

Biuletyn Meteorologiczny Meteorological Bulletin

Wrocław - Biskupin

1993/11

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



Uniwersytet
Wrocławski

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>

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
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	-2.9	-4.3	10.1	4.0	1.7	10.5	-4.7	-7.4	95	92	54	85	82	1010.4	1009.6	1008.3	1006.7	1008.8
2	2.8	-0.7	10.7	3.0	4.0	11.1	-1.0	-3.6	95	98	61	94	87	1004.7	1002.8	1001.8	1000.9	1002.6
3	-0.8	-1.1	10.2	2.4	2.7	11.3	-1.4	-4.5	97	99	67	95	90	1000.8	1000.8	1000.6	1000.2	1000.6
4	1.2	-0.7	8.1	3.1	2.9	8.5	-1.1	-3.1	95	94	69	97	89	1001.3	1001.8	1001.6	1001.6	1001.6
5	4.6	3.6	10.1	4.0	5.6	10.6	2.2	-0.3	97	97	68	92	89	1001.4	1001.1	1000.6	1000.7	1001.0
6	4.9	4.2	6.2	7.5	5.7	7.5	3.9	4.1	92	92	92	96	93	999.3	998.1	996.5	994.0	997.0
7	7.4	7.1	8.9	8.3	7.9	9.4	6.9	6.9	96	96	95	100	97	992.4	991.0	990.9	992.0	991.6
8	7.3	8.2	8.2	7.2	7.7	9.0	7.0	5.7	98	96	87	84	91	993.5	994.4	996.5	998.5	995.7
9	6.3	6.4	7.1	6.1	6.5	7.4	5.8	3.5	89	86	80	82	84	999.9	1001.1	1003.3	1005.4	1002.4
10	6.0	5.4	6.9	4.2	5.6	7.2	4.2	4.5	89	90	80	88	87	1007.0	1007.9	1009.3	1010.1	1008.6
11	1.3	0.1	3.8	3.2	2.1	4.5	0.1	0.4	77	80	77	94	82	1009.8	1008.9	1006.8	1005.9	1007.9
12	4.9	3.0	7.1	1.2	4.1	7.5	1.2	-1.9	95	97	75	95	91	1007.6	1009.8	1011.7	1012.4	1010.4
13	-0.6	-1.4	3.6	0.4	0.5	4.4	-1.6	-3.4	98	100	82	98	95	1012.7	1012.3	1011.8	1011.1	1012.0
14	-0.4	0.3	2.2	2.4	1.1	3.7	-1.0	-3.9	97	95	81	84	89	1010.4	1007.1	1001.4	995.7	1003.7
15	3.6	3.2	5.8	4.2	4.2	6.1	1.8	0.4	75	78	70	85	77	994.6	995.0	997.4	1002.3	997.3
16	2.2	0.0	-0.4	-0.5	0.3	4.5	-0.6	-0.5	92	95	89	85	90	1007.5	1012.1	1015.3	1017.9	1013.2
17	-0.9	-1.8	-1.6	-4.7	-2.3	-0.3	-4.9	-6.9	87	87	80	89	86	1019.7	1020.8	1023.2	1024.6	1022.1
18	-6.8	-8.9	-3.1	-7.1	-6.5	-2.4	-9.6	-11.1	93	94	64	86	84	1025.2	1024.9	1024.6	1024.7	1024.9
19	-9.5	-8.3	-2.9	-3.6	-6.1	-2.2	-10.4	-12.3	90	90	64	80	81	1022.8	1020.0	1016.2	1014.8	1018.5
20	-5.5	-8.9	-5.3	-7.5	-6.8	-3.3	-9.2	-12.3	80	84	75	78	79	1014.1	1013.8	1012.6	1012.9	1013.4
21	-6.6	-7.2	-4.1	-4.1	-5.5	3.7	-8.4	-9.6	82	93	86	82	86	1010.9	1009.1	1008.7	1009.9	1009.7
22	-4.7	-3.5	-3.1	-2.6	-3.5	-2.4	-5.6	-10.4	89	87	83	96	89	1011.2	1011.5	1010.3	1007.4	1010.1
23	-3.0	-2.7	-0.6	-6.0	-3.1	-0.2	-6.1	-13.1	94	86	65	92	84	1006.1	1009.6	1012.0	1012.6	1010.1
24	-8.1	-5.1	-0.3	-4.6	-4.5	0.1	-8.3	-14.9	93	93	77	96	90	1013.3	1013.2	1012.7	1013.4	1013.2
25	-1.2	-0.5	2.0	0.1	0.1	2.6	-4.7	-8.3	94	92	71	82	85	1013.9	1015.9	1017.4	1018.4	1016.4
26	-1.2	-5.7	-0.1	-3.7	-2.7	0.5	-7.2	-12.3	90	92	74	94	88	1019.0	1019.8	1020.1	1020.0	1019.7
27	-4.4	-4.0	-4.1	-6.0	-4.6	-3.2	-6.1	-9.6	92	86	88	90	89	1019.2	1017.5	1016.9	1015.3	1017.2
28	-5.1	-4.7	-4.3	-5.5	-4.9	-3.9	-6.0	-5.5	93	93	88	93	92	1014.2	1012.6	1011.7	1011.7	1012.6
29	-5.3	-6.3	-4.9	-8.8	-6.3	-4.2	-9.2	-12.3	93	92	87	89	90	1013.4	1014.9	1015.8	1016.3	1015.1
30	-12.0	-8.9	-5.6	-5.0	-7.9	-5.0	-12.0	-15.7	92	92	92	91	92	1015.0	1012.3	1009.3	1005.9	1010.6

Tabela 2. Prędkość (V) i kierunek (α) wiatru, dobowa suma 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]						
	00	06	12	18	Vm	Vmax	Vh	00	06	12	18	R [mm]	SD [h]	Ew [mm]
1	0.7	1.1	2.5	1.0	1.3	6.0	10	7	8	15	14	•	8.4	0.1
2	1.0	0.0	3.1	0.0	1.0	6.0	10	9	0	14	0	•	7.4	0.5
3	0.0	0.7	0.8	0.0	0.4	3.0	13	0	8	10	0	•	6.8	0.0
4	0.6	0.8	0.0	0.6	0.5	2.0	6	1	31	0	27	•	0.4	0.0
5	0.7	1.0	1.3	2.2	1.3	6.0	14	32	5	9	4	•	1.9	0.5
6	2.0	2.8	4.2	4.0	3.3	8.0	12	6	5	6	6	9.6	0.0	0.1
7	3.2	1.3	0.7	0.0	1.3	5.0	2	5	5	9	0	1.2	0.0	0.0
8	0.0	1.2	0.6	2.2	1.0	5.0	17	0	27	31	26	1.0	0.1	0.3
9	1.2	1.6	2.7	1.2	1.7	7.0	9	20	24	25	24	0.0	0.0	0.0
10	0.8	1.1	1.2	3.6	1.7	8.0	21	26	12	17	9	0.0	0.0	0.3
11	4.6	3.2	3.3	1.8	3.2	8.0	0	10	10	11	13	10.3	0.0	0.4
12	4.4	2.0	2.4	0.8	2.4	7.0	2	17	16	17	14	0.0	1.8	0.2
13	1.2	0.7	0.0	0.9	0.7	3.0	17	7	8	0	12	•	1.3	0.0
14	2.1	3.3	4.0	3.3	3.2	8.0	20	13	12	13	14	1.6	0.0	0.6
15	5.7	3.0	3.3	1.5	3.4	13.0	0	17	16	16	3	0.0	0.0	0.4
16	4.0	1.7	2.2	3.7	2.9	7.0	6	32	32	32	32	1.4	0.0	0.2
17	3.2	3.2	1.7	0.6	2.2	6.0	3	1	5	2	1	0.0	0.0	0.1
18	0.6	0.0	1.6	0.0	0.6	4.0	13	4	0	6	0	•	6.7	0.4
19	1.3	1.1	2.0	0.8	1.3	4.0	6	14	16	18	14	0.0	0.2	0.2
20	1.7	2.8	3.5	3.7	2.9	7.0	16	11	9	5	8	1.0	6.0	0.2
21	2.5	4.0	3.8	2.5	3.2	3.2	3	8	8	8	9	0.8	0.0	0.1
22	1.7	1.2	3.3	3.1	2.3	8.0	12	9	10	8	9	4.7	0.0	0.0
23	1.7	0.0	1.9	0.9	1.1	5.0	1	16	0	16	10	•	0.4	0.0
24	1.5	1.5	2.2	1.1	1.6	5.0	11	6	10	10	13	•	3.6	0.0
25	0.0	1.0	2.6	0.8	1.1	6.0	12	0	14	15	15	•	0.0	0.2
26	1.3	2.1	2.6	2.9	2.2	6.0	18	10	9	10	8	•	5.8	0.2
27	2.1	1.2	1.2	0.0	1.1	6.0	3	9	9	9	0	5.4	0.0	0.0
28	0.6	1.0	0.0	0.0	0.4	3.0	0	7	23	0	0	6.4	0.0	0.0
29	0.0	0.0	0.0	0.9	0.2	2.0	17	0	0	0	7	•	0.0	0.0
30	0.7	0.8	0.7	1.7	1.0	6.0	19	9	8	11	10	•	0.0	0.0

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**

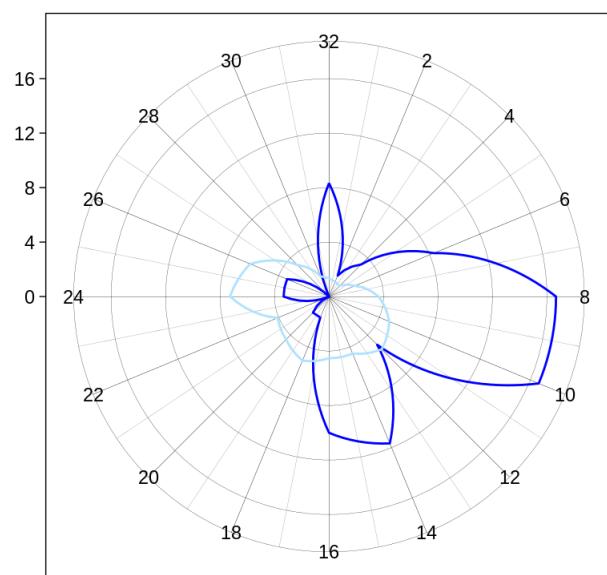
Nazwa / Name	1946-2011	1971-2000	1993-XI
Przymrozkowe ($T_{min} < 0^{\circ}\text{C}$)	12	13	21
Mroźne ($T_{max} < 0^{\circ}\text{C}$)	1	2	10
Bardzo mroźne ($T_{min} < -10^{\circ}\text{C}$)	0	0	2
Ciepłe ($T_{max} > 20^{\circ}\text{C}$)	0	0	0
Gorące ($T_{max} > 25^{\circ}\text{C}$)	0	0	0
Upalne ($T_{max} > 30^{\circ}\text{C}$)	0	0	0
$R > 1 \text{ mm}$	8	8	8
$R > 10 \text{ mm}$	1	1	1

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	1993-XI
T [°C]	Średnia miesięczna	Monthly average	4.1	3.8	-0.1
	Średnia maksymalna	Average maximum temperature	7.7	7.3	3.4
	Średnia minimalna	Average minimum temperature	1.0	0.7	-2.9
	Maksymalna średnia dobowa	Maximum daily temperature	16.3 (1968-11-03)	13.8 (1976-11-07)	7.9 (1993-11-07)
	Absolutne maksimum	Absolute maximum	20.4 (1968-11-01)	20.0 (1977-11-11)	11.3 (1993-11-03)
	Minimalna średnia dobowa	Maximum daily temperature	-8.7 (1968-11-03)	-8.7 (1976-11-07)	-7.9 (1993-11-07)
P [hPa]	Absolutne minimum	Absolute minimum	-15.4 (1988-11-23)	-15.4 (1988-11-23)	-12.0 (1993-11-30)
	Średnia miesięczna	Monthly average	1001.3	1001.8	1008.9
	Maksimum	Maximum	1025.3 (1998-11-21)	1025.3 (1998-11-21)	1024.9 (1993-11-18)
V [m/s]	Minimum	Minimum	969.6 (1983-11-28)	969.6 (1983-11-28)	991.6 (1993-11-07)
	Średnia miesięczna	Monthly average	2.4	2.5	1.7
	Średnie maksimum	Average maximum	5.3	7.1	5.8
R [mm]	Absolutne maksimum	Absolute maximum	23.0 (1973-11-25)	23.0 (1973-11-25)	13.0 (1993-11-15)
	Suma miesięczna	Monthly sum	29.8	27.0	31.5
	Maksymalna suma dobowa	Maximum daily sum	33.5 (1951-11-02)	23.9 (1987-11-19)	10.3 (1993-11-11)

(a) Wind direction frequency [%]

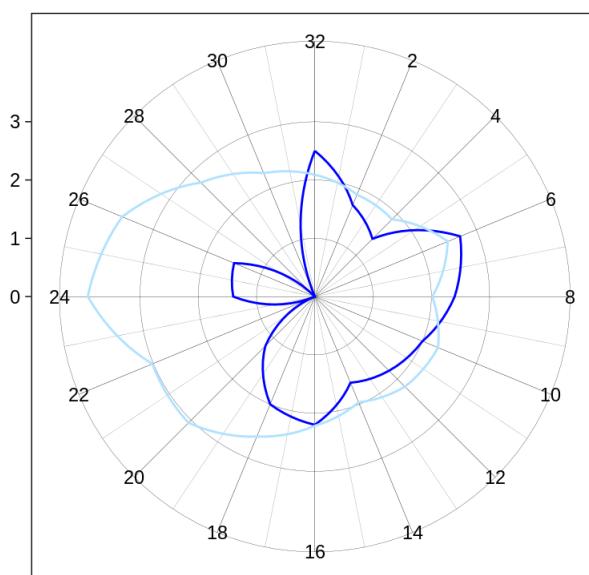
Calm: current NA % 1946-2011 10.7 %



— November 1946-2011 — November 1993

(b) Wind velocity [m/s]

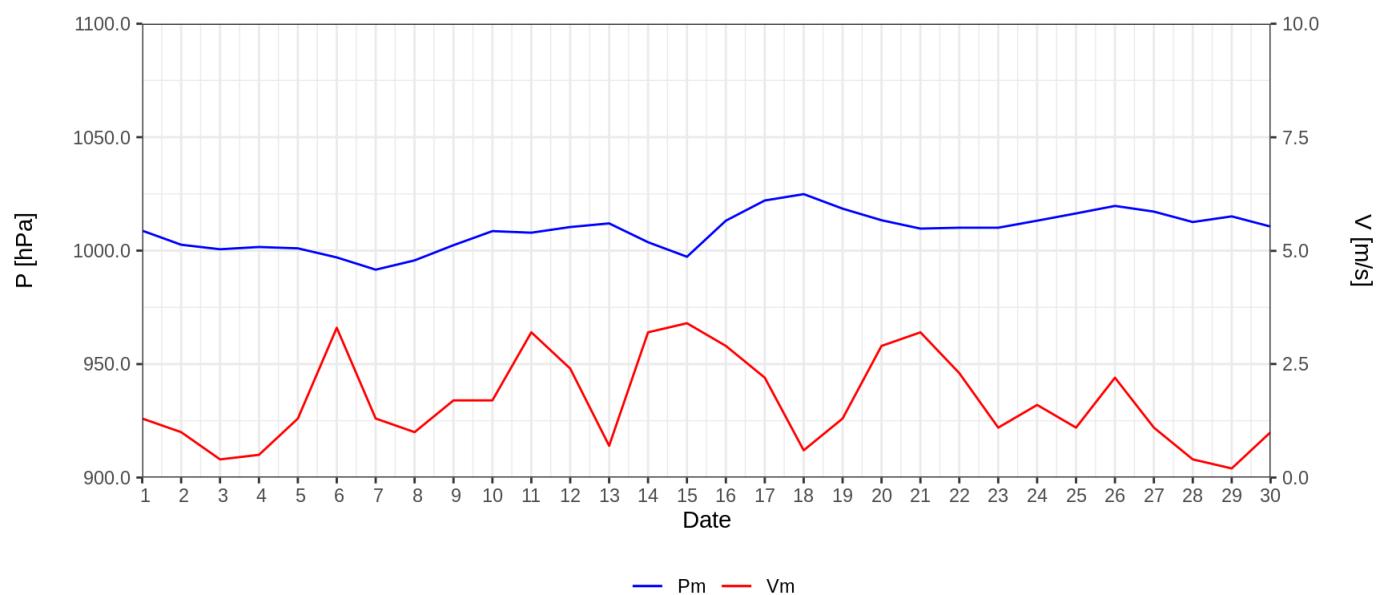
Calm: current NA % 1946-2011 10.7 %



— November 1946-2011 — November 1993

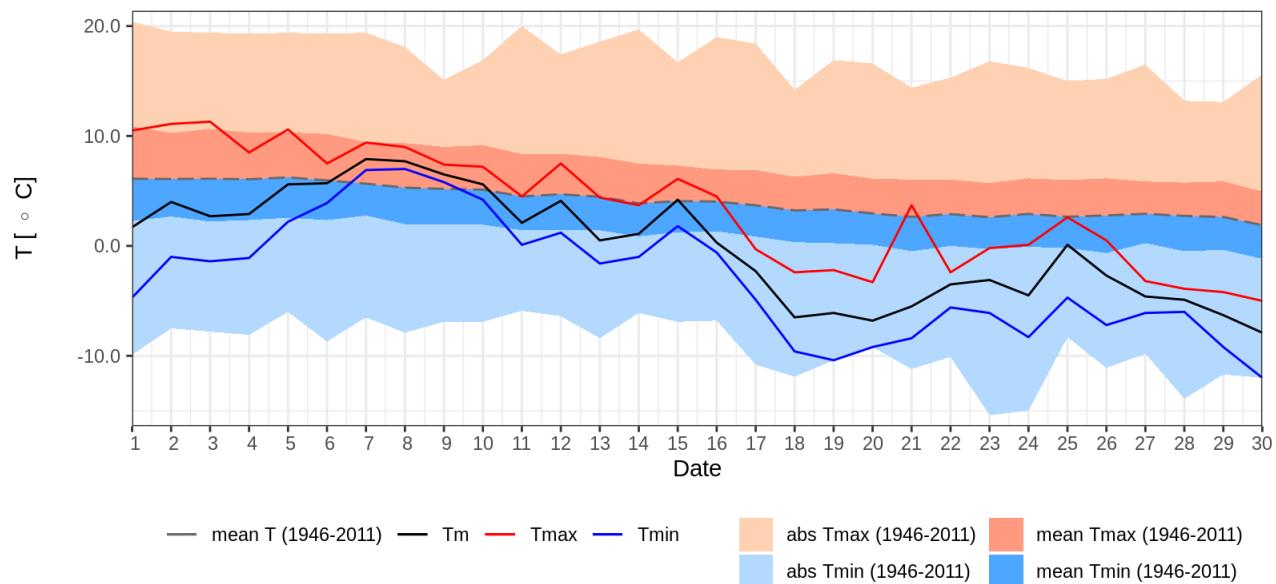
Ryc. 1. Częstość (a) i prędkość (b) wiatru w kierunkach

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

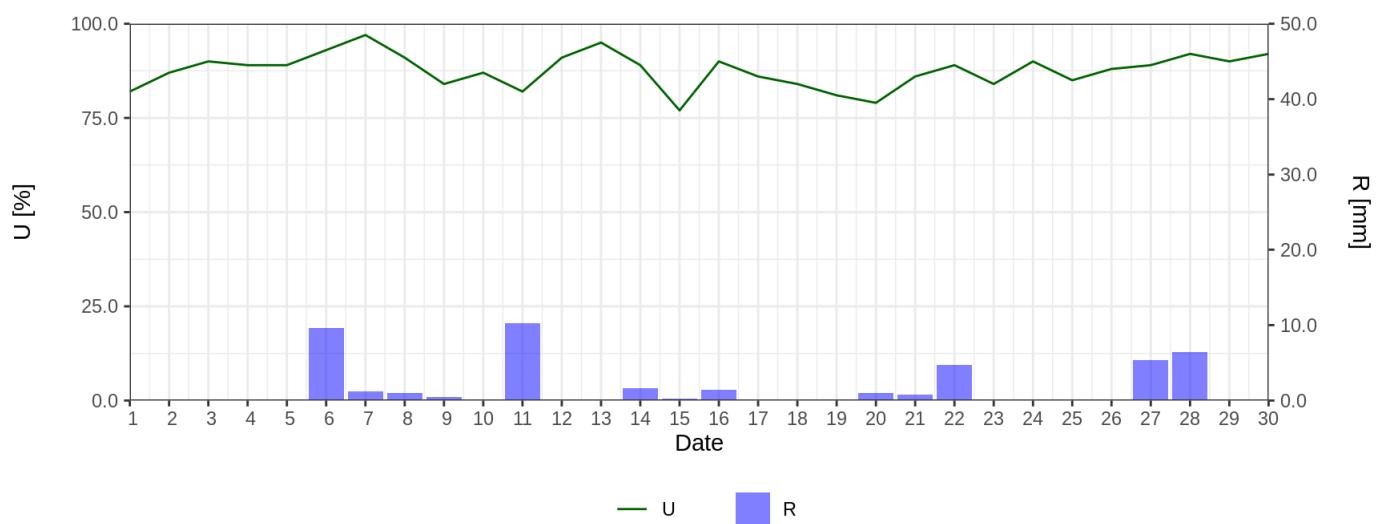


Ryc. 1. Średnie dobowe ciśnienie atmosferyczne

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