

## VERIFICATION OF THE SEECOF -28 WINTER 2022/2023

### CLIMATE OUTLOOK FOR REPUBLIC OF NORTH MACEDONIA COMPARED TO THE 1981-2010 BASE PERIOD

Hydrometeorological Service of Republic of North Macedonia prepares regular seasonal climate analysis, based on the products of SEECOF seasonal forecasts and the forecast from the SEEVCCC. The present analysis was for the winter 2022/2023, December 2022, January and February 2023, and it is based on the means of the climatological period 1981-2010.

#### ➤ WINTER 2022/2023

Overall conditions in Republic of N. Macedonia this winter season had positive divergence from the long term average 1981-2010. During winter 2022/2023, the mean air temperature ranged between 0.3°C in Lazaropole and 7.6°C in Gevgelija. Spatial distribution of the mean seasonal air temperature is shown on Figure 1. The mean air temperatures anomaly ranged from 1.4°C in Lazaropole to 3.3°C in Skopje (Figure 2).

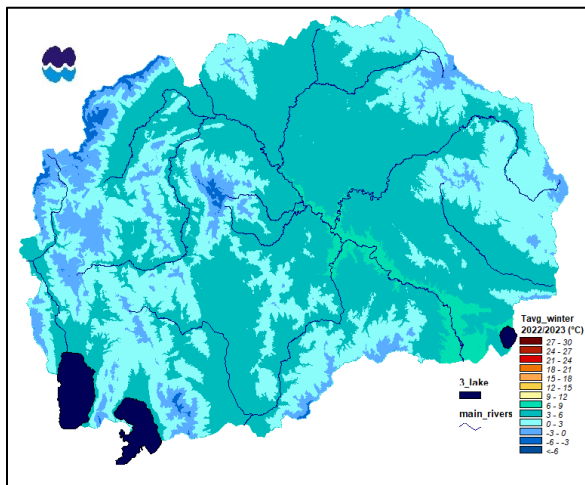


Figure 1: Spatial distribution of the mean seasonal air temperature (°C) for winter 2022/2023

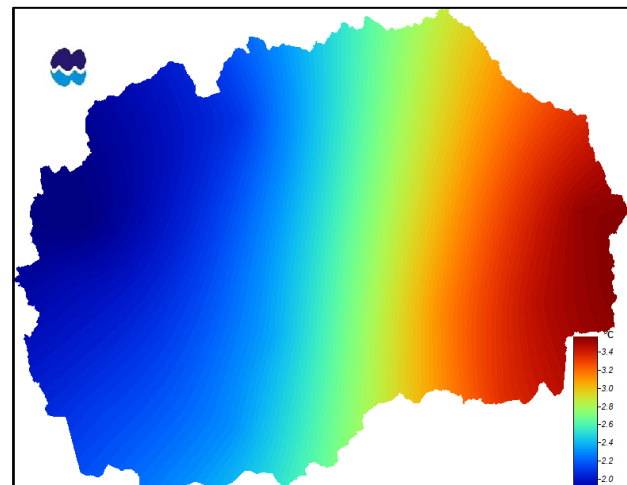


Figure 2: Mean seasonal air temperature anomaly (°C) compared to the period 1981-2010 for winter 2022/2023

The mean maximum seasonal air temperature was from 5.4°C in Lazaropole to 13.2°C in Gevgelija. The mean maximum seasonal air temperature anomaly was from 1.7°C in Lazaropole to 4.5°C in Strumica.

The mean minimum seasonal air temperature was from -3.4°C in Lazaropole to 3.1°C in Gevgelija. The mean minimum seasonal air temperature anomaly was from 1.2°C in Lazaropole to 3.3°C in Mavrovo.

According to percentile calculation method, almost whole territory was classified as extremely warm (Table1).

The highest daily winter air temperature was measured 22.8°C observed on 19<sup>th</sup> February in Gevgelija, and the lowest winter air temperature was -16.2°C observed on 8<sup>th</sup> of February in Lazaropole.

Rainfall totals were near normal. Spatial distribution of the precipitation sums is shown on Figure 3 and the anomaly compared to 1981-2010 base period on Figure 4.

The wettest day was 1<sup>st</sup> of December in Demir Kapija with 47.9mm.

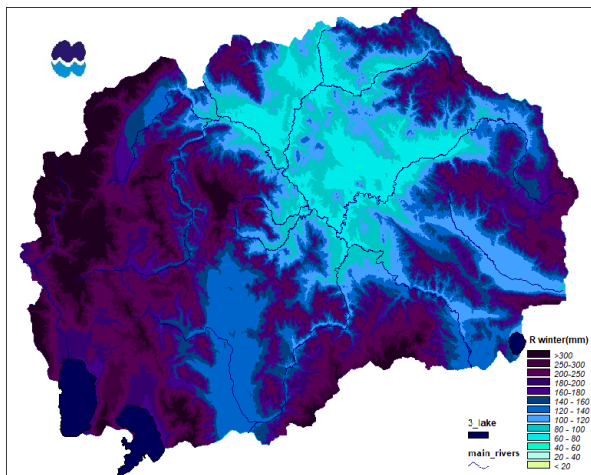


Figure 3: Spatial distribution of the precipitation sums (mm) during winter 2022/2023

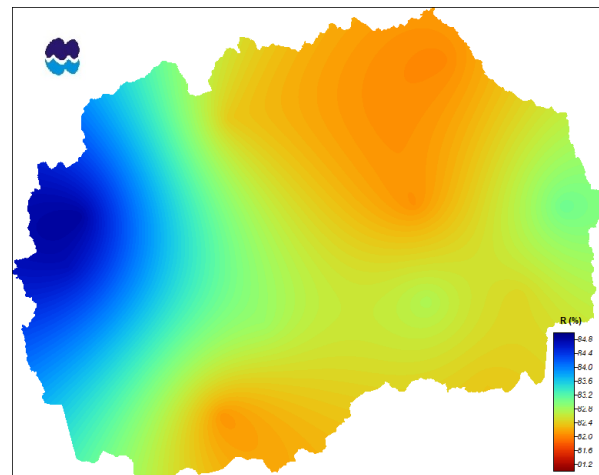


Figure 4: Spatial distribution of the precipitation sums anomaly (mm) during winter 2022/2023

According to percentile calculation method for precipitation, the territory of Republic of North Macedonia was classified as dry to normal (Table1).

Meteorological station	Temperature	Precipitation
Berovo	extremely warm	normal
Kriva Palanka	extremely warm	dry
Stip	extremely warm	dry
Strumica	extremely warm	normal
Demir Kapija	extremely warm	normal
Gevgelija	extremely warm	normal
Skopje	extremely warm	dry
Prilep	extremely warm	normal
Bitola	extremely warm	dry
Ohrid	extremely warm	normal
Mavrovo	extremely warm	normal
Lazaropole	warm	normal

Table1: Air temperature and precipitation classification in Republic of N. Macedonia for winter 2022/2023 using percentile method compared to 1981-2010 base period

The values of distribution of tercile for the air temperature and the precipitation sums for this season are shown in Table 2 and 3, respectively.

Air Temperature (°C)	2022/2023	1981-2010	
		33	67
Berovo	2.1	-1.2	0.6
Kriva Palanka	3.6	0.4	1.4
Stip	5.4	1.8	3.2
Strumica	5.3	1.4	3.2
Demir Kapija	5.8	2.3	4.1
Gevgelija	7.6	4.5	5.6
Skopje	5.3	1.6	2.7
Prilep	4.2	0.5	2.3
Bitola	3.9	-0.5	2.0
Ohrid	4.6	2.1	3.1
Lazaropole	0.3	-2.7	-0.5
Mavrovo	1.6	-1.7	-0.7

Table 2: Values of distribution of tercile for temperature for period 1981-2010

Precipitation sums (mm)	2022/2023	1981-2010	
		33	67
Berovo	147.8	109.5	662.9
Kriva Palanka	90.9	106.9	665.4
Stip	56.6	71.3	500
Strumica	107.4	120.9	602.8
Demir Kapija	175.5	125.7	597.7
Gevgelija	160.0	111.8	776.0
Skopje	65.5	87.5	521.6
Prilep	102.2	80.5	531.7
Bitola	92.9	145.0	675.7
Ohrid	169.2	178.8	749.9
Lazaropole	308.9	246.7	1064.5
Mavrovo	353.6	269.0	1172.7

Table 3: Values of distribution of tercile for precipitation for period 1981-2010

According SEECOF-28 forecast winter temperature is likely to be near or above-normal for Republic of N. Macedonia. Forecast for the precipitation for DJF 2022/2023 categorized our country in region where uncertainty is high: probabilities for below, near- or above-average conditions are approximately equal.

Find also below a table 4 presenting the general anomalies of SEECOF products and extreme events of the recorded winter weather.

Country	Seasonal temperature (DJF)		Seasonal precipitation (DJF)		High Impact Events
	Observed	SEECOF climate outlook for temperature	Observed	SEECOF climate outlook for precipitation	
<b>REPUBLIC OF N.MACEDONIA</b>	Above normal	Near or above normal (20, 40, 40)	Normal	No signal (33, 34, 33)	<p><b>Exceeded absolute maximum temperature</b></p> <p>19.9°C on 16<sup>th</sup> of December in Ohrid                      19.9°C on 16<sup>th</sup> of December in Kriva Palanka                      18.7°C on 18<sup>th</sup> of January in Skopje</p>

