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Zakład Klimatologii i Ochrony Atmosfery
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Uniwersytet Wrocławski

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Położenie obserwatorium (observatory location)

Współrzędne geograficzne (coordinates): 15°30'44"E 50°27'47"N

Wysokość nad poziomem morza (altitude): 1364 m

Czas podawany w biuletynie jest czasem UTC.

UTC time is used in the bulletin.

| Parametr Parameter | Opis | Description |
|--------------------|--|---------------------------------------|
| D | Dzień | Day |
| T | Temperatura powietrza | Air temperature |
| Tmax | Temperatura maksymalna | Maximum temperature |
| Tmin | Temperatura minimalna | Minimum temperature |
| Tmin5 | Temperatura minimalna przy gruncie | Minimum temperature near the ground |
| U | Wilgotność względna | Relative humidity |
| e | Ciśnienie pary wodnej | Vapour pressure |
| P | Ciśnienie atmosferyczne na poziomie stacji | Atmospheric pressure at station level |
| V | Prędkość wiatru | Wind speed |
| α | Kierunek wiatru | Wind direction |
| R | Dobowa suma opadu | Precipitation |
| HS | Wysokość pokrywy śnieżnej | Snow depth |
| SD | Uśłonecznienie | Sunshine duration |
| PM2.5 | Stężenie pyłu zawieszonego PM2.5 | PM2.5 concentration |
| PM10 | Stężenie pyłu zawieszonego PM10 | PM10 concentration |
| O3 | Stężenie ozonu | O3 concentration |
| NA | Brak danych | No data |
| m | Średnia dobowa | Daily mean |
| • | Zjawisko nie wystąpiło | Lack of phenomenon |

Tabela 1. Temperatura powietrza (T), wilgotność względna (U) i ciśnienie atmosferyczne (P)**Table 1. Air temperature (T), relative humidity (U) and atmospheric pressure (P)**

| D | T [°C] | | | | | | | | U [%] | | | | | P [hPa] | | | | |
|----|--------|------|------|------|------|------|------|-------|-------|------|------|------|------|---------|--------|--------|--------|--------|
| | 00 | 06 | 12 | 18 | Tm | Tmax | Tmin | Tmin5 | 00 | 06 | 12 | 18 | Um | 00 | 06 | 12 | 18 | Pm |
| 1 | 10.8 | 6.8 | 15.5 | 8.0 | 10.3 | 16.2 | 3.4 | 1.7 | 87.8 | 89.3 | 60.7 | 83.1 | 80.2 | 1009.6 | 1008.8 | 1008.2 | 1007.1 | 1008.4 |
| 2 | 3.4 | 1.2 | 14.8 | 4.9 | 6.1 | 14.9 | 1.1 | 0.1 | 88.8 | 91.0 | 51.5 | 84.4 | 78.9 | 1007.1 | 1007.0 | 1006.8 | 1005.3 | 1006.6 |
| 3 | 3.6 | 1.4 | 15.6 | 6.0 | 6.7 | 17.6 | 1.1 | -0.3 | 89.5 | 90.6 | 46.3 | 80.7 | 76.8 | 1003.7 | 1002.0 | 1002.0 | 1000.3 | 1002.0 |
| 4 | 1.6 | 0.6 | 15.6 | 11.2 | 7.3 | 15.8 | 0.5 | -1.5 | 88.7 | 90.5 | 48.0 | 68.4 | 73.9 | 999.8 | 999.7 | 999.6 | 1000.3 | 999.9 |
| 5 | 9.6 | 2.4 | 15.9 | 9.2 | 9.3 | 16.3 | 2.4 | 0.5 | 70.0 | 87.9 | 54.7 | 79.4 | 73.0 | 1000.6 | 1000.3 | 1000.7 | 1002.0 | 1000.9 |
| 6 | 5.3 | 6.4 | 18.9 | 10.8 | 10.4 | 19.2 | 3.2 | 0.3 | 88.0 | 85.5 | 33.8 | 59.0 | 66.6 | 1003.3 | 1004.3 | 1006.0 | 1007.0 | 1005.2 |
| 7 | 3.3 | 1.1 | 15.3 | 7.9 | 6.9 | 16.6 | 0.8 | -0.7 | 84.6 | 90.1 | 41.8 | 66.5 | 70.8 | 1008.7 | 1009.7 | 1010.2 | 1010.2 | 1009.7 |
| 8 | 3.8 | 2.0 | 15.1 | 6.2 | 6.8 | 15.6 | 2.0 | -0.6 | 85.3 | 89.2 | 51.3 | 82.1 | 77.0 | 1010.7 | 1011.0 | 1011.4 | 1010.4 | 1010.9 |
| 9 | 3.0 | 1.2 | 13.2 | 4.9 | 5.6 | 14.2 | 1.1 | -0.1 | 89.4 | 90.8 | 61.2 | 86.4 | 82.0 | 1010.5 | 1010.7 | 1011.0 | 1011.5 | 1010.9 |
| 10 | 2.3 | 2.5 | 5.7 | 2.6 | 3.3 | 7.2 | 0.3 | -1.5 | 90.1 | 88.5 | 62.1 | 74.5 | 78.8 | 1014.0 | 1014.9 | 1015.8 | 1016.8 | 1015.4 |
| 11 | 1.5 | 1.2 | 5.4 | 0.3 | 2.1 | 6.5 | -1.9 | -4.1 | 67.3 | 66.1 | 48.8 | 71.3 | 63.4 | 1018.7 | 1020.3 | 1021.7 | 1022.2 | 1020.7 |
| 12 | -1.8 | -4.0 | 5.8 | -1.4 | -0.4 | 6.8 | -4.0 | -5.9 | 78.3 | 85.4 | 55.3 | 83.2 | 75.6 | 1023.0 | 1023.8 | 1024.8 | 1025.6 | 1024.3 |
| 13 | -3.1 | -4.8 | 6.3 | -0.4 | -0.5 | 7.1 | -4.9 | -6.9 | 88.4 | 88.1 | 55.0 | 80.7 | 78.1 | 1025.2 | 1024.7 | 1023.6 | 1022.1 | 1023.9 |
| 14 | -3.1 | -3.0 | 0.0 | 0.0 | -1.5 | 1.4 | -4.3 | -6.3 | 89.2 | 91.7 | 89.4 | 86.6 | 89.2 | 1020.2 | 1017.3 | 1015.4 | 1014.1 | 1016.8 |
| 15 | -1.4 | -0.7 | 0.9 | 1.3 | 0.0 | 1.5 | -1.6 | -1.3 | 91.5 | 91.4 | 84.7 | 80.7 | 87.1 | 1013.7 | 1013.7 | 1013.9 | 1014.4 | 1013.9 |
| 16 | 1.2 | 0.6 | 3.5 | 3.1 | 2.1 | 4.0 | 0.5 | -0.6 | 81.8 | 87.1 | 79.4 | 81.9 | 82.6 | 1014.3 | 1008.8 | 1008.2 | 1007.1 | 1009.6 |
| 17 | 1.4 | -0.8 | 5.9 | -1.7 | 1.2 | 6.4 | -1.9 | -3.5 | 87.3 | 90.8 | 69.1 | 87.7 | 83.7 | 1007.1 | 1007.0 | 1006.8 | 1005.3 | 1006.6 |
| 18 | 0.8 | 0.8 | 3.3 | 2.8 | 1.9 | 3.6 | 0.2 | 0.1 | 74.7 | 78.7 | 71.8 | 78.9 | 76.0 | 1003.7 | 1002.0 | 1002.0 | 1000.3 | 1002.0 |
| 19 | 1.8 | 2.5 | 5.3 | 3.7 | 3.3 | 6.9 | 1.8 | 1.4 | 88.1 | 86.4 | 76.7 | 84.1 | 83.8 | 999.8 | 999.7 | 999.6 | 1000.3 | 999.9 |
| 20 | 2.6 | 2.8 | 4.8 | 3.8 | 3.5 | 5.5 | 1.7 | 0.2 | 80.8 | 82.7 | 73.1 | 73.0 | 77.4 | 1000.6 | 1000.3 | 1000.7 | 1002.0 | 1000.9 |
| 21 | 1.9 | 0.8 | 6.0 | -0.4 | 2.1 | 6.3 | -4.0 | -6.0 | 80.3 | 86.0 | 58.6 | 82.4 | 76.8 | 1003.3 | 1004.3 | 1006.0 | 1007.0 | 1005.2 |
| 22 | -4.0 | -4.5 | 3.9 | 1.8 | -0.7 | 4.5 | -5.3 | -7.1 | 88.2 | 89.3 | 71.1 | 73.8 | 80.6 | 1008.7 | 1009.7 | 1010.2 | 1010.2 | 1009.7 |
| 23 | 0.1 | 0.9 | 2.6 | -2.0 | 0.4 | 3.4 | -4.5 | -6.5 | 82.4 | 78.0 | 67.9 | 85.8 | 78.5 | 1010.7 | 1011.0 | 1011.4 | 1010.4 | 1010.9 |
| 24 | -4.5 | -4.9 | 4.1 | 4.5 | -0.2 | 5.2 | -5.3 | -7.0 | 88.7 | 88.9 | 73.6 | 76.8 | 82.0 | 1010.5 | 1010.7 | 1011.0 | 1011.5 | 1010.9 |
| 25 | -0.5 | -2.7 | 10.8 | 1.6 | 2.3 | 11.2 | -2.9 | -4.8 | 86.8 | 90.3 | 56.7 | 76.3 | 77.5 | 1014.0 | 1014.9 | 1015.8 | 1016.8 | 1015.4 |
| 26 | 2.5 | 3.3 | 7.7 | 4.5 | 4.5 | 8.3 | 2.5 | 2.0 | 69.9 | 78.9 | 62.6 | 68.4 | 70.0 | 1018.7 | 1020.3 | 1021.7 | 1022.2 | 1020.7 |
| 27 | 5.0 | 5.2 | 10.2 | 8.2 | 7.2 | 10.6 | 4.8 | 3.9 | 70.8 | 70.8 | 51.4 | 52.0 | 61.3 | 1023.0 | 1023.8 | 1024.8 | 1025.6 | 1024.3 |
| 28 | 9.2 | 6.5 | 8.6 | 3.5 | 7.0 | 9.2 | -2.6 | -5.2 | 52.8 | 64.6 | 57.7 | 75.0 | 62.5 | 1025.2 | 1024.7 | 1023.6 | 1022.1 | 1023.9 |
| 29 | -2.5 | -3.7 | 8.6 | 2.3 | 1.2 | 8.7 | -4.4 | -6.7 | 88.1 | 89.0 | 52.9 | 74.0 | 76.0 | 1020.2 | 1017.3 | 1015.4 | 1014.1 | 1016.8 |
| 30 | -3.1 | -2.9 | 6.3 | 0.5 | 0.2 | 6.4 | -3.7 | -6.2 | 87.3 | 89.7 | 84.9 | 87.8 | 87.4 | 1013.7 | 1013.7 | 1013.9 | 1014.4 | 1013.9 |

Tabela 2. Prędkość (V) i kierunek (α) wiatru, dobową sumę opadu (R) i wysokość pokrywy śnieżnej (HS)
Table 2. Wind speed (V) and direction (α), daily sum of precipitation (R) and snow cover depth (HS)

| D | V [m/s] | | | | | | | α [1-32] | | | | R [mm] | SD [h] | Ew [mm] |
|----|---------|-----|-----|-----|-----|------|----|-----------------|----|----|----|--------|--------|---------|
| | 00 | 06 | 12 | 18 | Vm | Vmax | Vh | 00 | 06 | 12 | 18 | | | |
| 1 | 0.7 | 1.1 | 2.0 | 0.9 | 1.2 | 8.2 | 9 | 5 | 9 | 12 | 9 | • | 7.3 | NA |
| 2 | 1.1 | 0.0 | 2.2 | 0.0 | 0.8 | 6.7 | 12 | 8 | 0 | 13 | 0 | • | 7.9 | NA |
| 3 | 0.8 | 1.2 | 1.6 | 1.1 | 1.2 | 7.6 | 13 | 9 | 14 | 12 | 8 | • | 7.8 | NA |
| 4 | 0.6 | 0.0 | 2.6 | 1.3 | 1.1 | 9.7 | 9 | 9 | 0 | 14 | 17 | • | 6.4 | NA |
| 5 | 1.0 | 1.2 | 2.4 | 1.3 | 1.5 | 8.7 | 11 | 18 | 9 | 10 | 14 | • | 6.9 | NA |
| 6 | 0.9 | 1.1 | 2.4 | 2.2 | 1.6 | 7.1 | 9 | 7 | 10 | 14 | 9 | • | 8.1 | NA |
| 7 | 0.0 | 0.6 | 2.2 | 0.8 | 0.9 | 6.0 | 12 | 0 | 12 | 15 | 12 | • | 7.7 | NA |
| 8 | 1.2 | 0.6 | 2.1 | 0.9 | 1.2 | 5.8 | 11 | 14 | 13 | 15 | 7 | • | 7.9 | NA |
| 9 | 0.6 | 0.6 | 1.2 | 0.8 | 0.8 | 7.2 | 22 | 16 | 32 | 6 | 3 | • | 7.1 | NA |
| 10 | 3.1 | 2.3 | 2.6 | 2.7 | 2.7 | 8.8 | 22 | 6 | 10 | 8 | 6 | • | 2.7 | NA |
| 11 | 3.9 | 3.0 | 3.1 | 1.6 | 2.9 | 9.9 | 6 | 7 | 9 | 9 | 8 | • | 5.1 | NA |
| 12 | 1.7 | 1.1 | 1.6 | 0.6 | 1.2 | 5.0 | 12 | 8 | 8 | 7 | 6 | • | 7.6 | NA |
| 13 | 1.3 | 0.9 | 1.8 | 1.2 | 1.3 | 4.0 | 12 | 9 | 6 | 10 | 7 | • | 6.7 | NA |
| 14 | 1.7 | 1.1 | 1.0 | 0.0 | 0.9 | 4.0 | 3 | 8 | 14 | 15 | 0 | • | 0.0 | NA |
| 15 | 1.2 | 0.0 | 0.0 | 0.9 | 0.5 | 4.4 | 21 | 2 | 0 | 0 | 15 | • | 0.0 | NA |
| 16 | 1.5 | 1.0 | 1.1 | 1.9 | 1.4 | 5.3 | 16 | 18 | 18 | 11 | 14 | • | 0.0 | NA |
| 17 | 1.0 | 1.2 | 1.1 | 0.7 | 1.0 | 5.5 | 6 | 10 | 13 | 15 | 26 | • | 4.9 | NA |
| 18 | 1.4 | 1.6 | 1.4 | 1.1 | 1.4 | 6.7 | 9 | 19 | 17 | 25 | 7 | • | 0.0 | NA |
| 19 | 0.0 | 0.8 | 1.8 | 0.7 | 0.8 | 4.3 | 8 | 0 | 16 | 16 | 12 | • | 0.4 | NA |
| 20 | 0.0 | 0.8 | 0.8 | 1.0 | 0.6 | 4.5 | 9 | 0 | 11 | 12 | 13 | • | 0.0 | NA |
| 21 | 1.3 | 1.5 | 2.1 | 1.5 | 1.6 | 5.7 | 10 | 6 | 7 | 15 | 9 | • | 2.7 | NA |
| 22 | 1.0 | 1.4 | 2.0 | 1.6 | 1.5 | 6.5 | 15 | 7 | 6 | 9 | 12 | • | 4.2 | NA |
| 23 | 2.1 | 2.5 | 2.2 | 0.6 | 1.8 | 10.4 | 6 | 8 | 11 | 9 | 10 | • | 1.9 | NA |
| 24 | 0.8 | 0.6 | 1.6 | 1.7 | 1.2 | 3.8 | 17 | 13 | 13 | 17 | 17 | • | 0.8 | NA |
| 25 | 1.0 | 0.7 | 2.9 | 1.6 | 1.6 | 6.9 | 21 | 15 | 13 | 15 | 16 | • | 6.1 | NA |
| 26 | 2.2 | 1.7 | 2.9 | 3.1 | 2.5 | 13.1 | 11 | 20 | 22 | 23 | 19 | 0.0 | 1.8 | NA |
| 27 | 3.5 | 2.6 | 4.0 | 1.7 | 2.9 | 17.8 | 20 | 18 | 18 | 18 | 21 | 0.0 | 3.7 | NA |
| 28 | 6.1 | 4.5 | 3.3 | 1.2 | 3.8 | 13.5 | 1 | 25 | 25 | 25 | 21 | • | 4.7 | NA |
| 29 | 0.0 | 1.7 | 2.6 | 2.1 | 1.6 | 6.5 | 10 | 0 | 9 | 14 | 15 | • | 6.1 | NA |
| 30 | 0.0 | 1.2 | 1.9 | 1.2 | 1.1 | 6.2 | 9 | 0 | 15 | 24 | 23 | 0.0 | 1.0 | NA |

Tabela 3. Liczba dni charakterystycznych w bieżącym miesiącu oraz średnia liczba dni charakterystycznych dla tego miesiąca w wieloleciu 1946-2011 oraz 1971-2000**Table 3. Number of days with threshold value in current month and monthly average number of days with threshold value in the 1946-2011 and 1971-2000 period**

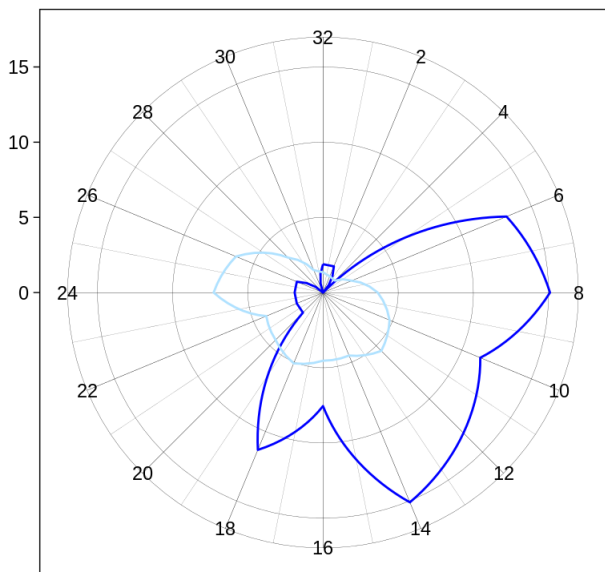
| Nazwa / Name | 1946-2011 | 1971-2000 | 2011-XI |
|------------------------------|-----------|-----------|---------|
| Przymrozkowe (Tmin < 0°C) | 12 | 13 | 14 |
| Mroźne (Tmax < 0°C) | 1 | 2 | 0 |
| Bardzo mroźne (Tmin < -10°C) | 0 | 0 | 0 |
| Ciepłe (Tmax > 20°C) | 0 | 0 | 0 |
| Gorące (Tmax > 25°C) | 0 | 0 | 0 |
| Upalne (Tmax > 30°C) | 0 | 0 | 0 |
| R > 1 mm | 8 | 8 | 0 |
| R > 10 mm | 1 | 1 | 0 |

Tabela 4. Wartości średnie i ekstrema miesięczne na tle charakterystyk miesięcznych dla wielolecia 1946-2011 i 1971-2000**Table 4. Average and extreme monthly values vs. average monthly characteristics for the 1946-2011 and 1971-2000 period**

| | Opis | Description | 1946-2011 | 1971-2000 | 2011-XI |
|------------|---------------------------|-----------------------------|---------------------|---------------------|---------------------|
| T [°C] | Średnia miesięczna | Monthly average | 4.1 | 3.8 | 3.6 |
| | Średnia maksymalna | Average maximum temperature | 7.7 | 7.3 | 9.2 |
| | Średnia minimalna | Average minimum temperature | 1.0 | 0.7 | -0.8 |
| | Maksymalna średnia dobowa | Maximum daily temperature | 16.3 (1968-11-03) | 13.8 (1976-11-07) | 10.4 (2011-11-06) |
| | Absolutne maksimum | Absolute maximum | 20.4 (1968-11-01) | 20.0 (1977-11-11) | 19.2 (2011-11-06) |
| | Minimalna średnia dobowa | Maximum daily temperature | -8.7 (1968-11-03) | -8.7 (1976-11-07) | -1.5 (2011-11-06) |
| | Absolutne minimum | Absolute minimum | -15.4 (1988-11-23) | -15.4 (1988-11-23) | -5.3 (2011-11-22) |
| P [hPa] | Średnia miesięczna | Monthly average | 1001.3 | 1001.8 | 1011.3 |
| | Maksimum | Maximum | 1025.3 (1998-11-21) | 1025.3 (1998-11-21) | 1024.3 (2011-11-12) |
| | Minimum | Minimum | 969.6 (1983-11-28) | 969.6 (1983-11-28) | 999.9 (2011-11-04) |
| V [m/s] | Średnia miesięczna | Monthly average | 2.4 | 2.5 | 1.5 |
| | Średnie maksimum | Average maximum | 5.3 | 7.1 | 7.3 |
| | Absolutne maksimum | Absolute maximum | 23.0 (1973-11-25) | 23.0 (1973-11-25) | 17.8 (2011-11-27) |
| R [mm] | Suma miesięczna | Monthly sum | 29.8 | 27.0 | -27.0 |
| | Maksymalna suma dobowa | Maximum daily sum | 33.5 (1951-11-02) | 23.9 (1987-11-19) | 0.0 (2011-11-26) |

(a) Wind direction frequency [%]

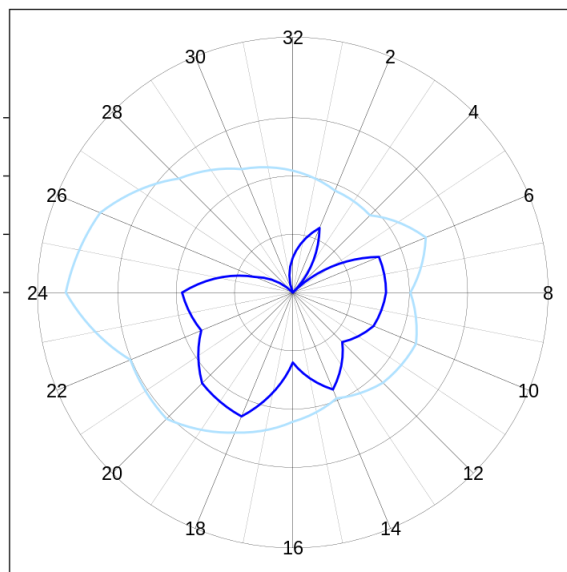
Calm: current NA % 1946-2011 10.7 %



— November 1946-2011 — November 2011

(b) Wind velocity [m/s]

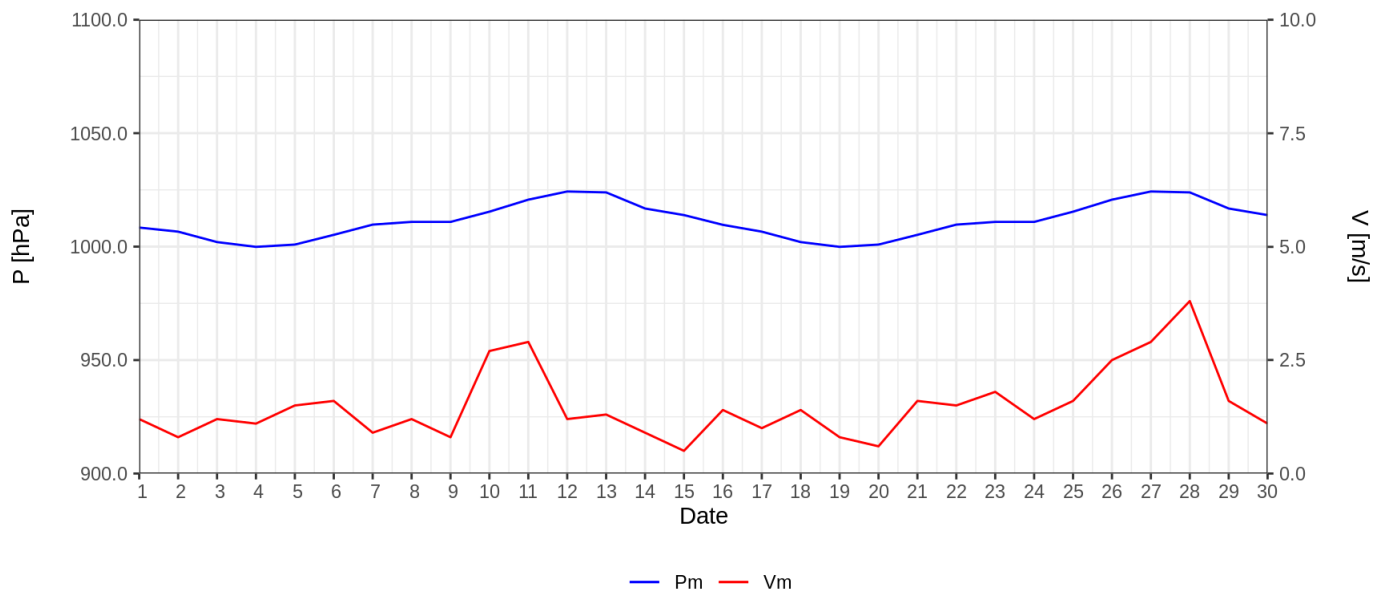
Calm: current NA % 1946-2011 10.7 %



— November 1946-2011 — November 2011

Ryc. 1. Częstość (a) i prędkość (b) wiatru w kierunkach

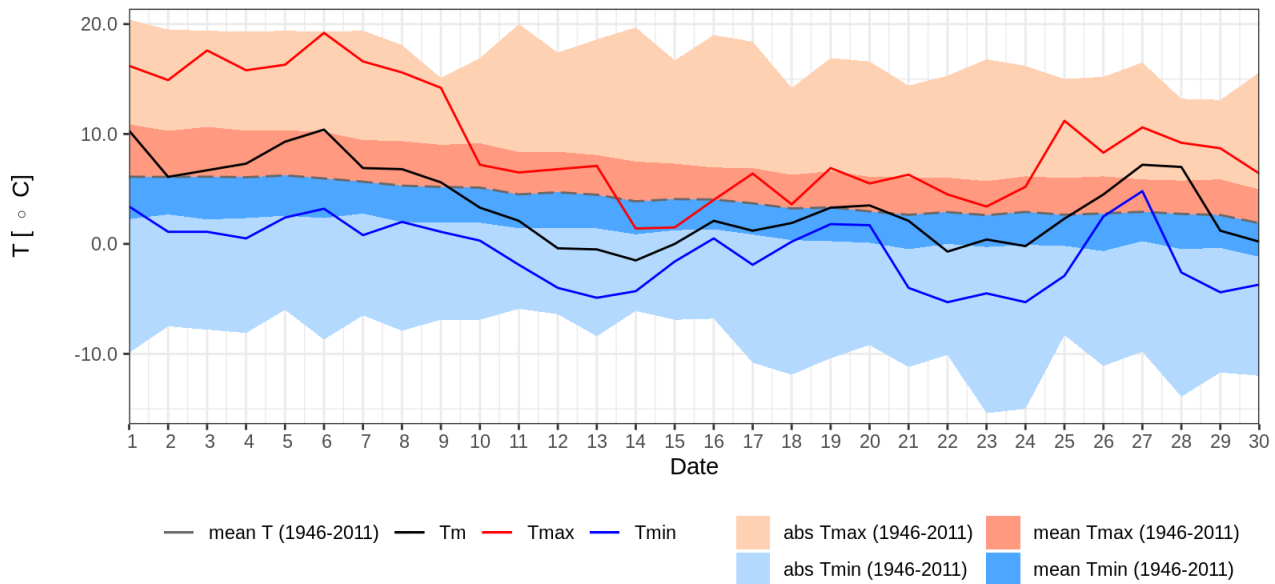
Fig. 1. Wind direction frequency (a) and wind velocity (b) for a given wind direction



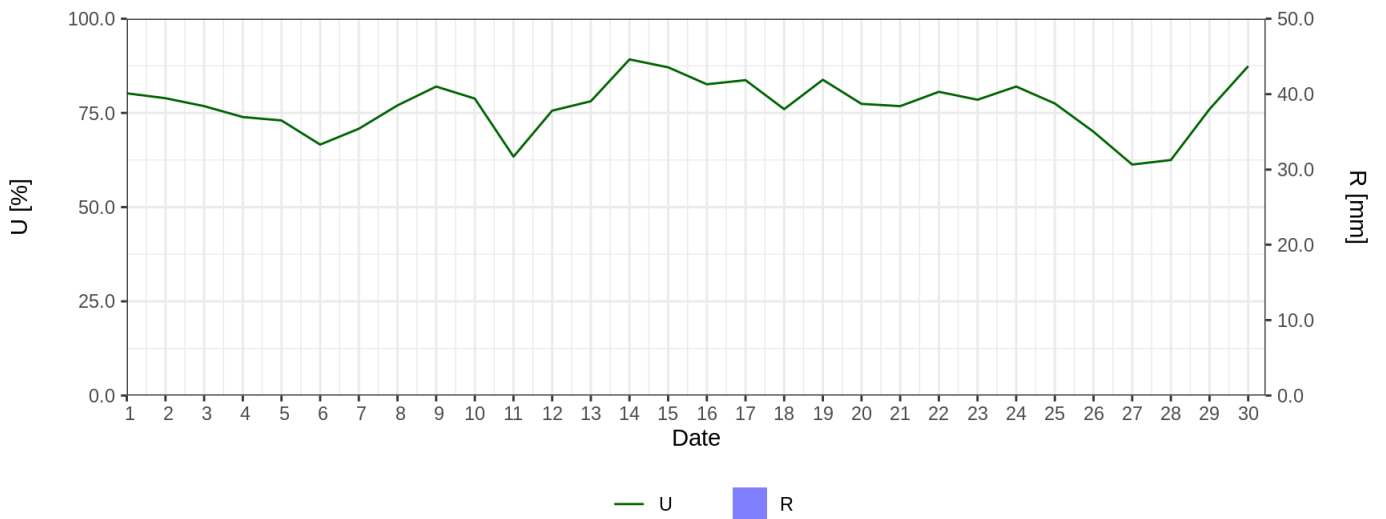
— Pm — Vm

Ryc. 1. Średnie dobowe ciśnienie atmosferyczne

Fig. 1. Daily average air pressure



Ryc. 2. Średnia dobowa, minimalna i maksymalna temperatura powietrza dla miesiąca na tle danych z wielolecia 1946-2011
Fig. 2. Daily mean, maximum and minimum air temperature for given month and 1946-2011 period



Ryc. 3. Średnia dobowa wilgotność względna powietrza i dobowe sumy opadu atmosferycznego
Fig. 3. Mean daily relative humidity and daily sum of precipitation