



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 NIZA

CÓDIGO: EMM-12

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 ²) | | ET. (mm) |
|------------------|---------------------------|-------------|-------------|------------|------------|--------------|----------------------|-------------|-------------|--------------|-------------------------------------|--------------|-------------|
| | Máxima | Media | Mínima | Máxima | Media | Media | Máxima | Media | Mínima | Suma | Máxima | Media | Suma |
| 1 | 22.9 | 18.2 | 15.1 | 3.1 | 0.7 | 783.7 | 87.0 | 71.0 | 48.0 | 0.0 | 988.0 | 430.5 | 3.6 |
| 2 | 21.4 | 17.1 | 13.7 | 3.6 | 0.6 | 784.7 | 87.0 | 74.8 | 52.0 | 0.0 | 1178.0 | 348.9 | 2.9 |
| 3 | 19.3 | 15.8 | 13.6 | 3.1 | 0.5 | 785.8 | 92.0 | 84.4 | 73.0 | 2.0 | 1004.0 | 241.5 | 1.9 |
| 4 | 21.8 | 16.6 | 13.8 | 3.6 | 0.6 | 785.7 | 90.0 | 79.2 | 59.0 | 0.0 | 1241.0 | 291.2 | 2.4 |
| 5 | 23.3 | 17.8 | 13.3 | 3.6 | 0.7 | 784.3 | 88.0 | 74.0 | 51.0 | 0.0 | 1241.0 | 544.7 | 4.4 |
| 6 | 21.2 | 17.3 | 14.6 | 3.6 | 0.5 | 783.8 | 90.0 | 80.4 | 57.0 | 0.0 | 1113.0 | 340.5 | 2.6 |
| 7 | 20.6 | 16.5 | 14.4 | 2.7 | 0.4 | 784.6 | 94.0 | 86.5 | 73.0 | 1.4 | 1021.0 | 249.6 | 1.8 |
| 8 | 18.8 | 15.0 | 12.9 | 3.6 | 0.7 | 786.8 | 96.0 | 92.0 | 81.0 | 10.0 | 1395.0 | 239.6 | 1.6 |
| 9 | 21.9 | 16.2 | 13.2 | 4.5 | 0.6 | 786.4 | 95.0 | 83.5 | 64.0 | 16.0 | 958.0 | 362.5 | 2.8 |
| 10 | 23.1 | 16.2 | 12.6 | 5.8 | 1.0 | 784.8 | 96.0 | 87.4 | 71.0 | 22.2 | 1252.0 | 559.8 | 3.9 |
| 11 | 20.1 | 15.9 | 13.1 | 3.1 | 0.5 | 786.7 | 96.0 | 89.8 | 76.0 | 2.2 | 1359.0 | 270.8 | 2.0 |
| 12 | 20.5 | 16.9 | 14.6 | 2.7 | 0.4 | 787.1 | 95.0 | 83.6 | 71.0 | 0.4 | 1273.0 | 261.8 | 2.0 |
| 13 | 23.0 | 18.1 | 14.7 | 3.1 | 0.7 | 785.4 | 83.0 | 73.1 | 52.0 | 0.0 | 1222.0 | 446.4 | 3.9 |
| 14 | 22.2 | 17.4 | 14.7 | 3.1 | 0.6 | 783.3 | 93.0 | 81.2 | 67.0 | 0.6 | 1213.0 | 373.7 | 2.9 |
| 15 | 21.9 | 17.4 | 14.1 | 3.1 | 0.5 | 784.3 | 92.0 | 80.2 | 62.0 | 0.2 | 1218.0 | 275.1 | 2.3 |
| 16 | 18.6 | 16.2 | 14.4 | 3.1 | 0.5 | 784.7 | 94.0 | 88.4 | 79.0 | 1.4 | 793.0 | 210.3 | 1.6 |
| 17 | 19.6 | 16.1 | 13.5 | 3.1 | 0.4 | 785.1 | 95.0 | 88.9 | 76.0 | 3.0 | 1197.0 | 289.3 | 2.0 |
| 18 | 18.6 | 15.3 | 14.1 | 3.1 | 0.5 | 786.1 | 96.0 | 94.1 | 84.0 | 6.2 | 766.0 | 220.3 | 1.5 |
| 19 | 20.1 | 16.1 | 13.4 | 3.6 | 0.4 | 785.4 | 96.0 | 90.6 | 73.0 | 2.2 | 1148.0 | 263.1 | 2.0 |
| 20 | 20.1 | 16.2 | 14.3 | 2.2 | 0.4 | 784.9 | 97.0 | 90.3 | 75.0 | 4.2 | 1389.0 | 213.7 | 1.6 |
| 21 | 21.3 | 17.4 | 14.3 | 3.6 | 0.6 | 784.4 | 94.0 | 83.8 | 70.0 | 0.0 | 1281.0 | 347.4 | 2.7 |
| 22 | 21.2 | 17.0 | 14.3 | 3.6 | 0.7 | 783.9 | 96.0 | 89.7 | 67.0 | 0.0 | 1002.0 | 293.5 | 2.2 |
| 23 | 22.6 | 16.5 | 13.3 | 4.9 | 0.7 | 783.8 | 95.0 | 88.7 | 72.0 | 16.8 | 1167.0 | 283.8 | 2.1 |
| 24 | 20.7 | 16.1 | 14.6 | 3.6 | 0.6 | 783.6 | 95.0 | 89.5 | 79.0 | 18.2 | 1317.0 | 250.1 | 1.8 |
| 25 | 18.3 | 16.0 | 14.4 | 2.2 | 0.3 | 784.2 | 96.0 | 91.0 | 85.0 | 8.6 | 784.0 | 176.5 | 1.2 |
| 26 | 21.2 | 16.9 | 14.7 | 3.1 | 0.5 | 784.8 | 95.0 | 87.8 | 68.0 | 0.4 | 1373.0 | 299.4 | 2.5 |
| 27 | 23.3 | 18.3 | 14.3 | 4.9 | 0.7 | 784.4 | 87.0 | 74.4 | 56.0 | 0.0 | 1341.0 | 605.2 | 4.8 |
| 28 | 22.1 | 17.9 | 14.7 | 3.6 | 0.5 | 782.8 | 90.0 | 81.8 | 69.0 | 0.0 | 1072.0 | 347.8 | 2.8 |
| 29 | 20.8 | 16.8 | 14.3 | 4.9 | 0.4 | 782.4 | 96.0 | 84.4 | 71.0 | 1.0 | 1085.0 | 251.9 | 2.0 |
| 30 | 21.4 | 17.5 | 14.2 | 4.0 | 0.6 | 782.5 | 92.0 | 82.4 | 70.0 | 0.0 | 1287.0 | 371.0 | 2.9 |
| Mensual | 23.3 | 16.8 | 12.6 | 5.8 | 0.6 | 784.7 | 97.0 | 84.2 | 48.0 | 117.0 | 1395.0 | 322.0 | 74.5 |

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 NIZA

CÓDIGO: EMM-12

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

| DIRECCIÓN DEL VIENTO EN EL MES ORDENADA DE MAYOR A MENOR PREDOMINANCIA | | | | | | | | | | | | | | | | |
|--|-----|-----|-----|----|----|-----|----|-----|-----|----|----|----|-----|----|-----|-----|
| R. V. | NO | NNO | ONO | N | O | OSO | E | ESE | SSE | SE | NE | SO | NNE | S | ENE | SSO |
| F. R. | 18% | 12% | 12% | 7% | 7% | 6% | 5% | 5% | 5% | 5% | 4% | 3% | 3% | 3% | 3% | 2% |

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



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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 | 1% | 1% | 1% | 0% | 17% | 26% | 8% | 29% | 1% | 0% | 0% | 0% | 0% | 0% | 6% | 9% |
| 2 | 15% | 3% | 18% | 0% | 21% | 26% | 10% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 2% | 2% |
| 3 | 10% | 2% | 16% | 27% | 19% | 17% | 3% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 6% |
| 4 | 3% | 12% | 1% | 4% | 36% | 20% | 15% | 4% | 0% | 1% | 0% | 0% | 0% | 0% | 0% | 5% |
| 5 | 0% | 0% | 0% | 1% | 6% | 67% | 6% | 0% | 0% | 0% | 0% | 0% | 3% | 1% | 16% | 1% |
| 6 | 6% | 1% | 8% | 3% | 20% | 19% | 22% | 1% | 0% | 0% | 0% | 0% | 0% | 19% | 1% | 0% |
| 7 | 1% | 26% | 1% | 23% | 0% | 28% | 6% | 0% | 0% | 0% | 6% | 0% | 0% | 0% | 1% | 8% |
| 8 | 31% | 0% | 5% | 12% | 5% | 24% | 12% | 7% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 3% |
| 9 | 3% | 3% | 17% | 3% | 5% | 32% | 15% | 5% | 3% | 5% | 6% | 0% | 0% | 0% | 0% | 3% |
| 10 | 9% | 1% | 28% | 2% | 7% | 13% | 13% | 1% | 7% | 1% | 0% | 0% | 3% | 4% | 0% | 11% |
| 11 | 1% | 16% | 17% | 13% | 19% | 22% | 0% | 0% | 6% | 0% | 0% | 0% | 0% | 0% | 1% | 6% |
| 12 | 24% | 4% | 0% | 3% | 50% | 9% | 8% | 1% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 13 | 3% | 0% | 9% | 2% | 38% | 31% | 16% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% |
| 14 | 17% | 11% | 1% | 4% | 15% | 22% | 7% | 17% | 1% | 1% | 0% | 0% | 0% | 0% | 1% | 3% |
| 15 | 11% | 1% | 0% | 7% | 22% | 33% | 1% | 1% | 9% | 0% | 0% | 1% | 1% | 10% | 1% | 2% |
| 16 | 16% | 5% | 1% | 1% | 8% | 44% | 1% | 1% | 4% | 0% | 0% | 1% | 0% | 0% | 4% | 15% |
| 17 | 1% | 0% | 0% | 1% | 6% | 41% | 11% | 12% | 4% | 0% | 1% | 0% | 0% | 11% | 3% | 10% |
| 18 | 10% | 22% | 1% | 0% | 0% | 26% | 15% | 2% | 0% | 0% | 1% | 2% | 1% | 1% | 11% | 7% |
| 19 | 0% | 5% | 1% | 42% | 17% | 10% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 1% | 1% | 24% |
| 20 | 14% | 1% | 8% | 14% | 38% | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 0% | 0% | 1% | 24% |
| 21 | 31% | 3% | 0% | 19% | 1% | 17% | 4% | 0% | 10% | 0% | 0% | 1% | 0% | 1% | 4% | 8% |
| 22 | 10% | 7% | 1% | 3% | 30% | 9% | 4% | 31% | 0% | 1% | 1% | 0% | 3% | 0% | 0% | 0% |
| 23 | 10% | 14% | 3% | 10% | 28% | 26% | 8% | 0% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 24 | 16% | 12% | 3% | 3% | 18% | 42% | 3% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 1% |
| 25 | 24% | 8% | 0% | 1% | 21% | 20% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 25% |
| 26 | 1% | 16% | 48% | 3% | 8% | 17% | 6% | 0% | 0% | 1% | 0% | 0% | 0% | 0% | 0% | 0% |
| 27 | 0% | 0% | 3% | 24% | 28% | 24% | 1% | 2% | 0% | 0% | 0% | 0% | 4% | 12% | 1% | 0% |
| 28 | 4% | 8% | 15% | 18% | 40% | 10% | 3% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 1% |
| 29 | 18% | 0% | 5% | 4% | 24% | 33% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 3% | 13% |
| 30 | 16% | 0% | 9% | 2% | 48% | 17% | 3% | 0% | 1% | 0% | 0% | 0% | 1% | 0% | 0% | 3% |
| Mensual | 10% | 6% | 7% | 8% | 20% | 24% | 7% | 4% | 2% | 0% | 0% | 0% | 1% | 2% | 2% | 6% |

| DIRECCIÓN DEL VIENTO EN EL MES ORDENADA DE MAYOR A MENOR PREDOMINANCIA | | | | | | | | | | | | | | | | |
|--|-----|-----|-----|-----|----|----|-----|-----|-----|-----|----|----|----|----|-----|-----|
| R. V. | ESE | E | N | ENE | NE | SE | NNO | NNE | SSE | ONO | NO | S | O | SO | SSO | OSO |
| F. R. | 24% | 20% | 10% | 8% | 7% | 7% | 6% | 6% | 4% | 2% | 2% | 2% | 1% | 0% | 0% | 0% |

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