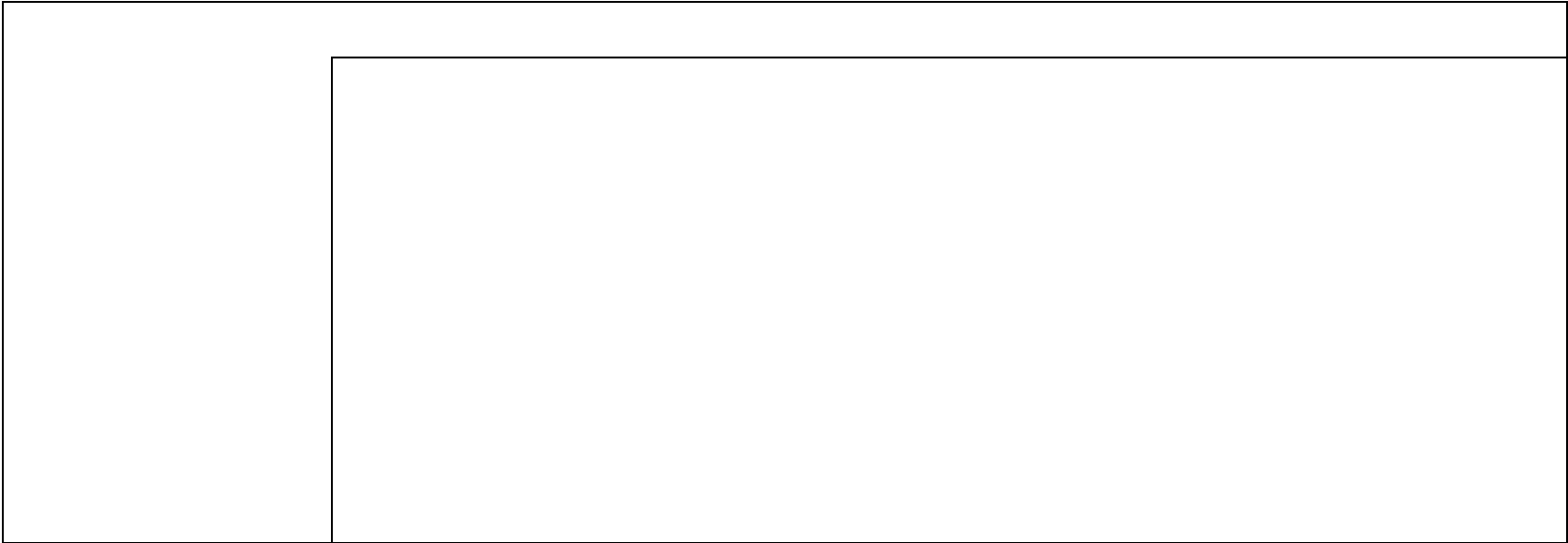
Average Ventilation and Infiltration Loads
(Outside Air vs. 75°F, 60% RH summer; 68°F, 30% RH winter)



	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	-19260	0	-646
FEB	0	-17905	0	-615
MAR	0	-18082	0	-366
APR	4	-13014	0	-53
MAY	7	-7487	23	-6
JUN	50	-1606	480	0
JUL	372	-164	1568	0
AUG	616	-164	1712	0
SEP	72	-1438	566	-1
OCT	19	-5872	82	-12
NOV	0	-11516	1	-142
DEC	0	-16189	0	-343
ANN	1140	-112697	4432	-2184

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

No Solar Radiation
Data Available

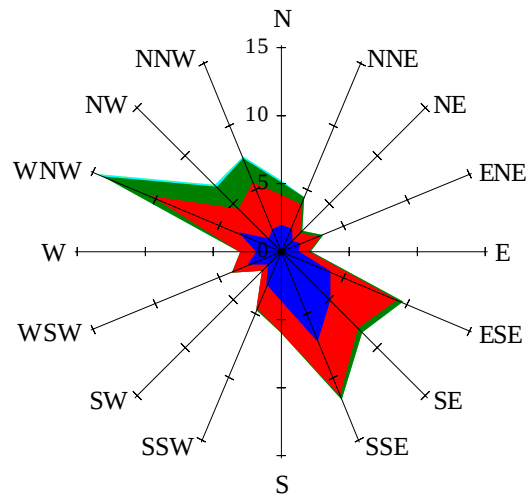


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

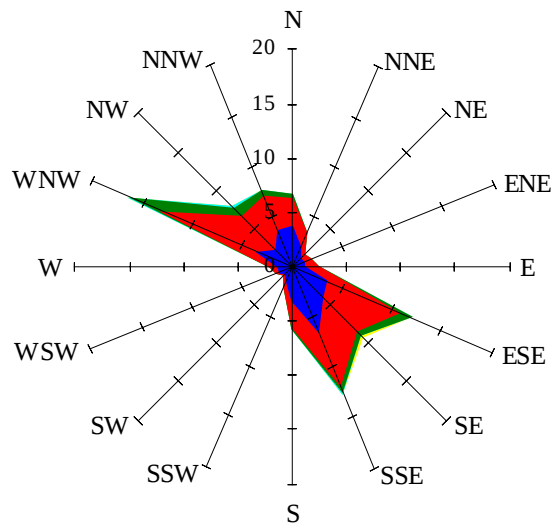
Labels of Percent Frequency on North Axis



Percent Calm = 6.81

Wind Summary - March, April, and May

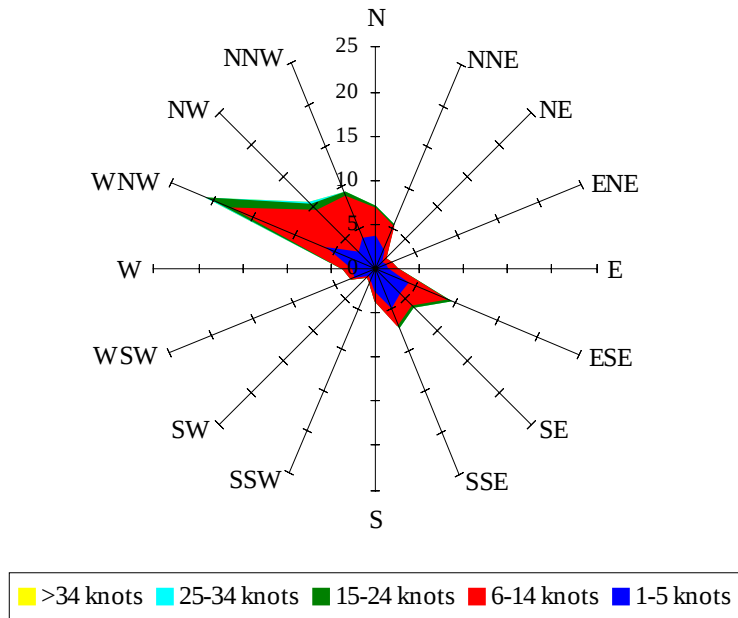
Labels of Percent Frequency on North Axis



Percent Calm = 7.39

Wind Summary - June, July, and August

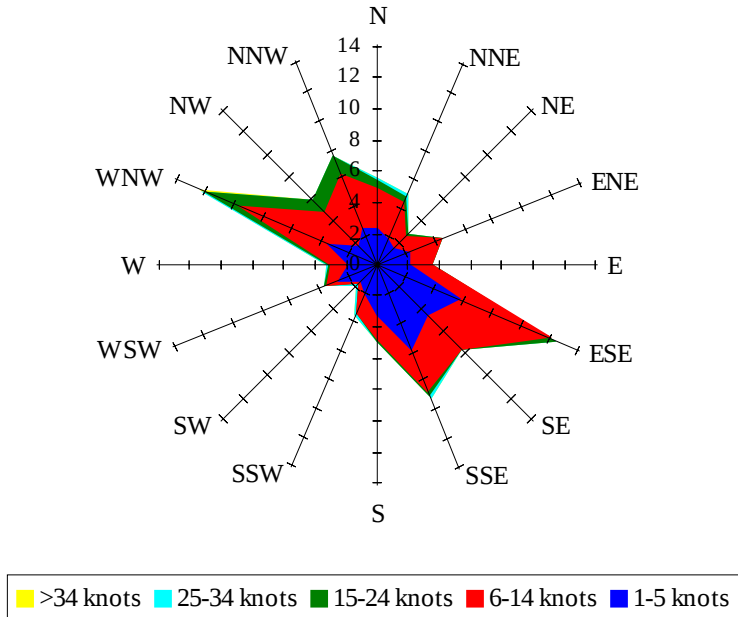
Labels of Percent Frequency on North Axis



Percent Calm = 6.71

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 8.55