



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

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	23.2	17.9	14.8	4.5	0.4	802.8	99.0	90.6	73.0	1.2	1157.0	410.1	3.2
2	21.3	17.3	14.8	3.1	0.5	803.0	98.0	91.6	75.0	14.8	1290.0	210.4	1.7
3	23.7	18.5	14.3	4.0	0.6	802.1	99.0	86.7	61.0	0.2	1288.0	445.4	3.4
4	21.7	18.1	15.3	2.7	0.6	802.0	98.0	90.0	73.0	0.0	1288.0	261.0	2.0
5	23.5	18.6	14.3	2.7	0.6	802.4	98.0	86.6	63.0	0.0	1100.0	311.6	2.5
6	21.1	17.8	15.0	4.0	0.4	802.8	99.0	91.7	74.0	6.4	714.0	234.4	1.7
7	24.1	18.3	13.8	3.1	0.6	803.0	98.0	83.6	56.0	0.2	1209.0	445.9	3.4
8	24.2	18.6	15.0	4.9	0.9	801.3	99.0	84.7	56.0	0.0	1192.0	387.5	3.3
9	23.1	18.8	14.7	3.1	0.6	801.2	98.0	85.3	62.0	0.0	1141.0	271.9	2.2
10	24.0	18.8	15.8	2.7	0.6	801.2	98.0	87.8	62.0	1.2	1144.0	327.1	2.5
11	24.0	19.1	15.8	3.1	0.6	802.4	98.0	85.3	57.0	0.0	1032.0	302.5	2.6
12	21.0	18.0	15.5	4.5	0.4	803.8	97.0	89.9	68.0	3.2	740.0	194.5	1.6
13	18.5	16.6	15.5	3.1	0.1	804.8	100.0	96.6	87.0	11.2	751.0	177.3	1.3
14	19.7	16.6	15.2	4.0	0.4	805.4	100.0	93.4	69.0	8.0	1069.0	156.1	1.1
15	19.9	16.7	14.1	3.1	0.3	806.0	99.0	91.9	68.0	22.0	1371.0	321.2	2.4
16	22.8	18.1	15.2	2.7	0.5	803.8	99.0	90.1	65.0	0.0	1255.0	431.6	3.2
17	22.2	18.4	15.7	2.2	0.2	803.2	99.0	90.1	66.0	0.8	1085.0	284.3	2.2
18	22.1	18.4	16.1	2.7	0.4	803.1	100.0	89.2	63.0	3.4	1313.0	317.5	2.4
19	23.4	18.7	14.4	3.1	0.6	802.8	98.0	86.5	63.0	0.2	1223.0	396.2	3.0
20	23.3	18.7	15.9	4.0	0.7	802.4	98.0	84.7	60.0	0.0	1208.0	306.4	2.5
21	24.1	18.8	14.4	4.9	0.8	801.9	97.0	82.2	54.0	0.0	1041.0	385.7	3.1
22	24.6	19.1	15.1	2.2	0.8	801.4	97.0	83.2	55.0	0.0	1144.0	372.6	3.2
23	23.9	19.1	15.9	2.7	0.7	801.9	96.0	84.5	55.0	1.6	1114.0	302.8	2.4
24	23.3	18.3	15.2	2.7	0.9	802.9	97.0	81.9	57.0	0.0	1195.0	315.5	2.6
25	24.0	18.7	14.4	2.7	0.9	801.6	96.0	81.3	57.0	0.8	1107.0	331.1	2.8
26	23.5	18.8	15.7	3.1	0.8	800.9	96.0	85.5	66.0	0.0	1109.0	280.7	2.3
27	23.4	18.3	15.7	2.7	0.7	801.4	96.0	89.0	58.0	3.2	1118.0	246.7	1.9
28	20.8	17.6	15.7	2.7	0.4	802.6	98.0	92.6	77.0	14.0	893.0	225.4	1.7
29	18.3	15.8	14.8	3.1	0.5	804.5	99.0	96.3	84.0	18.4	935.0	179.4	1.2
30	19.8	16.2	14.1	2.2	0.3	804.8	99.0	95.1	78.0	10.6	756.0	266.8	1.9
31	21.4	17.3	14.3	4.5	0.4	804.0	98.0	89.4	70.0	0.0	1232.0	325.9	2.5
Mensual	24.6	18.1	13.8	4.9	0.6	802.8	100.0	88.3	54.0	121.4	1371.0	304.1	73.4

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%	1%	0%	19%	0%	0%	1%	0%	3%	10%	5%	8%	6%	6%	29%	8%
2	0%	1%	4%	19%	10%	2%	0%	12%	11%	7%	14%	8%	3%	4%	4%	1%
3	3%	1%	17%	0%	0%	0%	0%	0%	3%	14%	15%	7%	4%	6%	28%	3%
4	1%	6%	2%	19%	2%	1%	0%	1%	3%	2%	12%	9%	5%	2%	33%	3%
5	1%	1%	0%	5%	12%	1%	1%	0%	4%	8%	16%	8%	6%	2%	17%	19%
6	1%	1%	11%	9%	7%	10%	1%	3%	3%	8%	8%	5%	8%	7%	15%	1%
7	0%	1%	3%	17%	2%	0%	1%	3%	1%	10%	10%	13%	7%	7%	22%	4%
8	0%	0%	3%	19%	0%	0%	0%	1%	7%	15%	31%	10%	1%	7%	6%	2%
9	1%	6%	18%	0%	0%	1%	0%	0%	1%	17%	17%	8%	6%	3%	19%	2%
10	4%	3%	19%	1%	0%	1%	1%	0%	2%	8%	18%	1%	5%	13%	17%	8%
11	2%	1%	1%	19%	1%	1%	0%	1%	3%	13%	10%	8%	8%	4%	18%	12%
12	0%	0%	0%	13%	9%	16%	1%	3%	1%	3%	13%	9%	9%	6%	9%	8%
13	7%	0%	1%	0%	2%	3%	1%	6%	13%	2%	15%	11%	5%	13%	21%	0%
14	1%	11%	13%	1%	1%	17%	0%	6%	5%	13%	10%	5%	0%	2%	14%	1%
15	6%	1%	2%	1%	1%	1%	17%	0%	1%	12%	2%	3%	3%	8%	36%	6%
16	0%	1%	2%	4%	13%	1%	0%	0%	2%	28%	10%	6%	5%	4%	18%	7%
17	2%	3%	0%	13%	1%	1%	10%	0%	2%	7%	10%	10%	9%	14%	13%	6%
18	1%	0%	1%	0%	0%	1%	0%	2%	1%	13%	31%	8%	6%	3%	17%	0%
19	3%	0%	17%	1%	0%	0%	0%	0%	3%	8%	22%	10%	2%	10%	20%	6%
20	1%	8%	4%	3%	16%	0%	0%	4%	2%	13%	18%	3%	7%	8%	11%	2%
21	0%	0%	0%	17%	0%	0%	2%	2%	3%	15%	14%	9%	6%	3%	28%	1%
22	4%	1%	22%	0%	1%	0%	0%	1%	2%	11%	9%	9%	8%	6%	21%	5%
23	3%	1%	1%	10%	1%	2%	0%	0%	2%	14%	7%	16%	2%	10%	24%	6%
24	3%	0%	10%	3%	18%	6%	0%	4%	1%	13%	5%	3%	9%	6%	14%	4%
25	1%	1%	15%	6%	0%	0%	0%	1%	0%	6%	10%	4%	15%	7%	28%	6%
26	1%	0%	1%	15%	1%	1%	0%	1%	4%	17%	10%	11%	5%	13%	19%	2%
27	0%	1%	6%	10%	15%	1%	1%	0%	1%	11%	24%	6%	3%	6%	12%	2%
28	1%	0%	19%	3%	1%	2%	4%	2%	5%	20%	20%	8%	3%	1%	9%	2%
29	0%	0%	0%	0%	1%	1%	8%	3%	38%	10%	23%	3%	3%	1%	9%	0%
30	0%	0%	31%	1%	0%	0%	1%	2%	1%	10%	4%	14%	6%	6%	17%	7%
31	1%	1%	0%	22%	2%	9%	1%	1%	1%	10%	10%	6%	17%	4%	10%	5%
Mensual	2%	2%	7%	8%	4%	3%	2%	2%	4%	11%	14%	8%	6%	6%	18%	5%

DIRECCIÓN DEL VIENTO EN EL MES ORDENADA DE MAYOR A MENOR PREDOMINANCIA																
R. V.	NO	SO	SSO	ENE	OSO	NE	ONO	O	NNO	S	E	ESE	SSE	N	NNE	SE
F. R.	18%	14%	11%	8%	8%	7%	6%	6%	5%	4%	4%	3%	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%	0%	32%	14%	40%	7%	1%	0%	3%	0%	0%	0%	0%	0%	3%	0%
2	0%	0%	31%	60%	7%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3	0%	3%	44%	48%	1%	0%	0%	0%	0%	0%	1%	3%	0%	0%	0%	1%
4	1%	7%	24%	51%	8%	1%	0%	0%	0%	1%	1%	1%	0%	0%	1%	4%
5	0%	0%	43%	49%	7%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
6	13%	0%	30%	26%	2%	0%	8%	2%	0%	17%	1%	1%	0%	0%	0%	0%
7	0%	0%	39%	60%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
8	0%	0%	65%	33%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9	0%	0%	34%	49%	6%	6%	0%	0%	0%	0%	0%	0%	0%	1%	3%	1%
10	0%	7%	40%	47%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%
11	0%	10%	39%	40%	1%	0%	0%	0%	6%	0%	3%	1%	0%	0%	1%	0%
12	15%	1%	0%	26%	20%	3%	9%	5%	5%	2%	8%	1%	0%	0%	3%	3%
13	0%	0%	0%	0%	50%	3%	0%	3%	1%	2%	8%	33%	0%	0%	0%	0%
14	0%	0%	10%	2%	13%	40%	0%	8%	8%	8%	9%	2%	1%	0%	0%	0%
15	44%	5%	1%	1%	0%	1%	24%	3%	6%	8%	7%	1%	0%	0%	0%	0%
16	0%	0%	0%	44%	51%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%
17	0%	0%	23%	44%	2%	0%	0%	0%	0%	0%	0%	0%	14%	0%	8%	0%
18	5%	1%	6%	29%	7%	13%	0%	0%	1%	1%	0%	0%	0%	0%	0%	4%
19	5%	0%	22%	49%	19%	1%	0%	0%	0%	1%	3%	0%	0%	0%	0%	0%
20	0%	0%	41%	50%	1%	7%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
21	0%	0%	47%	51%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
22	2%	0%	57%	40%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
23	4%	1%	53%	39%	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
24	0%	0%	86%	12%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
25	0%	2%	65%	28%	3%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
26	0%	0%	37%	53%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	8%	0%
27	0%	0%	26%	69%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
28	0%	0%	7%	8%	35%	1%	1%	3%	6%	20%	15%	4%	0%	1%	0%	0%
29	0%	0%	0%	23%	29%	1%	2%	8%	18%	9%	10%	0%	0%	0%	0%	0%
30	6%	2%	23%	54%	2%	1%	0%	0%	0%	0%	1%	0%	0%	0%	12%	0%
31	1%	0%	1%	47%	13%	14%	0%	0%	10%	0%	3%	0%	0%	8%	0%	3%
Mensual	3%	1%	30%	37%	11%	4%	2%	1%	2%	2%	2%	2%	0%	0%	1%	1%

DIRECCIÓN DEL VIENTO EN EL MES ORDENADA DE MAYOR A MENOR PREDOMINANCIA																
R. V.	ENE	NE	E	ESE	N	SSO	SO	S	SE	OSO	NNE	NO	SSE	NNO	O	ONO
F. R.	37%	30%	11%	4%	3%	2%	2%	2%	2%	2%	1%	1%	1%	1%	0%	0%

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