

# Biuletyn Meteorologiczny Meteorological Bulletin

## Karkonoska Stacja Meteorologiczna Uniwersytetu Wrocławskiego na Szrenicy 1969/4

Wydawca:

ZAKŁAD KLIMATOLOGII I OCHRONY ATMOSFERY  
INSTYTUT GEOGRAFII I ROZWOJU REGIONALNEGO  
UNIWERSYTET WROCŁAWSKI

Published by:

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



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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 bieuletynie 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 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] |       |       |       |
|----|--------|------|------|------|------|-------|-------|-------|-----|-----|-----|---------|-------|-------|-------|
|    | 07     | 12   | 18   | Tm   | Tmax | Tmin  | Tmin5 | 06    | 12  | 18  | Um  | 06      | 12    | 18    | Pm    |
| 1  | -1.1   | -3.0 | -5.5 | -3.8 | -0.1 | -5.8  | -5.9  | 100   | 99  | 97  | 99  | 837.6   | 840.8 | 844.6 | 841.0 |
| 2  | -6.1   | -5.2 | -6.3 | -6.0 | -4.3 | -6.8  | -7.3  | 96    | 97  | 96  | 96  | 850.7   | 855.3 | 859.7 | 855.2 |
| 3  | -6.3   | -3.5 | -5.7 | -5.3 | -1.5 | -8.2  | -15.4 | 94    | 97  | 86  | 92  | 863.5   | 866.0 | 868.6 | 866.0 |
| 4  | -6.0   | -1.7 | -4.0 | -3.9 | 0.2  | -8.2  | -18.6 | 84    | 82  | 78  | 81  | 869.8   | 871.4 | 871.8 | 871.0 |
| 5  | -1.9   | 2.4  | 0.7  | 0.5  | 4.5  | -5.5  | -12.7 | 73    | 57  | 76  | 69  | 871.1   | 872.6 | 871.5 | 871.7 |
| 6  | 1.8    | 5.9  | 2.9  | 3.4  | 7.4  | -0.4  | -6.8  | 66    | 48  | 63  | 59  | 870.7   | 870.3 | 869.0 | 870.0 |
| 7  | 5.0    | 6.7  | 3.3  | 4.6  | 8.4  | 2.4   | -7.8  | 37    | 57  | 72  | 55  | 867.7   | 867.8 | 867.8 | 867.8 |
| 8  | 1.7    | 3.4  | 2.4  | 2.5  | 3.7  | -0.6  | -5.4  | 89    | 76  | 6   | 57  | 868.0   | 868.3 | 870.4 | 868.9 |
| 9  | 3.3    | 7.6  | 5.3  | 5.4  | 9.5  | 1.6   | -6.9  | 27    | 32  | 15  | 25  | 871.0   | 873.0 | 872.4 | 872.1 |
| 10 | 2.8    | 10.0 | 6.7  | 6.6  | 11.4 | 2.3   | -9.4  | 44    | 25  | 47  | 39  | 871.9   | 871.0 | 868.6 | 870.5 |
| 11 | 5.7    | 3.7  | 3.4  | 4.1  | 7.4  | 2.2   | -1.4  | 57    | 92  | 97  | 82  | 864.5   | 863.0 | 856.0 | 861.2 |
| 12 | 3.1    | 3.3  | -2.3 | 0.5  | 3.9  | -2.3  | -1.5  | 99    | 100 | 100 | 100 | 853.8   | 850.1 | 847.1 | 850.3 |
| 13 | -4.3   | -3.7 | -5.5 | -4.8 | -2.0 | -5.6  | -5.6  | 96    | 96  | 91  | 94  | 848.4   | 849.9 | 852.5 | 850.3 |
| 14 | -7.3   | -4.3 | -5.3 | -5.6 | -3.6 | -7.3  | -8.0  | 95    | 92  | 91  | 93  | 853.9   | 855.0 | 857.3 | 855.4 |
| 15 | -5.5   | -1.9 | -2.5 | -3.1 | -0.8 | -6.9  | -9.0  | 93    | 78  | 96  | 89  | 857.3   | 853.5 | 850.9 | 853.9 |
| 16 | -5.7   | -3.5 | -6.1 | -5.4 | -2.1 | -6.2  | -6.2  | 97    | 97  | 96  | 97  | 850.2   | 850.4 | 850.5 | 850.4 |
| 17 | -6.3   | -4.8 | -5.7 | -5.6 | -4.5 | -6.4  | -6.4  | 96    | 90  | 97  | 94  | 848.5   | 849.3 | 850.4 | 849.4 |
| 18 | -8.5   | -6.9 | -9.3 | -8.5 | -5.5 | -9.6  | -9.6  | 94    | 72  | 87  | 84  | 849.7   | 851.3 | 852.7 | 851.2 |
| 19 | -7.7   | -4.3 | -7.7 | -6.9 | -3.0 | -10.0 | -23.0 | 84    | 59  | 91  | 78  | 851.8   | 852.6 | 853.4 | 852.6 |
| 20 | -7.8   | -4.0 | -6.5 | -6.2 | -3.7 | -8.3  | -10.8 | 93    | 81  | 83  | 86  | 852.5   | 853.4 | 854.4 | 853.4 |
| 21 | -5.8   | -0.5 | -0.1 | -1.6 | 0.8  | -6.9  | -11.5 | 84    | 67  | 74  | 75  | 853.0   | 852.9 | 850.9 | 852.3 |
| 22 | 3.1    | 4.9  | 3.9  | 4.0  | 5.3  | -0.2  | -4.5  | 56    | 70  | 78  | 68  | 845.3   | 844.5 | 842.0 | 843.9 |
| 23 | -0.5   | 0.5  | -0.1 | -0.1 | 4.3  | -0.7  | -0.7  | 100   | 92  | 100 | 97  | 839.3   | 841.8 | 844.6 | 841.9 |
| 24 | -1.7   | -0.2 | -0.9 | -0.9 | 0.1  | -2.0  | -2.0  | 98    | 100 | 97  | 98  | 846.4   | 850.7 | 855.3 | 850.8 |
| 25 | 2.4    | 5.2  | 5.3  | 4.6  | 6.5  | -1.1  | -2.0  | 100   | 93  | 100 | 98  | 857.5   | 861.6 | 864.1 | 861.1 |
| 26 | 5.3    | 9.3  | 10.0 | 8.7  | 11.4 | 3.1   | 3.1   | 96    | 75  | 67  | 79  | 864.9   | 866.2 | 865.0 | 865.4 |
| 27 | 10.0   | 12.4 | 9.8  | 10.5 | 13.8 | 8.9   | 0.4   | 71    | 69  | 78  | 73  | 866.3   | 866.2 | 864.9 | 865.8 |
| 28 | 8.4    | 11.7 | 10.4 | 10.2 | 12.8 | 6.6   | 4.7   | 85    | 78  | 91  | 85  | 862.0   | 861.6 | 860.2 | 861.3 |
| 29 | 6.1    | 6.1  | 4.9  | 5.5  | 11.1 | 4.1   | 3.8   | 99    | 97  | 100 | 99  | 856.5   | 857.4 | 857.6 | 857.2 |
| 30 | 8.9    | 14.0 | 8.4  | 9.9  | 14.6 | 4.0   | 3.4   | 78    | 63  | 88  | 76  | 856.1   | 856.9 | 857.1 | 856.7 |

**Tabela 2. Prędkość (V) i kierunek ( $\alpha$ ) wiatru, dobowa suma opadu (R) i wysokość pokrywy śnieżnej (HS)**  
**Table 2. Wind speed (V) and direction ( $\alpha$ ), daily sum of precipitation (R) and snow cover depth (HS)**

| D  | V [m/s] |    |    |      | $\alpha$ [1-32] |    |    | R[mm] | HS[cm] |
|----|---------|----|----|------|-----------------|----|----|-------|--------|
|    | 06      | 12 | 18 | Vm   | 06              | 12 | 18 |       |        |
| 1  | 24      | 21 | 15 | 20.0 | 22              | 24 | 26 | 6.6   | 109    |
| 2  | 12      | 11 | 5  | 9.3  | 26              | 26 | 30 | 1.8   | 119    |
| 3  | 4       | 2  | 2  | 2.7  | 28              | 4  | 4  | 0.8   | 120    |
| 4  | 4       | 2  | 0  | 2.0  | 6               | 6  | 0  | •     | 117    |
| 5  | 10      | 3  | 4  | 5.7  | 16              | 12 | 14 | •     | 115    |
| 6  | 3       | 3  | 5  | 3.7  | 16              | 8  | 16 | •     | 109    |
| 7  | 3       | 7  | 9  | 6.3  | 8               | 6  | 4  | •     | 97     |
| 8  | 12      | 13 | 8  | 11.0 | 8               | 6  | 6  | •     | 88     |
| 9  | 5       | 2  | 4  | 3.7  | 8               | 12 | 16 | •     | 79     |
| 10 | 3       | 4  | 8  | 5.0  | 18              | 20 | 22 | 0.0   | 74     |
| 11 | 15      | 10 | 20 | 15.0 | 22              | 24 | 20 | 24.7  | 66     |
| 12 | 20      | 23 | 18 | 20.3 | 22              | 20 | 24 | 10.5  | 55     |
| 13 | 10      | 7  | 10 | 9.0  | 20              | 20 | 22 | 1.0   | 59     |
| 14 | 7       | 8  | 12 | 9.0  | 24              | 22 | 22 | 0.4   | 61     |
| 15 | 13      | 24 | 16 | 17.7 | 22              | 20 | 18 | 8.3   | 61     |
| 16 | 16      | 16 | 10 | 14.0 | 26              | 22 | 24 | 5.4   | 63     |
| 17 | 9       | 10 | 11 | 10.0 | 26              | 24 | 32 | 10.8  | 81     |
| 18 | 8       | 7  | 3  | 6.0  | 26              | 2  | 30 | 4.6   | 93     |
| 19 | 5       | 4  | 6  | 5.0  | 6               | 4  | 32 | 0.3   | 102    |
| 20 | 9       | 10 | 9  | 9.3  | 24              | 20 | 18 | 0.0   | 95     |
| 21 | 10      | 4  | 11 | 8.3  | 14              | 16 | 18 | •     | 93     |
| 22 | 15      | 10 | 12 | 12.3 | 18              | 18 | 16 | 6.6   | 87     |
| 23 | 12      | 20 | 7  | 13.0 | 20              | 20 | 20 | 1.2   | 74     |
| 24 | 6       | 6  | 8  | 6.7  | 18              | 24 | 22 | 0.1   | 74     |
| 25 | 8       | 8  | 10 | 8.7  | 22              | 22 | 20 | 0.4   | 72     |
| 26 | 10      | 11 | 17 | 12.7 | 20              | 18 | 16 | •     | 57     |
| 27 | 5       | 9  | 10 | 8.0  | 8               | 16 | 14 | •     | 41     |
| 28 | 5       | 6  | 6  | 5.7  | 16              | 16 | 16 | 0.0   | 25     |
| 29 | 0       | 0  | 5  | 1.7  | 0               | 0  | 10 | 0.2   | 8      |
| 30 | 10      | 7  | 10 | 9.0  | 16              | 16 | 12 | 2.1   | -1     |

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

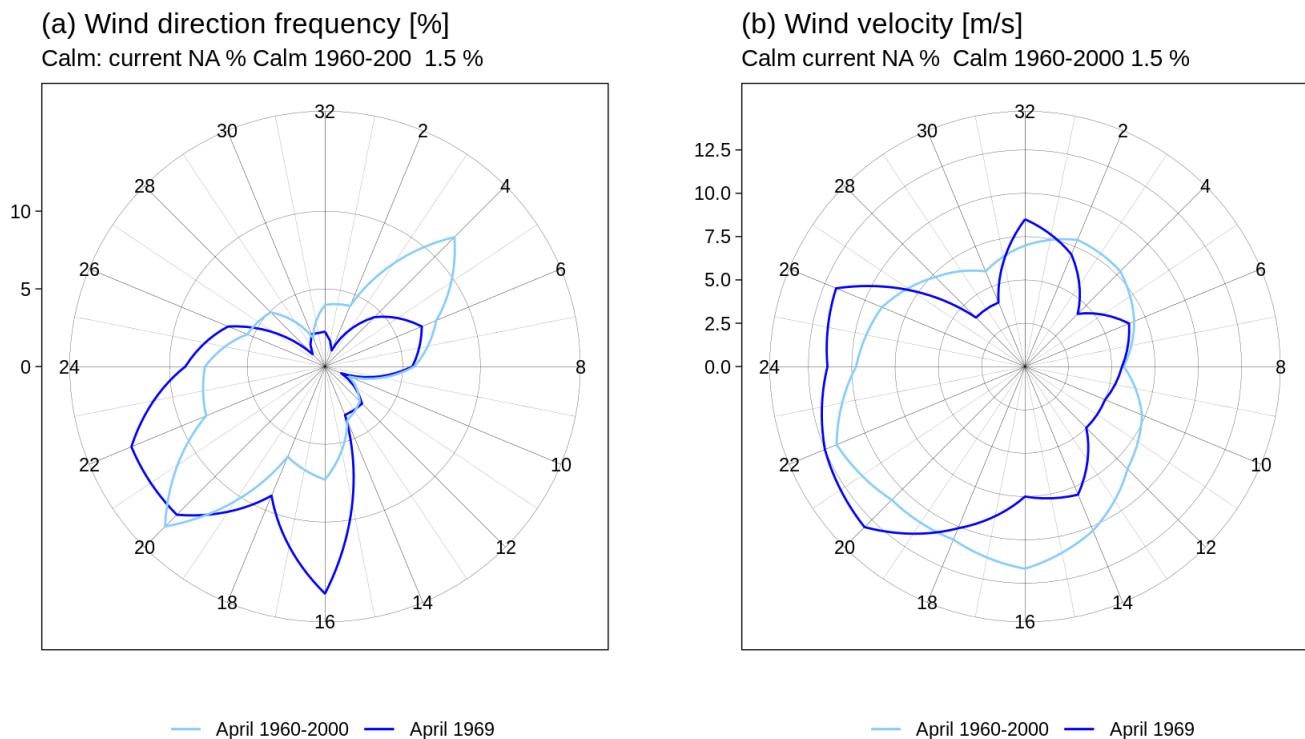
**Table 3. Number of days with threshold value in current month and monthly average number of days with threshold value in the 1960- 2000 period**

| Nazwa / Name                               | 1960-2000 | 1969-IV |
|--|-----------|---------|
| Przymrozkowe ( $T_{min} < 0^{\circ}C$ )    | 20        | 21      |
| Mroźne ( $T_{max} < 0^{\circ}C$ )          | 8         | 11      |
| Bardzo mroźne ( $T_{min} < -10^{\circ}C$ ) | 1         | 0       |
| Ciepłe ( $T_{max} > 20^{\circ}C$ )         | 0         | 0       |
| Gorące ( $T_{max} > 25^{\circ}C$ )         | 0         | 0       |
| $R > 1 \text{ mm}$                         | 13        | 11      |
| $R > 10 \text{ mm}$                        | 3         | 3       |
| Liczba dni z pokrywą śnieżną               | 26        | 29      |

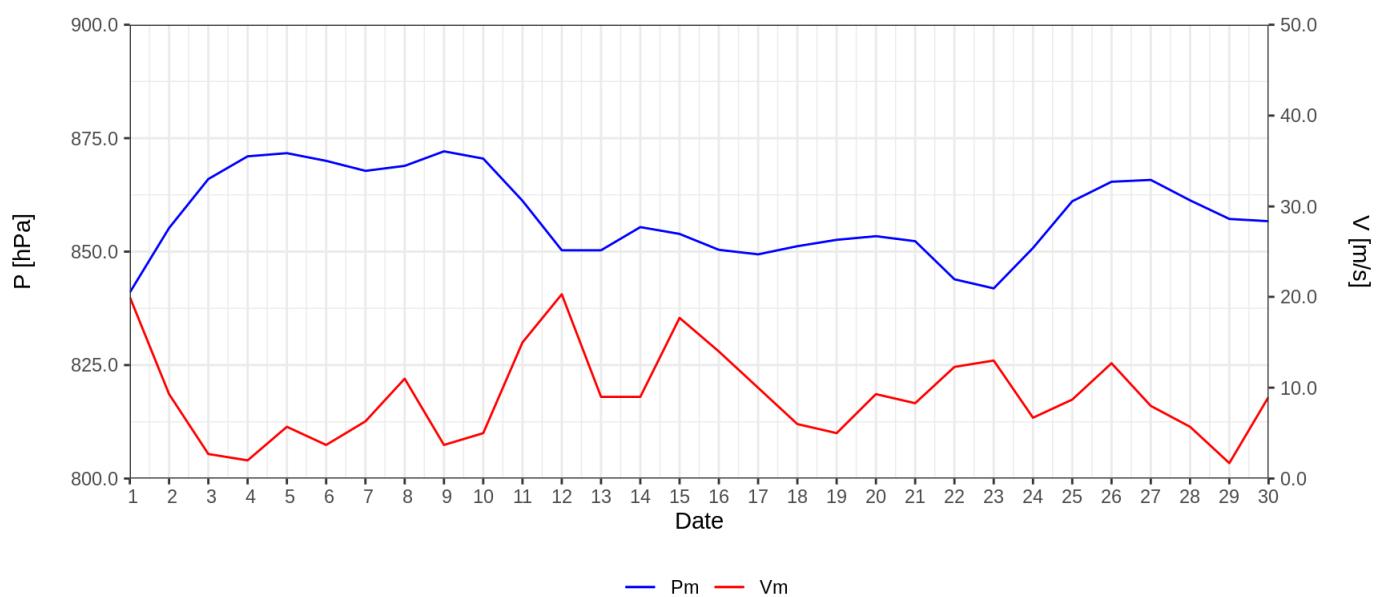
**Tabela 4. Wartości średnie i ekstrema miesięczne na tle charakterystyk miesięcznych dla wielolecia 1960 - 2000**

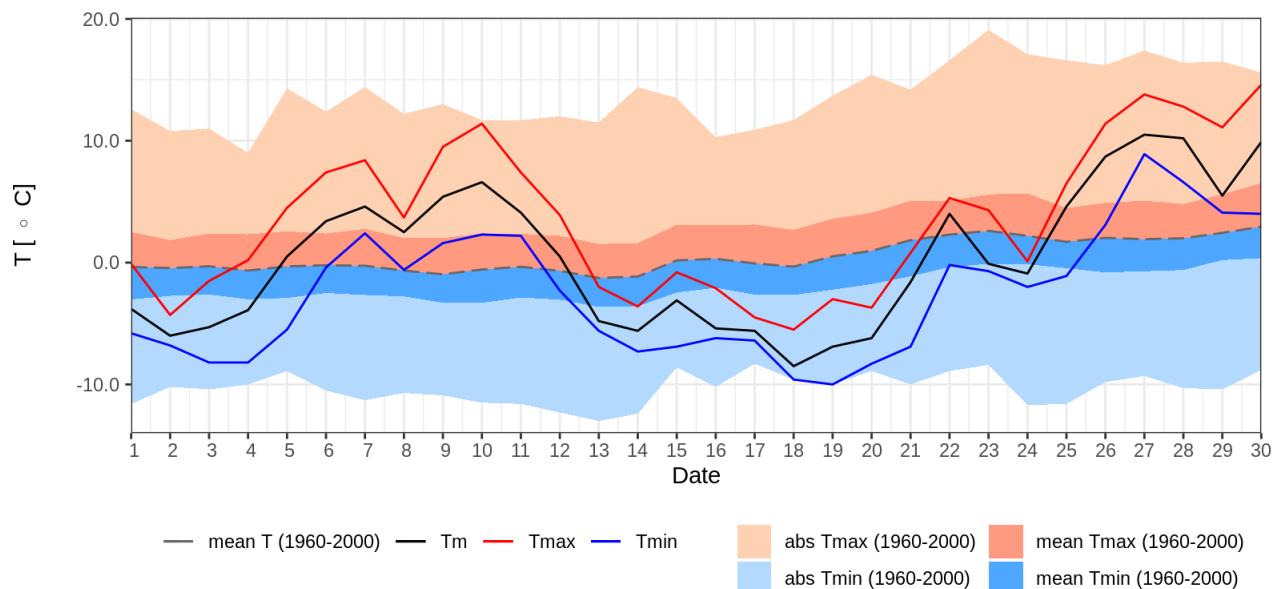
**Table 4. Average and extreme monthly values vs. average monthly characteristics for the 1960- 2000 period**

|                   | Opis                      | Description           | 1960-2000          | 1969-IV            |
|-------------------|---------------------------|-----------------------|--------------------|--------------------|
| T [ $^{\circ}C$ ] | Średnia miesięczna        | Monthly average       | 0.5                | 0.4                |
|                   | Maksymalna średnia dobowa | Maximum daily average | 3.4                | 3.5                |
|                   | Minimalna średnia dobowa  | Minimum daily average | -2.0               | -2.5               |
|                   | Średnie maksimum          | Average maximum       | 14.4 (1968-04-23)  | 10.5 (1969-04-27)  |
| P [hPa]           | Absolutne maksimum        | Absolute maximum      | 19.1 (1968-04-23)  | 14.6 (1969-04-30)  |
|                   | Średnie minimum           | Average minimum       | -10.5 (1968-04-23) | -8.5 (1969-04-27)  |
|                   | Absolutne minimum         | Absolute minimum      | -13.0 (1986-04-13) | -10.0 (1969-04-19) |
|                   | Średnia miesięczna        | Monthly average       | 857.0              | 858.0              |
| V [m/s]           | Maksimum                  | Maximum               | 876.2 (1966-04-30) | 872.1 (1969-04-09) |
|                   | Minimum                   | Minimum               | 834.0 (1992-04-01) | 841.0 (1969-04-01) |
|                   | Średnia miesięczna        | Monthly average       | 9.0                | 9.0                |
| R [mm]            | Średnie maksimum          | Average maximum       | 11.7               | 11.5               |
|                   | Absolutne maksimum        | Absolute maximum      | 35.0 (1964-04-19)  | 24.0 (1969-04-01)  |
|                   | Suma miesięczna           | Monthly sum           | 92.2               | 85.8               |
|                   | Maksymalna suma dobowa    | Maximum daily sum     | 36.8 (1961-04-16)  | 24.7 (1969-04-11)  |

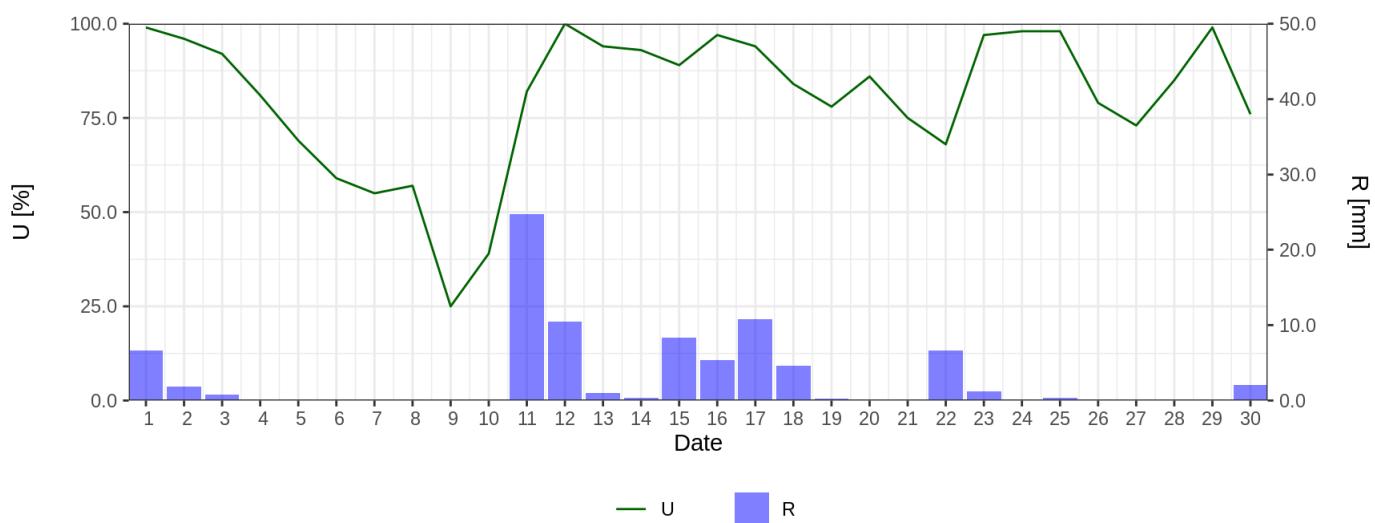
**Ryc. 1. Częstość (a) i prędkość wiatru (b) wg kierunków****Fig. 1. Wind direction frequency (a) and wind velocity for a given direction (b)**

\*) 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].

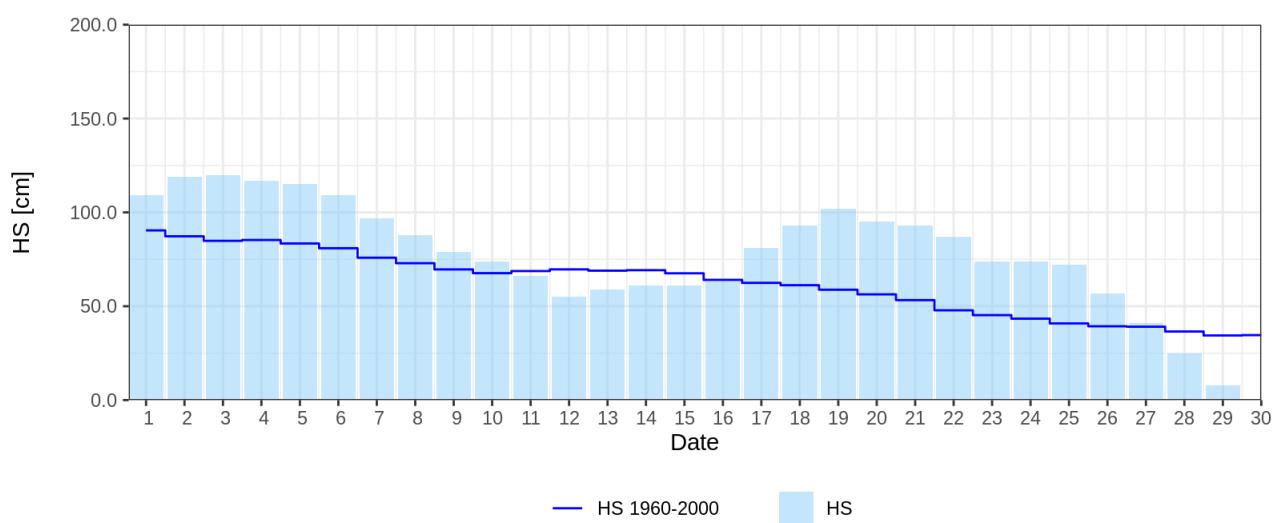
**Ryc. 2. Średnie dobowe ciśnienie atmosferyczne i prędkość wiatru****Fig. 2. Daily average air pressure and wind speed**



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