



# 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

SEPTIEMBRE 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 <sup>2</sup> )		ET. (mm)
	Máxima	Media	Mínima	Máxima	Media	Media	Máxima	Media	Mínima	Suma	Máxima	Media	Suma
1	26.8	19.7	14.5	4.0	0.7	793.9	81.0	58.2	30.0	0.0	1053.0	457.9	4.3
2	26.7	18.3	12.8	4.5	0.7	794.2	82.0	63.8	32.0	0.0	1164.0	453.3	4.1
3	23.1	16.7	13.6	3.6	0.4	794.5	85.0	74.1	52.0	0.0	767.0	241.1	2.0
4	24.9	17.2	12.2	4.0	0.4	794.1	85.0	69.4	46.0	0.0	1271.0	286.0	2.5
5	27.6	19.1	12.4	4.0	0.7	793.6	83.0	62.1	33.0	0.0	1166.0	588.7	5.1
6	25.6	18.3	13.7	3.6	0.6	793.7	83.0	69.8	47.0	0.0	1256.0	353.6	3.0
7	24.8	17.3	13.8	4.0	0.4	793.9	92.0	76.8	51.0	2.0	1143.0	268.8	2.3
8	22.1	15.5	12.6	9.8	0.8	794.9	95.0	85.3	64.0	63.0	1138.0	330.3	1.8
9	25.7	16.8	12.9	4.0	0.6	794.2	93.0	76.1	50.0	8.9	898.0	371.8	3.0
10	26.4	17.5	12.5	5.8	1.1	793.7	94.0	76.4	49.0	44.7	1162.0	597.9	4.6
11	23.4	16.6	12.9	4.0	0.4	794.9	93.0	81.1	56.0	2.3	1036.0	287.6	2.3
12	24.6	17.7	14.1	4.0	0.4	795.3	94.0	74.2	51.0	8.1	994.0	271.9	2.3
13	26.8	19.5	14.5	4.5	0.7	794.5	78.0	61.0	33.0	0.0	1192.0	475.3	4.3
14	26.1	18.8	13.7	4.9	0.6	793.4	86.0	68.9	48.0	0.0	1117.0	424.3	3.6
15	25.8	18.8	13.9	3.1	0.5	793.7	88.0	67.3	41.0	0.0	1218.0	337.1	3.0
16	24.3	16.8	14.2	3.1	0.5	793.9	93.0	79.5	55.0	19.1	1301.0	260.5	2.0
17	25.3	17.0	13.5	3.1	0.4	793.7	92.0	79.8	50.0	6.1	1252.0	309.7	2.5
18	22.3	15.8	13.8	3.1	0.6	794.6	95.0	87.5	61.0	50.3	990.0	264.6	1.5
19	24.2	16.9	12.8	3.1	0.3	793.7	93.0	82.5	57.0	2.3	1169.0	311.0	2.5
20	23.7	17.0	14.1	3.1	0.4	793.8	96.0	81.1	56.0	13.5	1275.0	284.8	2.0
21	25.8	18.8	13.3	3.6	0.8	793.6	92.0	72.6	47.0	0.0	1160.0	432.7	3.6
22	23.9	17.8	14.4	4.9	0.6	793.8	93.0	79.0	56.0	1.5	1078.0	341.7	2.3
23	27.1	17.6	13.8	5.4	0.8	794.0	90.0	77.7	49.0	9.4	1180.0	468.9	3.3
24	22.9	16.5	13.8	4.0	0.6	793.2	94.0	83.3	65.0	5.6	1133.0	241.7	2.0
25	21.7	16.5	13.5	2.7	0.4	793.3	94.0	82.5	61.0	3.5	645.0	203.9	1.5
26	25.6	17.7	14.3	3.6	0.5	794.1	94.0	78.7	44.0	2.8	1180.0	317.8	2.5
27	26.9	19.5	13.1	4.0	0.7	794.3	84.0	63.2	35.0	0.0	1129.0	569.2	4.8
28	26.3	19.0	14.3	4.5	0.7	793.8	85.0	69.6	49.0	0.0	1102.0	399.4	3.3
29	25.8	17.4	14.1	4.0	0.5	792.8	91.0	75.4	52.0	2.8	1015.0	282.8	2.5
30	27.0	19.0	13.0	4.0	0.6	792.6	87.0	70.3	44.0	0.0	1171.0	469.7	3.8
<b>Mensual</b>	<b>27.6</b>	<b>17.7</b>	<b>12.2</b>	<b>9.8</b>	<b>0.6</b>	<b>793.9</b>	<b>96.0</b>	<b>74.2</b>	<b>30.0</b>	<b>245.8</b>	<b>1301.0</b>	<b>363.5</b>	<b>88.7</b>

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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## ESTACIÓN METEOROLÓGICA EL CARMEN

CÓDIGO: EMM-06



SEPTIEMBRE 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	1%	0%	0%	0%	11%	1%	3%	0%	1%	0%	5%	17%	33%	17%	7%	3%
2	6%	10%	3%	12%	9%	0%	0%	0%	0%	0%	5%	18%	19%	8%	6%	3%
3	4%	7%	2%	2%	1%	15%	0%	0%	3%	1%	2%	19%	25%	14%	3%	3%
4	3%	1%	3%	2%	1%	21%	3%	1%	1%	3%	3%	22%	9%	24%	3%	1%
5	1%	0%	0%	0%	7%	1%	6%	9%	0%	2%	4%	23%	18%	19%	9%	1%
6	7%	3%	0%	0%	0%	0%	0%	0%	1%	10%	21%	17%	16%	18%	3%	3%
7	0%	0%	0%	0%	6%	6%	5%	0%	14%	9%	13%	26%	13%	6%	3%	0%
8	0%	0%	1%	1%	4%	9%	1%	0%	6%	12%	15%	13%	29%	8%	1%	
9	0%	0%	0%	0%	28%	0%	1%	2%	37%	4%	6%	6%	6%	6%	3%	1%
10	15%	0%	0%	1%	4%	2%	1%	1%	3%	3%	6%	16%	18%	20%	9%	3%
11	4%	0%	3%	11%	1%	1%	1%	0%	0%	0%	2%	19%	24%	27%	3%	3%
12	6%	8%	13%	11%	3%	1%	2%	2%	3%	1%	3%	8%	19%	9%	7%	2%
13	3%	2%	4%	1%	15%	2%	1%	2%	0%	0%	9%	13%	16%	19%	10%	1%
14	1%	3%	0%	3%	16%	6%	2%	6%	3%	4%	12%	17%	10%	10%	5%	0%
15	12%	6%	3%	1%	1%	0%	13%	0%	1%	1%	4%	9%	8%	23%	14%	4%
16	8%	9%	7%	6%	1%	0%	0%	0%	0%	0%	4%	36%	15%	10%	3%	0%
17	0%	1%	3%	18%	2%	1%	1%	1%	11%	3%	6%	22%	10%	17%	4%	0%
18	0%	0%	18%	0%	0%	0%	3%	2%	1%	8%	13%	24%	19%	10%	1%	1%
19	1%	1%	0%	26%	1%	10%	3%	0%	2%	1%	14%	8%	15%	12%	6%	2%
20	13%	17%	8%	3%	1%	2%	3%	1%	6%	2%	2%	8%	12%	10%	8%	2%
21	1%	1%	1%	14%	0%	0%	0%	0%	0%	1%	8%	19%	24%	19%	10%	1%
22	0%	0%	0%	0%	1%	10%	5%	3%	1%	21%	2%	1%	10%	24%	20%	3%
23	0%	0%	6%	17%	4%	5%	3%	3%	2%	1%	7%	9%	21%	13%	6%	3%
24	3%	9%	0%	3%	10%	17%	6%	1%	0%	3%	3%	9%	10%	16%	8%	1%
25	6%	4%	5%	22%	3%	8%	5%	6%	3%	2%	0%	1%	19%	8%	6%	1%
26	2%	3%	3%	1%	0%	1%	3%	0%	0%	6%	28%	14%	14%	12%	6%	8%
27	0%	0%	0%	0%	14%	1%	0%	0%	5%	5%	15%	30%	16%	5%	8%	1%
28	0%	1%	0%	0%	0%	0%	0%	0%	2%	3%	19%	14%	24%	31%	5%	1%
29	0%	0%	6%	17%	6%	10%	6%	8%	1%	5%	8%	8%	10%	10%	2%	1%
30	0%	0%	0%	10%	3%	0%	0%	0%	3%	3%	8%	27%	21%	15%	10%	0%
Mensual	3%	3%	3%	6%	5%	4%	3%	2%	4%	4%	8%	16%	16%	15%	7%	2%

DIRECCIÓN DEL VIENTO EN EL MES ORDENADA DE MAYOR A MENOR PREDOMINANCIA																
R. V.	O	OSO	ONO	SO	NO	ENE	E	ESE	SSO	S	N	NE	SE	NNE	NNO	SSE
F. R.	16%	16%	15%	8%	7%	6%	5%	4%	4%	4%	3%	3%	3%	3%	2%	2%

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



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CÓDIGO: EMM-06



SEPTIEMBRE DE 2011

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

DIA	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSO	SO	OSO	O	ONO	NO	NNO
1	0%	0%	0%	32%	5%	8%	10%	0%	0%	0%	0%	0%	11%	33%	0%	1%
2	0%	0%	0%	7%	42%	10%	1%	0%	0%	22%	0%	0%	0%	17%	0%	0%
3	0%	0%	0%	0%	0%	50%	1%	0%	0%	0%	0%	49%	0%	0%	0%	0%
4	1%	10%	1%	0%	15%	67%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%
5	0%	0%	0%	13%	25%	40%	6%	4%	0%	0%	0%	0%	12%	0%	0%	0%
6	0%	0%	5%	7%	14%	42%	0%	0%	0%	0%	0%	0%	0%	32%	0%	0%
7	0%	0%	0%	0%	24%	0%	0%	0%	26%	2%	0%	0%	3%	44%	1%	0%
8	0%	0%	0%	0%	1%	25%	22%	3%	0%	0%	3%	38%	0%	9%	0%	0%
9	23%	5%	1%	3%	22%	28%	6%	4%	3%	1%	0%	1%	0%	1%	1%	2%
10	17%	17%	2%	1%	10%	25%	4%	1%	0%	3%	3%	5%	3%	1%	0%	7%
11	0%	14%	6%	41%	20%	2%	13%	2%	2%	0%	0%	0%	0%	0%	0%	0%
12	1%	7%	0%	12%	27%	36%	8%	1%	0%	1%	3%	0%	4%	0%	0%	0%
13	0%	0%	0%	5%	51%	35%	5%	4%	0%	0%	0%	0%	0%	0%	0%	0%
14	15%	1%	0%	8%	6%	17%	8%	12%	1%	11%	8%	3%	1%	5%	0%	4%
15	1%	3%	0%	13%	5%	32%	25%	3%	10%	0%	0%	0%	8%	1%	0%	1%
16	0%	3%	0%	0%	1%	0%	2%	2%	1%	0%	12%	59%	7%	0%	0%	13%
17	6%	0%	1%	3%	8%	3%	3%	8%	0%	0%	2%	22%	12%	18%	13%	0%
18	1%	1%	25%	27%	13%	13%	0%	0%	1%	0%	0%	5%	1%	8%	1%	5%
19	0%	0%	0%	50%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	0%	0%
20	2%	13%	1%	9%	25%	0%	0%	0%	4%	1%	2%	3%	1%	15%	24%	0%
21	5%	8%	1%	16%	15%	13%	6%	0%	0%	0%	1%	8%	10%	8%	10%	1%
22	0%	0%	3%	1%	8%	21%	1%	7%	5%	31%	5%	1%	3%	13%	1%	0%
23	1%	3%	19%	10%	35%	11%	9%	1%	0%	0%	0%	1%	0%	9%	0%	1%
24	0%	0%	5%	13%	35%	8%	18%	0%	2%	0%	1%	0%	10%	5%	2%	2%
25	0%	0%	5%	39%	14%	2%	1%	31%	6%	2%	0%	0%	0%	0%	0%	0%
26	2%	2%	3%	1%	13%	26%	3%	1%	19%	0%	31%	0%	0%	0%	1%	0%
27	0%	0%	0%	24%	22%	37%	7%	0%	0%	0%	0%	10%	0%	0%	0%	0%
28	0%	3%	2%	2%	6%	40%	1%	3%	9%	0%	5%	0%	5%	24%	0%	0%
29	1%	0%	10%	2%	31%	13%	0%	0%	0%	0%	0%	1%	31%	11%	1%	0%
30	0%	0%	0%	42%	7%	1%	13%	0%	0%	0%	0%	38%	0%	0%	0%	0%
Mensual	3%	3%	3%	13%	17%	20%	6%	3%	3%	3%	3%	8%	6%	8%	2%	1%

DIRECCIÓN DEL VIENTO EN EL MES ORDENADA DE MAYOR A MENOR PREDOMINANCIA																
R. V.	ESE	E	ENE	ONO	OSO	SE	O	NNE	NE	S	SSE	SSO	SO	N	NO	NNO
F. R.	20%	17%	13%	8%	8%	6%	6%	3%	3%	3%	3%	3%	3%	3%	2%	1%

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