



UNIVERSIDAD NACIONAL DE COLOMBIA SEDE MANIZALES

OBSERVATORIOS AMBIENTALES PARA EL DESARROLLO URBANO SOTENIBLE EN MANIZALES

RED DE ESTACIONES HIDROMETEOROLÓGICAS PARA PREVENCIÓN DE DESASTRES DE MANIZALES



ESTACIÓN METEOROLÓGICA EL CARMEN

CÓDIGO: EMM-06

JULIO DE 2011

RESUMEN DIARIO Y MENSUAL DE VARIABLES METEOROLÓGICAS

Variables Día	Temperatura del Aire (°C)			V.V. (m/s)		P.B. (HPa)	Humedad Relativa (%)			LI. (mm)	Radiación Solar (W/m ²)		ET. (mm)
	Máxima	Media	Mínima	Máxima	Media	Media	Máxima	Media	Mínima	Suma	Máxima	Media	Suma
1	24.2	17.0	13.2	3.1	0.7	792.8	95.0	81.5	62.0	3.6	1029.0	391.8	2.8
2	22.6	16.6	13.7	4.0	0.3	793.1	89.0	79.5	61.0	5.1	933.0	219.7	1.8
3	26.2	18.6	12.8	3.6	0.6	792.4	92.0	73.8	46.0	0.0	1217.0	417.1	3.6
4	23.7	17.7	14.1	3.6	0.6	792.8	93.0	77.7	57.0	0.0	1267.0	320.1	2.5
5	25.9	18.3	13.2	3.6	0.5	792.9	88.0	74.3	49.0	0.0	1024.0	310.6	2.8
6	23.8	16.8	13.6	3.6	0.5	793.3	94.0	82.4	57.0	12.7	715.0	236.2	2.0
7	26.6	18.4	12.6	4.0	0.5	793.0	91.0	70.2	43.0	0.0	1131.0	382.3	3.3
8	26.2	19.3	13.9	4.5	0.6	792.2	89.0	69.7	45.0	0.0	1150.0	443.5	3.6
9	25.2	18.8	14.1	4.0	0.7	792.3	86.0	72.6	49.0	0.0	974.0	320.8	2.8
10	26.2	18.6	14.9	4.5	0.6	792.5	87.0	74.7	45.0	0.0	997.0	355.7	3.0
11	26.6	18.8	14.3	4.5	0.7	793.5	90.0	73.6	44.0	0.0	966.0	307.9	3.1
12	21.4	17.0	14.3	4.5	0.6	794.1	93.0	81.5	63.0	8.1	1212.0	296.5	2.0
13	18.9	15.0	13.3	2.2	0.3	794.1	96.0	90.0	75.0	11.9	540.0	169.2	1.0
14	21.1	15.6	13.0	3.1	0.5	794.2	96.0	85.3	60.0	15.2	900.0	233.1	1.8
15	20.9	15.6	12.3	3.1	0.6	794.7	95.0	84.1	63.0	30.7	1112.0	327.4	2.3
16	25.3	17.4	13.2	4.9	0.5	793.7	93.0	79.5	50.0	0.0	1098.0	365.2	3.0
17	23.8	17.3	13.9	3.6	0.6	793.7	94.0	81.7	58.0	2.5	1311.0	289.6	2.3
18	24.8	17.8	14.3	3.6	0.4	793.8	96.0	80.5	52.0	3.6	1201.0	333.9	2.8
19	26.3	18.9	13.6	4.5	0.6	793.4	94.0	74.0	48.0	0.0	1107.0	490.4	4.1
20	25.3	18.5	14.7	4.5	0.5	793.3	87.0	71.9	51.0	0.0	1097.0	281.2	2.5
21	25.7	19.0	14.1	4.5	0.6	792.6	82.0	69.0	44.0	0.0	928.0	407.3	3.6
22	26.6	19.2	14.2	3.6	0.6	792.5	85.0	69.6	42.0	0.0	1179.0	381.1	3.3
23	26.7	19.2	15.9	3.6	0.4	793.2	85.0	71.3	46.0	0.3	979.0	295.5	2.5
24	25.6	18.7	14.7	3.1	0.5	793.3	85.0	67.0	46.0	0.0	1001.0	319.4	2.8
25	27.7	19.6	14.3	3.6	0.5	792.5	80.0	64.3	42.0	0.5	1160.0	365.9	3.3
26	25.3	18.6	15.1	4.0	0.6	792.2	88.0	73.4	51.0	0.0	1079.0	313.2	2.5
27	25.6	18.4	14.9	3.6	0.4	792.5	87.0	73.0	48.0	0.0	1198.0	303.4	2.5
28	23.4	16.6	13.9	3.6	0.6	792.9	95.0	83.5	51.0	23.1	870.0	264.7	2.0
29	18.4	14.3	12.8	3.1	0.5	793.4	96.0	91.0	75.0	25.4	567.0	181.0	1.0
30	21.6	15.4	12.2	3.6	0.5	793.5	94.0	86.7	62.0	13.2	710.0	294.8	2.0
31	23.1	16.4	12.8	3.6	0.5	793.4	93.0	81.8	53.0	0.5	1119.0	319.4	2.3
Mensual	27.7	17.7	12.2	4.9	0.5	793.2	96.0	77.1	42.0	156.5	1311.0	320.6	81.1

Convenciones: V.V.: Velocidad del Viento P.B.: Presión Barométrica LI.: Lluvia diaria ET.: Evapotranspiración. Nota: Datos resaltados en rojo están incompletos.



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JULIO DE 2011



JORNADA DIURNA - DIRECCIÓN DEL VIENTO SEGÚN LA ROSA DE LOS VIENTOS (Frecuencia relativa)

Día	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSO	SO	OSO	O	ONO	NO	NNO
1	3%	10%	1%	8%	3%	0%	0%	1%	0%	0%	1%	9%	20%	26%	15%	4%
2	0%	0%	3%	0%	0%	0%	0%	22%	0%	5%	9%	33%	21%	6%	1%	1%
3	1%	8%	3%	7%	1%	1%	0%	0%	0%	3%	7%	17%	20%	22%	9%	1%
4	1%	4%	1%	1%	3%	22%	5%	2%	1%	3%	6%	8%	16%	18%	6%	3%
5	0%	0%	8%	9%	0%	0%	0%	0%	0%	1%	6%	13%	33%	21%	8%	1%
6	0%	0%	0%	1%	8%	9%	10%	1%	1%	1%	3%	18%	18%	23%	4%	3%
7	3%	0%	1%	0%	23%	1%	1%	8%	0%	1%	8%	9%	11%	19%	11%	6%
8	0%	0%	0%	0%	0%	0%	0%	0%	1%	6%	17%	30%	34%	9%	3%	0%
9	0%	0%	14%	1%	0%	0%	0%	1%	0%	1%	9%	13%	31%	20%	6%	4%
10	3%	1%	2%	6%	1%	10%	0%	0%	0%	0%	3%	13%	24%	23%	10%	3%
11	1%	0%	0%	0%	0%	13%	5%	0%	0%	1%	6%	19%	17%	24%	12%	2%
12	0%	0%	0%	0%	0%	12%	1%	16%	1%	3%	19%	13%	17%	15%	3%	1%
13	1%	0%	0%	0%	0%	21%	3%	1%	5%	1%	3%	10%	8%	33%	13%	0%
14	0%	0%	0%	0%	0%	2%	6%	1%	1%	18%	10%	32%	19%	10%	0%	0%
15	3%	13%	0%	0%	0%	0%	0%	0%	0%	1%	26%	3%	14%	24%	12%	3%
16	1%	0%	0%	16%	2%	0%	2%	5%	1%	1%	3%	15%	17%	24%	12%	1%
17	3%	11%	2%	1%	1%	0%	1%	2%	0%	4%	3%	8%	27%	24%	5%	8%
18	0%	0%	0%	0%	0%	0%	0%	0%	1%	3%	34%	42%	10%	6%	2%	1%
19	0%	0%	0%	1%	21%	0%	0%	0%	1%	3%	9%	17%	19%	16%	10%	1%
20	1%	0%	0%	0%	4%	12%	0%	0%	1%	1%	7%	15%	28%	23%	10%	0%
21	3%	4%	2%	1%	1%	1%	0%	0%	3%	8%	17%	21%	15%	15%	6%	2%
22	0%	0%	0%	0%	0%	10%	6%	0%	1%	7%	4%	17%	22%	23%	9%	2%
23	3%	1%	0%	0%	3%	2%	3%	7%	1%	3%	8%	18%	16%	29%	1%	4%
24	3%	4%	8%	1%	8%	5%	5%	0%	1%	1%	4%	22%	9%	18%	9%	2%
25	0%	0%	0%	0%	0%	1%	3%	8%	13%	5%	16%	19%	17%	15%	2%	1%
26	0%	0%	0%	0%	0%	0%	0%	7%	0%	2%	21%	24%	22%	22%	3%	1%
27	6%	8%	3%	6%	9%	11%	0%	0%	2%	1%	7%	8%	15%	17%	5%	2%
28	0%	0%	7%	0%	3%	0%	2%	3%	1%	6%	40%	10%	16%	10%	1%	0%
29	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	52%	29%	10%	5%	0%	0%
30	0%	0%	0%	0%	0%	33%	0%	0%	3%	3%	13%	31%	8%	6%	1%	1%
31	17%	3%	0%	6%	0%	0%	9%	0%	6%	3%	8%	17%	13%	10%	5%	3%
Mensual	2%	2%	2%	2%	3%	5%	2%	3%	2%	3%	12%	18%	18%	18%	6%	2%

DIRECCIÓN DEL VIENTO EN EL MES ORDENADA DE MAYOR A MENOR PREDOMINANCIA																
R. V.	O	ONO	OSO	SO	NO	ESE	SSO	E	SSE	NNE	NNO	ENE	SE	NE	N	S
F. R.	18%	18%	18%	12%	6%	5%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%

Convenciones: R. V.: Rosa de los Vientos F. R.: Frecuencia Relativa. Nota: Datos resaltados en rojo están incompletos.



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JULIO DE 2011

JORNADA NOCTURNA - DIRECCIÓN DEL VIENTO SEGÚN LA ROSA DE LOS VIENTOS (Frecuencia relativa)

DÍA	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSO	SO	OSO	O	ONO	NO	NNO
1	0%	25%	1%	8%	11%	15%	8%	3%	21%	3%	0%	1%	0%	4%	1%	0%
2	0%	41%	9%	0%	0%	36%	1%	13%	0%	0%	0%	0%	0%	0%	0%	0%
3	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	44%	1%	0%	0%
4	0%	0%	1%	1%	43%	7%	1%	0%	14%	1%	0%	0%	19%	10%	3%	0%
5	0%	0%	40%	0%	1%	6%	3%	0%	0%	0%	0%	0%	0%	0%	50%	0%
6	0%	20%	12%	1%	0%	0%	0%	13%	0%	0%	0%	7%	15%	1%	31%	0%
7	0%	0%	10%	3%	42%	18%	8%	1%	1%	10%	0%	0%	0%	7%	0%	0%
8	1%	0%	0%	9%	0%	9%	23%	0%	10%	0%	0%	40%	8%	0%	0%	1%
9	0%	0%	0%	0%	1%	34%	8%	0%	7%	0%	0%	35%	6%	3%	4%	2%
10	0%	0%	0%	0%	4%	22%	1%	1%	0%	0%	32%	37%	0%	0%	3%	1%
11	6%	0%	0%	0%	0%	0%	6%	1%	22%	0%	0%	13%	14%	19%	10%	10%
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	80%	6%	8%	6%	1%
13	8%	19%	0%	0%	0%	0%	0%	0%	0%	0%	12%	42%	17%	1%	0%	0%
14	0%	0%	0%	0%	0%	0%	0%	0%	0%	38%	24%	7%	26%	5%	0%	0%
15	1%	1%	1%	0%	0%	0%	3%	6%	1%	22%	10%	15%	7%	1%	31%	2%
16	0%	0%	0%	0%	0%	7%	0%	1%	0%	42%	0%	0%	50%	0%	0%	0%
17	0%	0%	10%	4%	10%	15%	6%	4%	0%	0%	1%	38%	10%	0%	0%	0%
18	0%	0%	0%	1%	9%	5%	6%	1%	1%	3%	23%	39%	11%	0%	0%	0%
19	4%	0%	0%	12%	43%	4%	3%	0%	0%	0%	0%	1%	33%	0%	0%	0%
20	0%	1%	0%	13%	47%	18%	6%	6%	0%	0%	0%	0%	0%	8%	1%	0%
21	0%	0%	1%	1%	56%	2%	13%	10%	2%	1%	3%	0%	1%	2%	6%	0%
22	0%	0%	0%	2%	38%	13%	7%	5%	2%	2%	0%	5%	3%	4%	19%	0%
23	1%	0%	0%	33%	13%	10%	12%	3%	0%	0%	0%	0%	0%	16%	13%	0%
24	0%	20%	4%	3%	30%	31%	10%	1%	0%	0%	0%	0%	0%	0%	0%	0%
25	0%	0%	1%	4%	37%	16%	6%	1%	13%	0%	0%	22%	0%	0%	0%	0%
26	0%	0%	0%	0%	0%	3%	0%	46%	1%	0%	2%	1%	47%	0%	0%	0%
27	0%	0%	0%	0%	22%	0%	23%	10%	1%	22%	0%	1%	4%	18%	0%	0%
28	0%	0%	0%	0%	0%	7%	0%	0%	0%	19%	51%	22%	1%	1%	0%	0%
29	0%	0%	0%	1%	0%	1%	31%	0%	0%	10%	42%	13%	1%	0%	0%	0%
30	5%	10%	3%	4%	10%	16%	0%	0%	0%	0%	8%	43%	0%	0%	0%	0%
31	0%	0%	0%	6%	44%	0%	0%	0%	1%	0%	1%	0%	44%	4%	1%	0%
Mensual	1%	6%	3%	3%	15%	10%	6%	4%	3%	6%	7%	15%	12%	4%	6%	1%

DIRECCIÓN DEL VIENTO EN EL MES ORDENADA DE MAYOR A MENOR PREDOMINANCIA																
R. V.	OSO	E	O	ESE	SO	NNE	SE	NO	SSO	SSE	ONO	ENE	S	NE	N	NNO
F. R.	15%	15%	12%	10%	7%	6%	6%	6%	6%	4%	4%	3%	3%	3%	1%	1%

Convenciones: R. V.: Rosa de los Vientos F. R.: Frecuencia Relativa. Nota: Datos resaltados en rojo están incompletos.