

CIAMPINO, ITALY

Latitude = 41.80 N

Longitude = 12.55 E

Period of Record = 1973 to 1996

WMO No. 162390

Elevation = 331 feet

Average Pressure = 29.55 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	72	80	12.1	S
0.4% Occurrence	91	71	87	9.6	W
1.0% Occurrence	88	70	86	9.3	W
2.0% Occurrence	86	70	88	9.3	W
Mean Daily Range	17	-	-	-	-
97.5% Occurrence	36	35	26	4.0	NE
99.0% Occurrence	32	30	22	4.2	NE
99.6% Occurrence	30	28	19	4.4	NE
Median of Extreme Lows	27	26	17	4.3	NE
	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	79	86	135	9.7	SSW
0.4% Occurrence	76	86	118	9.3	S
1.0% Occurrence	74	83	112	8.0	S
2.0% Occurrence	73	82	108	7.7	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	135	82	0.88	10.4	S
0.4% Occurrence	126	80	0.83	7.5	S
1.0% Occurrence	118	79	0.78	6.6	S
2.0% Occurrence	111	78	0.74	6.3	S
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		21	615	180	1130

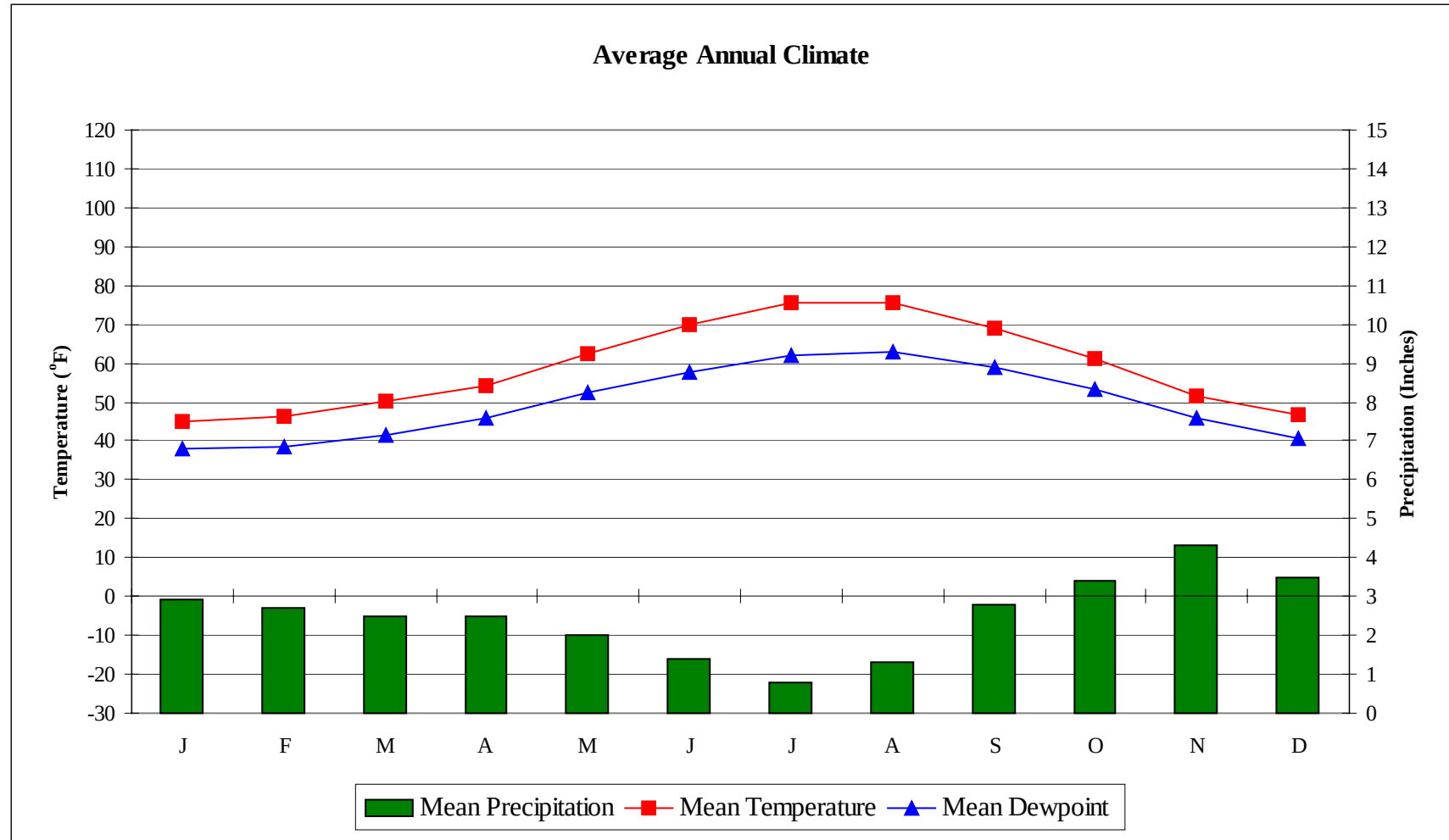
Other Site Data

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	1.2 + 0.6
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 (#)
61.4	N/A	N/A	12

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

CIAMPINO, ITALY

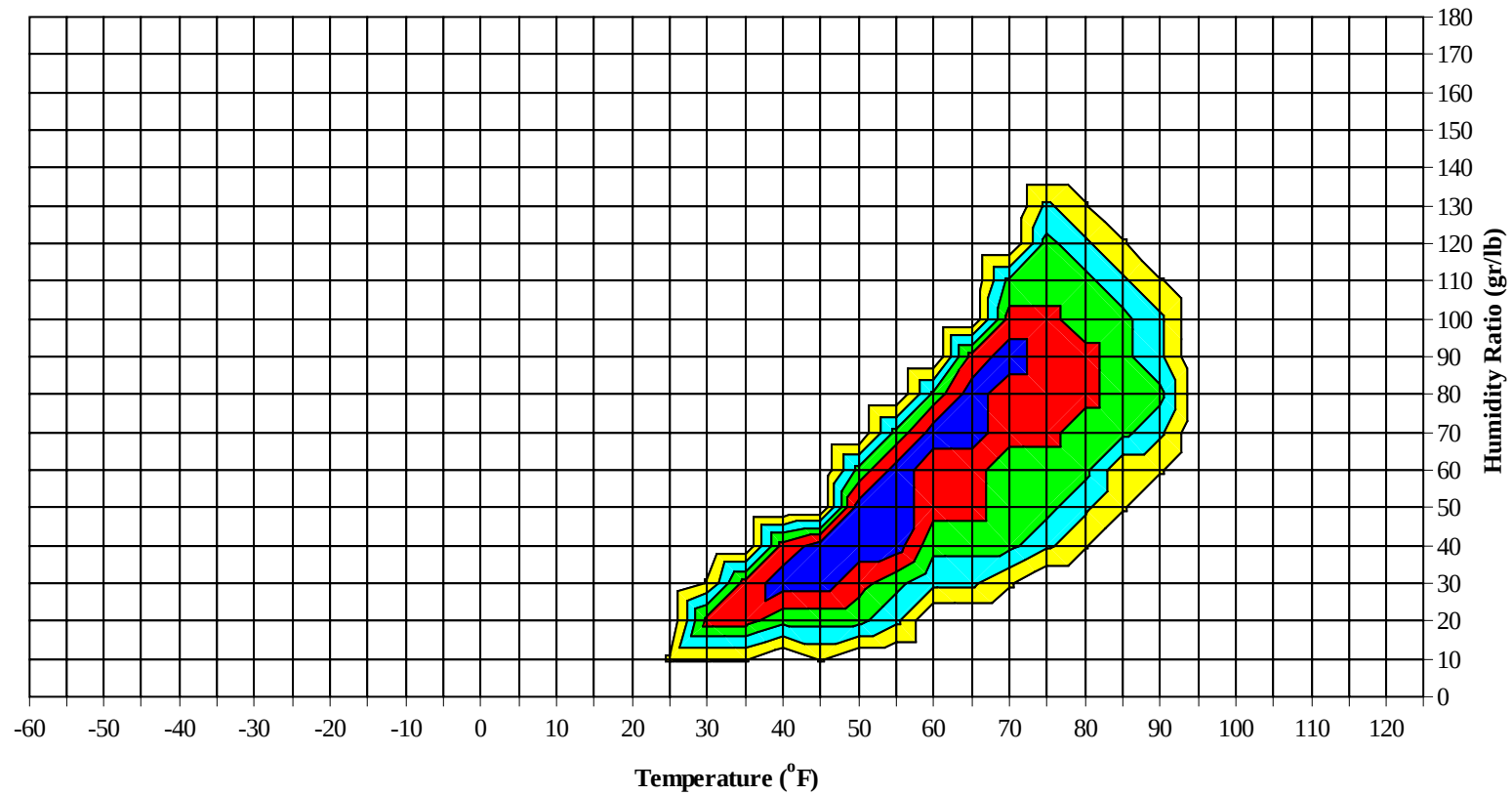
WMO No. 162390



CIAMPINO, ITALY

WMO No. 162390

Long Term Psychrometric Summary

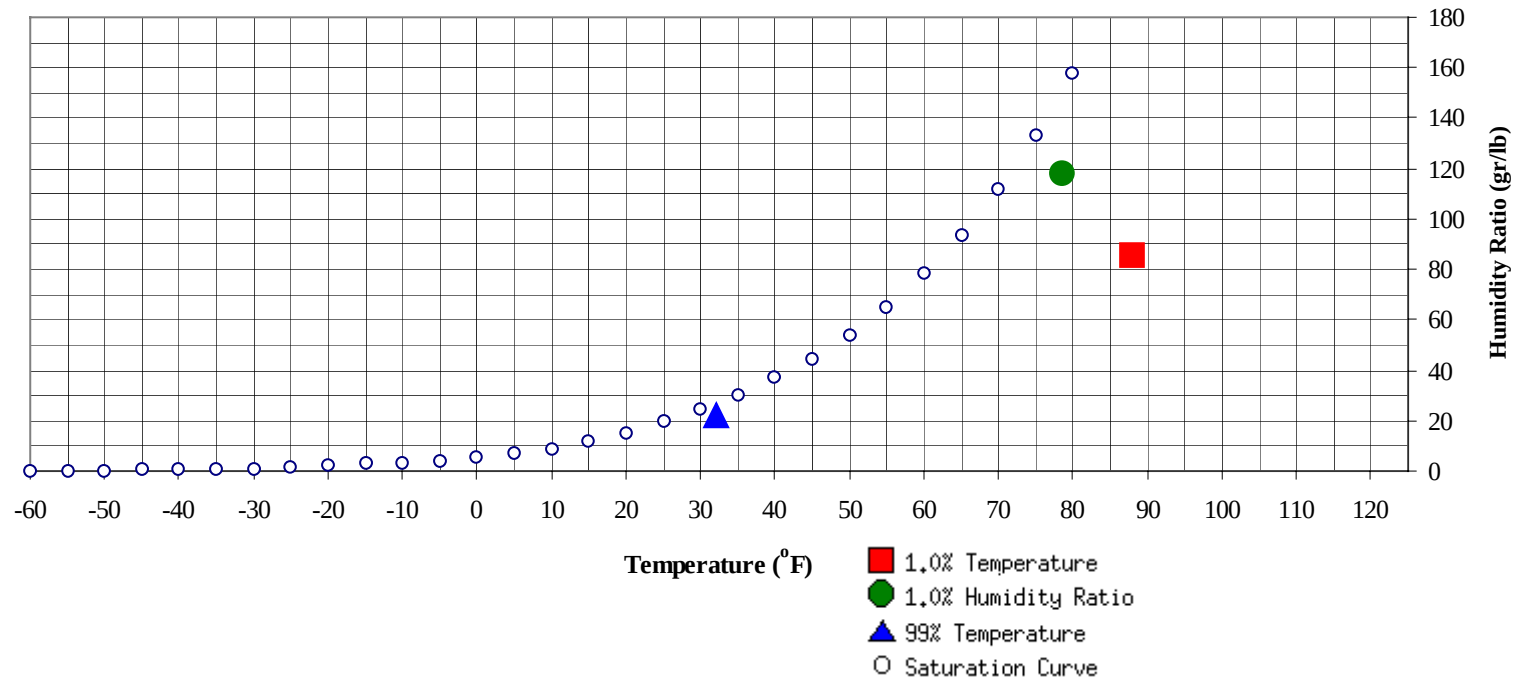


- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

CIAMPINO, ITALY

WMO No. 162390

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	32	21.9	11.0		118.3	78.5	73.7	71.6	37.4

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	88	85.8	70.5	34.6

CIAMPINO, ITALY

WMO No. 162390

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	1	0	1	58.4
70 / 74							0	0	0	54.0	0	2	1	3	55.9
65 / 69							1	0	1	54.7	1	6	2	9	54.8
60 / 64	0	3	0	3	54.7	0	8	2	10	53.0	1	36	12	49	53.3
55 / 59	8	42	17	67	51.7	5	51	22	78	50.3	10	81	53	144	50.9
50 / 54	37	77	68	182	47.8	29	67	66	162	47.5	53	71	91	215	48.2
45 / 49	47	57	74	178	43.4	56	52	73	180	43.2	83	35	63	181	43.9
40 / 44	42	27	44	113	39.3	43	21	34	98	39.5	50	10	17	77	39.6
35 / 39	61	27	32	120	35.4	53	18	22	93	35.4	37	5	7	49	35.4
30 / 34	43	13	10	66	30.4	31	6	5	42	30.4	10	2	2	14	29.9
25 / 29	9	2	3	14	25.4	6	1	0	7	26.0	3	0	0	3	24.8
20 / 24	1	0	0	1	21.1						0			0	21.6
15 / 19	1	0	0	1	17.4										
10 / 14	0	0		0	13.0										

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.

CIAMPINO, ITALY

WMO No. 162390

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															
90 / 94															
85 / 89															
80 / 84															
75 / 79															
70 / 74															
65 / 69															
60 / 64															
55 / 59															
50 / 54															
45 / 49															
40 / 44															
35 / 39															
30 / 34															
25 / 29															
20 / 24															
15 / 19															
10 / 14															

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WMO No. 162390

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	0	73.5		0		0	77.8					
95 / 99		3	0	3	72.5		4	0	4	72.1		1	0	1	73.9
90 / 94		25	6	31	71.4		32	7	39	71.5		1	1	2	70.9
85 / 89		51	17	68	70.1	0	43	16	59	71.0		7	1	8	69.1
80 / 84	1	86	52	139	69.2	2	76	45	123	69.9	0	50	9	59	68.2
75 / 79	18	55	74	148	68.0	18	60	78	156	68.6	3	74	41	118	66.8
70 / 74	89	22	70	181	66.5	93	25	70	188	66.8	18	59	75	152	64.9
65 / 69	78	5	20	103	63.6	72	6	23	102	63.8	49	26	58	133	63.1
60 / 64	51	1	7	59	59.8	52	2	7	61	60.1	102	18	44	164	59.9
55 / 59	10		1	11	55.4	9	0	1	10	55.8	53	4	10	67	55.3
50 / 54	1			1	52.4	1			1	51.8	13	1	1	15	50.3
45 / 49											2		0	2	45.5
40 / 44															
35 / 39															
30 / 34															
25 / 29															
20 / 24															
15 / 19															
10 / 14															

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WMO No. 162390

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	66.0										
80 / 84		3	0	3	65.3										
75 / 79	0	25	5	30	65.2										
70 / 74	3	52	25	80	63.6	0	2	0	2	61.2					
65 / 69	14	53	39	106	61.6	1	13	2	16	60.1		1	0	1	58.4
60 / 64	53	62	79	194	58.7	11	54	25	90	57.4	1	9	3	13	56.5
55 / 59	76	35	66	177	54.3	34	69	63	165	53.3	23	57	33	113	53.0
50 / 54	62	14	26	102	50.1	53	52	78	182	49.1	39	72	67	178	48.5
45 / 49	33	4	6	43	44.8	68	32	50	151	44.5	53	54	69	176	43.8
40 / 44	7	0	1	8	40.6	37	11	13	61	40.1	38	24	38	100	39.5
35 / 39	1	0	0	1	36.6	28	6	8	42	36.0	56	22	29	107	35.5
30 / 34	0			0	32.5	9	1	1	11	30.9	33	8	8	49	30.8
25 / 29						0			0	25.8	5	1	0	6	26.2
20 / 24						0			0	20.3	0			0	23.0
15 / 19															
10 / 14															

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CIAMPINO, ITALY

WMO No. 162390

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

Period of Record = 1973 to 1996

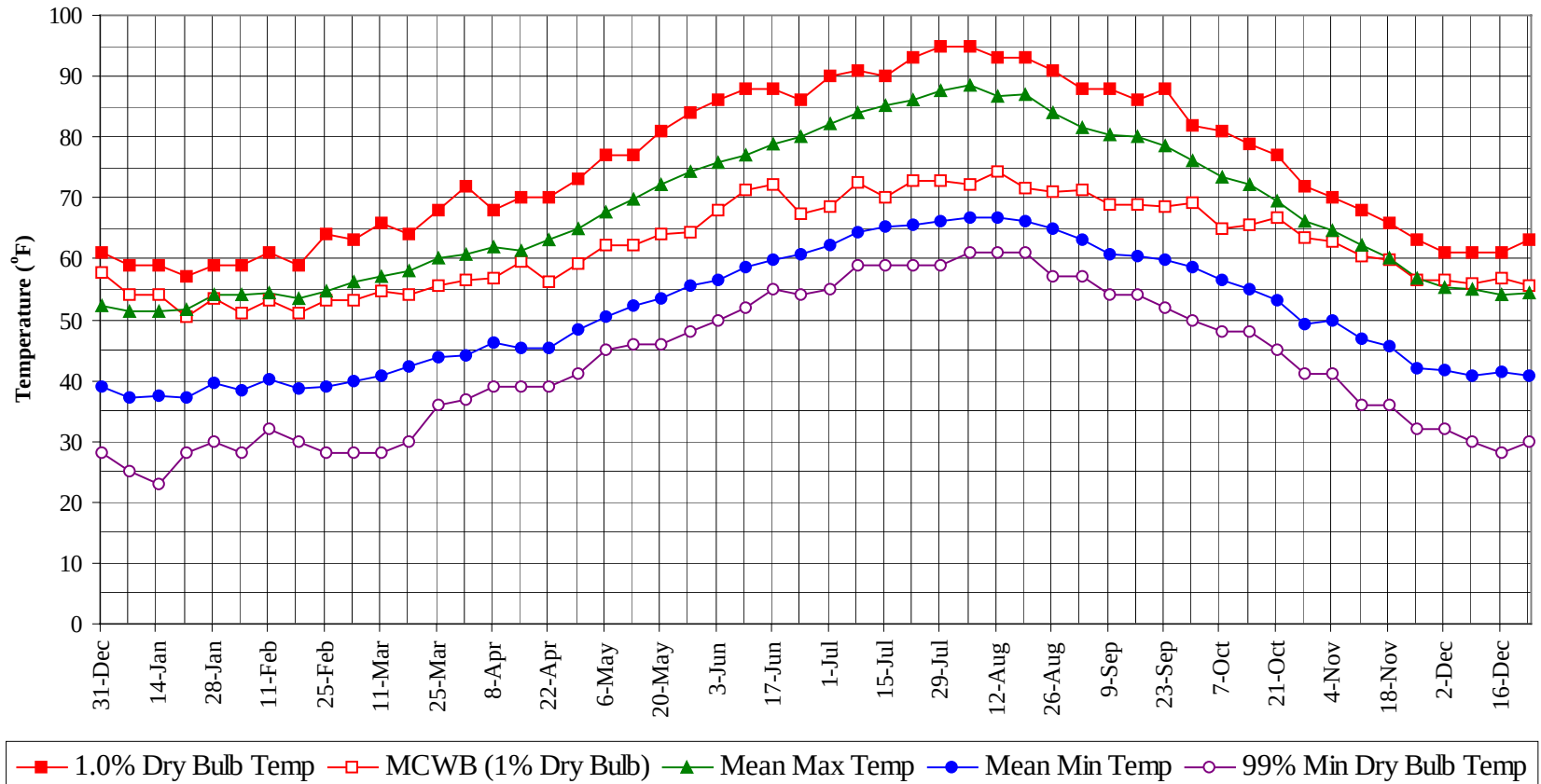
Annual Totals					
Temperature Range (°F)	Hour Group (LST)			Total Obs	M C W B (°F)
	01 To 08	09 To 16	17 To 00		
100 / 104		0	0	0	75.2
95 / 99		8	1	9	72.6
90 / 94		62	14	76	71.4
85 / 89	0	116	36	153	70.2
80 / 84	3	273	124	399	68.7
75 / 79	43	328	252	623	66.8
70 / 74	227	301	340	869	64.7
65 / 69	265	203	244	711	61.9
60 / 64	417	327	329	1073	58.1
55 / 59	406	443	417	1265	53.1
50 / 54	462	405	508	1374	48.7
45 / 49	445	248	372	1064	43.9
40 / 44	250	94	154	498	39.6
35 / 39	249	79	100	427	35.5
30 / 34	128	30	26	184	30.5
25 / 29	24	4	3	31	25.6
20 / 24	2	0	0	2	21.1
15 / 19	1	0	0	1	17.4
10 / 14	0	0		0	13.0

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.

CIAMPINO, ITALY

WMO No. 162390

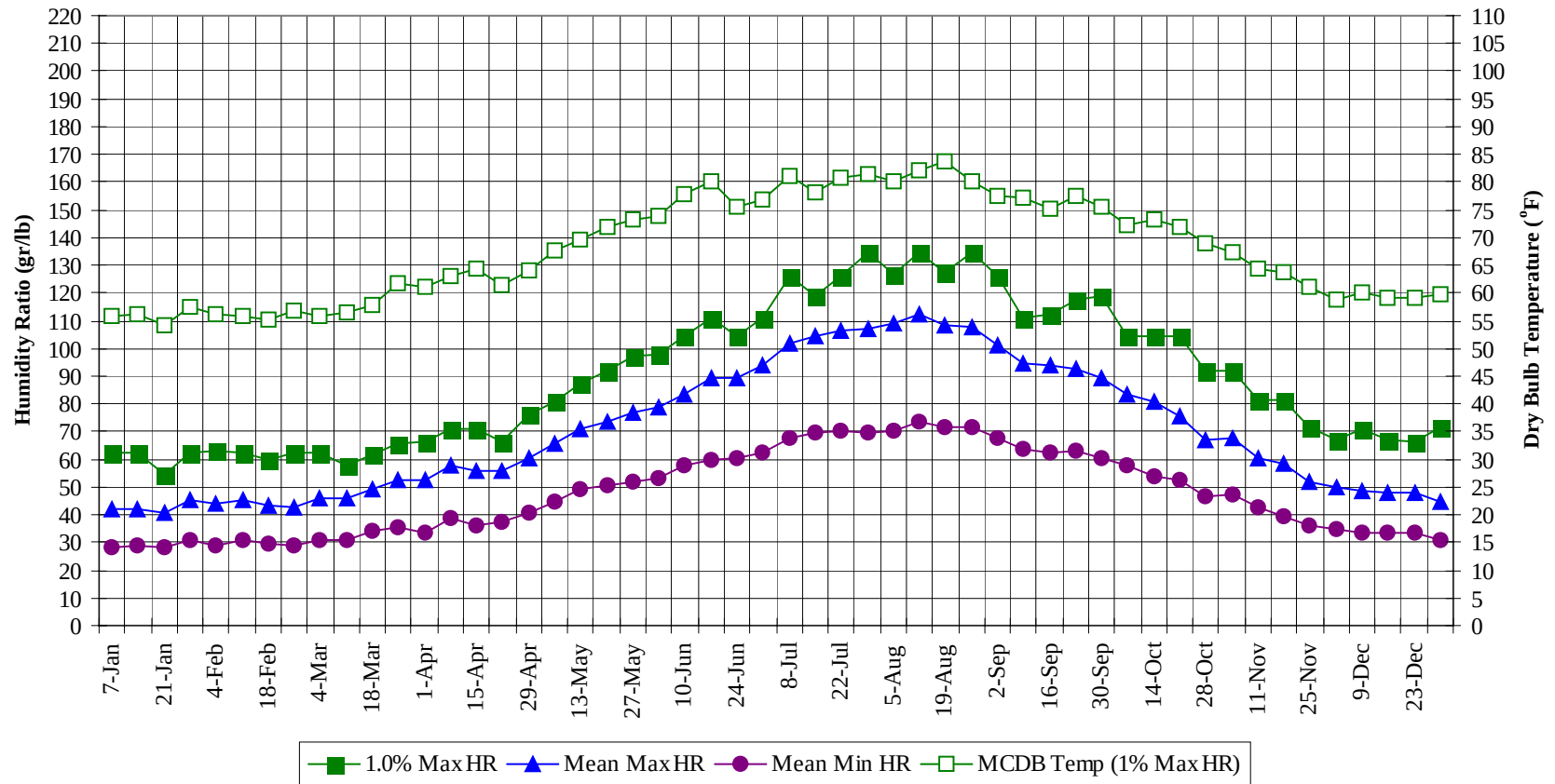
Annual Summary of Temperatures



CIAMPINO, ITALY

WMO No. 162390

Long Term Humidity and Dry Bulb Temperature Summary



CIAMPINO, ITALY

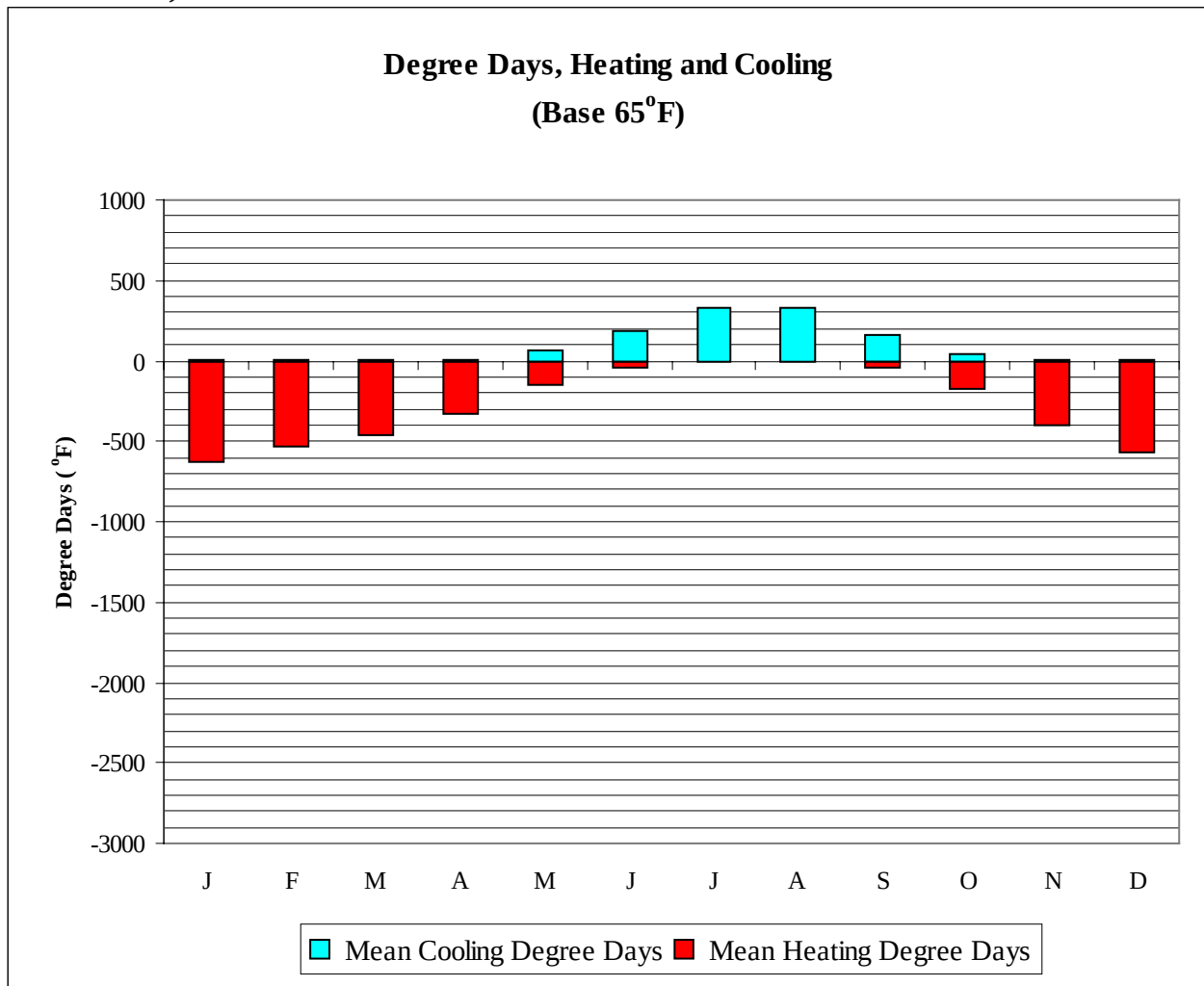
WMO No. 162390

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	59.0	54.0	51.4	37.1	25.0	62.3	55.8	42.0	28.3
14-Jan	59.0	54.2	51.5	37.6	23.0	62.3	56.0	42.3	29.1
21-Jan	57.0	50.5	51.7	37.3	28.0	54.6	54.2	40.6	28.3
28-Jan	59.0	53.4	54.1	39.7	30.0	62.3	57.3	45.0	30.8
4-Feb	59.0	51.0	53.9	38.5	28.0	63.0	56.3	43.9	29.0
11-Feb	61.0	53.1	54.5	40.2	32.0	62.3	55.8	45.6	31.0
18-Feb	59.0	50.9	53.4	38.7	30.0	59.5	55.2	43.2	29.7
25-Feb	64.0	53.3	54.6	38.8	28.0	62.3	56.7	42.7	29.0
4-Mar	63.0	53.3	56.1	39.9	28.0	62.3	55.8	45.8	30.6
11-Mar	66.0	54.6	57.0	40.7	28.0	58.1	56.5	46.0	30.8
18-Mar	64.0	54.2	57.9	42.3	30.0	61.6	57.7	49.5	34.1
25-Mar	68.0	55.4	60.0	43.7	36.0	65.8	61.7	52.3	35.2
1-Apr	72.0	56.5	60.6	44.2	37.0	66.5	61.0	52.4	33.8
8-Apr	68.0	56.9	62.1	46.4	39.0	70.7	63.2	57.6	39.0
15-Apr	70.0	59.5	61.4	45.2	39.0	70.7	64.5	55.9	36.3
22-Apr	70.0	56.1	63.1	45.4	39.0	66.5	61.5	55.5	37.3
29-Apr	73.0	59.1	65.0	48.3	41.0	76.3	64.0	60.1	40.5
6-May	77.0	62.2	67.7	50.4	45.0	80.5	67.5	65.6	44.4
13-May	77.0	62.3	69.7	52.4	46.0	87.5	69.8	70.9	49.3
20-May	81.0	64.0	72.3	53.6	46.0	91.7	71.8	73.9	50.5
27-May	84.0	64.4	74.3	55.5	48.0	97.3	73.4	76.8	52.0
3-Jun	86.0	68.0	76.0	56.4	50.0	98.0	74.0	78.9	53.4
10-Jun	88.0	71.3	77.2	58.6	52.0	104.3	77.8	83.7	57.9
17-Jun	88.0	72.1	79.0	59.9	55.0	111.3	80.1	89.3	59.8
24-Jun	86.0	67.3	79.9	60.7	54.0	104.3	75.5	89.1	60.2
1-Jul	90.0	68.6	82.2	62.3	55.0	111.3	76.9	93.9	62.7
8-Jul	91.0	72.5	83.9	64.5	59.0	126.0	81.0	101.8	67.5
15-Jul	90.0	69.9	85.2	65.3	59.0	119.0	78.0	104.7	69.4
22-Jul	93.0	72.8	86.2	65.6	59.0	126.0	80.7	106.2	70.1
29-Jul	95.0	72.7	87.6	66.1	59.0	134.4	81.4	107.3	69.6
5-Aug	95.0	72.4	88.5	66.7	61.0	126.7	80.2	109.3	70.2
12-Aug	93.0	74.3	86.7	66.6	61.0	134.4	82.0	112.2	73.5
19-Aug	93.0	71.7	87.0	66.1	61.0	127.4	83.7	108.2	71.3
26-Aug	91.0	71.1	84.1	64.9	57.0	134.4	80.2	108.0	71.9
2-Sep	88.0	71.2	81.7	63.0	57.0	126.0	77.5	101.1	67.9
9-Sep	88.0	68.8	80.3	60.7	54.0	111.3	77.0	94.7	64.0
16-Sep	86.0	69.0	80.0	60.3	54.0	112.0	75.1	93.7	62.3
23-Sep	88.0	68.6	78.6	59.7	52.0	117.6	77.6	92.3	62.8
30-Sep	82.0	69.1	76.0	58.6	50.0	119.0	75.6	89.3	60.7
7-Oct	81.0	64.9	73.3	56.4	48.0	104.3	72.3	83.4	57.5
14-Oct	79.0	65.4	72.1	54.9	48.0	104.3	73.3	80.5	54.2
21-Oct	77.0	66.7	69.5	53.3	45.0	104.3	71.9	75.8	52.5
28-Oct	72.0	63.4	66.2	49.3	41.0	91.7	68.8	67.1	46.4
4-Nov	70.0	62.7	64.8	49.8	41.0	91.7	67.4	67.9	47.4
11-Nov	68.0	60.4	62.3	46.7	36.0	81.2	64.4	60.5	42.9
18-Nov	66.0	59.8	60.1	45.7	36.0	81.2	63.6	58.2	39.6
25-Nov	63.0	56.6	56.9	42.1	32.0	71.4	61.0	51.8	35.8
2-Dec	61.0	56.4	55.4	41.7	32.0	67.2	58.7	49.9	34.6
9-Dec	61.0	56.0	54.9	40.7	30.0	70.7	60.1	48.4	33.6
16-Dec	61.0	56.8	54.0	41.2	28.0	67.2	59.2	48.3	33.8
23-Dec	63.0	55.7	54.3	40.7	30.0	66.5	59.2	47.9	33.4
31-Dec	61.0	57.6	52.3	39.0	28.0	71.4	59.7	44.5	30.8

CIAMPINO, ITALY

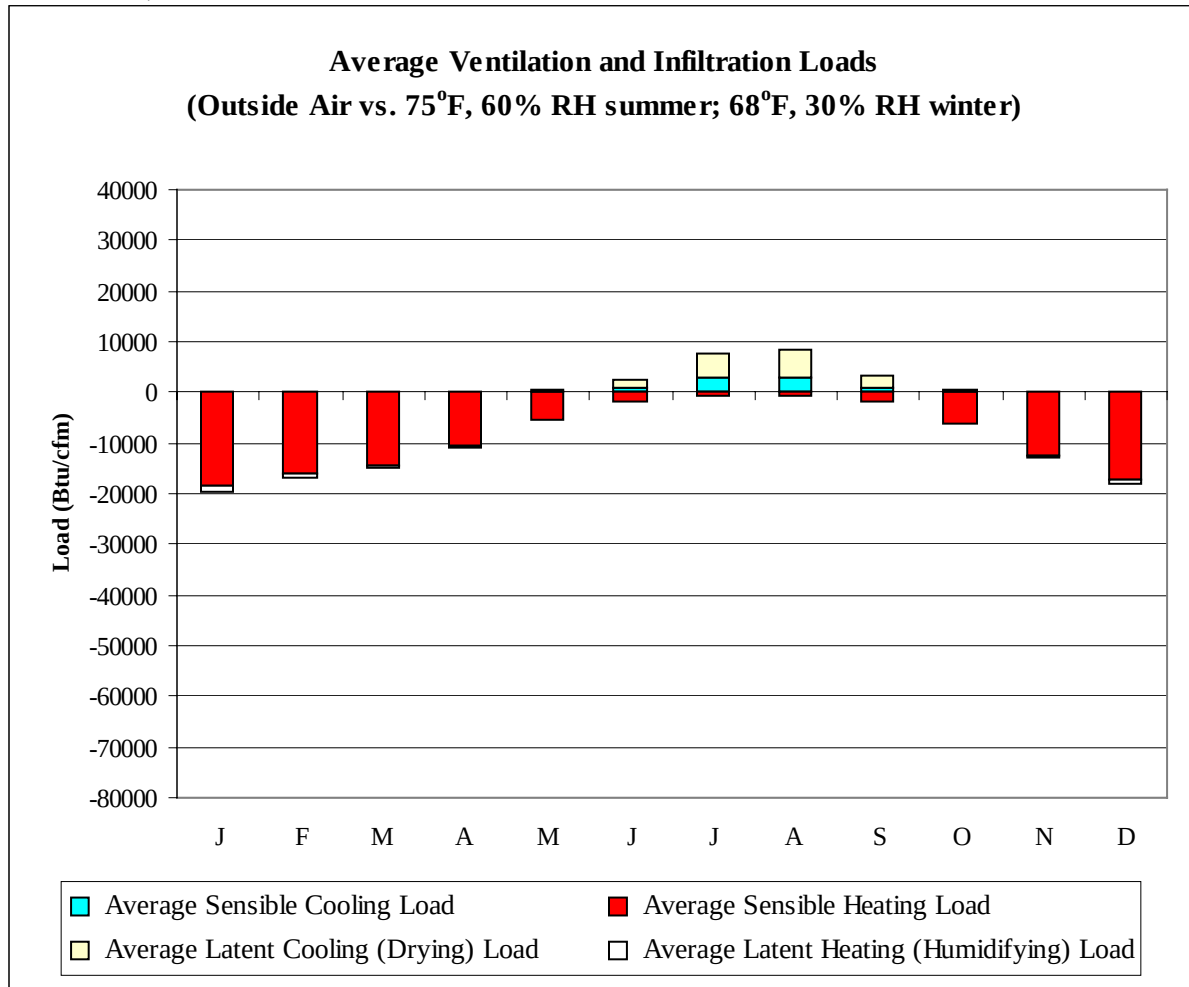
WMO No. 162390



	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	624
FEB	0	531
MAR	2	465
APR	6	327
MAY	68	146
JUN	181	38
JUL	333	7
AUG	332	8
SEP	162	42
OCT	45	171
NOV	2	399
DEC	0	570
ANN	1132	3328

CIAMPINO, ITALY

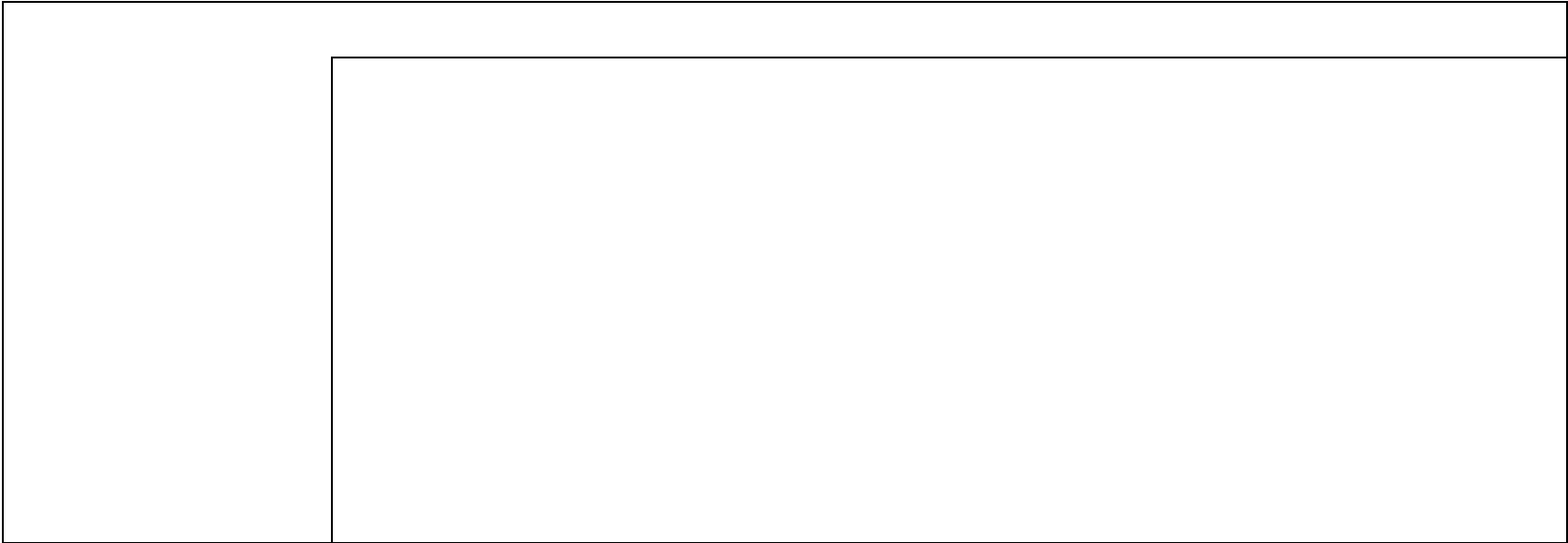
WMO No. 162390



	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	-18588	0	-1165
FEB	0	-15947	0	-893
MAR	2	-14441	0	-538
APR	1	-10712	1	-98
MAY	180	-5436	195	-7
JUN	1000	-1853	1397	-8
JUL	2807	-489	4645	-1
AUG	2812	-506	5577	-1
SEP	795	-2017	2388	-2
OCT	60	-6239	642	-27
NOV	0	-12640	13	-222
DEC	0	-17177	0	-799
ANN	7657	-106045	14858	-3761

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

No Solar Radiation
Data Available

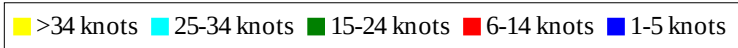
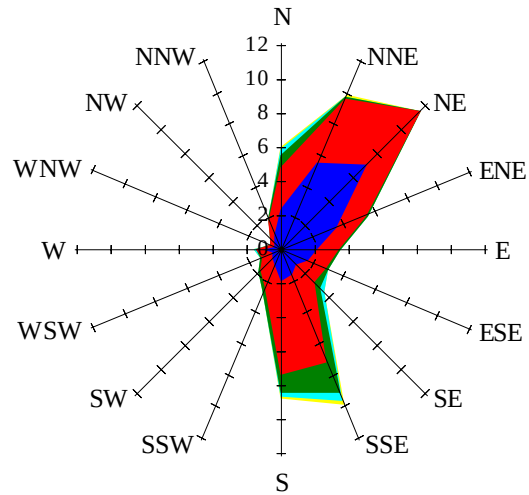


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

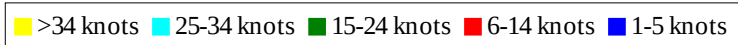
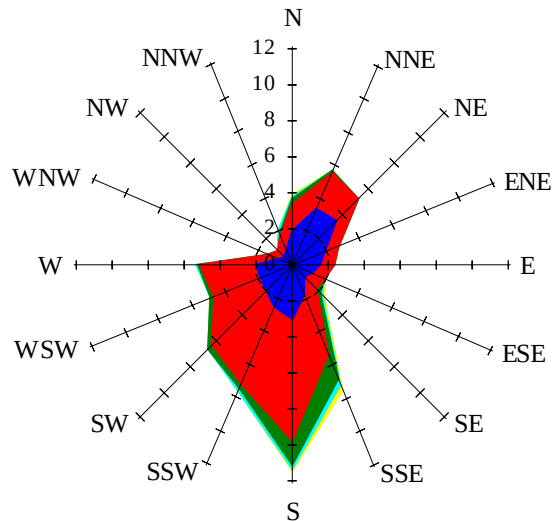
Labels of Percent Frequency on North Axis



Percent Calm = 28.89

Wind Summary - March, April, and May

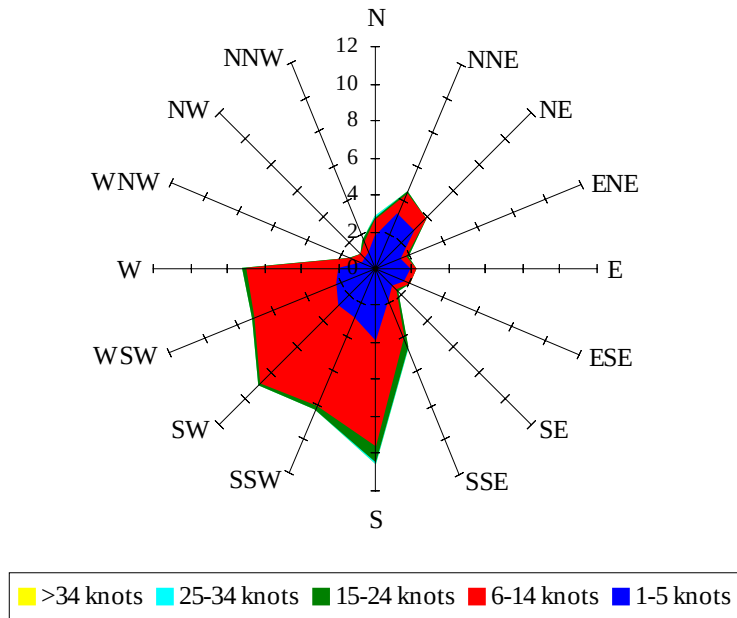
Labels of Percent Frequency on North Axis



Percent Calm = 28.40

Wind Summary - June, July, and August

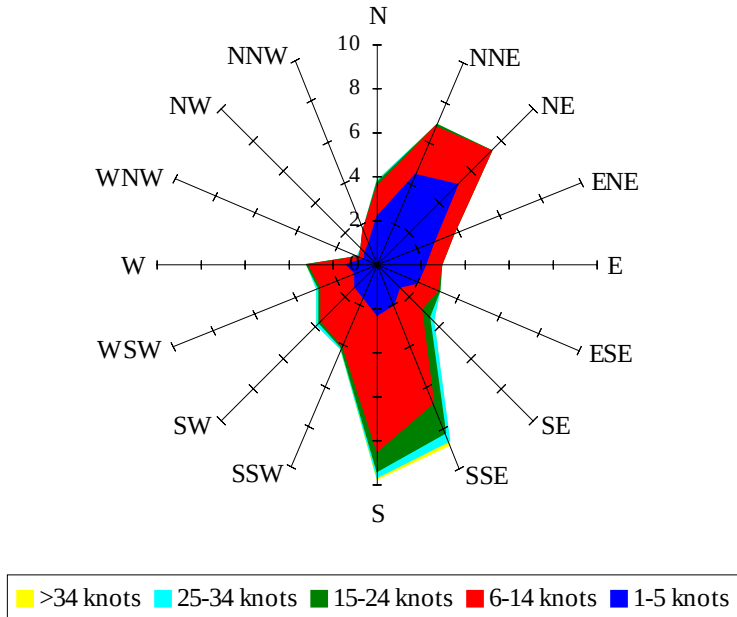
Labels of Percent Frequency on North Axis



Percent Calm = 30.58

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 32.13