

Biuletyn Meteorologiczny Meteorological Bulletin

Karkonoska Stacja Meteorologiczna
Uniwersytetu Wrocławskiego
na Szrenicy
1988/8

Wydawca:

ZAKŁAD KLIMATOLOGII I OCHRONY ATMOSFERY
INSTYTUT GEOGRAFII I ROZWOJU REGIONALNEGO
UNIwersYTET WROCLAWSKI

Published by:

DEPARTMENT OF CLIMATOLOGY AND ATMOSPHERE PROTECTION
INSTITUTE OF GEOGRAPHY AND REGIONAL DEVELOPMENT
UNIVERSITY OF WROCLAW



Redakcja (editors):

Anetta Drzeniecka-Osiadacz, Tymoteusz Sawiński, Arkadiusz Remut

Dane kontaktowe (Contact)

ul. Kosiby 8, 51-621 Wrocław. Tel. +48-71-348-54-41, Fax: +48-71-372-94-98
mail: info.meteo@uwr.edu.pl, www: <https://www.meteo.uni.wroc.pl>

Zakład Klimatologii i Ochrony Atmosfery
Instytut Rozwoju Geografii i Rozwoju Regionalnego
Wydział Nauk o Ziemi i Kształtowania Środowiska
Uniwersytet Wrocławski
Publikacja dostępna na licencji CC BY-NC-SA 4.0

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 | Usłonecznienie | Sunshine duration |
| NA | Brak danych | No data |
| m | Średnia dobową | 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 | 07 | 12 | 18 | Tm | Tmax | Tmin | Tmin5 | 00 | 06 | 12 | 18 | Um | 00 | 06 | 12 | 18 | Pm |
| 1 | 9.7 | 12.8 | 16.4 | 15.3 | 13.6 | 18.1 | 9.4 | 5.5 | 75 | 64 | 62 | 61 | 66 | 869.2 | 868.8 | 868.9 | 867.0 | 868.5 |
| 2 | 13.5 | 13.2 | 15.6 | 11.1 | 13.4 | 16.5 | 11.1 | 9.7 | 62 | 73 | 68 | 100 | 76 | 864.3 | 861.8 | 862.8 | 861.7 | 862.6 |
| 3 | 10.0 | 10.6 | 9.2 | 2.9 | 8.2 | 11.4 | 2.7 | 3.3 | 99 | 100 | 100 | 100 | 100 | 861.3 | 857.8 | 856.2 | 859.0 | 858.6 |
| 4 | 4.0 | 4.4 | 8.1 | 7.6 | 6.0 | 10.9 | 1.8 | 1.3 | 98 | 96 | 74 | 82 | 88 | 862.4 | 863.3 | 864.1 | 864.0 | 863.5 |
| 5 | 5.8 | 8.3 | 10.0 | 8.4 | 8.1 | 11.5 | 4.9 | 1.1 | 85 | 78 | 73 | 91 | 82 | 863.8 | 862.9 | 863.9 | 865.2 | 864.0 |
| 6 | 5.2 | 7.0 | 9.2 | 9.4 | 7.7 | 10.0 | 4.8 | 3.1 | 95 | 95 | 100 | 100 | 98 | 866.3 | 867.0 | 868.1 | 868.6 | 867.5 |
| 7 | 9.3 | 10.5 | 15.8 | 13.1 | 12.2 | 16.8 | 8.1 | 6.5 | 100 | 99 | 70 | 84 | 88 | 868.4 | 868.0 | 868.0 | 867.8 | 868.0 |
| 8 | 11.3 | 12.3 | 14.6 | 12.8 | 12.8 | 15.7 | 10.4 | 0.8 | 95 | 91 | 87 | 93 | 92 | 867.0 | 866.1 | 866.0 | 864.6 | 865.9 |
| 9 | 11.4 | 13.2 | 16.0 | 14.2 | 13.7 | 17.3 | 10.6 | 2.7 | 76 | 81 | 73 | 73 | 76 | 863.7 | 863.7 | 864.5 | 864.8 | 864.2 |
| 10 | 12.6 | 14.8 | 15.4 | 14.8 | 14.4 | 18.6 | 12.0 | 0.8 | 69 | 63 | 80 | 67 | 70 | 865.2 | 864.8 | 864.9 | 863.7 | 864.6 |
| 11 | 14.0 | 15.8 | 18.3 | 14.8 | 15.7 | 20.0 | 12.8 | 9.4 | 78 | 72 | 68 | 81 | 75 | 863.3 | 862.6 | 862.6 | 862.9 | 862.9 |
| 12 | 13.7 | 14.0 | 17.4 | 12.8 | 14.5 | 19.1 | 12.7 | 11.3 | 93 | 96 | 81 | 93 | 91 | 864.1 | 863.9 | 864.1 | 861.9 | 863.5 |
| 13 | 12.8 | 11.4 | 14.8 | 12.4 | 12.9 | 15.9 | 11.1 | 10.6 | 95 | 98 | 79 | 79 | 88 | 862.4 | 863.0 | 864.3 | 865.9 | 863.9 |
| 14 | 10.2 | 12.7 | 17.9 | 15.6 | 14.1 | 18.7 | 9.8 | 2.6 | 64 | 55 | 55 | 53 | 57 | 867.2 | 867.4 | 867.5 | 866.2 | 867.1 |
| 15 | 15.8 | 17.8 | 20.8 | 17.1 | 17.9 | 21.3 | 14.7 | 11.2 | 69 | 69 | 59 | 78 | 69 | 864.7 | 863.8 | 865.0 | 864.8 | 864.6 |
| 16 | 12.8 | 15.1 | 17.8 | 11.7 | 14.4 | 18.4 | 11.7 | 5.7 | 94 | 82 | 80 | 100 | 89 | 865.9 | 865.2 | 865.2 | 864.8 | 865.3 |
| 17 | 7.4 | 7.0 | 11.0 | 8.6 | 8.5 | 12.9 | 5.2 | 2.6 | 93 | 88 | 68 | 77 | 82 | 865.5 | 865.7 | 867.3 | 867.4 | 866.5 |
| 18 | 7.1 | 8.4 | 13.9 | 12.2 | 10.4 | 15.1 | 6.6 | 1.6 | 93 | 82 | 63 | 63 | 75 | 867.5 | 867.1 | 867.7 | 866.3 | 867.1 |
| 19 | 10.2 | 13.3 | 17.7 | 15.9 | 14.3 | 18.2 | 9.3 | 1.5 | 56 | 60 | 48 | 60 | 56 | 865.1 | 863.5 | 861.8 | 859.8 | 862.5 |
| 20 | 14.7 | 10.6 | 11.2 | 8.9 | 11.4 | 16.2 | 8.9 | 8.5 | 75 | 100 | 94 | 100 | 92 | 859.0 | 859.4 | 858.3 | 858.3 | 858.8 |
| 21 | 7.8 | 7.1 | 10.0 | 8.8 | 8.4 | 11.4 | 7.0 | 6.7 | 100 | 100 | 93 | 87 | 95 | 856.3 | 857.0 | 858.8 | 859.4 | 857.9 |
| 22 | 7.5 | 7.6 | 8.9 | 8.2 | 8.1 | 10.6 | 6.8 | 5.5 | 94 | 87 | 92 | 99 | 93 | 860.7 | 861.7 | 861.8 | 861.5 | 861.4 |
| 23 | 6.9 | 6.7 | 5.1 | 4.3 | 5.8 | 8.3 | 4.2 | 4.1 | 100 | 100 | 100 | 94 | 99 | 861.5 | 861.6 | 861.9 | 862.0 | 861.8 |
| 24 | 3.1 | 5.1 | 9.3 | 7.1 | 6.2 | 10.4 | 2.7 | -0.3 | 93 | 82 | 71 | 83 | 82 | 861.6 | 860.3 | 859.2 | 857.2 | 859.6 |
| 25 | 6.5 | 7.7 | 7.5 | 6.1 | 7.0 | 10.4 | 5.7 | 3.1 | 76 | 70 | 98 | 100 | 86 | 855.2 | 852.1 | 850.7 | 852.1 | 852.5 |
| 26 | 5.1 | 3.4 | 4.5 | 3.5 | 4.1 | 6.2 | 2.6 | 1.7 | 100 | 100 | 99 | 99 | 100 | 855.2 | 855.2 | 856.0 | 856.4 | 855.7 |
| 27 | 4.1 | 3.7 | 6.1 | 5.6 | 4.9 | 7.7 | 3.3 | 2.7 | 100 | 100 | 100 | 90 | 98 | 857.9 | 859.3 | 862.6 | 864.2 | 861.0 |
| 28 | 5.4 | 9.0 | 14.9 | 11.7 | 10.3 | 16.2 | 4.6 | 1.4 | 99 | 90 | 78 | 77 | 86 | 864.6 | 863.7 | 863.3 | 860.0 | 862.9 |
| 29 | 12.0 | 11.9 | 14.5 | 11.9 | 12.6 | 15.8 | 10.2 | 8.3 | 76 | 88 | 91 | 99 | 89 | 858.9 | 858.6 | 859.0 | 858.1 | 858.6 |
| 30 | 9.4 | 5.3 | 7.2 | 6.7 | 7.2 | 12.3 | 5.1 | 5.0 | 100 | 99 | 96 | 85 | 95 | 859.0 | 861.3 | 864.2 | 865.0 | 862.4 |
| 31 | 5.8 | 7.9 | 12.3 | 10.5 | 9.1 | 13.9 | 5.2 | -3.3 | 86 | 61 | 65 | 88 | 75 | 865.5 | 865.7 | 865.4 | 863.6 | 865.0 |

Tabela 2. Prędkość (V) i kierunek (α) wiatru, dobową sumą 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] | HS[cm] |
|----|---------|----|----|------|-----------------|----|----|-------|--------|
| | 06 | 12 | 18 | Vm | 06 | 12 | 18 | | |
| 1 | 5 | 8 | 7 | 6.7 | 22 | 22 | 18 | • | NA |
| 2 | 12 | 8 | 2 | 7.3 | 24 | 24 | 4 | 0.9 | NA |
| 3 | 10 | 6 | 6 | 7.3 | 20 | 22 | 2 | 19.4 | NA |
| 4 | 2 | 2 | 5 | 3.0 | 30 | 24 | 22 | • | NA |
| 5 | 9 | 7 | 5 | 7.0 | 24 | 26 | 28 | • | NA |
| 6 | 7 | 5 | 3 | 5.0 | 26 | 28 | 28 | • | NA |
| 7 | 4 | 4 | 4 | 4.0 | 26 | 26 | 28 | 0.0 | NA |
| 8 | 2 | 3 | 2 | 2.3 | 30 | 4 | 4 | • | NA |
| 9 | 2 | 3 | 1 | 2.0 | 30 | 6 | 2 | • | NA |
| 10 | 4 | 7 | 6 | 5.7 | 24 | 22 | 22 | 1.0 | NA |
| 11 | 12 | 10 | 8 | 10.0 | 22 | 22 | 22 | 0.0 | NA |
| 12 | 10 | 11 | 12 | 11.0 | 22 | 20 | 22 | 4.2 | NA |
| 13 | 10 | 12 | 3 | 8.3 | 22 | 22 | 28 | • | NA |
| 14 | 6 | 7 | 7 | 6.7 | 22 | 20 | 20 | • | NA |
| 15 | 10 | 8 | 6 | 8.0 | 22 | 24 | 22 | • | NA |
| 16 | 4 | 3 | 5 | 4.0 | 24 | 22 | 4 | • | NA |
| 17 | 5 | 4 | 3 | 4.0 | 30 | 28 | 28 | • | NA |
| 18 | 3 | 2 | 2 | 2.3 | 28 | 4 | 28 | • | NA |
| 19 | 8 | 16 | 13 | 12.3 | 20 | 20 | 20 | 2.7 | NA |
| 20 | 16 | 12 | 10 | 12.7 | 20 | 22 | 20 | 30.2 | NA |
| 21 | 15 | 13 | 13 | 13.7 | 22 | 22 | 22 | • | NA |
| 22 | 3 | 1 | 4 | 2.7 | 24 | 2 | 26 | 2.3 | NA |
| 23 | 3 | 5 | 5 | 4.3 | 30 | 28 | 28 | 0.2 | NA |
| 24 | 5 | 11 | 7 | 7.7 | 24 | 22 | 16 | • | NA |
| 25 | 8 | 10 | 8 | 8.7 | 16 | 20 | 20 | 3.0 | NA |
| 26 | 8 | 9 | 12 | 9.7 | 22 | 24 | 24 | 11.9 | NA |
| 27 | 6 | 4 | 4 | 4.7 | 24 | 24 | 24 | 1.0 | NA |
| 28 | 3 | 2 | 11 | 5.3 | 20 | 20 | 20 | 2.5 | NA |
| 29 | 15 | 4 | 8 | 9.0 | 22 | 20 | 20 | 34.1 | NA |
| 30 | 6 | 5 | 2 | 4.3 | 32 | 32 | 32 | 0.3 | NA |
| 31 | 1 | 5 | 15 | 7.0 | 4 | 20 | 16 | • | NA |

Tabela 3. Liczba dni charakterystycznych w bieżącym miesiącu oraz średnia liczba dni charakterystycznych dla tego miesiąca w wieloleciu 1960 - 2000

Table 3. Number of days with threshold value in current month and monthly average number of days with threshold value in the 1960- 2000 period

| Nazwa / Name | 1960-2000 | 1988-VIII |
|---------------------------------------------------|-----------|-----------|
| Przymrozkowe ($T_{min} < 0^{\circ}\text{C}$) | 0 | 0 |
| Mroźne ($T_{max} < 0^{\circ}\text{C}$) | 0 | 0 |
| Bardzo mroźne ($T_{min} < -10^{\circ}\text{C}$) | 0 | 0 |
| Ciepłe ($T_{max} > 20^{\circ}\text{C}$) | 3 | 1 |
| Gorące ($T_{max} > 25^{\circ}\text{C}$) | 0 | 0 |
| $R > 1 \text{ mm}$ | 13 | 9 |
| $R > 10 \text{ mm}$ | 5 | 4 |
| Liczba dni z pokrywą śnieżną | 0 | 0 |

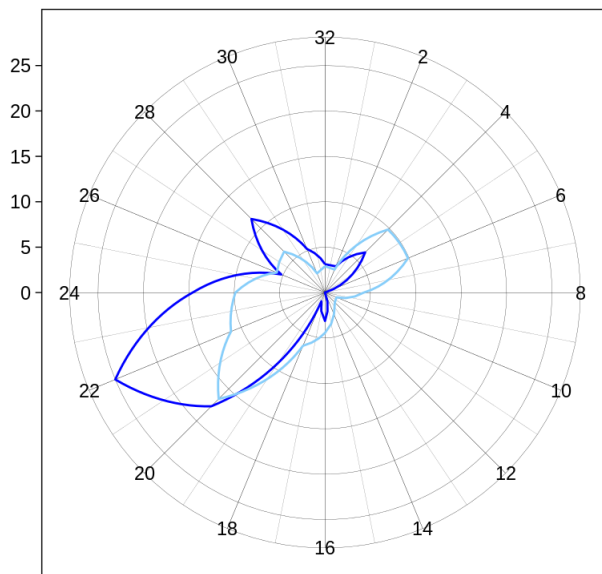
Tabela 4. Wartości średnie i ekstrema miesięczne na tle charakterystyk miesięcznych dla wielolecia 1960 - 2000

Table 4. Average and extreme monthly values vs. average monthly characteristics for the 1960- 2000 period

| | Opis | Description | 1960-2000 | 1988-VIII |
|--------------------------|---------------------------|-----------------------|--------------------|--------------------|
| T [$^{\circ}\text{C}$] | Średnia miesięczna | Monthly average | 10.4 | 10.6 |
| | Maksymalna średnia dobowa | Maximum daily average | 14.0 | 14.4 |
| | Minimalna średnia dobowa | Minimum daily average | 7.7 | 7.6 |
| | Średnie maksimum | Average maximum | 22.0 (1994-08-01) | 17.9 (1988-08-15) |
| | Absolutne maksimum | Absolute maximum | 26.5 (1992-08-08) | 21.3 (1988-08-15) |
| | Średnie minimum | Average minimum | 1.1 (1994-08-01) | 4.1 (1988-08-15) |
| | Absolutne minimum | Absolute minimum | -0.3 (1978-08-28) | 1.8 (1988-08-04) |
| P [hPa] | Średnia miesięczna | Monthly average | 864.3 | 862.9 |
| | Maksimum | Maximum | 877.2 (1981-08-04) | 868.5 (1988-08-01) |
| | Minimum | Minimum | 842.5 (1978-08-08) | 852.5 (1988-08-25) |
| V [m/s] | Średnia miesięczna | Monthly average | 7.4 | 6.7 |
| | Średnie maksimum | Average maximum | 9.7 | 8.9 |
| | Absolutne maksimum | Absolute maximum | 30.0 (1981-08-20) | 16.0 (1988-08-19) |
| R [mm] | Suma miesięczna | Monthly sum | 145.0 | 113.7 |
| | Maksymalna suma dobowa | Maximum daily sum | 123.5 (1978-08-08) | 34.1 (1988-08-29) |

(a) Wind direction frequency [%]

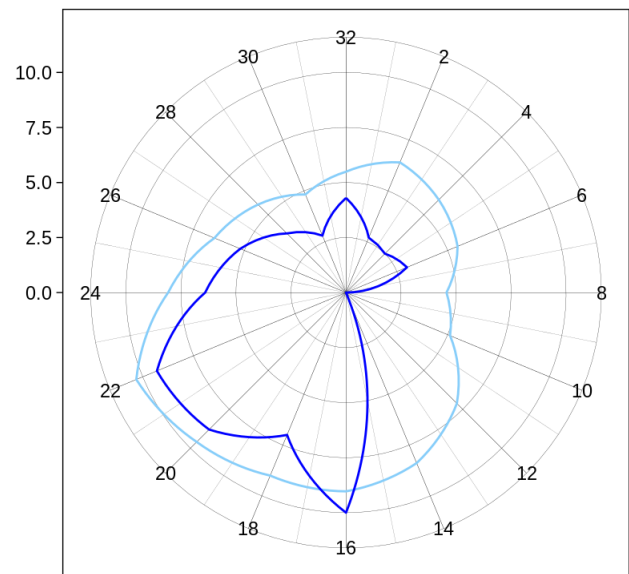
Calm: current NA % Calm 1960-200 2.1 %



— August 1960-2000 — August 1988

(b) Wind velocity [m/s]

Calm current NA % Calm 1960-2000 2.1 %

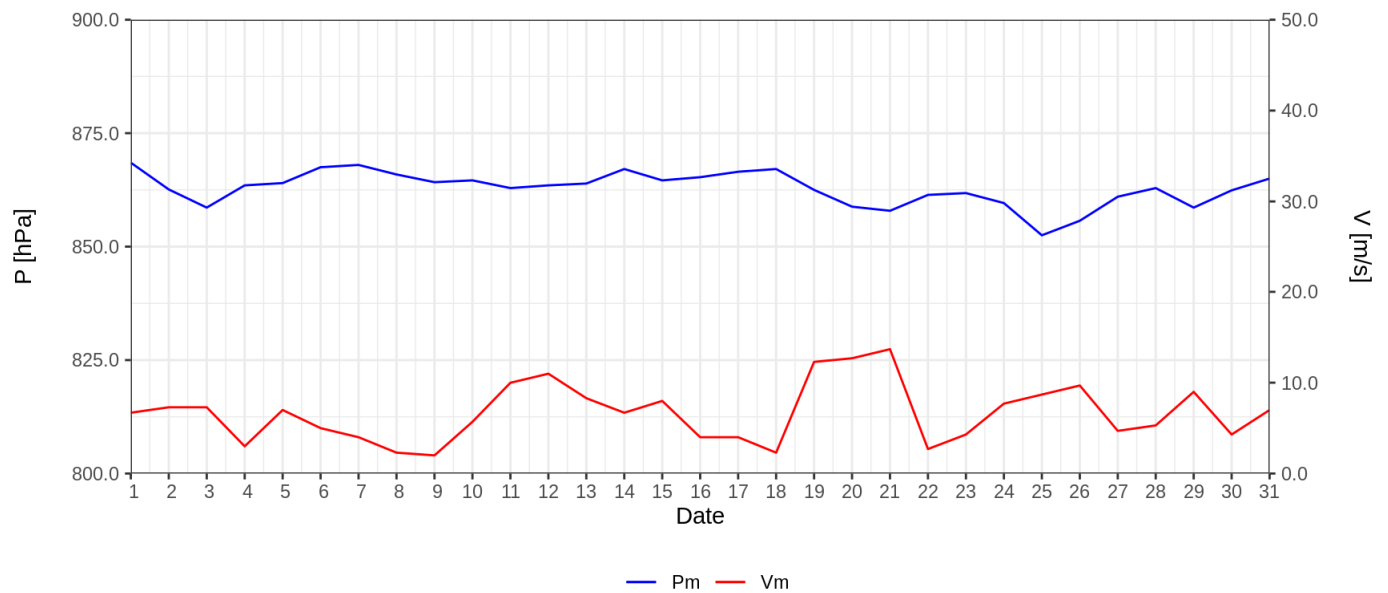


— August 1960-2000 — August 1988

Ryc. 1. Częstość (a) i prędkość wiatru (b) wg kierunków

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

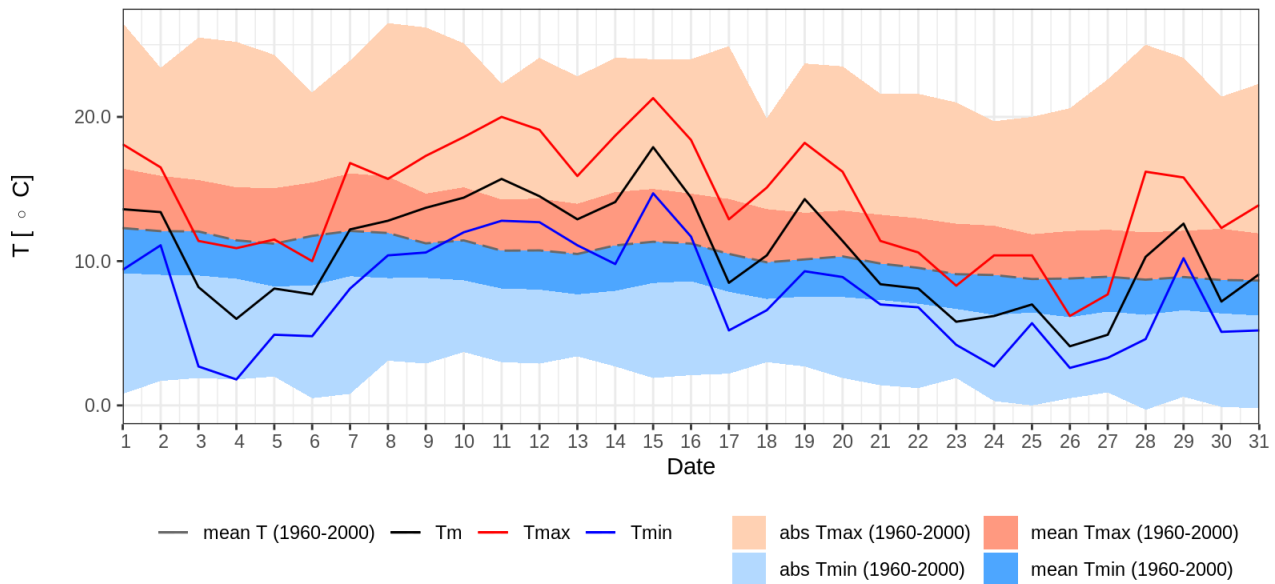
*) W statystyce dotyczącej kierunku wiatru uwzględniono kierunki wiatru odpowiadające skali 16 stopniowej prezentowanej wartościami [2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32].



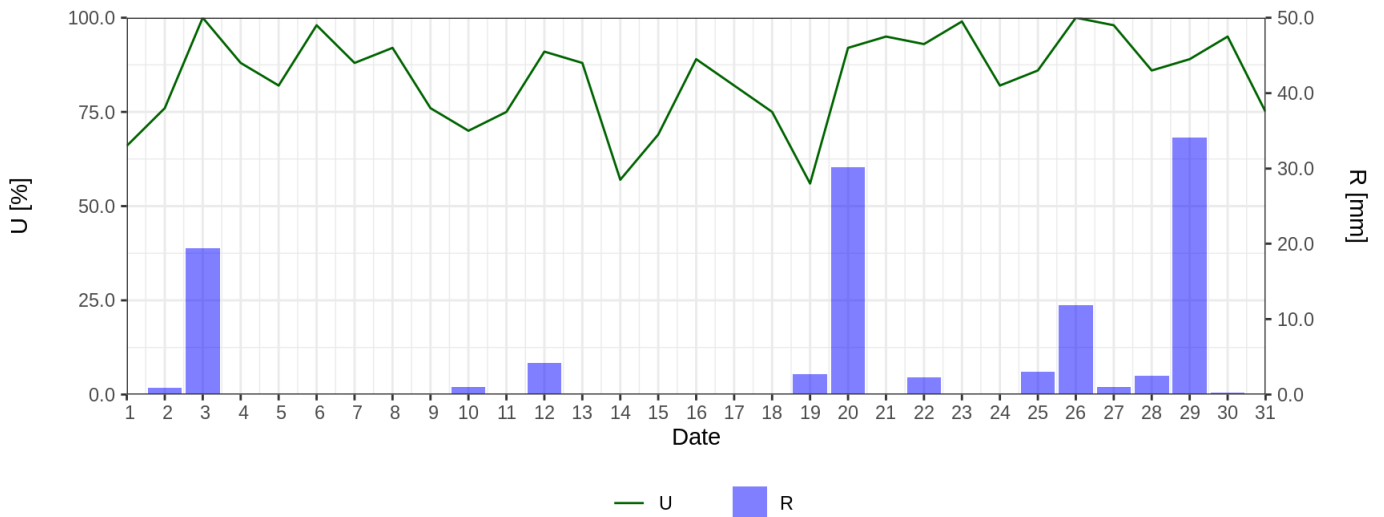
— Pm — Vm

Ryc. 2. Średnie dobowe ciśnienie atmosferyczne i prędkość wiatru

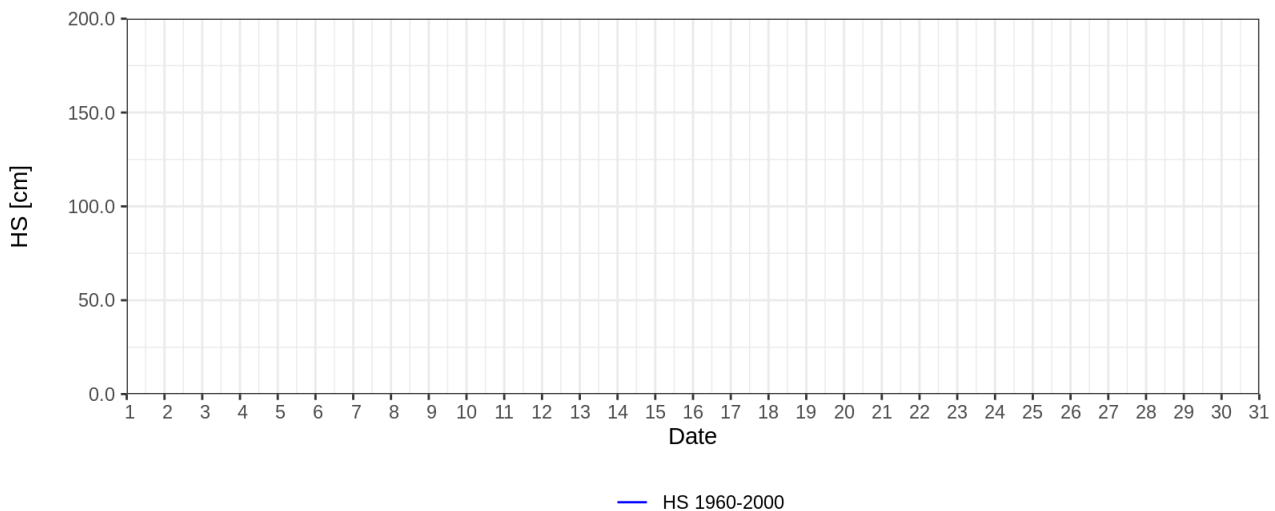
Fig. 2. Daily average air pressure and wind speed



Ryc. 3. Średnia dobowa, minimalna i maksymalna temperatura powietrza dla miesiąca na tle danych z wielolecia 1960 - 2000
Fig. 3. Daily mean, maximum and minimum air temperature for given month and 1960-2000 period



Ryc. 4. Średnia dobowa wilgotność względna powietrza i dobowe sumy opadu atmosferycznego
Fig. 4. Mean daily relative humidity and daily sum of precipitation



Ryc. 5. Wysokość pokrywy śnieżnej
Fig. 5. Snow cover depth