



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 BOSQUES DEL NORTE

CÓDIGO: EMM-08

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 ²)		ET. (mm)
	Máxima	Media	Mínima	Máxima	Media	Media	Máxima	Media	Mínima	Suma	Máxima	Media	Suma
1	23.1	17.2	12.9	3.1	0.4	791.8	98.0	88.4	65.0	0.0	940.0	288.6	2.2
2	23.8	18.6	14.7	4.5	0.4	790.8	97.0	87.8	66.0	2.2	986.0	317.8	2.5
3	21.6	18.0	15.8	3.6	0.5	791.2	98.0	91.8	80.0	0.6	636.0	222.1	1.6
4	23.8	18.1	14.2	8.0	0.7	791.3	98.0	87.7	65.0	29.2	1223.0	317.2	2.5
5	23.0	17.8	14.1	5.4	0.7	790.7	98.0	89.9	68.0	1.4	1185.0	355.8	2.8
6	22.4	17.8	15.0	4.5	0.5	791.1	97.0	91.2	73.0	1.0	1181.0	293.9	2.3
7	21.1	17.0	14.5	4.0	0.4	791.5	98.0	93.5	80.0	35.4	677.0	187.4	1.4
8	17.7	16.2	15.2	2.2	0.3	792.8	98.0	96.1	90.0	21.0	290.0	120.6	0.8
9	21.1	17.0	14.5	2.7	0.4	792.5	98.0	93.7	81.0	2.8	703.0	251.7	1.8
10	20.5	16.9	14.6	4.9	0.5	792.0	98.0	95.1	83.0	37.4	977.0	173.0	1.2
11	18.2	16.1	14.6	3.1	0.3	792.9	98.0	97.0	93.0	12.2	513.0	112.7	0.8
12	16.3	15.3	14.4	4.9	0.6	794.3	98.0	97.7	96.0	43.2	192.0	80.7	0.5
13	20.7	16.5	13.3	4.0	0.4	793.4	98.0	93.3	79.0	1.2	1071.0	284.5	1.9
14	23.1	17.5	13.3	5.4	0.5	791.8	98.0	90.4	69.0	0.0	1250.0	304.9	2.4
15	22.5	17.0	13.7	4.5	0.4	791.3	98.0	91.4	70.0	0.4	1215.0	242.8	1.8
16	19.6	15.9	13.7	4.0	0.4	792.3	98.0	95.3	82.0	29.0	1139.0	191.0	1.3
17	21.9	16.4	13.2	4.9	0.5	792.3	98.0	93.4	72.0	38.0	1250.0	297.7	2.2
18	20.6	16.3	14.3	5.4	0.6	793.1	98.0	93.4	74.0	36.6	1373.0	374.5	2.7
19	21.7	16.8	12.8	4.5	0.5	793.2	98.0	89.6	65.0	29.0	1361.0	380.8	2.8
20	18.1	16.0	14.6	2.7	0.3	793.2	98.0	96.3	91.0	13.6	417.0	143.2	1.0
21	21.8	16.8	12.8	4.9	0.7	792.9	98.0	91.6	70.0	18.0	1148.0	508.1	3.7
22	19.1	16.0	14.1	3.6	0.2	793.6	98.0	96.1	89.0	17.6	448.0	147.0	0.9
23	21.3	16.8	13.6	4.0	0.4	793.7	98.0	92.4	77.0	5.0	1281.0	305.1	2.2
24	19.2	15.7	13.8	4.9	0.4	794.9	98.0	96.1	82.0	15.0	378.0	156.8	1.1
25	20.6	16.3	12.7	3.6	0.4	793.4	98.0	92.2	74.0	0.2	974.0	261.1	1.9
26	20.4	16.4	13.5	2.7	0.3	792.1	98.0	92.8	77.0	0.8	879.0	211.8	1.5
27	21.1	16.2	13.9	4.9	0.4	791.0	98.0	94.1	78.0	2.0	1164.0	186.9	1.4
28	20.6	16.6	13.9	5.4	0.7	791.4	98.0	91.8	77.0	45.8	944.0	298.1	2.1
29	19.5	15.8	14.3	5.8	0.6	793.1	98.0	95.9	84.0	6.4	1236.0	198.4	1.3
30	19.9	16.4	14.8	4.0	0.4	792.5	98.0	95.4	83.0	29.2	1051.0	167.3	1.2
31													
Mensual	23.8	16.7	12.7	8.0	0.5	792.4	98.0	93.0	65.0	474.2	1373.0	246.0	53.7

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

DIRECCIÓN DEL VIENTO EN EL MES ORDENADA DE MAYOR A MENOR PREDOMINANCIA																
R. V.	NNO	NNE	NO	N	SSO	SO	S	NE	ONO	SSE	OSO	O	ENE	SE	ESE	E
F. R.	13%	12%	12%	9%	8%	7%	7%	6%	6%	4%	4%	4%	4%	1%	1%	1%

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



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NOVIEMBRE 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	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%
2	3%	22%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	3%	0%	60%	11%
3	4%	6%	17%	3%	6%	1%	1%	3%	1%	1%	10%	2%	15%	15%	10%	6%
4	32%	3%	40%	5%	0%	0%	0%	0%	13%	0%	1%	0%	1%	2%	2%	1%
5	9%	35%	33%	0%	0%	0%	0%	1%	1%	13%	1%	3%	0%	0%	1%	4%
6	1%	91%	0%	1%	0%	0%	0%	1%	0%	0%	1%	2%	0%	1%	2%	0%
7	0%	54%	0%	20%	0%	0%	1%	1%	9%	1%	0%	13%	0%	0%	0%	0%
8	0%	50%	0%	0%	0%	0%	0%	0%	12%	37%	1%	0%	0%	0%	0%	0%
9	0%	2%	49%	0%	0%	0%	0%	0%	0%	44%	4%	0%	0%	0%	0%	1%
10	8%	10%	3%	1%	0%	0%	0%	0%	0%	12%	22%	14%	13%	0%	8%	10%
11	0%	8%	28%	0%	0%	0%	0%	0%	0%	50%	1%	2%	0%	0%	5%	5%
12	0%	0%	25%	0%	0%	1%	16%	15%	0%	6%	17%	6%	14%	0%	0%	0%
13	0%	30%	0%	0%	0%	0%	0%	0%	0%	42%	8%	0%	0%	0%	3%	17%
14	0%	49%	0%	0%	0%	0%	0%	0%	0%	13%	1%	0%	36%	0%	0%	1%
15	8%	46%	0%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	35%
16	4%	57%	5%	0%	2%	0%	1%	4%	3%	0%	0%	0%	0%	1%	19%	3%
17	1%	0%	0%	6%	26%	1%	3%	3%	3%	6%	2%	0%	0%	0%	50%	0%
18	0%	0%	5%	15%	17%	4%	16%	2%	4%	0%	1%	5%	1%	31%	0%	0%
19	1%	6%	1%	13%	1%	1%	41%	3%	0%	1%	1%	0%	2%	23%	3%	3%
20	3%	1%	0%	0%	0%	0%	5%	2%	1%	10%	7%	1%	0%	11%	13%	45%
21	19%	0%	0%	2%	1%	1%	2%	0%	3%	2%	3%	17%	1%	0%	1%	49%
22	0%	0%	42%	0%	1%	0%	0%	0%	8%	0%	0%	0%	0%	0%	1%	49%
23	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
24	24%	3%	25%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%	16%	31%
25	24%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	26%
26	0%	50%	13%	38%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
27	50%	32%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	2%
28	1%	7%	0%	1%	0%	1%	9%	15%	3%	3%	38%	1%	1%	0%	4%	15%
29	1%	3%	0%	0%	0%	0%	0%	27%	0%	0%	34%	0%	0%	0%	0%	35%
30	0%	17%	8%	1%	1%	0%	3%	2%	3%	3%	0%	0%	4%	3%	3%	51%
31																
Mensual	8%	21%	14%	3%	2%	0%	3%	3%	2%	8%	5%	2%	3%	3%	9%	13%

DIRECCIÓN DEL VIENTO EN EL MES ORDENADA DE MAYOR A MENOR PREDOMINANCIA																
R. V.	NNE	NE	NNO	NO	SSO	N	SO	ENE	SE	O	ONO	SSE	OSO	S	E	ESE
F. R.	21%	14%	13%	9%	8%	8%	5%	3%	3%	3%	3%	3%	2%	2%	2%	0%

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