

CLIMATOLOGICAL ANALYSIS

SEASON

WINTER 2022 - 2023



BOSNIA AND HERZEGOVINA
FEDERATION OF BOSNIA AND HERZEGOVINA
FEDERAL HYDROMETEOROLOGICAL INSTITUTE

CLIMATOLOGICAL ANALYSIS SEASONE WINTER 2022.-2023.

Sarajevo, april 2023.

Mean air temperatures during the climatological winter 2022-2023 (1st December 2022. – 28th February 2023.) ranged between 3,1 °C in Livno and 10,3°C in Neum. On the mountain areas air temperatures were in the range of -3,7 °C on Bjelasnica to 1,5 °C on Ivan-sedlo. Temperature deviations from the normal values during the winter, which covers the period (1991.-2020.) were above normal. Deviation of the mean temperature than the average winter temperature ranged from 1,6 °C in Mostar to 3,0 °C in Gradacac. By percentage temperature values are classified into the category of very warm.

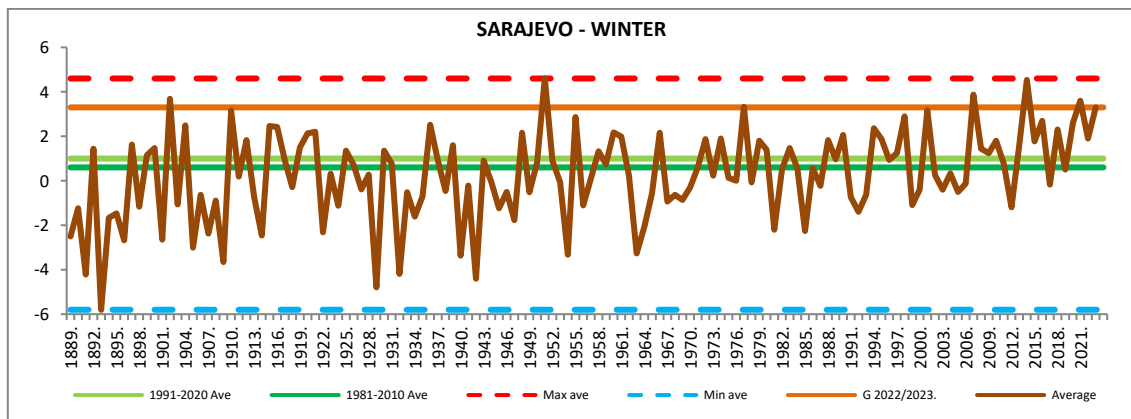
STATION	DEVIATION (°C)					PERCENTILES
	Alt	DECEMBER	JANUARY	FEBRUARY	WINTER	
Bihać	246	4,0	2,7	1,0	2,6	91
Bjelašnica	2067	4,4	1,7	0,2	2,1	94
Bugojno	562	4,9	2,4	0,5	2,6	94
Drvar	485	4,8	3,0	-0,2	2,5	94
Gradačac	225	3,3	4,0	1,8	3,0	97
Ivan-sedlo		4,3	2,2	0,4	2,3	93
Livno	724	4,6	1,5	-0,1	2,0	92
Mostar	99	2,9	1,6	0,4	1,6	92
Neum	9	3,3	2,0	0,1	1,8	94
Sarajevo	630	4,2	2,4	0,1	2,2	94
Sanski Most	154	3,6	3,0	0,8	2,5	94
Stolac	72	3,8	2,1	-0,7	1,8	94
Tuzla	305	4,1	3,4	1,0	2,9	95
Zenica	345	3,6	2,7	0,8	3,8	94

Table 1 Deviation middle of winter air temperatures in relation to cli standard normal and the corresponding percentiles

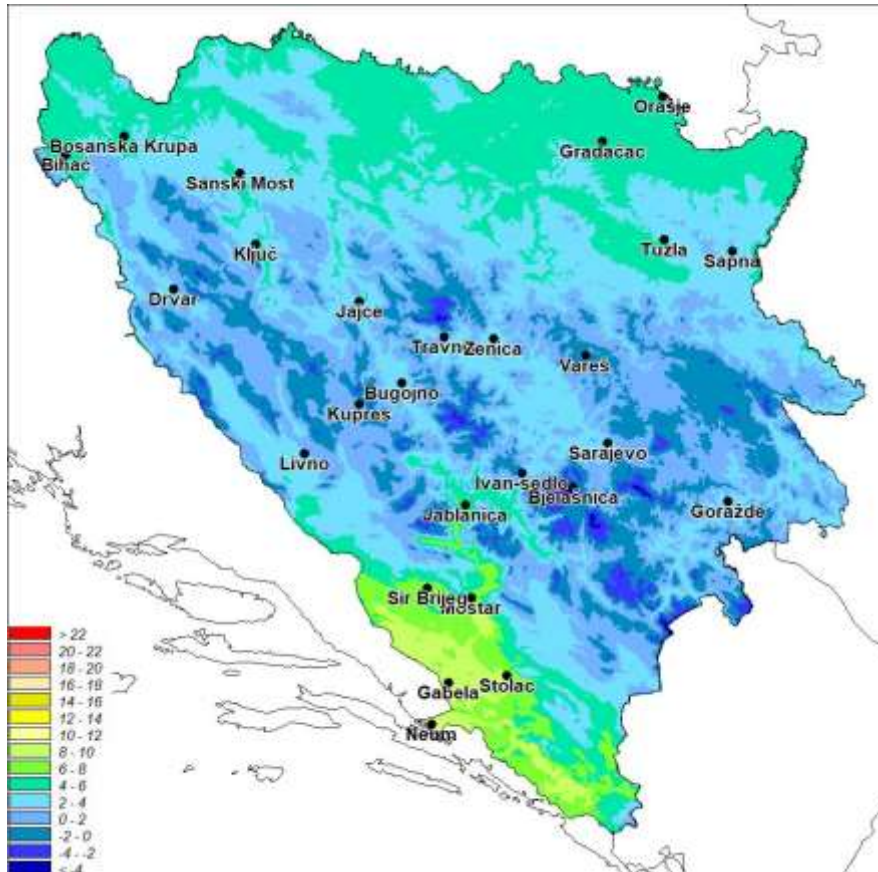
STATION	MOUNTH			STANICA	MOUNTH		
	December	January	February		December	January	February
Bihać	extremely warm	very warm	warm	Mostar	extremely warm	very warm	warm
Bjelašnica	extremely warm	very warm	warm	Neum	extremely warm	very warm	warm
Bugojno	extremely warm	very warm	warm	Sarajevo	extremely warm	very warm	warm
Drvar	extremely warm	very warm	warm	Sanski Most	extremely warm	very warm	warm
Gradačac	extremely warm	very warm	warm	Stolac	extremely warm	very warm	warm
Ivan-sedlo	extremely warm	very warm	warm	Tuzla	extremely warm	very warm	warm
Livno	extremely warm	very warm	warm	Zenica	extremely warm	very warm	warm

	extremely warm		very warm		warm		normal		cold		very cold		extremely cold
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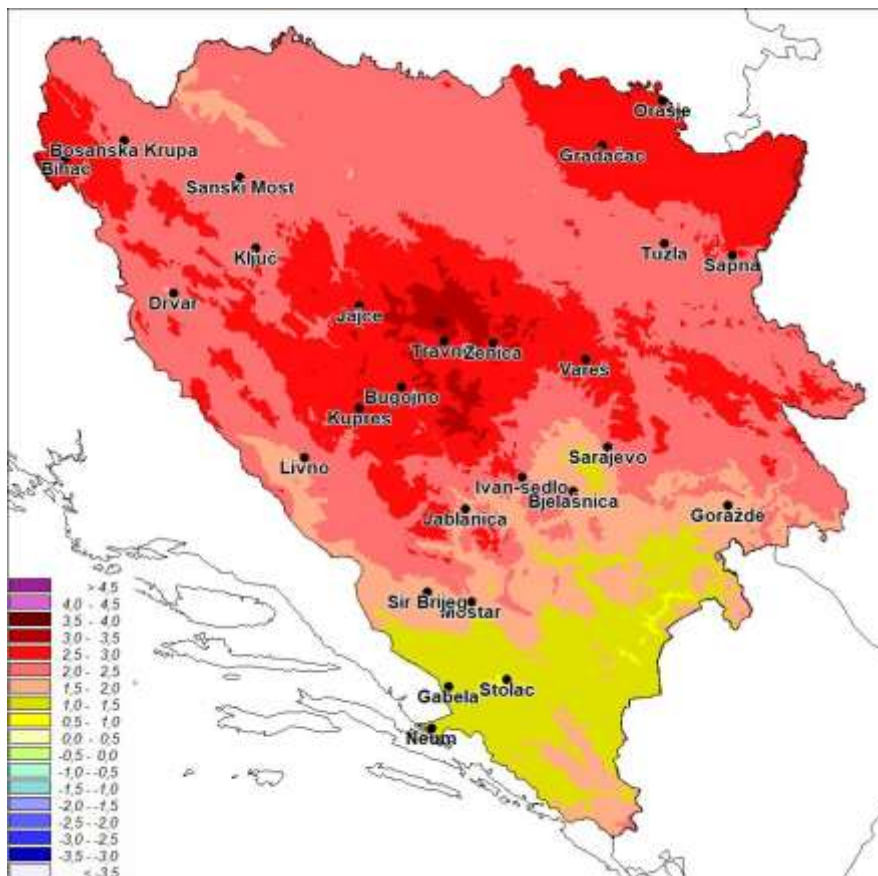
Table 2 Overview of marks mean temperature during the winter months by the method of percentiles



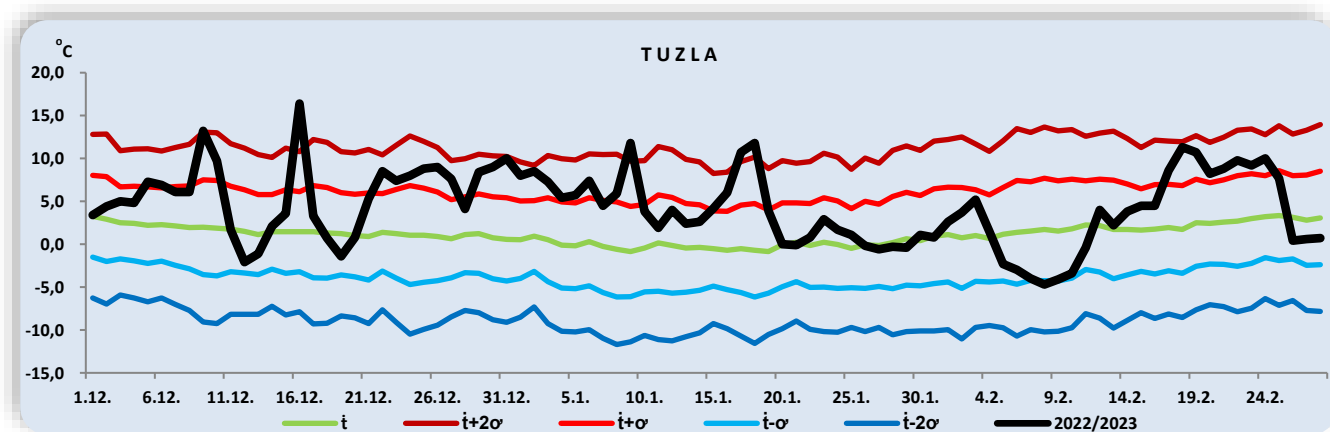
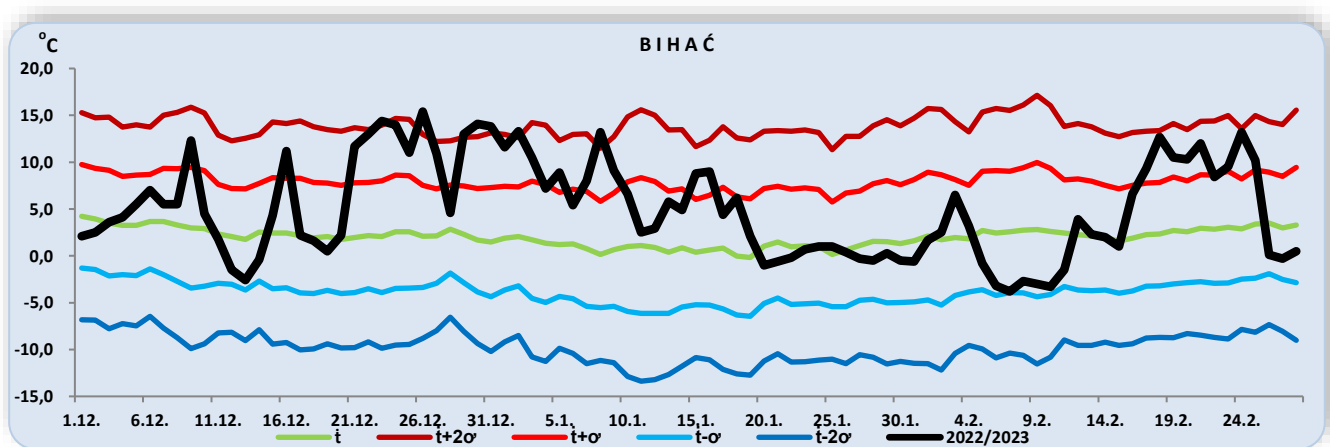
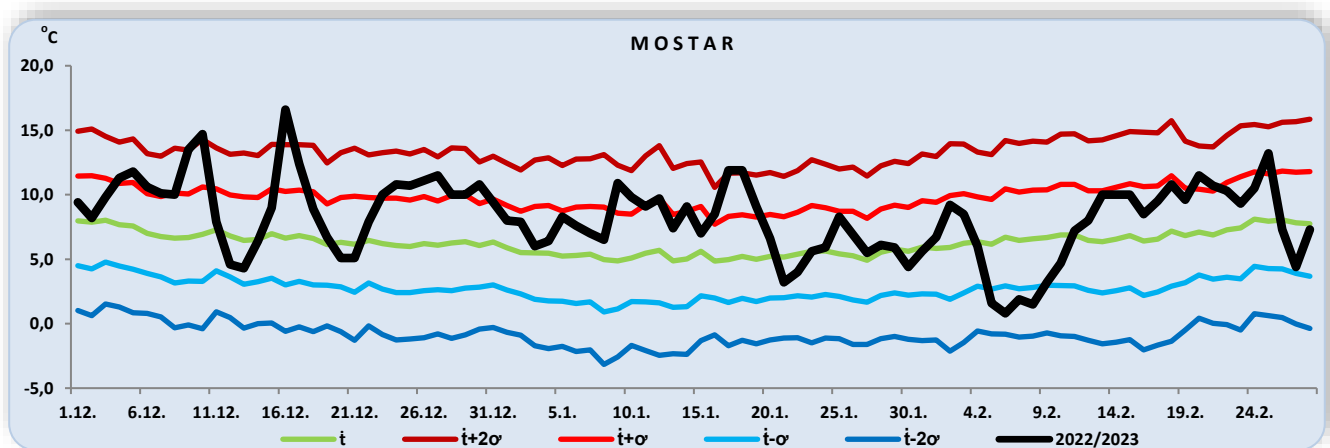
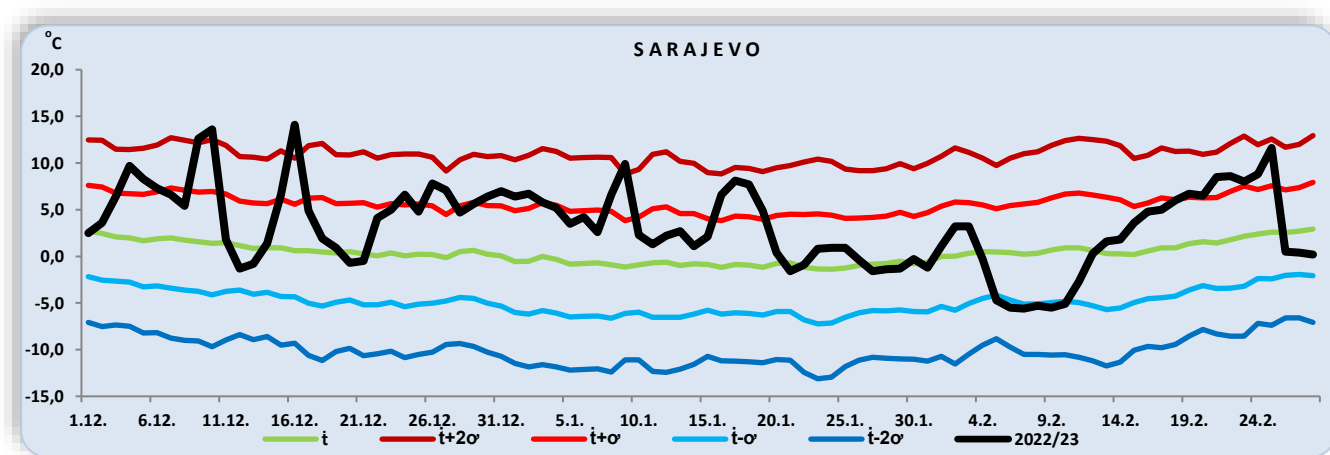
Graph 1 Winter temperature (°C) in Sarajevo



Map 1 Mean air temperature winter 2022.-2023. year (°C)



Map 2 Air temperature during winter 2022.-2023. using percentile method compared to the 1991-2020 base period



Graph 2-5 Mean daily air temperatures during winter 2022.-2023. year

Analysis of the monthly amount of precipitation expressed in % of average values shows that during the winter 2021 - 2022, deviations from normal precipitation amounts ranged from 68% in Stolac to 124 % in Gradacac. By percentage amounts of precipitation are classified into categories of normal and wet.

The measured amounts of precipitation were in the range of 151mm in Tuzla to 388 mm in Mostar.

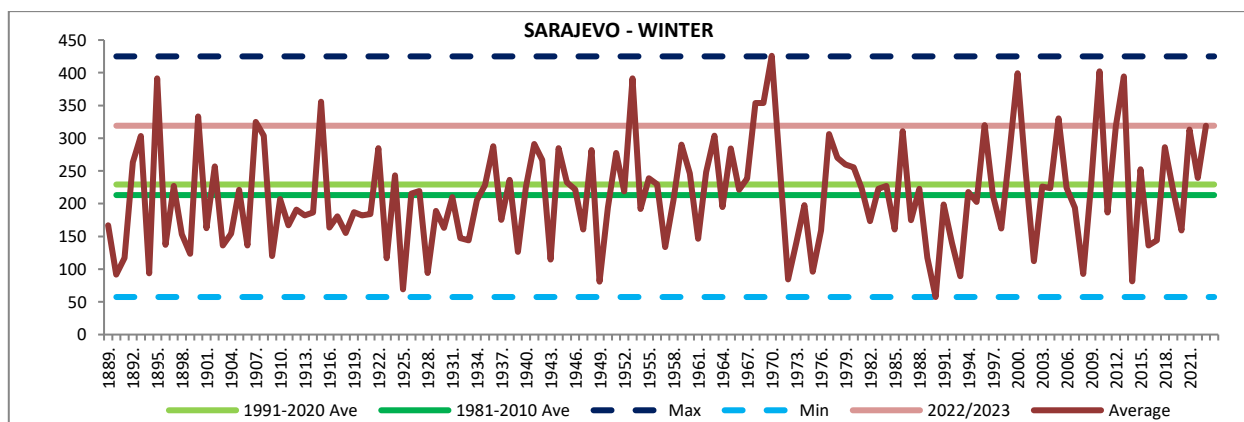
STATION	DEVIATION (%)					PERCENTILES
	Alt	DECEMBER	JANUARY	FEBRUARY	WINTER ¹	
Bihać	246	169,2	188,3	70,4	141,4	86
Bjelašnica	2067	98,3	143,0	121,9	122,5	78
Bugojno	562	130,2	117,7	60,2	137,7	85
Drvar	485	191,0	147,7	75,7	162,3	84
Gradacac	225	125,2	92,5	182,8	154,0	100
Ivan-sedlo		128,8	272,7	106,5	153,5	94
Livno	729	119,6	176,9	98,7	133,4	82
Mostar	99	180,1	222,3	67,0	108,3	65
Sarajevo	630	95,2	128,8	141,7	142,2	84
Sanski Most	154	151,7	141,8	77,8	147,0	92
Stolac	72	141,3	181,9	112,1	124,6	72
Tuzla	305	104,7	99,2	110,3	145,7	94
Zenica	345	89,7	72,1	93,0	119,1	73

Table 5 Deviation summer precipitation in relation to the climatological standard normal and the corresponding percentiles

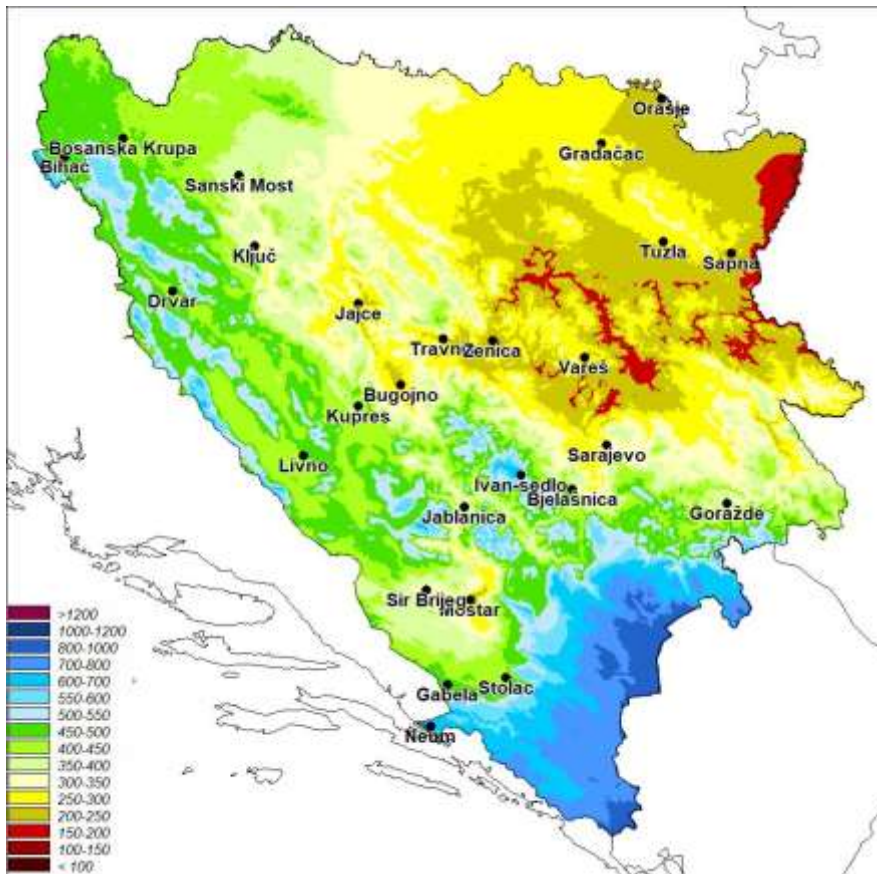
STATION	MOUNTH			STATION	MOUNTH		
	December	January	February		December	January	February
Bihać	Wet	Wet	Wet	Livno	Wet	Wet	Wet
Bjelašnica	Wet	Wet	Wet	Mostar	Wet	Wet	Wet
Bugojno	Wet	Wet	Dry	Neum	Wet	Wet	Dry
Drvar	Wet	Wet	Dry	Sanski Most	Wet	Wet	Wet
Gradačac	Wet	Wet	Wet	Sarajevo	Wet	Wet	Wet
Ivan-sedlo	Wet	Wet	Wet	Tuzla	Wet	Wet	Wet
				Zenica	Wet	Wet	Wet



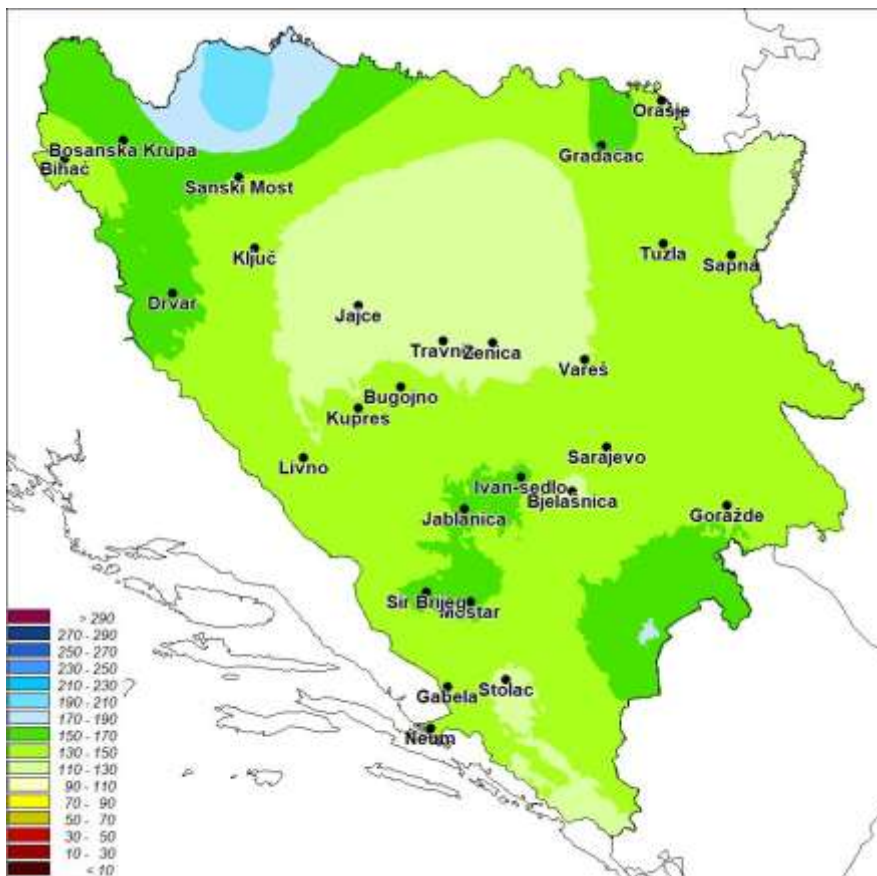
Table 6 Overview of marks on precipitation by month basis percentile



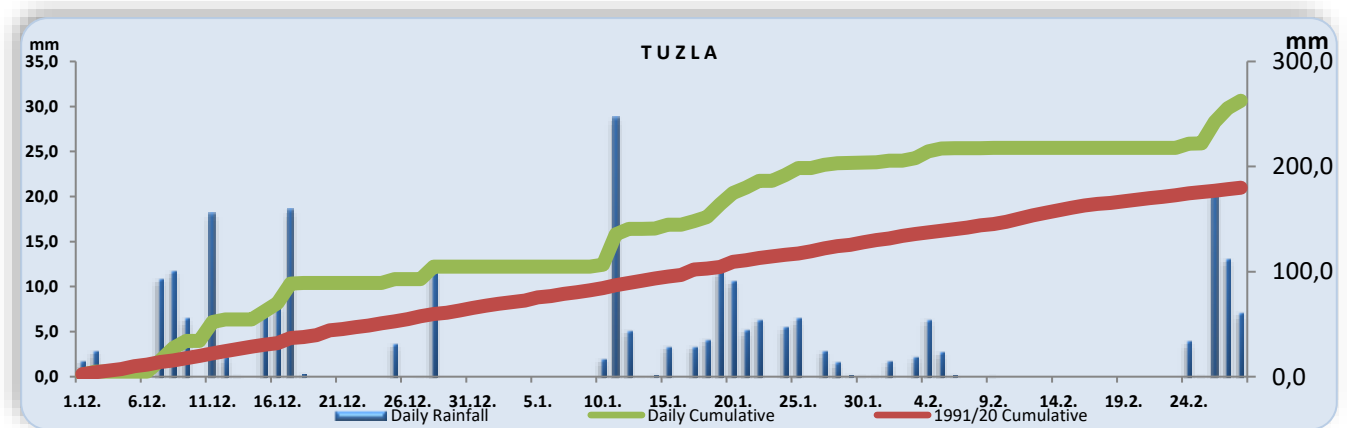
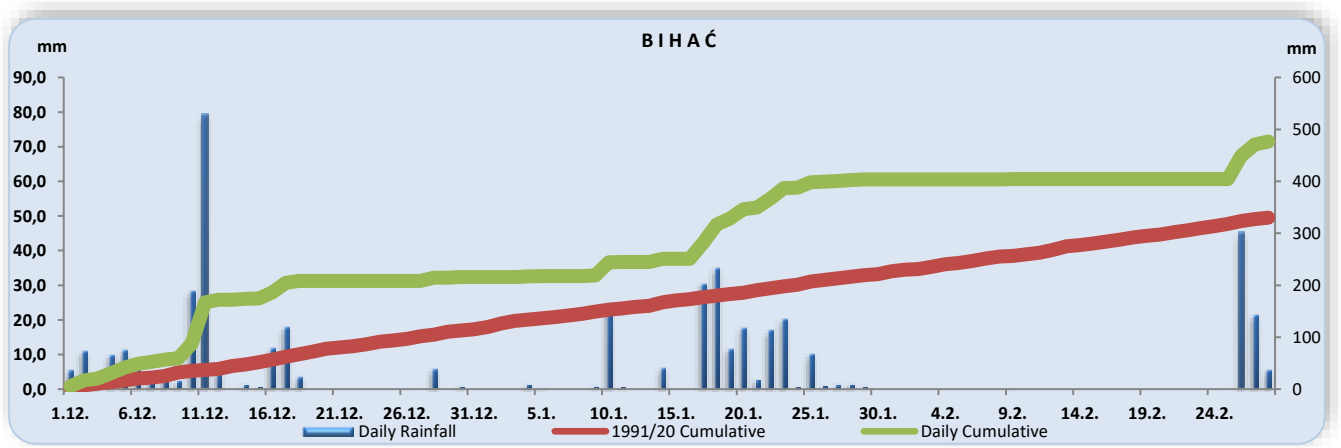
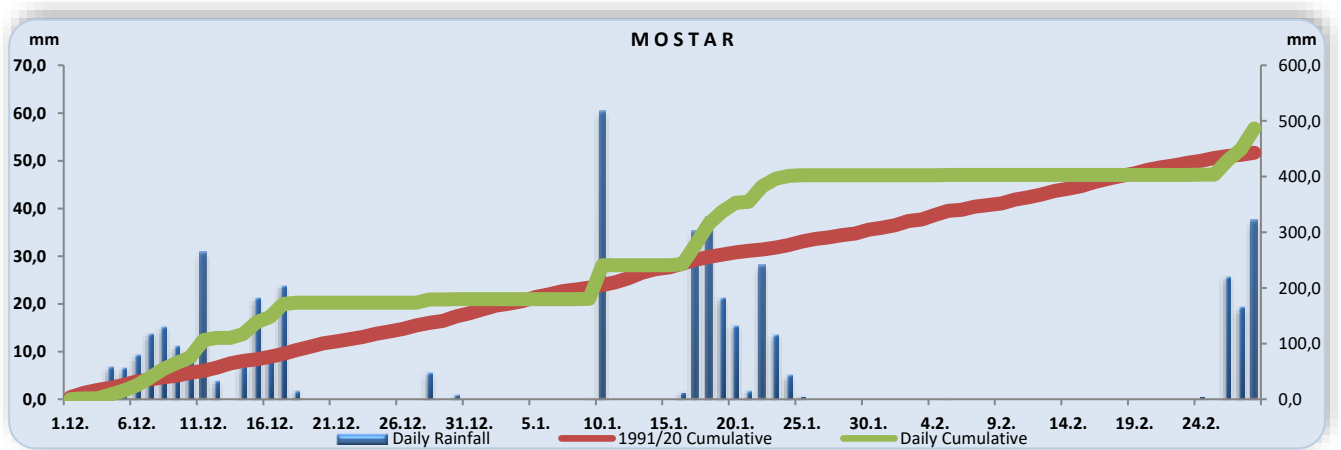
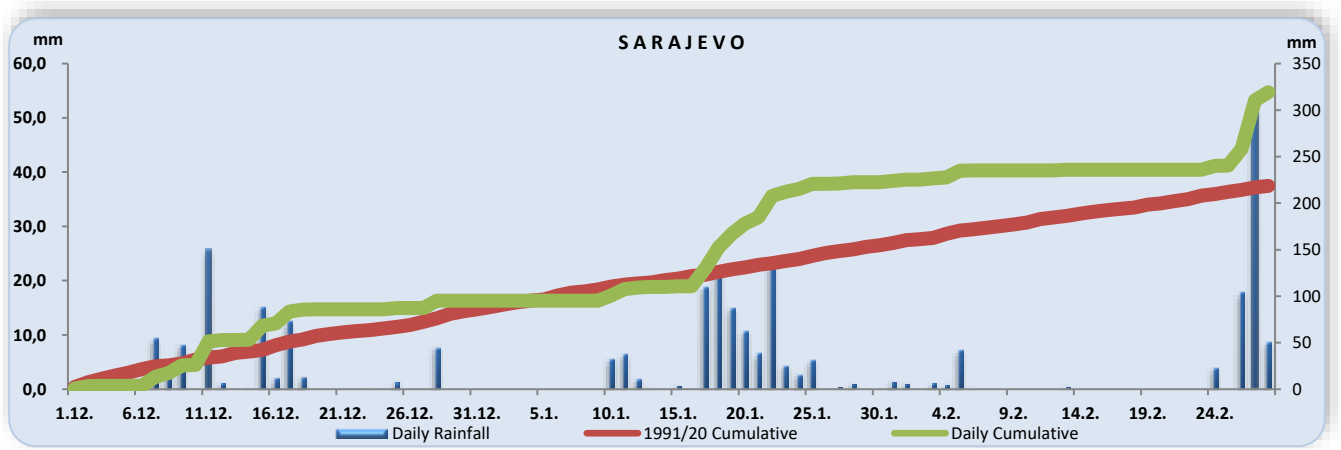
Graph 6 Winter precipitation (mm) in Sarajevo



Map 3 Amount precipitation – winter 2022.-2023. year (mm)



Map 4 Precipitation sums using percentile method during winter 2022.-2023. compared to the base period (1991 – 2020.)



Graph 5-8 daily and cumulative rainfall in the winter 2022. - 2023. year.

Season	22/23	Air Temperature (°C)				22/23	Precipitation sums (mm)			
Station	Rank*	33	50	66	Observed value	Rank**	33	50	66	Observed Value
Sarajevo	1	1,4	0,9	0,2	3,3	4	220	201	170	319
Mostar	1	6,8	6,2	5,8	8,2	11	565	386	333	486
Bihać	1	2,9	2,0	1,4	5,0	5	365	290	264	477
Tuzla	1	1,9	1,1	0,6	4,4	2	190	169	153	263
Zenica	1	1,6	0,8	0,6	3,8	7	181	158	145	212
Bugojno	1	0,8	0,3	-0,3	3,3	6	330	252	236	242
Gradačac	1	2,8	1,9	1,1	5,5	2	200	169	139	259
Livno	1	1,4	0,5	0,3	3,1	6	334	268	232	425
San Most	1	2,0	1,3	0,8	4,1	2	263	206	184	350
Bjelašnica	1	-5,3	-6,0	-6,5	-3,7	8	330	252	236	381

*Rank – 1981-2010. (period) – warmest season

**Rank – 1981-2010. (period) – highest seasonal precipitation

Country	Seasonal temperature DJF		Seasonal precipitation DJF		High Impact Events
	Observed	SEECOF - 28 climate outlook for temperature	Observed	SEECOF - 28 climate outlook for precipitation	
Bosnia and Herzegovina (FBiH)	Above normal in almost entire Bosnia and Herzegovina	Above normal (20, 40, 40) in entire Bosnia and Herzegovina	Above normal in almost entire Bosnia and Herzegovina;	No predictive signal (33,34,33)	- The biggest deviations in relation to average air temperatures were recorded in December. -6 th warmest winter for Sarajevo since 1888, 6 th warmest winter for Mostar. -14 th wettest winter for Sarajevo since 1888. -The first snow cover recorded in the third decade of January. The first decade of January without snow cover in Bjelašnica

¹ The actual amount of precipitation compared to the average sum

Photo: Sandro Nuhanović

dzenan.zulum@fhmzbih.gov.ba

Analisis prepared: Dženan Zulum