



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 CHEC URIBE

CÓDIGO: EMM-14

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 | 22.7 | 18.3 | 15.8 | 3.6 | 0.8 | 816.7 | 98.0 | 90.0 | 76.0 | 2.8 | 1097.0 | 279.4 | 2.3 |
| 2 | 22.4 | 18.3 | 16.0 | 3.6 | 0.9 | 816.7 | 94.0 | 87.3 | 77.0 | 6.2 | 1320.0 | 213.2 | 1.9 |
| 3 | 24.8 | 19.5 | 15.1 | 4.0 | 1.3 | 815.7 | 91.0 | 81.6 | 60.0 | 0.0 | 1167.0 | 459.2 | 3.9 |
| 4 | 23.8 | 19.4 | 16.8 | 3.6 | 1.1 | 815.3 | 96.0 | 84.2 | 67.0 | 0.0 | 1222.0 | 303.0 | 2.6 |
| 5 | 24.5 | 19.9 | 16.1 | 3.6 | 1.2 | 815.6 | 87.0 | 80.4 | 62.0 | 0.0 | 1137.0 | 393.2 | 3.4 |
| 6 | 21.9 | 18.4 | 16.2 | 4.9 | 0.8 | 816.3 | 97.0 | 89.8 | 73.0 | 9.2 | 972.0 | 241.8 | 1.9 |
| 7 | 25.3 | 19.5 | 15.3 | 4.0 | 1.4 | 816.7 | 91.0 | 79.5 | 58.0 | 0.0 | 1069.0 | 436.5 | 3.6 |
| 8 | 25.2 | 20.3 | 16.6 | 4.5 | 1.5 | 814.5 | 91.0 | 77.7 | 57.0 | 0.0 | 1273.0 | 442.9 | 3.8 |
| 9 | 25.0 | 20.3 | 16.4 | 4.0 | 1.2 | 814.3 | 85.0 | 79.0 | 67.0 | 0.0 | 1090.0 | 362.8 | 3.2 |
| 10 | 24.6 | 20.2 | 17.4 | 3.6 | 1.2 | 814.3 | 90.0 | 81.1 | 64.0 | 0.0 | 1063.0 | 316.8 | 2.9 |
| 11 | 24.9 | 20.4 | 17.2 | 3.6 | 0.8 | 815.8 | 92.0 | 80.3 | 60.0 | 0.4 | 1155.0 | 376.1 | 3.3 |
| 12 | 22.8 | 19.0 | 16.8 | 2.7 | 0.5 | 817.0 | 96.0 | 87.3 | 70.0 | 5.6 | 1229.0 | 310.5 | 2.4 |
| 13 | 19.8 | 17.1 | 15.6 | 2.2 | 0.2 | 818.5 | 99.0 | 94.4 | 85.0 | 10.2 | 1278.0 | 204.0 | 1.5 |
| 14 | 22.1 | 17.7 | 15.5 | 2.2 | 0.5 | 819.1 | 98.0 | 90.3 | 68.0 | 8.8 | 824.0 | 262.7 | 2.0 |
| 15 | 20.6 | 17.4 | 15.0 | 2.2 | 0.4 | 819.6 | 97.0 | 91.2 | 77.0 | 23.6 | 1276.0 | 322.9 | 2.4 |
| 16 | 24.7 | 18.9 | 15.8 | 3.1 | 1.0 | 817.8 | 97.0 | 86.1 | 64.0 | 0.2 | 1086.0 | 367.3 | 3.1 |
| 17 | 23.7 | 19.2 | 16.8 | 4.5 | 0.7 | 816.8 | 95.0 | 86.5 | 66.0 | 0.8 | 1076.0 | 299.3 | 2.5 |
| 18 | 24.3 | 19.1 | 16.4 | 4.5 | 0.6 | 816.8 | 99.0 | 88.8 | 67.0 | 3.6 | 1136.0 | 323.3 | 2.6 |
| 19 | 25.2 | 20.1 | 16.2 | 3.6 | 0.9 | 816.3 | 95.0 | 82.6 | 59.0 | 0.2 | 1230.0 | 470.6 | 3.8 |
| 20 | 24.6 | 20.1 | 17.3 | 4.0 | 1.5 | 815.6 | 92.0 | 78.5 | 60.0 | 0.0 | 1174.0 | 377.5 | 3.3 |
| 21 | 25.4 | 20.3 | 16.2 | 3.6 | 1.3 | 815.0 | 86.0 | 76.4 | 53.0 | 0.0 | 976.0 | 418.8 | 3.6 |
| 22 | 25.8 | 20.8 | 16.9 | 4.0 | 1.3 | 814.5 | 89.0 | 76.0 | 55.0 | 0.0 | 1202.0 | 446.0 | 3.9 |
| 23 | 25.6 | 20.6 | 18.3 | 4.0 | 1.0 | 814.9 | 91.0 | 79.3 | 58.0 | 0.4 | 1179.0 | 320.1 | 2.8 |
| 24 | 24.1 | 20.1 | 17.4 | 4.0 | 1.7 | 815.6 | 83.0 | 75.7 | 65.0 | 0.0 | 1095.0 | 311.2 | 2.9 |
| 25 | 26.2 | 20.7 | 16.9 | 4.0 | 1.4 | 814.6 | 83.0 | 72.8 | 55.0 | 0.0 | 1079.0 | 359.8 | 3.3 |
| 26 | 25.1 | 20.4 | 17.8 | 4.5 | 1.0 | 813.7 | 90.0 | 78.8 | 64.0 | 0.0 | 1025.0 | 320.0 | 2.9 |
| 27 | 25.2 | 20.1 | 17.4 | 3.6 | 1.0 | 814.4 | 91.0 | 79.6 | 59.0 | 0.0 | 1049.0 | 289.3 | 2.6 |
| 28 | 22.4 | 18.6 | 16.6 | 2.7 | 0.5 | 815.6 | 97.0 | 88.1 | 71.0 | 6.0 | 1009.0 | 241.7 | 1.9 |
| 29 | 19.0 | 16.6 | 15.5 | 2.2 | 0.4 | 818.0 | 98.0 | 94.7 | 90.0 | 19.2 | 640.0 | 142.1 | 1.0 |
| 30 | 19.3 | 16.8 | 15.1 | 3.1 | 0.7 | 818.8 | 98.0 | 94.7 | 89.0 | 13.0 | 552.0 | 213.7 | 1.5 |
| 31 | 20.8 | 17.9 | 15.3 | 2.7 | 0.6 | 818.0 | 95.0 | 89.1 | 75.0 | 0.6 | 896.0 | 248.1 | 2.0 |
| Mensual | 26.2 | 19.2 | 15.0 | 4.9 | 1.0 | 816.2 | 99.0 | 83.9 | 53.0 | 110.8 | 1320.0 | 325.0 | 84.4 |

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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ESTACIÓN METEOROLÓGICA CHEC URIBE

CÓDIGO: EMM-14

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

| DIRECCIÓN DEL VIENTO EN EL MES ORDENADA DE MAYOR A MENOR PREDOMINANCIA | | | | | | | | | | | | | | | | |
|--|-----|-----|-----|----|----|----|-----|-----|-----|-----|----|----|-----|----|----|-----|
| R. V. | NO | NNO | ONO | SE | O | N | ESE | SSE | NNE | OSO | NE | E | ENE | SO | S | SSO |
| F. R. | 23% | 13% | 12% | 9% | 8% | 8% | 6% | 6% | 5% | 3% | 2% | 2% | 1% | 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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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% | 0% | 0% | 1% | 17% | 23% | 16% | 4% | 0% | 3% | 1% | 0% | 20% | 14% | 1% |
| 2 | 3% | 0% | 2% | 3% | 8% | 11% | 49% | 21% | 1% | 0% | 0% | 3% | 0% | 0% | 0% | 0% |
| 3 | 14% | 0% | 0% | 1% | 1% | 14% | 40% | 26% | 1% | 0% | 0% | 0% | 0% | 0% | 1% | 3% |
| 4 | 6% | 3% | 0% | 0% | 2% | 13% | 51% | 23% | 0% | 0% | 0% | 0% | 1% | 1% | 0% | 1% |
| 5 | 11% | 1% | 1% | 0% | 2% | 18% | 47% | 20% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 6 | 13% | 1% | 10% | 0% | 4% | 12% | 37% | 13% | 1% | 0% | 0% | 1% | 0% | 0% | 6% | 1% |
| 7 | 7% | 1% | 0% | 0% | 1% | 9% | 48% | 33% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 8 | 7% | 0% | 0% | 0% | 1% | 10% | 49% | 33% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 9 | 2% | 3% | 0% | 1% | 3% | 9% | 48% | 26% | 1% | 1% | 1% | 0% | 1% | 2% | 1% | 2% |
| 10 | 0% | 1% | 1% | 0% | 2% | 10% | 46% | 38% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 3% |
| 11 | 16% | 16% | 0% | 0% | 1% | 13% | 19% | 15% | 1% | 0% | 0% | 0% | 0% | 3% | 5% | 10% |
| 12 | 10% | 10% | 1% | 2% | 7% | 13% | 19% | 8% | 0% | 0% | 0% | 1% | 13% | 3% | 10% | 3% |
| 13 | 8% | 2% | 18% | 13% | 6% | 1% | 3% | 9% | 0% | 1% | 0% | 3% | 9% | 4% | 14% | 8% |
| 14 | 9% | 3% | 1% | 4% | 3% | 10% | 32% | 12% | 0% | 1% | 1% | 1% | 3% | 2% | 8% | 10% |
| 15 | 5% | 3% | 8% | 3% | 13% | 8% | 19% | 29% | 1% | 0% | 0% | 5% | 1% | 6% | 0% | 1% |
| 16 | 8% | 2% | 0% | 4% | 4% | 19% | 48% | 14% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 17 | 7% | 14% | 0% | 0% | 1% | 8% | 26% | 15% | 0% | 0% | 0% | 0% | 0% | 1% | 22% | 6% |
| 18 | 6% | 0% | 2% | 0% | 29% | 15% | 22% | 3% | 0% | 0% | 1% | 1% | 12% | 6% | 1% | 3% |
| 19 | 3% | 0% | 0% | 0% | 3% | 15% | 44% | 24% | 0% | 0% | 0% | 0% | 0% | 0% | 10% | 0% |
| 20 | 0% | 1% | 0% | 1% | 5% | 15% | 46% | 31% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 1% |
| 21 | 6% | 2% | 0% | 0% | 2% | 15% | 45% | 28% | 1% | 0% | 0% | 0% | 1% | 0% | 0% | 0% |
| 22 | 10% | 0% | 0% | 0% | 1% | 13% | 49% | 22% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 3% |
| 23 | 0% | 0% | 0% | 0% | 4% | 31% | 42% | 23% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 24 | 0% | 0% | 0% | 0% | 3% | 20% | 49% | 28% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 25 | 0% | 6% | 0% | 3% | 0% | 13% | 44% | 31% | 1% | 0% | 0% | 0% | 2% | 0% | 0% | 0% |
| 26 | 0% | 0% | 0% | 1% | 3% | 10% | 38% | 35% | 0% | 0% | 0% | 0% | 0% | 0% | 11% | 1% |
| 27 | 0% | 0% | 0% | 0% | 3% | 34% | 47% | 15% | 1% | 0% | 0% | 0% | 0% | 0% | 1% | 0% |
| 28 | 1% | 1% | 1% | 1% | 1% | 6% | 30% | 13% | 6% | 0% | 3% | 3% | 3% | 6% | 20% | 4% |
| 29 | 2% | 1% | 0% | 1% | 9% | 28% | 34% | 10% | 1% | 0% | 1% | 8% | 2% | 1% | 1% | 1% |
| 30 | 1% | 3% | 1% | 1% | 7% | 20% | 34% | 18% | 1% | 0% | 0% | 0% | 1% | 1% | 6% | 6% |
| 31 | 1% | 0% | 0% | 0% | 9% | 11% | 28% | 40% | 0% | 0% | 0% | 0% | 0% | 1% | 10% | 0% |
| Mensual | 5% | 2% | 1% | 1% | 4% | 14% | 37% | 22% | 1% | 0% | 0% | 1% | 2% | 2% | 5% | 2% |

| DIRECCIÓN DEL VIENTO EN EL MES ORDENADA DE MAYOR A MENOR PREDOMINANCIA | | | | | | | | | | | | | | | | |
|--|-----|-----|-----|----|----|----|-----|-----|-----|----|----|-----|-----|----|----|-----|
| R. V. | SE | SSE | ESE | N | NO | E | NNE | NNO | ONO | O | NE | ENE | OSO | S | SO | SSO |
| F. R. | 37% | 22% | 14% | 5% | 5% | 4% | 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.