

FUKUOKA/ITAZUKE JP

Latitude = 33.58 N

WMO No. 478080

Longitude = 130.45 E

Elevation = 39 feet

Period of Record = 1973 to 1996

Average Pressure = 29.90 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	95	79	122	10.9	NNW
0.4% Occurrence	93	78	124	10.8	S
1.0% Occurrence	91	78	126	10.2	NW
2.0% Occurrence	90	78	126	10.2	NW
Mean Daily Range	14	-	-	-	-
97.5% Occurrence	34	31	21	7.2	SSE
99.0% Occurrence	32	29	20	6.6	SSE
99.6% Occurrence	28	26	16	7.1	SSE
Median of Extreme Lows	25	23	15	7.3	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	82	90	148	9.5	NW
0.4% Occurrence	80	88	138	9.2	NW
1.0% Occurrence	79	86	136	8.6	SSE
2.0% Occurrence	79	86	136	8.6	SSE
	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	8.2	SSE
0.4% Occurrence	144	83	0.94	9.1	SSE
1.0% Occurrence	142	84	0.94	7.5	SSE
2.0% Occurrence	137	82	0.88	14.7	E
Air Conditioning/ Humid Area Criteria	# of Hours	T ≥ 93°F	T ≥ 80°F	T _{wb} ≥ 73°F	T _{wb} ≥ 67°F
		44	1104	1485	2485

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	5.0 + 1.2
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 (#)
63.7	N/A	N/A	14

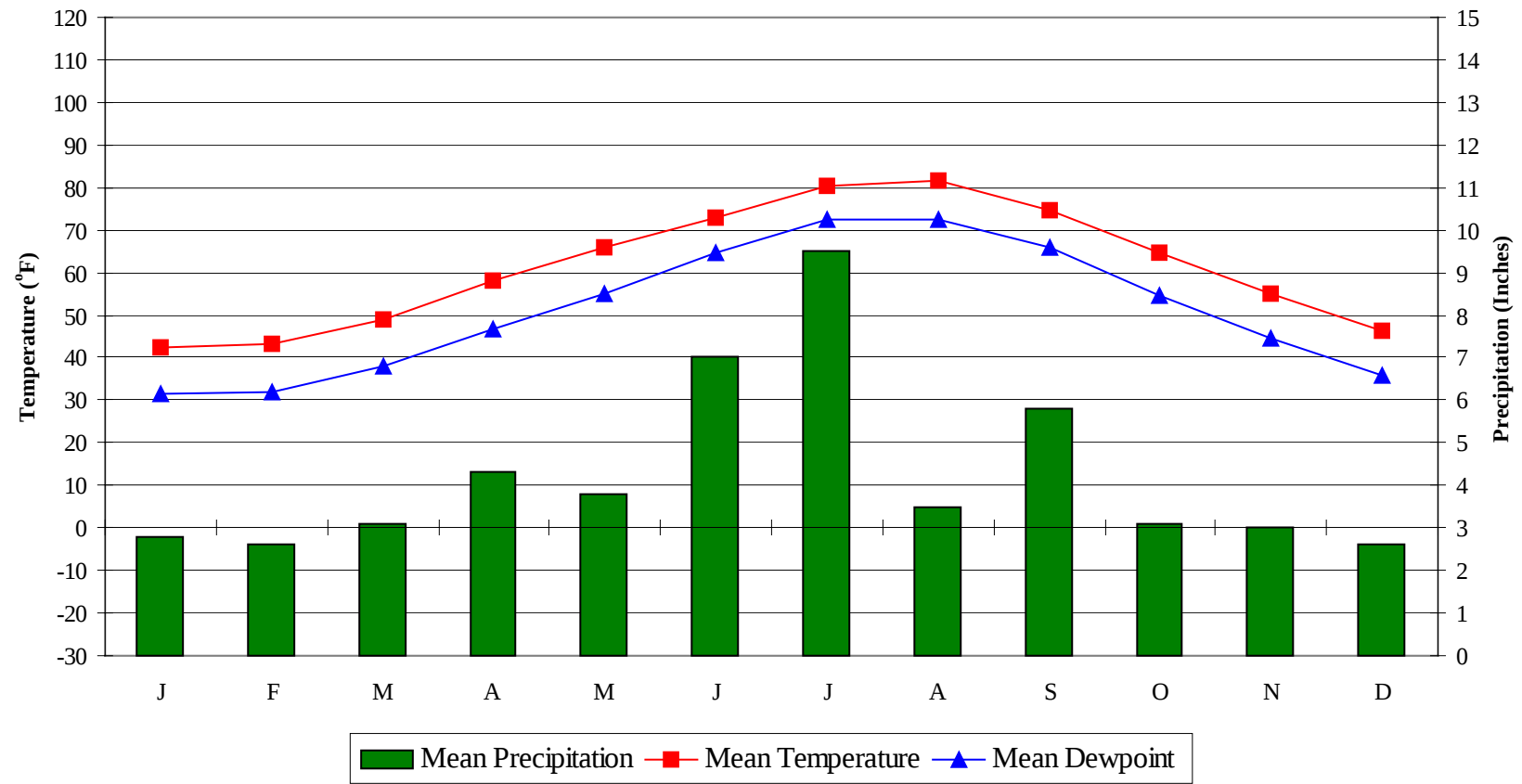
*Note: Temperatures at greater depths can be estimated by adding 1.5°F per 100 feet additional depth.

FUKUOKA/ITAZUKE

JP

WMO No. 478080

Average Annual Climate

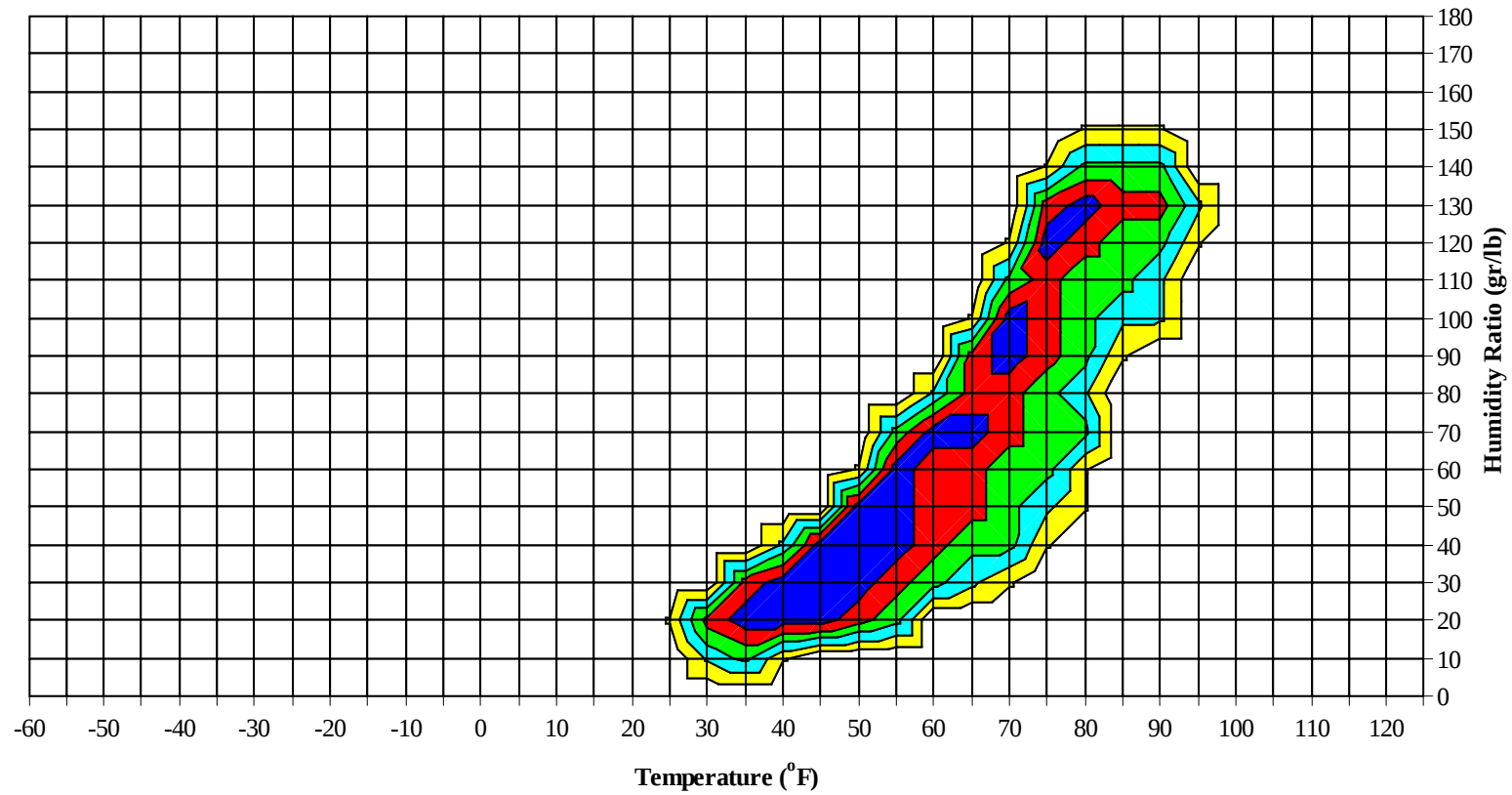


FUKUOKA/ITAZUKE

JP

WMO No. 478080

Long Term Psychrometric Summary



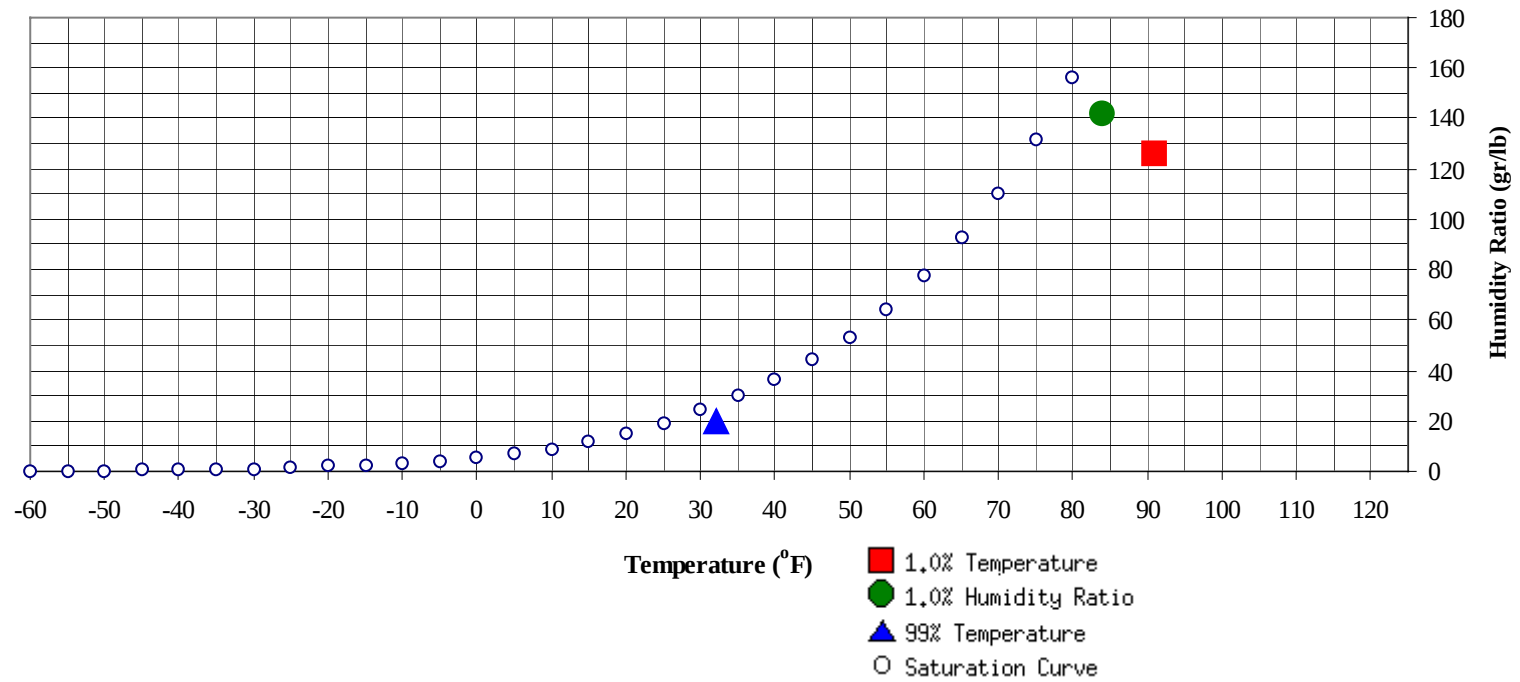
- 50% of all observations
- 80% of all observations
- 95% of all observations
- 97.5% of all observations
- 99% of all observations

FUKUOKA/ITAZUKE

JP

WMO No. 478080

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)
	32	19.7	10.7		142.1	83.9	78.8	77	42.4

1.0% Dry Bulb	(°F)	MCHR (gr/lb)	MCWB (°F)	Enthalpy (btu/lb)
	91	126	78.3	41.7

FUKUOKA/ITAZUKE

JP

WMO No. 478080

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															
70 / 74							0	0	0	58.3	0	0		0	68.7
65 / 69		0		0	56.0	0	1	1	2	58.7	0	2	0	2	61.4
60 / 64	0	4	1	6	55.9	2	5	3	10	56.2	1	6	2	9	57.5
55 / 59	3	17	8	28	51.1	6	22	9	37	50.8	4	27	11	43	54.3
50 / 54	16	53	31	100	46.1	16	55	33	104	45.9	14	65	38	116	50.3
45 / 49	41	72	59	172	41.1	16	55	33	104	45.9	45	86	75	206	46.5
40 / 44	41	72	59	172	41.1	34	68	60	162	41.0	67	47	71	184	41.9
35 / 39	39	50	53	141	36.9	36	33	44	114	37.3	45	12	28	84	38.2
30 / 34	81	43	67	190	33.5	69	30	50	149	33.2	52	4	20	76	34.8
25 / 29	54	10	26	90	29.7	47	9	21	78	29.5	19	1	2	22	30.7
20 / 24	13	0	3	17	26.0	11	1	2	14	25.1	1	0	0	2	25.1
15 / 19	0		0	0	21.2	1	0	0	1	21.0					
						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.

FUKUOKA/ITAZUKE

JP

WMO No. 478080

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															
90 / 94							0		0			4	0	4	76.0
85 / 89							1		1	68.8		13	2	16	73.7
80 / 84		1	0	1	65.3	0	16	2	17	66.9	7	50	19	76	72.0
75 / 79	0	10	2	11	63.0	2	57	15	74	64.9	30	96	61	186	70.0
70 / 74	4	35	10	49	60.7	17	78	55	151	62.9	82	63	101	246	67.2
65 / 69	7	38	20	65	58.6	37	51	59	147	61.2	67	14	42	124	64.1
60 / 64	31	77	61	169	56.2	89	40	80	208	58.3	44	1	13	59	60.2
55 / 59	62	57	77	196	52.2	65	7	31	103	53.7	8	0	1	9	55.6
50 / 54	66	20	47	133	47.6	30	0	7	37	49.4	1			1	49.2
45 / 49	46	4	18	67	43.1	6		0	6	45.1					
40 / 44	15	1	3	19	39.2	0			0	40.4					
35 / 39	8	0	1	9	35.8										
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.

FUKUOKA/ITAZUKE

JP

WMO No. 478080

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		5	0	5	79.0		9	0	9	78.5		1	0	1	76.8
90 / 94		56	9	65	78.8	0	73	13	87	77.9		9	1	9	76.8
85 / 89	3	62	31	96	77.6	2	63	35	101	77.0	0	23	4	27	75.5
80 / 84	62	66	96	223	76.1	65	73	111	249	75.7	9	76	33	117	73.0
75 / 79	116	46	77	239	73.7	138	27	77	243	73.7	56	84	86	226	70.7
70 / 74	54	15	31	100	69.5	39	3	10	52	70.1	84	40	79	203	67.2
65 / 69	11	1	3	15	65.8	3		0	3	65.5	48	8	25	80	63.9
60 / 64	1		0	1	62.4	0			0	62.0	36	1	10	47	60.3
55 / 59											7		1	8	55.6
50 / 54											1		0	1	50.5
45 / 49															
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.

FUKUOKA/ITAZUKE JP

WMO No. 478080

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		0		0	68.5										
80 / 84	0	8	1	9	69.2										
75 / 79	2	49	10	61	65.9		3	0	3	63.7					
70 / 74	16	93	50	159	63.4	1	21	3	25	61.9		1		1	59.8
65 / 69	31	51	59	141	60.8	4	32	12	47	59.5		2	0	3	57.5
60 / 64	69	38	71	177	57.6	19	71	45	136	55.8	2	18	4	24	54.4
55 / 59	72	10	42	124	53.4	43	58	66	167	51.5	8	50	23	81	50.7
50 / 54	42	1	13	56	49.6	64	36	59	160	47.2	27	68	51	145	45.9
45 / 49	12		2	14	44.9	66	18	38	122	42.8	59	64	76	198	41.6
40 / 44	2		0	2	40.6	26	3	12	40	39.1	55	28	47	130	37.9
35 / 39	0			0	37.7	13	0	4	17	36.0	70	15	37	122	34.5
30 / 34						3		0	3	31.5	25	3	8	37	30.6
25 / 29											2	0	0	3	26.5
20 / 24											0			0	22.0
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.

FUKUOKA/ITAZUKE JP

WMO No. 478080

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		15	1	15	78.6
90 / 94	0	141	23	164	78.2
85 / 89	5	161	72	239	76.8
80 / 84	142	288	260	690	74.7
75 / 79	343	370	327	1041	71.1
70 / 74	297	350	339	987	65.8
65 / 69	209	205	222	635	61.7
60 / 64	297	283	301	881	57.3
55 / 59	288	287	297	872	52.0
50 / 54	308	319	317	944	46.9
45 / 49	330	273	324	928	41.8
40 / 44	219	126	187	532	37.7
35 / 39	294	93	179	565	33.9
30 / 34	149	23	58	230	29.9
25 / 29	27	2	6	35	25.6
20 / 24	1	0	0	2	21.1
15 / 19	0			0	18.0

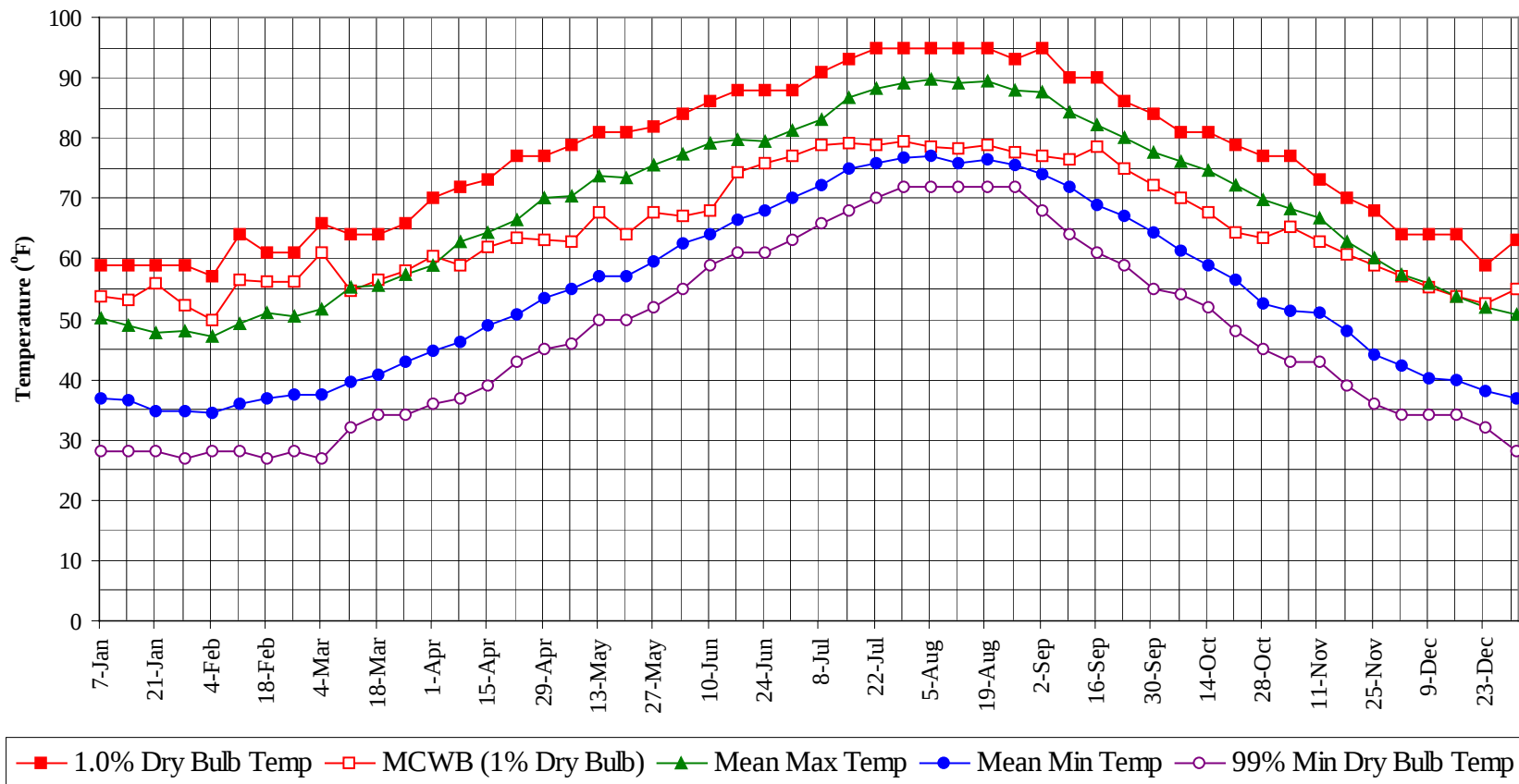
Caution: This summary reflects the typical distribution of temperature in a typical year. It does not reflect the typical moisture distribution. Because wet bulb temperatures are averaged, this summary understates the annual moisture load. For accurate moisture load data, see the long-term humidity summary and the ventilation and infiltration load pages in this manual.

FUKUOKA/ITAZUKE

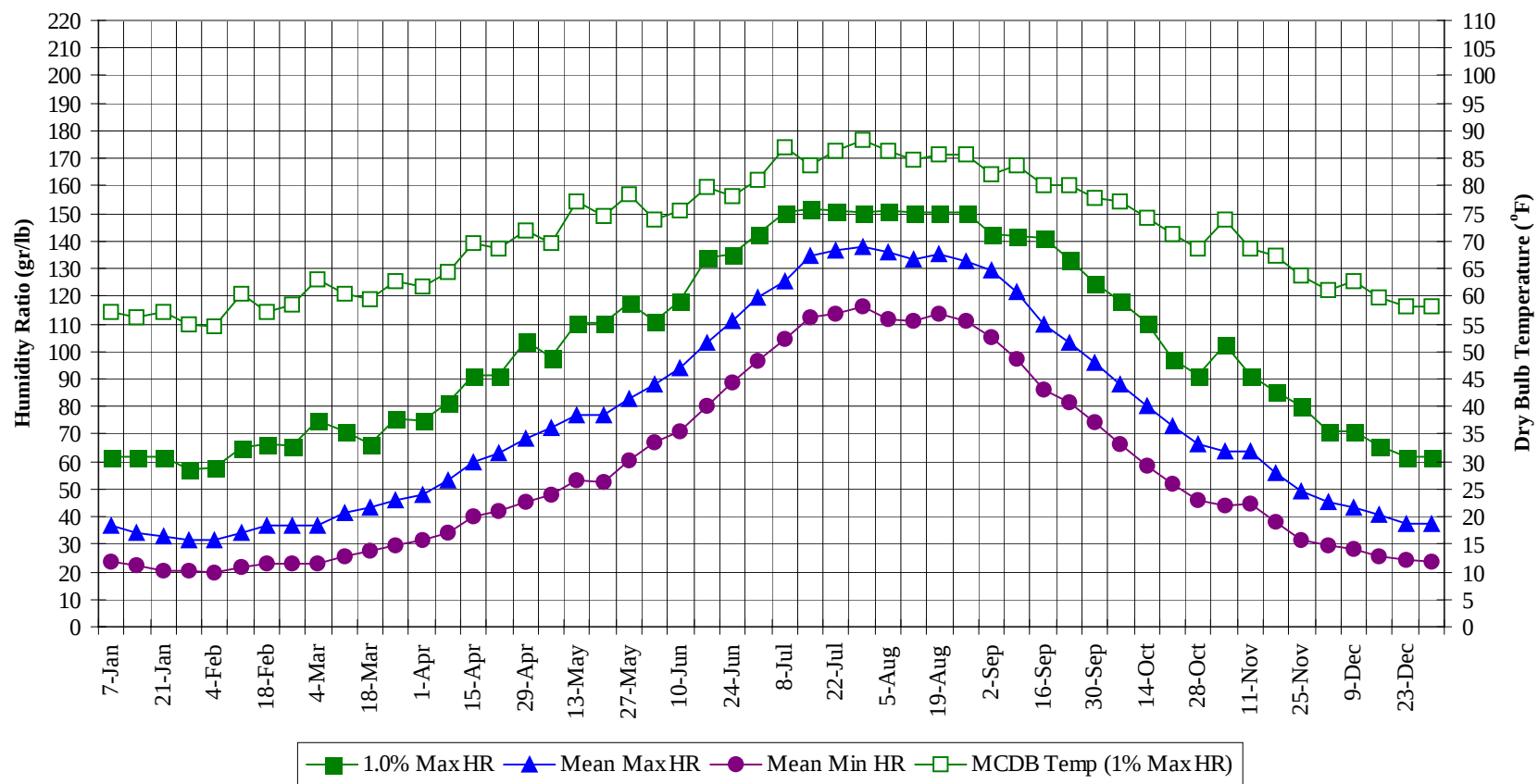
JP

WMO No. 478080

Annual Summary of Temperatures



Long Term Humidity and Dry Bulb Temperature Summary



FUKUOKA/ITAZUKE

JP

WMO No. 478080

Long Term Dry Bulb Temperature and Humidity Summary

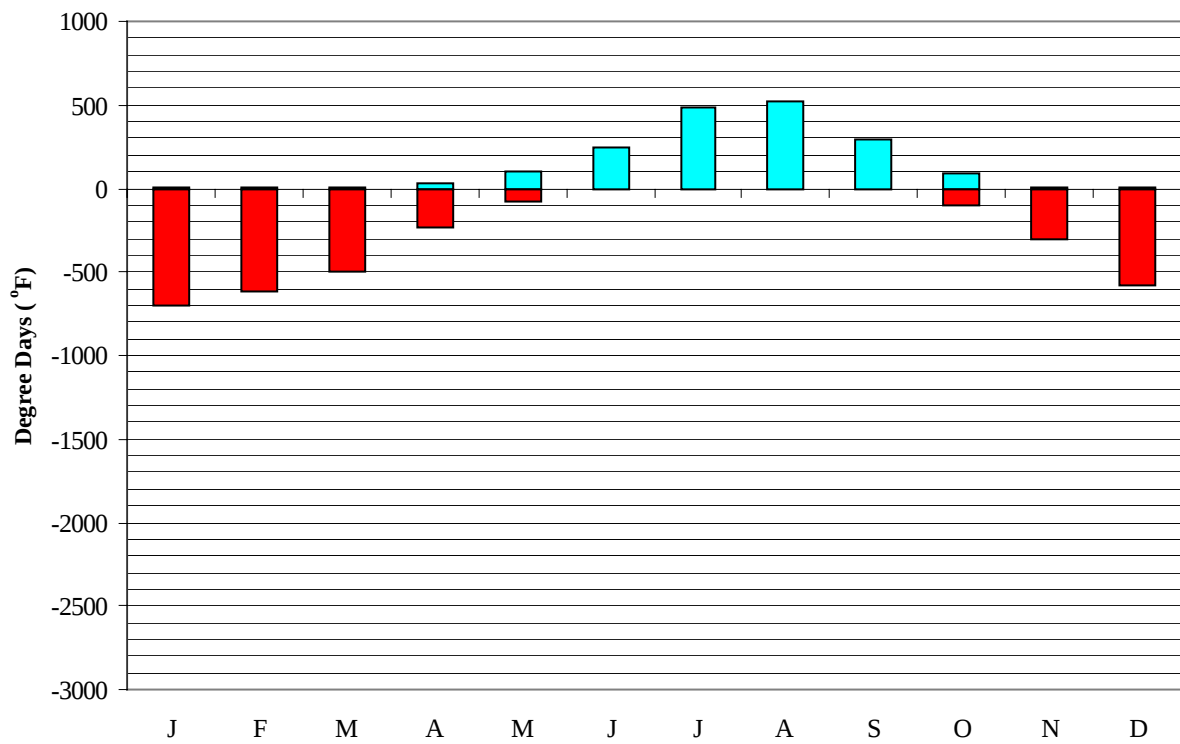
Week Ending	1.0% Temp (°F)	MCWB @ 1% Temp (°F)	Mean Max Temp (°F)	Mean Min Temp (°F)	99% Temp (°F)	1.0% HR (gr/lb)	MCDB @ 1% HR (°F)	Mean Max HR (gr/lb)	Mean Min HR (gr/lb)
7-Jan	59.0	53.7	50.2	37.0	28.0	61.6	57.1	37.0	23.5
14-Jan	59.0	53.2	48.8	36.5	28.0	61.6	56.2	34.3	22.0
21-Jan	59.0	55.9	47.7	34.8	28.0	61.6	57.3	32.8	20.3
28-Jan	59.0	52.4	48.1	34.6	27.0	57.4	54.7	31.8	20.1
4-Feb	57.0	49.8	47.2	34.3	28.0	58.1	54.6	31.3	19.7
11-Feb	64.0	56.5	49.2	35.8	28.0	65.1	60.5	34.0	21.4
18-Feb	61.0	56.1	51.0	36.7	27.0	66.5	57.0	36.9	23.1
25-Feb	61.0	56.1	50.4	37.4	28.0	65.8	58.4	36.8	23.3
4-Mar	66.0	60.9	51.6	37.4	27.0	74.9	63.2	36.8	23.0
11-Mar	64.0	54.8	55.2	39.5	32.0	70.7	60.5	41.6	25.4
18-Mar	64.0	56.5	55.6	40.7	34.0	66.5	59.3	43.6	27.8
25-Mar	66.0	58.0	57.5	42.8	34.0	75.6	62.8	45.8	29.7
1-Apr	70.0	60.5	58.9	44.9	36.0	74.9	61.6	48.2	31.3
8-Apr	72.0	58.9	62.9	46.2	37.0	81.2	64.2	53.0	33.8
15-Apr	73.0	62.0	64.5	49.0	39.0	91.0	69.5	59.6	40.0
22-Apr	77.0	63.5	66.5	50.9	43.0	91.0	68.7	62.9	41.9
29-Apr	77.0	63.2	70.0	53.5	45.0	103.6	71.8	68.5	45.4
6-May	79.0	63.0	70.4	55.1	46.0	98.0	69.7	72.0	48.1
13-May	81.0	67.8	73.8	57.2	50.0	110.6	77.2	77.1	53.2
20-May	81.0	64.1	73.3	57.2	50.0	110.6	74.5	77.1	52.5
27-May	82.0	67.6	75.7	59.6	52.0	117.6	78.4	82.6	60.5
3-Jun	84.0	67.2	77.3	62.4	55.0	111.3	73.8	88.3	67.0
10-Jun	86.0	67.9	79.1	64.0	59.0	118.3	75.5	94.2	70.7
17-Jun	88.0	74.3	79.6	66.6	61.0	133.7	79.9	103.0	80.3
24-Jun	88.0	75.7	79.5	67.9	61.0	135.1	78.1	110.7	88.7
1-Jul	88.0	77.0	81.3	70.2	63.0	142.8	81.2	119.4	96.3
8-Jul	91.0	78.9	83.2	72.4	66.0	150.5	86.9	125.6	104.3
15-Jul	93.0	79.1	86.6	75.0	68.0	151.9	83.9	134.4	112.1
22-Jul	95.0	78.8	88.1	75.8	70.0	151.2	86.2	136.8	113.5
29-Jul	95.0	79.3	89.3	76.7	72.0	150.5	88.4	138.2	115.9
5-Aug	95.0	78.7	89.9	76.9	72.0	151.2	86.5	135.9	111.7
12-Aug	95.0	78.3	89.0	75.7	72.0	150.5	84.7	133.4	110.8
19-Aug	95.0	78.8	89.4	76.5	72.0	150.5	85.8	135.3	113.5
26-Aug	93.0	77.6	88.0	75.5	72.0	150.5	85.7	132.7	111.2
2-Sep	95.0	77.2	87.5	74.2	68.0	142.8	81.9	129.7	104.9
9-Sep	90.0	76.4	84.4	71.8	64.0	142.1	83.6	121.7	97.3
16-Sep	90.0	78.4	82.2	68.7	61.0	141.4	80.1	109.4	86.1
23-Sep	86.0	75.0	80.2	67.0	59.0	133.0	80.0	103.0	81.4
30-Sep	84.0	72.3	77.7	64.4	55.0	124.6	77.9	96.2	74.0
7-Oct	81.0	70.0	76.2	61.3	54.0	118.3	77.1	88.2	66.1
14-Oct	81.0	67.6	74.5	58.9	52.0	110.6	74.1	80.0	58.5
21-Oct	79.0	64.4	72.2	56.4	48.0	97.3	71.3	72.8	52.2
28-Oct	77.0	63.4	69.8	52.5	45.0	91.0	68.6	66.0	46.2
4-Nov	77.0	65.2	68.4	51.3	43.0	102.2	73.7	63.5	44.1
11-Nov	73.0	62.8	66.7	51.1	43.0	91.0	68.7	63.8	44.7
18-Nov	70.0	60.7	62.8	47.9	39.0	85.4	67.4	55.7	37.8
25-Nov	68.0	58.8	60.1	44.2	36.0	79.8	63.7	49.0	31.7
2-Dec	64.0	57.1	57.3	42.4	34.0	70.7	61.0	45.1	29.4
9-Dec	64.0	55.2	56.0	40.3	34.0	70.7	62.6	43.5	28.1
16-Dec	64.0	53.6	53.9	39.7	34.0	65.8	59.9	40.5	25.6
23-Dec	59.0	52.6	52.1	38.1	32.0	61.6	58.0	37.7	24.2
31-Dec	63.0	54.9	50.9	37.0	28.0	61.6	58.0	37.5	23.6

FUKUOKA/ITAZUKE

JP

WMO No. 478080

Degree Days, Heating and Cooling
(Base 65°F)



Mean Cooling Degree Days Mean Heating Degree Days

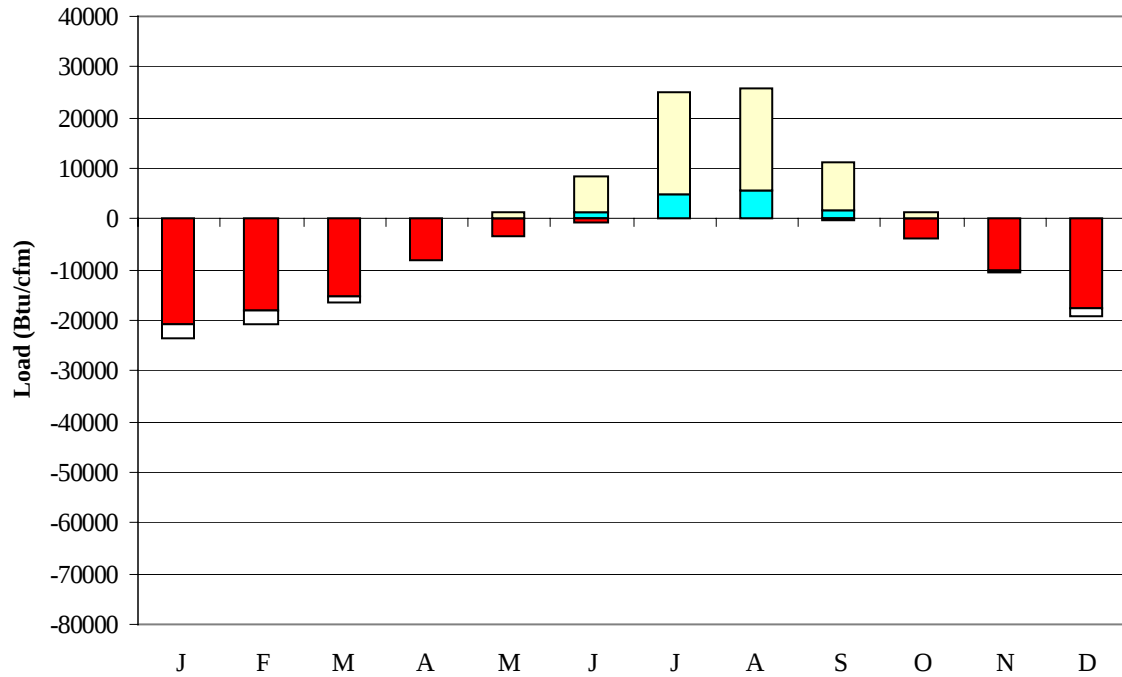
	Mean Cooling Degree Days (°F)	Mean Heating Degree Days (°F)
JAN	0	702
FEB	0	614
MAR	1	500
APR	24	232
MAY	100	74
JUN	242	7
JUL	480	0
AUG	521	0
SEP	295	6
OCT	89	96
NOV	11	309
DEC	0	583
ANN	1764	3123

FUKUOKA/ITAZUKE

JP

WMO No. 478080

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

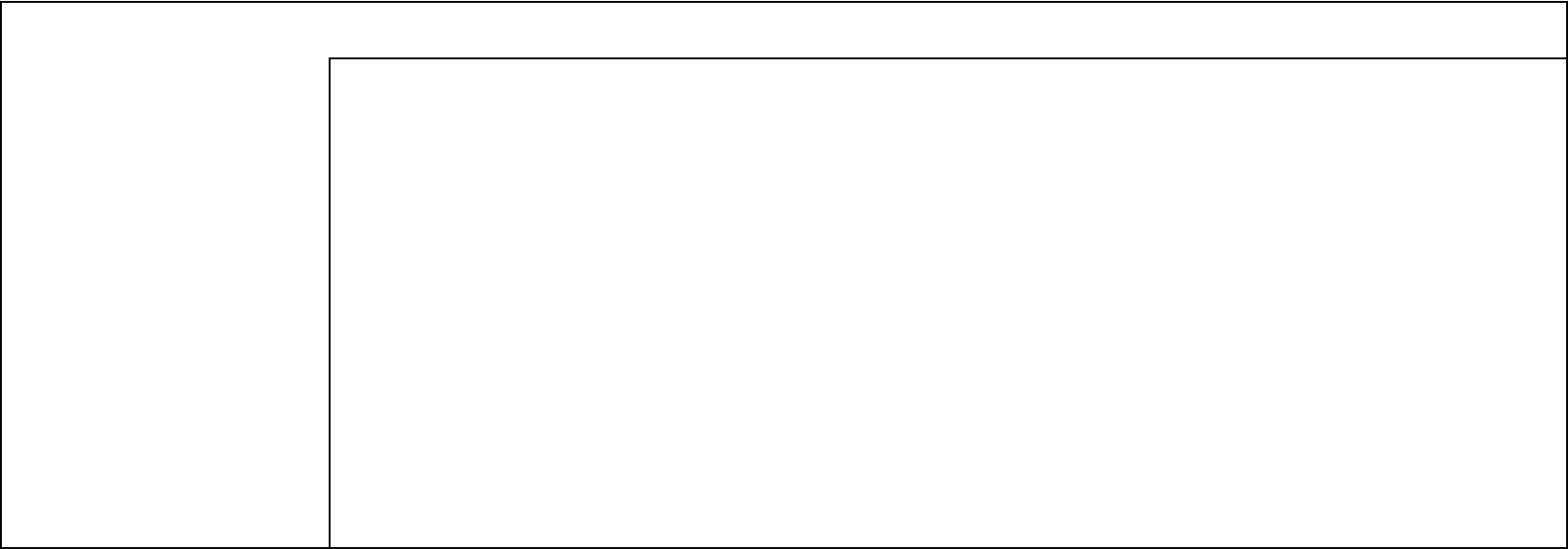


■ Average Sensible Cooling Load	■ Average Sensible Heating Load
■ Average Latent Cooling (Drying) Load	■ Average Latent Heating (Humidifying) Load

	Average Sensible Cooling Load (Btu/cfm)	Average Sensible Heating Load (Btu/cfm)	Average Latent Cooling Load (Btu/cfm)	Average Latent Heating Load (Btu/cfm)
JAN	0	-20612	0	-2957
FEB	0	-18105	2	-2591
MAR	0	-15349	11	-1195
APR	23	-8023	204	-268
MAY	246	-3231	1235	-23
JUN	1153	-517	7449	0
JUL	4843	-11	20185	0
AUG	5637	-2	20056	0
SEP	1834	-414	9261	0
OCT	150	-3849	1173	-9
NOV	3	-10152	119	-350
DEC	0	-17514	1	-1653
ANN	13889	-97779	59696	-9046

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

No Solar Radiation
Data Available

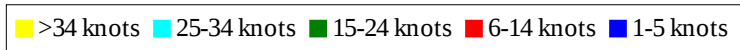
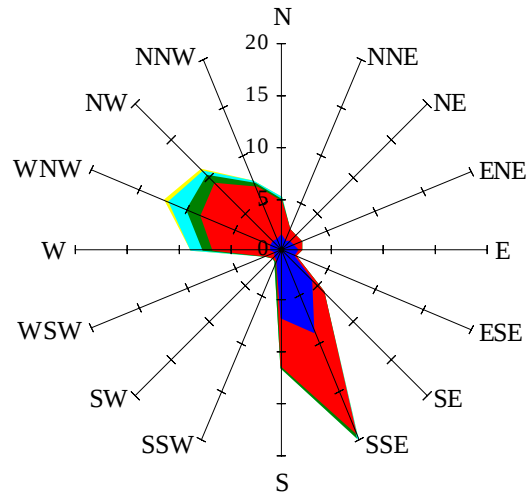


Average Annual Solar Heat and Illumination – Nearest Available Site

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

Wind Summary - December, January, and February

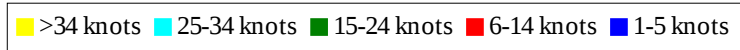
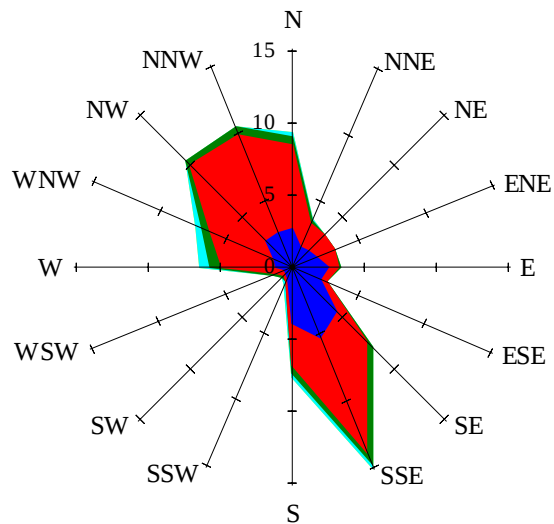
Labels of Percent Frequency on North Axis



Percent Calm = 5.17

Wind Summary - March, April, and May

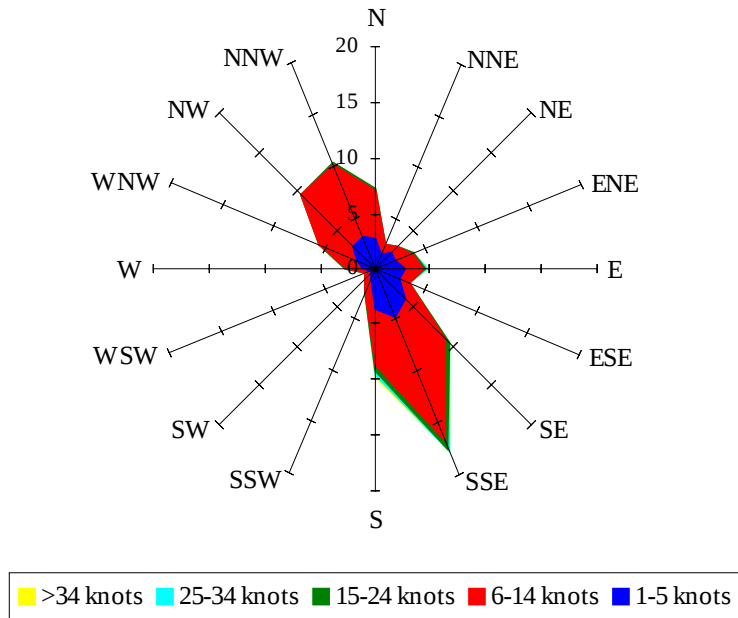
Labels of Percent Frequency on North Axis



Percent Calm = 7.04

Wind Summary - June, July, and August

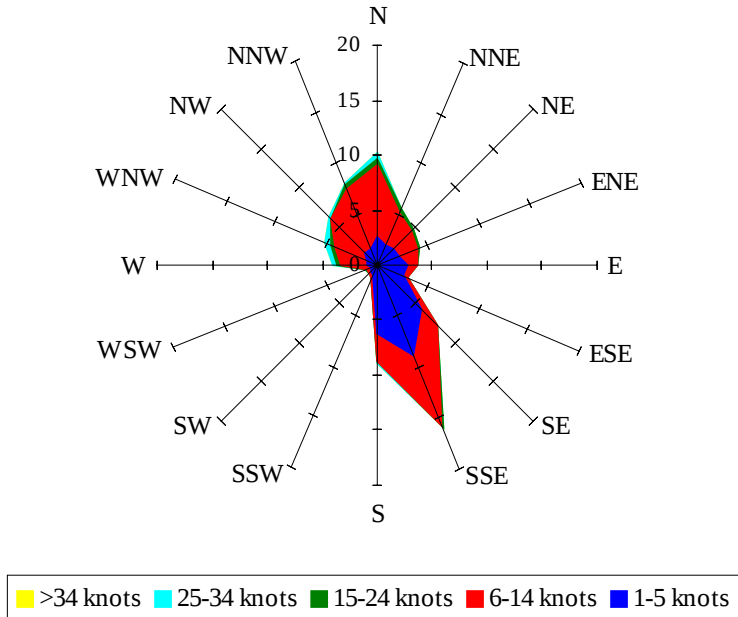
Labels of Percent Frequency on North Axis



Percent Calm = 6.78

Wind Summary - September, October, and November

Labels of Percent Frequency on North Axis



Percent Calm = 9.69