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The year of 2014 was the wettest and the second warmest in the 1951-2014 record in Serbia

Temperature

On the territory of Serbia, the year of 2014, with the average air temperature of 11.8ºC, was the second warmest in the 1951-2014 record, and the second warmest in Belgrade since the meteorological station commenced work in 1888. The annual average air temperature ranged between 5.0ºC and 9.1ºC in the mountainous areas, and from 11.2ºC to 14.0ºC in lowland. During 2014, the annual average air temperature anomaly compared to the 1961 – 1990 base period ranged between 0.9ºC and 2.2ºC. According to the percentile method[1], 2014 was in the extremely warm category.

During 2014, the highest daily air temperature of 36.0ºC was measured on August 13 and 14 in Cuprija.

The highest number of tropical days[2], total of 39 was registered in Leskovac which is 8 days above the average. Belgrade observed 21 tropical days which is 4 days below the average. Belgrade experienced 16 tropical nights, which is 9 nights above the average compared to the 1961 – 1990 base period.

The lowest daily air temperature of -20.4ºC was measured on Kopaonik Mountain on December 31. The number of days with severe frost[3] varied from 1 to 4 days in most of Serbia and from 5 to 17 days in the mountainous parts of the country.

During 2014, the number of ice days[4] ranged from 5 to 15 days and between 10 and 42 days in the mountainous areas. Vranje experienced 13 days below the average number of 18, and Kopaonik observed 55 days below the average of 89 ice days. The number of ice days recorded in Belgrade was 6, which is 12 days below the average.

Precipitation

In Serbia, the year of 2014 was the wettest on record since 1951. The maximum annual sums of precipitation were exceeded at 12 main meteorological stations. The amount of precipitation during 2014 was in a range from 648.6mm in Kikinda to 1513.8mm on Zlatibor Mountain. The total annual precipitation sum compared to the normal 1961 - 1990 ranged between 121% in Kikinda and 193% in Negotin.

[1] **n**th percentile of a variable refers to the value of the observed variable below which there is n percent of data previously arranged in an ascending order

[2] Tropical day is defined as the day with maximum air temperature above 30 °C

[3] Day with severe frost is defined as the day with the minimum air temperature below -10°C

[4] Ice day is defined as the day with maximum air temperature below 0ºC

The highest daily precipitation sum of 161.3 mm was observed in Negotin on September 16, thereby breaking the previous record for the month of September at that main station. Record-breaking daily precipitation sums were registered in Valjevo, Loznica and Belgrade as well. The highest 3-day precipitation sums were recorded between May 14 and 16 on the territory of western and parts of central Serbia. The total 3-day precipitation sums for 14-16 May surpassed the 1000-yearly 3 day sums in the region of Podrinska Kolubara, Macka and Tamnave (above 250mm at at certain places).

According to the percentile distribution, the precipitation totals during 2014 were in the extremely rainy category in most of Serbia. Very rainy category was in Kikinda and Sremska Mitrovica.

During 2014, the number of days with snow cover ranged from 7 in Cuprija to 138 on Kopaonik. Cuprija observed 40 days with snow cover below the average number of 47. The greatest snow depth reaching 67cm was recorded on Kopaonik on March 11. As for the lowland, Negotin observed the greatest snow depth reaching 37cm on February 1.

Heat and cold waves

During 2014, five heat waves [5] were recorded. The onset of the first heat wave was registered during January, lasting from 6 to 16 days in most of Serbia and with the longest duration, total of 20 days, on Zlatibor Mountain. The second heat wave was observed in February, lasting around 16 days at most places. The duration of the heat wave recorded during March varied from 7 to 13 days. The heat wave observed in June lasted around 6 days across most of the country. The duration of the heat wave during October was 6 days on average, observed only on a few number of stations.

The greatest intensity of the heat waves[6], registered during 2014 was observed in southwestern Serbia.

Cold wave[7] was recorded at the 8 main meteorological stations at the end of December.

[5] Heat wave is defined as the range of 6 or more consecutive days with maximum daily air temperature in the categories of very warm and extremely warm

[6] Heat wave intensity represents departure sum of maximum air temperature (for the days encompassed by that heat wave) from the mean maximum air temperature for the base period

[7] Cold spell is defined as the range of 6 or more consecutive days with minimum daily air temperature in the categories of very cold and extremely cold according to the statistical percentile method

Appendix

Chart 1.

MEAN MONTHLY AND ANNUAL TEMPERATURE (°C) ACCORDING TO THE PERCENTILE METHOD
REFERENCE PERIOD1961-1990

2014

station/month	January	February	March	April	May	June	July	August	September	October	November	December	Year
PALIC	3.1	5.2	9.6	13.0	16.1	20.5	22.4	20.9	17.2	13.2	7.9	3.3	12.7
SOMBOR	3.4	5.2	9.4	13.2	15.9	20.3	22.0	20.5	16.9	12.9	7.7	3.2	12.5
NOVI SAD	4.2	6.1	9.9	13.2	16.3	20.5	21.9	20.9	17.2	13.3	8.5	3.4	13.0
ZRENJANIN	4.0	6.3	9.8	13.2	16.5	20.5	22.3	21.4	17.6	13.4	8.9	3.3	13.1
KIKINDA	3.3	5.8	9.6	13.1	16.3	20.4	22.2	21.1	17.5	13.0	8.5	3.4	12.8
LOZNICA	4.8	6.6	9.8	12.8	15.8	20.3	22.2	21.0	16.8	13.2	8.7	3.9	13.0
S.MITROVICA	3.8	5.8	9.1	12.8	16.1	20.3	21.5	20.6	17.1	13.2	8.5	3.1	12.6
VALJEVO	4.6	6.8	9.4	12.5	15.6	20.3	22.1	21.2	16.7	12.9	8.5	3.3	12.8
BELGRADE	5.3	7.8	10.8	13.7	17.2	21.4	23.0	22.5	18.3	14.1	9.6	4.6	14.0
KRAGUJEVAC	4.9	7.0	9.1	12.2	15.4	19.8	21.8	21.2	16.9	12.4	9.1	3.4	12.8
S.PALANKA	4.3	7.0	9.2	12.7	16.0	20.2	22.4	21.4	17.2	12.6	8.9	3.2	12.9
V.GRADISTE	3.1	5.8	9.0	12.7	16.1	20.1	22.1	21.2	16.9	12.9	8.4	2.6	12.6
CRNI VRH	-0.7	0.9	4.3	6.4	10.0	14.3	16.3	16.8	12.2	7.2	2.2	-1.4	7.4
NEGOTIN	1.4	2.7	10.6	12.9	17.0	21.2	23.4	23.2	18.1	12.3	6.7	2.7	12.7
ZLATIBOR	2.7	4.4	5.1	7.5	11.0	15.1	17.2	17.3	12.5	9.2	6.8	-0.1	9.1
SJENICA	1.2	3.9	4.4	6.9	10.4	14.4	16.4	16.5	11.8	8.3	5.4	-0.5	8.3
POZEGA	1.9	3.6	7.7	10.6	14.1	18.1	20.2	19.7	15.5	11.3	6.6	0.9	10.8
KRALJEVO	3.9	6.7	9.5	12.0	15.4	19.7	21.5	21.0	16.6	12.2	8.7	2.3	12.4
KOPAONIK	-0.8	0.8	0.4	2.8	6.0	10.6	12.4	13.3	8.2	5.4	2.6	-2.0	5.0
KURSUMLIJA	3.5	6.3	8.1	10.9	14.2	18.2	20.4	20.3	15.7	11.0	8.1	2.4	11.6
KRUSEVAC	3.5	6.6	9.4	11.9	15.9	19.7	21.7	21.2	16.8	11.7	8.4	2.3	12.4
CUPRIJA	3.6	6.1	8.8	12.1	15.6	19.4	21.6	21.4	17.1	12.2	8.1	2.5	12.4
NIS	4.0	7.5	9.8	12.3	16.3	20.2	22.3	22.2	17.7	12.3	9.1	2.8	13.0
LESKOVAC	3.2	6.5	8.8	11.5	15.7	19.5	21.7	21.6	17.1	11.5	8.1	2.1	12.3
ZAJECAR	0.9	3.2	8.9	11.5	15.4	19.3	21.7	21.0	16.2	10.9	6.0	0.9	11.3
DIMITROVGRAD	2.1	5.9	7.8	10.5	13.9	17.6	20.0	20.3	15.8	10.9	7.6	1.5	11.2
VRANJE	3.7	6.9	9.1	11.1	15.2	19.2	21.3	22.2	16.9	11.8	8.7	2.6	12.4

EXTREMELY WARM | VERY WARM | WARM | NORMAL | COLD | VERY COLD | EXTREMELY COLD

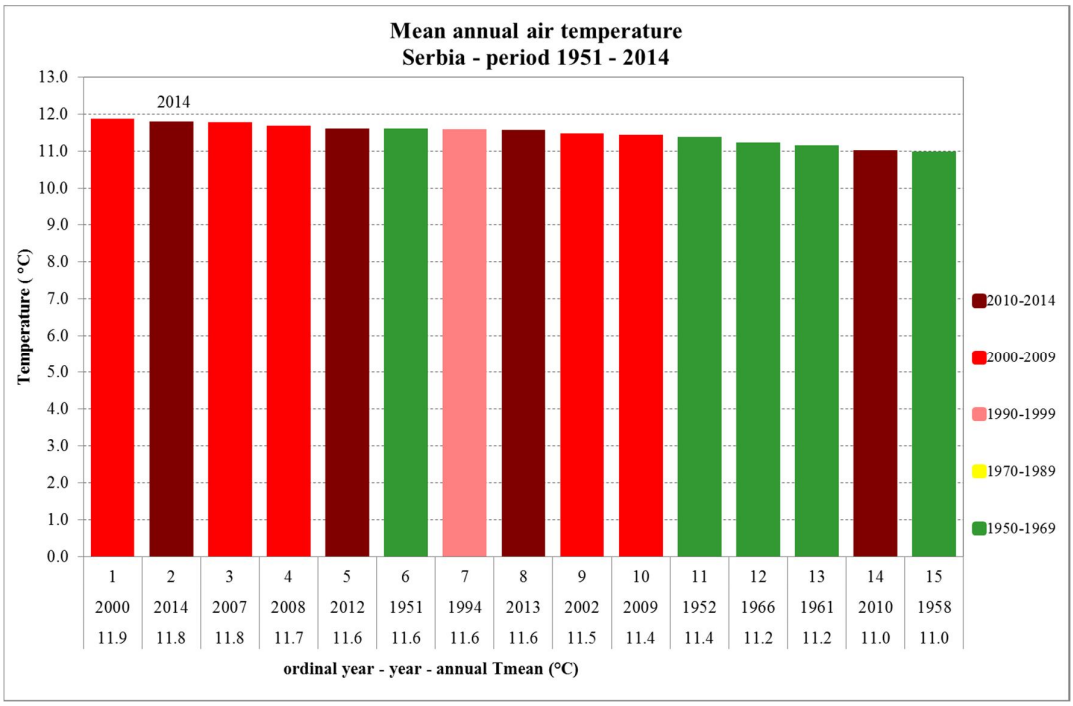
Chart 2.

MEAN MONTHLY AND ANNUAL PRECIPITATION (mm) ACCORDING TO THE PERCENTILE METHOD
REFERENCE PERIOD1961-1990

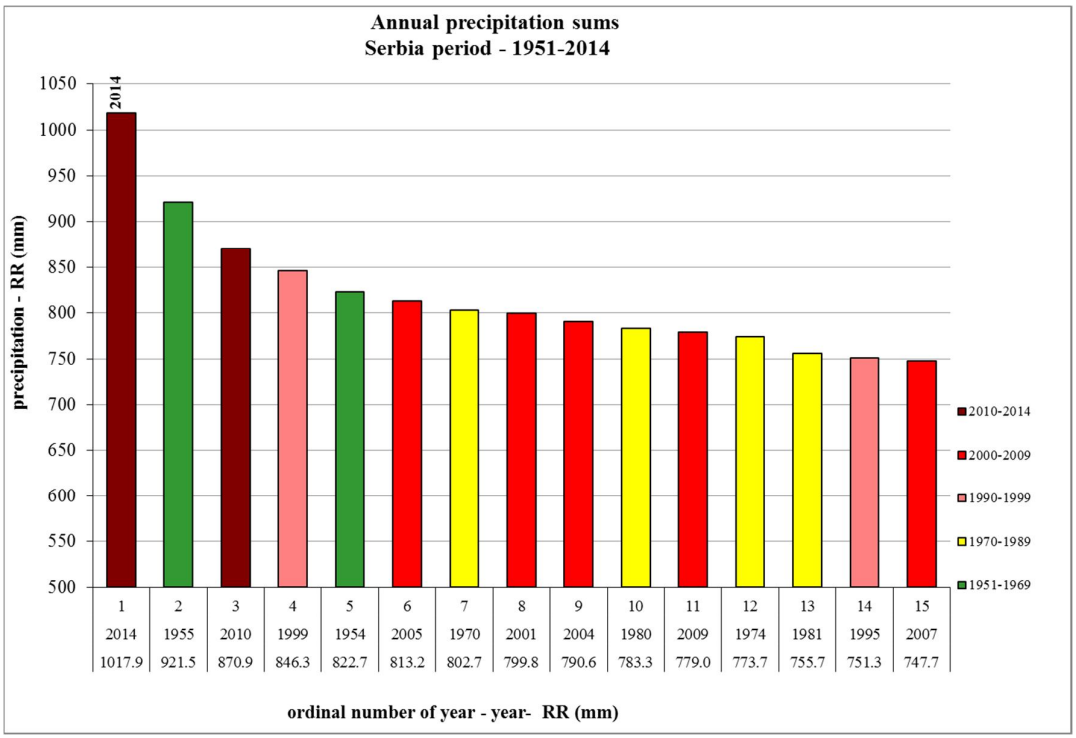
2014

station/month	January	February	March	April	May	June	July	August	September	October	November	December	Year
PALIC	35.8	58.0	17.3	59.4	106.7	50.2	115.1	78.1	137.4	87.0	4.6	58.3	807.9
SOMBOR	32.6	43.3	30.5	42.8	145.0	67.2	84.8	49.7	136.2	76.3	8.4	64.0	780.8
NOVI SAD	24.3	9.2	49.5	51.2	202.1	38.2	141.1	78.7	84.3	64.1	5.2	68.1	816.0
ZRENJANIN	30.8	7.9	27.1	76.0	159.9	35.2	153.5	71.6	119.4	59.5	4.3	54.3	799.5
KIKINDA	37.8	17.0	29.6	36.9	125.7	25.3	115.3	50.9	71.5	78.8	6.3	47.1	642.2
LOZNICA	38.2	24.5	71.2	167.2	321.2	49.7	93.5	157.0	127.3	87.4	15.6	89.6	1242.4
S.MITROVICA	21.4	16.3	46.7	74.2	187.0	37.2	74.9	55.7	136.5	57.5	9.4	44.3	761.1
VALJEVO	21.8	14.0	67.2	177.1	323.7	124.1	204.4	131.2	106.1	50.0	17.4	95.4	1332.4
BELGRADE	24.1	19.9	48.7	85.3	280.4	60.3	250.6	63.5	126.0	61.2	8.8	66.3	1095.1
KRAGUJEVAC	21.2	9.0	67.1	129.1	227.0	66.9	138.6	75.2	72.2	50.4	18.9	98.7	974.3
S.PALANKA	37.0	15.9	59.9	101.2	238.2	65.2	149.3	97.1	86.7	64.1	14.2	110.8	1039.6
V.GRADISTE	43.4	12.1	32.8	53.3	153.5	75.3	182.1	137.2	114.0	70.3	8.7	63.0	945.7
CRNI VRH	26.5	16.6	68.7	152.4	159.0	103.6	114.3	139.9	151.0	73.0	42.0	90.4	1137.4
NEGOTIN	56.1	20.8	103.8	108.2	153.0	116.6	72.3	89.3	304.1	51.8	42.8	118.4	1237.2
ZLATIBOR	39.7	16.6	107.3	225.8	196.0	146.6	197.7	151.8	237.1	66.9	23.2	106.8	1515.5
SJENICA	42.3	6.2	61.2	127.4	143.6	104.7	65.5	100.3	157.0	75.9	60.8	66.2	1011.1
POZEGA	22.3	17.4	65.4	169.1	188.7	109.5	103.4	98.6	169.1	54.9	33.7	89.4	1121.5
KRALJEVO	19.9	10.7	74.6	169.6	185.2	156.7	117.8	95.4	130.6	59.1	23.7	92.0	1135.3
KOPAONIK	32.6	19.2	135.3	217.6	183.6	107.2	140.3	69.7	188.1	77.7	76.9	94.0	1342.2
KURSUMLIJA	43.3	2.2	81.7	128.3	92.8	85.5	152.3	33.3	157.1	73.2	40.3	78.3	968.3
KRUSEVAC	25.1	9.3	63.5	188.8	126.6	115.3	92.4	42.0	127.6	56.8	39.4	99.6	986.4
CUPRIJA	26.5	15.9	73.2	111.3	185.2	85.4	124.6	56.0	82.6	70.5	30.3	100.0	961.5
NIS	38.3	6.5	43.7	121.7	177.1	77.5	141.5	70.8	81.8	56.8	47.2	87.3	950.2
LESKOVAC	27.5	9.0	43.6	185.3	122.7	64.3	86.0	47.1	121.2	54.7	46.6	91.2	899.2
ZAJECAR	46.2	20.8	55.5	147.1	132.3	148.7	55.3	111.8	118.0	48.8	35.0	128.8	1048.3
DIMITROVGRAD	20.6	10.8	58.5	145.8	121.7	96.4	98.5	86.2	131.6	79.5	43.9	83.1	976.6
VRANJE	34.3	13.6	39.4	161.8	125.3	91.4	93.5	24.2	120.6	70.6	71.3	52.1	898.1

EXTREMELY WET | VERY WET | WET | NORMAL | DRY | VERY DRY | EXTREMELY DRY



Graph 1.Ranking of the warmest years on record in descending order for Serbia for the 1951-2014 period



Graph 2. Ranking of the wettest years in descending order for Serbia for the 1951-2014 period

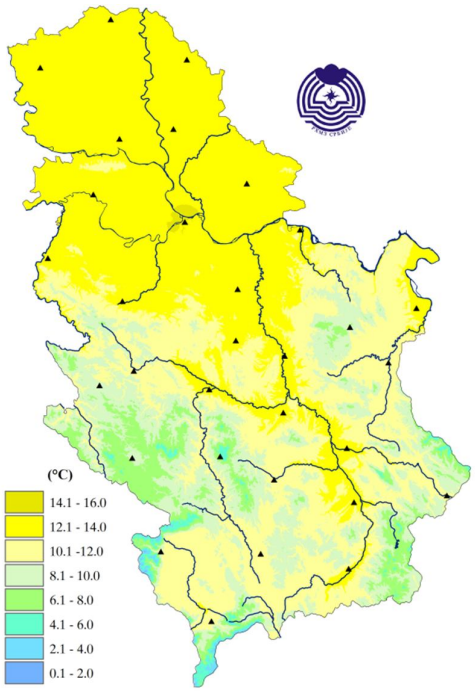


Figure 1. Spatial distribution of the annual average temperature (°C) during 2014

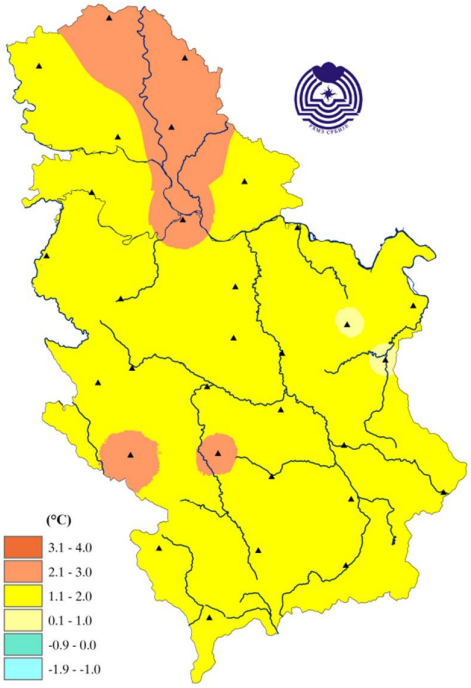


Figure 2. Spatial distribution of the annual average temperature anomalies (°C) during 2014

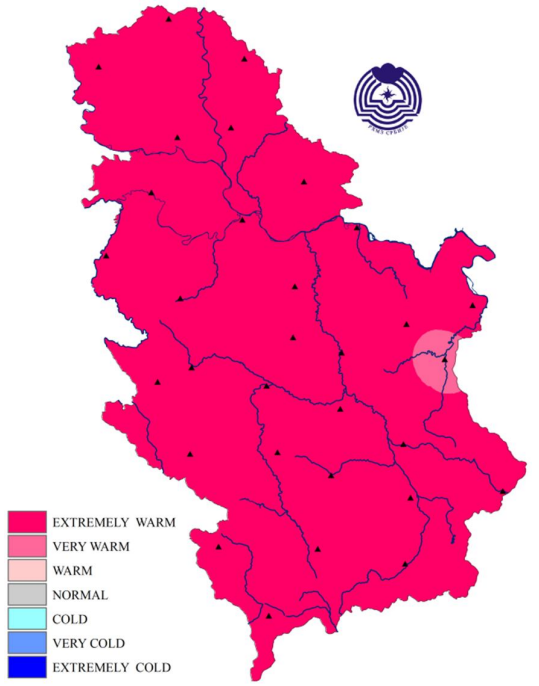


Figure 3. Spatial distribution of annual average temperature according to the percentile method during 2014

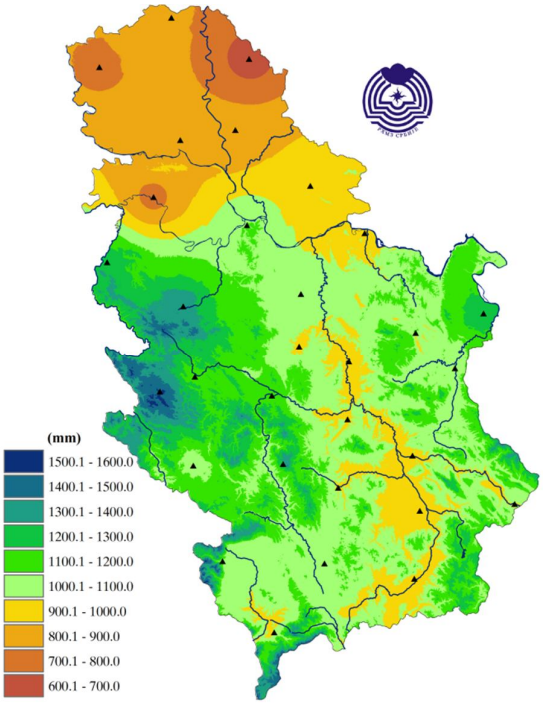


Figure 4. Spatial distribution of annual sums of precipitation in mm during 2014

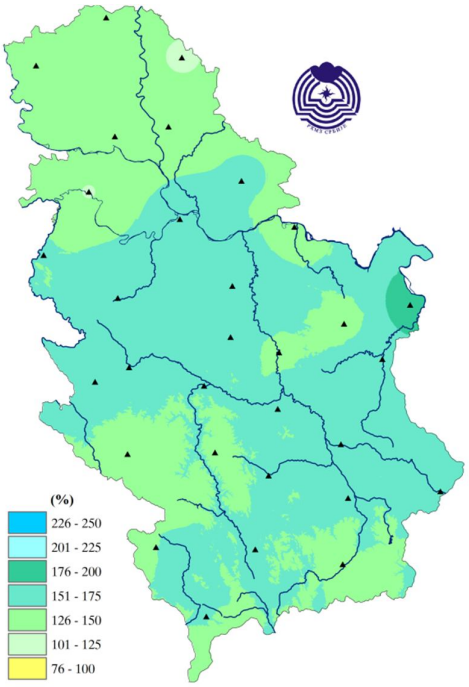


Figure 5. Spatial distribution of annual sums of precipitation expressed in the percentages of normal for the 1961-1990 base period during 2014

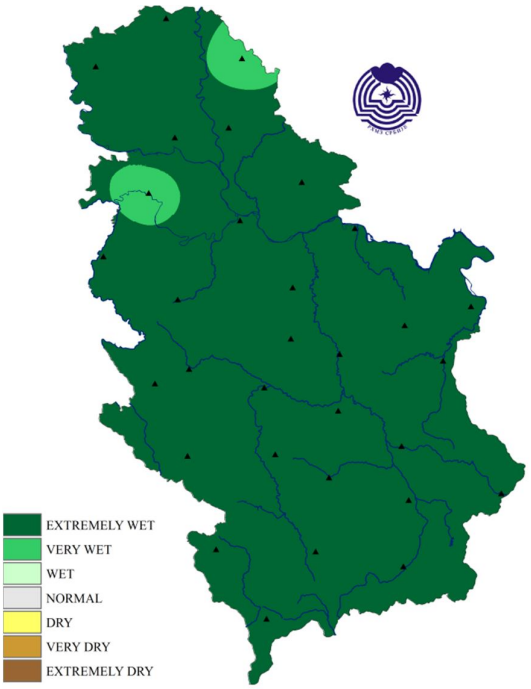


Figure 6. Spatial distribution of annual sums of precipitation according to the percentile method during 2014

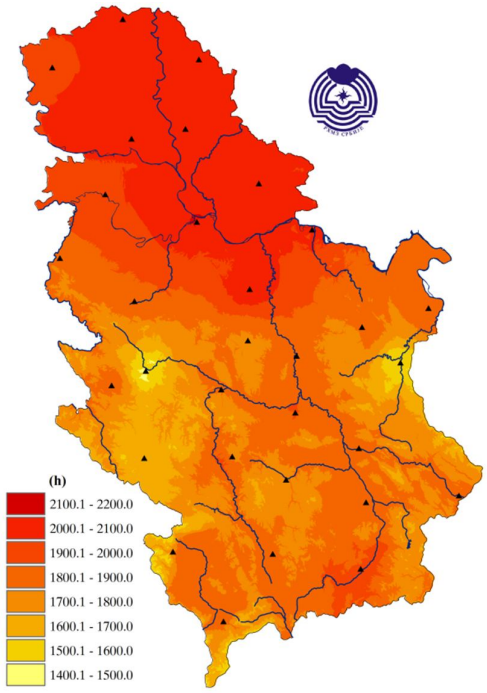


Figure 7. Insolation, expressed in hours during 2014

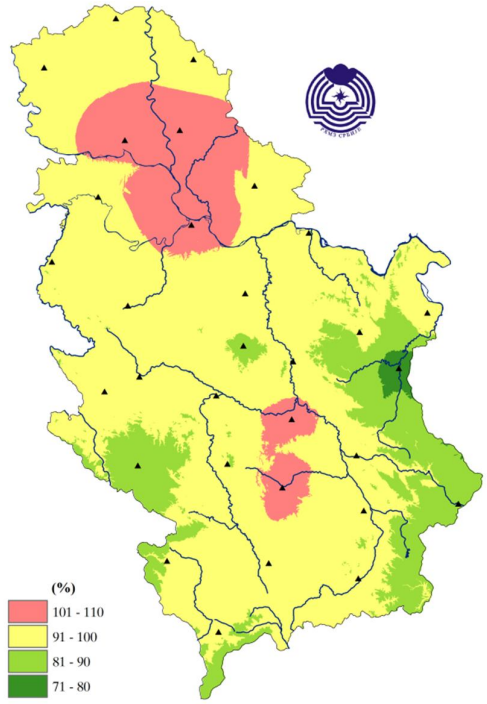


Figure 8. Insolation, expressed in the percentages of normal during 2014

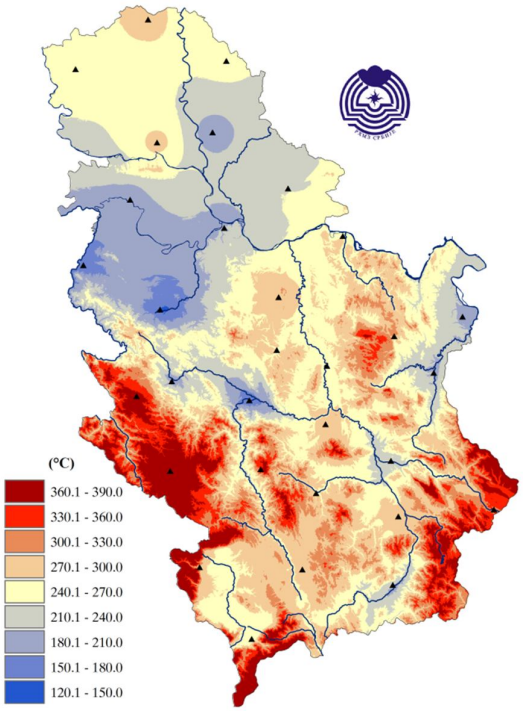


Figure 9. Spatial distribution of heat waves intensity registered during 2014 in Serbia