

National Climate Bulletin and the assessment of the SEECOF-24 Climate outlook for Montenegro for the summer season 2021

(prepared by Slavica Micev)

Assessment has been done in respect to the 1961-1990 using percentiles.

Characteristic of the summer season:

- Temperature was higher than average and in categories very warm and extremely warm;
- Precipitation was in categories dry, very dry and normal (figure 1).

The average temperature was in the range from 17.1 °C in Zabljak to 28.1 °C in Podgorica. Deviation from the mean temperature was in range from 1.5 °C in Ulcinj to 4.4 °C in Rozaje. In the capital town Podgorica average temperature was for 3.2 °C higher than climatological normal 1961-1990.

The number of tropical days ($T_x \geq 30$ °C) was in the range from the 13 days in Zabljak to the 79 days in Podgorica. The largest number of tropical days in Zabljak (1450 asl) was evidenced this year. It was the largest number since 2007, when was 6 tropical days).

The number of tropical nights ($T_n \geq 20$ °C) was from 1 in Niksic to 67 in Podgorica (i.e. 1 in Niksic, 30 in Ulcinj, 49 in Herceg Novi, 63 in Budva, 65 in Bar and 67 in Podgorica).

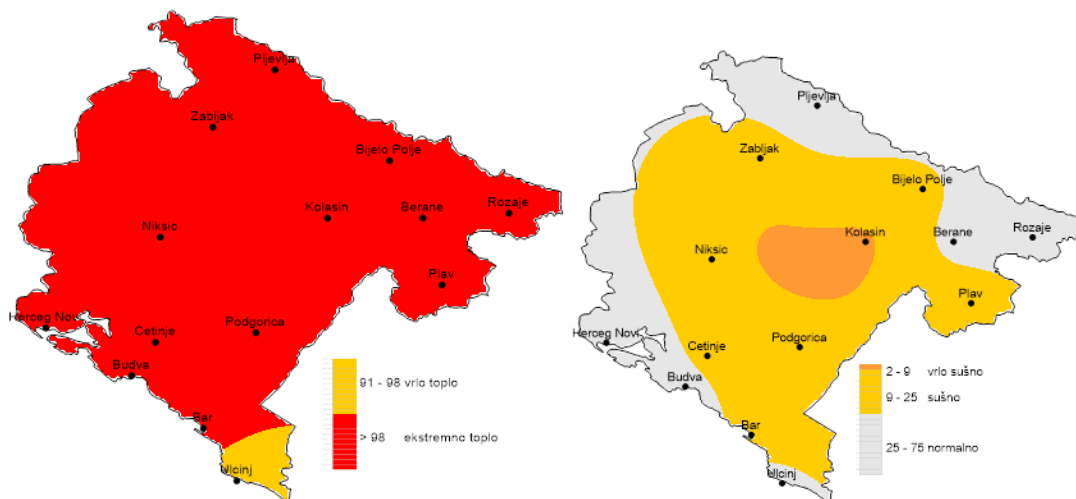


Figure 1. Distribution of percentiles: for the temperature (left) and precipitation (right). Colors: yellow – warm, red – very warm; grey – normal, yellow – dry, orange – very dry

The summer 2021 is the 2nd warmest in Kolasin since 2012. The average temperature was 19.2 °C while in 2012 the average temperature was 19.6 °C. The second warmest summer on the record was also in the other places of northern mountainous region with the following average temperature:

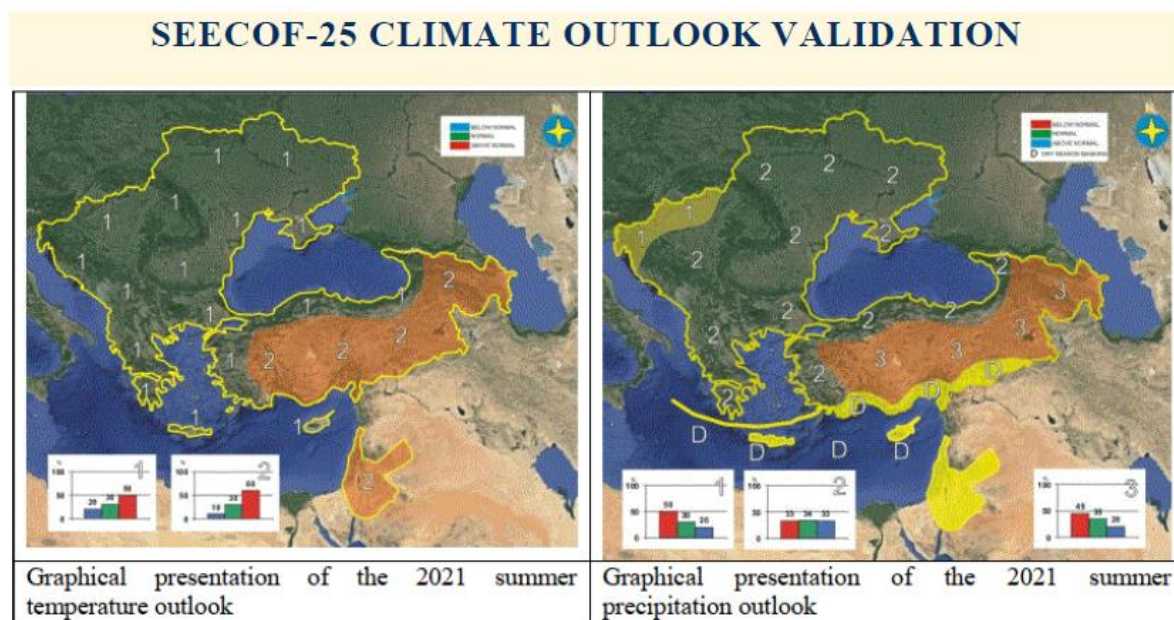
- Zabljak, 17.1 °C (previous 17.4 °C in 2012)

- Rozaje, 19.2 °C (previous 20 °C in 2012)
- Except Berane, with 21,4 °C as the third in the rank (previous 22 °C in 2012 and 21.4 °C in 2015).
- The temperature in other cities of Montenegro was within 10 warmest on record.

The total amount of precipitation was in the range from the 76 mm in Podgorica to the 220 mm in Pljevlja. Comparing to climatological normal 1961-1990, the range of precipitation amount was from the 47% in Podgorica to the 95% in Pljevlja. Drier than normal condition was in most of the country, figure 1.

Assessment of the SEECOF-23 Climate outlook for 2021 summer season

(prepared by Mirjana Ivanov)



Climate outlook statement for the summer 2021 shows that the temperature in Montenegro was expected to be in the area 1. Considering that the summer season for the whole territory was above normal and in category warm to extremely warm, the real conditions were more similar to outlook for the area 2. Distinctions exist for the precipitation, as most of the country had dry to very dry conditions. Only small part of the country had normal conditions of precipitation. Therefore outlook for the area 1 is more suitable than for 2.

Climate outlook: the summer temperature (left) and precipitation (right) in 2020

Country	Seasonal temperature	Seasonal precipitation	High Impact Events*
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	Observed	SEECOF-17 climate outlook for temperature	Observed	SEECOF-17 climate outlook for precipitation	
Montenegro	Above normal	Above normal (20,30,50)	Normal in small parts of the country Below normal in the most of the country	Below normal (50,30,20)	<p>January: Strong wind gust on the coastal region. The most affected area was Ada Bojana and Budva. Large waves destroyed terraces and complete inventory of the restaurants.</p> <p>February: Strong N wind gust cause damages on the facades and roofs in Podgorica. There were broken trees in the boulevards and parks.</p> <p>June-July- August: Agricultural drought caused losses in yields for half than normal for that period. At the same time the prices for cattles' food increased significantly. Therefore, the most affected were cattlemen and farmers.</p> <p>Forest fires during the summer but especially in August. Forests in National parks Durmitor, Lovcen were affected by fires and some houses in the Katun's area. Also forests in surroundings of Tara's canyon.</p> <p>August: Strong wind gust in Tivat destroyed the trees, auto camps, while three persons were slightly injured.</p> <p>11/08/21: Heavy precipitation in Podgorica with hail size of hazelnut.</p> <p>28/08/21: Due to heavy precipitation some streets in Budva and Podgorica were flooded.</p>

Optional → * Events that had an impact on the society (events that caused great material damage to the society during previous season – on the basis of the assessment of the hydrometeorological service):

- 1) Record breaking maximum or minimum air temperatures, precipitation during season or for specific months (date and place of the event)
- 2) Heavy precipitation at the stations that caused flood with damage

- 3) In case of extreme season indicate the ranking, warmest or coldest (wettest or driest) (mandatory)
- 4) Heat waves or cold spells (with the specified criteria for heat/cold spell)
- 5) Anomalies of the number of days: frost, ice, days with severe frost, with snow cover, summer, tropical, tropical nights (depending on the season)
- 6) The occurrence of stormy wind gusts that caused damage to that area (date and place)
- 7) The occurrence of hail (date and place) that caused major damage
- 8) The occurrence of snow cover caused major damage
- 9) Snow cover in combination with wind gusts caused major damage
- 10) Drought (precipitation deficit) that caused fires or damage to agriculture and water supply
- 11) Other extreme events (tornado, spout)