



# 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 EMAS

CÓDIGO: EMM-01

NOVIEMBRE 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	23.3	18.0	13.6	2.7	0.5	802.3	99.0	85.3	61.0	0.0	1007.0	341.3	2.7
2	25.4	19.4	15.2	3.6	0.4	801.4	99.0	84.1	53.0	6.4	969.0	343.4	2.8
3	22.2	18.7	16.3	3.6	0.3	801.9	99.0	89.9	76.0	2.2	589.0	234.2	1.7
4	24.3	18.8	14.9	6.3	0.5	802.0	98.0	85.1	59.0	33.8	1092.0	370.8	2.8
5	24.4	18.7	14.7	3.1	0.4	801.4	100.0	86.5	60.0	1.0	1144.0	447.0	3.3
6	22.2	18.3	15.8	2.7	0.4	801.9	99.0	89.8	68.0	1.6	1134.0	322.6	2.3
7	22.0	17.8	15.3	4.0	0.4	802.0	99.0	91.5	73.0	27.0	747.0	210.9	1.5
8	17.7	16.7	15.4	1.8	0.1	803.4	100.0	97.2	88.0	21.2	218.0	105.6	0.7
9	21.8	17.8	15.1	2.2	0.1	803.1	100.0	92.2	73.0	2.4	983.0	308.9	2.3
10	21.1	17.5	15.2	3.1	0.2	802.6	100.0	94.8	80.0	47.0	1079.0	213.3	1.6
11	18.8	16.7	15.1	1.8	0.1	803.5	100.0	97.2	89.0	13.2	622.0	128.0	0.9
12	16.8	15.8	15.0	3.1	0.3	804.8	100.0	98.9	92.0	23.6	225.0	86.0	0.6
13	20.9	17.1	13.9	2.2	0.2	804.0	100.0	93.0	78.0	0.6	981.0	294.0	2.2
14	23.7	18.2	14.3	4.0	0.4	802.3	99.0	88.1	64.0	0.0	1139.0	338.9	2.6
15	23.1	17.8	14.7	3.6	0.5	801.9	98.0	88.2	67.0	0.6	1090.0	291.5	2.2
16	20.4	16.9	14.3	2.7	0.2	802.7	99.0	93.3	77.0	11.4	983.0	179.4	1.3
17	21.7	17.2	13.9	3.6	0.3	802.7	99.0	91.9	73.0	34.6	1028.0	338.3	2.4
18	22.0	16.9	15.0	7.6	0.4	803.8	100.0	93.7	74.0	42.2	1118.0	318.5	2.3
19	22.9	17.6	13.4	3.1	0.4	803.8	100.0	87.4	56.0	12.8	1157.0	459.4	3.4
20	19.3	16.7	15.2	2.2	0.1	803.7	100.0	96.8	85.0	13.2	462.0	138.9	0.9
21	22.7	17.5	13.5	4.0	0.5	803.6	99.0	89.1	67.0	17.0	1102.0	471.9	3.4
22	19.9	16.6	14.8	2.7	0.3	804.3	100.0	95.8	84.0	35.6	594.0	152.2	1.0
23	22.2	17.6	14.3	3.1	0.4	804.3	98.0	89.7	69.0	0.6	1049.0	303.1	2.2
24	19.4	16.2	14.5	1.8	0.2	805.5	100.0	97.3	85.0	23.8	378.0	127.7	0.9
25	21.1	16.9	13.1	3.6	0.4	803.9	99.0	90.7	66.0	0.8	958.0	271.1	2.0
26	22.1	17.2	14.3	4.0	0.4	802.7	98.0	89.4	68.0	0.0	895.0	235.4	1.8
27	22.1	17.1	14.4	2.7	0.4	801.4	99.0	91.3	78.0	1.0	1034.0	176.7	1.4
28	20.9	17.2	14.8	4.0	0.6	802.0	99.0	90.3	72.0	38.2	803.0	286.3	2.0
29	19.9	16.4	15.3	3.1	0.3	803.8	100.0	95.6	79.0	4.0	944.0	178.2	1.2
30	22.8	17.4	15.6	4.0	0.3	802.9	100.0	93.1	73.0	31.0	1088.0	268.6	1.9
31													
<b>Mensual</b>	<b>25.4</b>	<b>17.4</b>	<b>13.1</b>	<b>7.6</b>	<b>0.3</b>	<b>803.0</b>	<b>100.0</b>	<b>91.6</b>	<b>53.0</b>	<b>446.8</b>	<b>1157.0</b>	<b>264.7</b>	<b>58.0</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 EMAS**

CÓDIGO: EMM-01

**NOVIEMBRE 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%	0%	1%	20%	1%	0%	0%	0%	2%	16%	7%	5%	3%	12%	16%	15%
2	0%	0%	0%	3%	12%	4%	0%	1%	0%	16%	12%	9%	3%	9%	28%	3%
3	0%	3%	6%	1%	21%	3%	0%	0%	4%	17%	16%	4%	2%	10%	6%	7%
4	1%	1%	4%	1%	8%	0%	0%	0%	3%	15%	11%	6%	7%	17%	26%	1%
5	0%	0%	1%	11%	13%	0%	0%	1%	7%	18%	17%	3%	2%	6%	17%	3%
6	1%	12%	0%	1%	3%	17%	1%	1%	1%	17%	11%	1%	4%	3%	26%	1%
7	1%	2%	8%	24%	9%	5%	0%	1%	1%	8%	8%	7%	1%	8%	13%	5%
8	0%	0%	0%	3%	19%	1%	9%	9%	32%	10%	4%	7%	1%	3%	0%	0%
9	5%	17%	0%	1%	0%	0%	2%	1%	1%	13%	11%	3%	8%	10%	24%	4%
10	1%	1%	1%	0%	0%	0%	0%	15%	1%	15%	20%	17%	2%	13%	9%	5%
11	6%	2%	1%	28%	6%	0%	0%	0%	0%	14%	3%	1%	22%	17%	0%	0%
12	0%	0%	0%	0%	0%	2%	0%	4%	6%	41%	38%	6%	3%	0%	0%	0%
13	4%	1%	0%	15%	2%	0%	3%	0%	3%	5%	25%	2%	7%	8%	23%	3%
14	1%	2%	15%	0%	1%	1%	0%	0%	6%	10%	15%	4%	3%	6%	34%	1%
15	0%	1%	0%	26%	8%	16%	1%	0%	1%	16%	11%	6%	4%	3%	5%	3%
16	11%	0%	6%	15%	10%	2%	5%	0%	1%	13%	13%	6%	1%	5%	10%	3%
17	1%	0%	23%	11%	9%	1%	0%	0%	3%	10%	9%	4%	3%	4%	19%	2%
18	1%	0%	1%	0%	8%	10%	1%	1%	9%	12%	15%	17%	7%	5%	12%	2%
19	3%	1%	0%	17%	1%	0%	1%	1%	11%	18%	8%	8%	6%	5%	19%	2%
20	0%	0%	5%	2%	19%	3%	1%	3%	17%	28%	2%	1%	3%	2%	9%	4%
21	0%	6%	3%	7%	8%	1%	0%	4%	5%	19%	11%	3%	6%	8%	19%	1%
22	0%	1%	13%	3%	3%	7%	0%	1%	10%	16%	16%	4%	4%	10%	8%	5%
23	1%	0%	0%	17%	2%	4%	0%	1%	6%	11%	8%	6%	6%	13%	21%	3%
24	0%	0%	29%	0%	0%	0%	6%	1%	2%	12%	30%	4%	1%	4%	12%	0%
25	1%	0%	8%	15%	0%	0%	0%	1%	3%	14%	7%	13%	6%	15%	15%	3%
26	0%	0%	3%	24%	6%	4%	1%	1%	6%	15%	0%	2%	15%	6%	15%	1%
27	1%	1%	22%	1%	13%	17%	0%	1%	1%	11%	10%	1%	1%	7%	10%	3%
28	0%	1%	16%	8%	1%	0%	0%	5%	18%	21%	22%	5%	1%	1%	2%	0%
29	0%	0%	0%	0%	19%	3%	3%	10%	15%	22%	16%	5%	3%	1%	3%	1%
30	0%	0%	0%	0%	0%	0%	0%	20%	15%	18%	8%	6%	7%	3%	15%	7%
31																
Mensual	1%	2%	6%	8%	7%	3%	1%	3%	6%	16%	13%	6%	5%	7%	14%	3%

DIRECCIÓN DEL VIENTO EN EL MES ORDENADA DE MAYOR A MENOR PREDOMINANCIA																
R. V.	SSO	NO	SO	ENE	ONO	E	S	OSO	NE	O	ESE	NNO	SSE	NNE	N	SE
F. R.	16%	14%	13%	8%	7%	7%	6%	6%	6%	5%	3%	3%	3%	2%	1%	1%

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



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**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%	0%	49%	51%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	1%	23%	53%	1%	16%	0%	0%	0%	0%	0%	0%	0%	0%	6%	0%
3	5%	1%	6%	51%	17%	3%	1%	1%	0%	0%	0%	0%	0%	0%	15%	0%
4	1%	4%	44%	21%	17%	3%	4%	0%	3%	1%	0%	1%	1%	0%	0%	0%
5	0%	0%	14%	63%	10%	10%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%
6	0%	13%	4%	64%	3%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7	0%	0%	0%	50%	35%	6%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%
8	0%	0%	0%	50%	1%	22%	1%	0%	1%	11%	14%	0%	0%	0%	0%	0%
9	0%	6%	12%	11%	6%	60%	0%	0%	0%	0%	0%	0%	0%	0%	6%	0%
10	3%	3%	1%	36%	2%	20%	0%	20%	0%	0%	0%	0%	0%	0%	0%	13%
11	0%	0%	0%	65%	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
12	0%	0%	0%	16%	1%	27%	8%	0%	18%	28%	1%	0%	0%	0%	0%	0%
13	16%	0%	0%	0%	32%	0%	0%	0%	19%	1%	5%	28%	0%	0%	0%	0%
14	8%	23%	46%	23%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
15	0%	0%	4%	90%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
16	0%	0%	21%	33%	16%	1%	0%	0%	0%	0%	0%	22%	0%	0%	0%	8%
17	0%	0%	50%	1%	14%	22%	1%	1%	2%	3%	6%	0%	0%	0%	0%	0%
18	0%	0%	3%	17%	15%	57%	0%	0%	1%	0%	3%	0%	0%	0%	0%	4%
19	3%	0%	0%	11%	24%	45%	0%	2%	0%	4%	3%	3%	0%	0%	1%	3%
20	0%	0%	0%	0%	70%	0%	0%	0%	26%	4%	0%	0%	0%	0%	0%	0%
21	0%	1%	24%	38%	24%	4%	3%	0%	1%	0%	1%	1%	0%	0%	2%	0%
22	0%	0%	5%	79%	6%	5%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%
23	0%	0%	4%	94%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
24	3%	23%	23%	40%	0%	0%	0%	0%	0%	0%	0%	0%	2%	1%	8%	0%
25	0%	0%	15%	79%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
26	0%	0%	56%	35%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
27	0%	3%	29%	53%	6%	3%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%
28	1%	5%	15%	37%	22%	16%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%
29	0%	0%	4%	33%	55%	3%	3%	1%	0%	0%	0%	0%	0%	0%	0%	0%
30	7%	0%	13%	15%	40%	3%	1%	13%	0%	0%	6%	0%	0%	1%	0%	3%
31																
Mensual	2%	3%	16%	40%	15%	13%	1%	2%	2%	2%	1%	2%	0%	0%	2%	1%

DIRECCIÓN DEL VIENTO EN EL MES ORDENADA DE MAYOR A MENOR PREDOMINANCIA																
R. V.	ENE	NE	E	ESE	NNE	S	OSO	SSO	SSE	N	NO	SO	NNO	SE	O	ONO
F. R.	40%	16%	15%	13%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%	0%	0%

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