

CLIMATOLOGICAL ANALYSIS

SEASON

SUMMER 2019



BOSNIA AND HERZEGOVINA
FEDERATION OF BOSNIA AND HERZEGOVINA
FEDERAL HYDROMETEOROLOGICAL INSTITUTE

CLIMATOLOGICAL ANALYSIS SEASONE SUMMER 2019.

Sarajevo, September 2019.

Mean air temperatures during the climatological summer 2019 (1st June – 31st August 2019.) ranged between 20,6 °C in Bugojno and 26,7°C in Mostar. On the mountain areas air temperatures were in the range of 11,9 °C on Bjelasnica to 17,8 °C on Ivan-sedlo. Temperature deviations from the normal values during the summer, which covers the period (1961.-1990.) were above normal. Deviation of the mean temperature than the average winter temperature ranged from 2,2 °C on Ivan-sedlo to 3,5 °C in Bihac, Livno and Gradacac. By percentage temperature values are classified into the category of extremely warm.

STATION	DEVIATION (°C)				PERCENTILES
	JUNE	JULY	AUGUST	SUMMER	
Bihac	4,4	2,6	3,5	3,5	100
Bjelašnica	4,4	1,6	3,5	3,1	100
Bugojno	4,2	3,2	3,5	3,3	100
Gradacac	4,2	2,3	4,0	3,5	100
Ivan-sedlo	3,2	1,0	2,5	2,2	100
Livno	4,6	2,3	3,5	3,5	100
Mostar	4,3	1,8	3,5	3,2	100
Neum	3,4	1,5	2,8	2,6	100
Sarajevo	4,1	2,1	3,4	3,2	100
Sanski Most	4,0	2,2	3,5	3,2	100
Tuzla	3,7	1,8	3,3	2,9	100
Zenica	4,4	2,1	3,8	3,4	100

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

STATION	MOUNTH			STANICA	MOUNTH		
	June	July	August		June	July	August
Bihac				Neum			
Bjelašnica				Sarajevo			
Bugojno				Sanski Most			
Gradacac				Stolac			
Ivan-sedlo				Tuzla			
Livno				Zenica			
Mostar							

	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

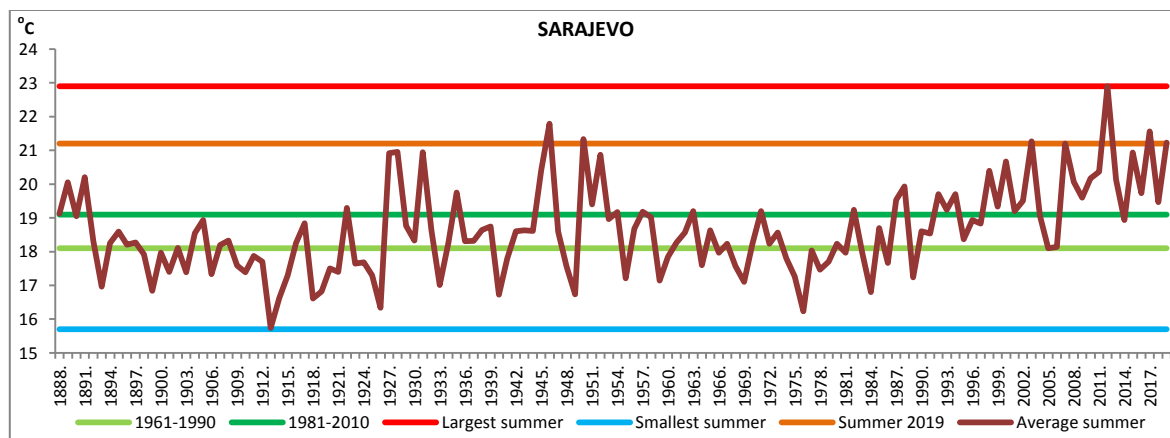
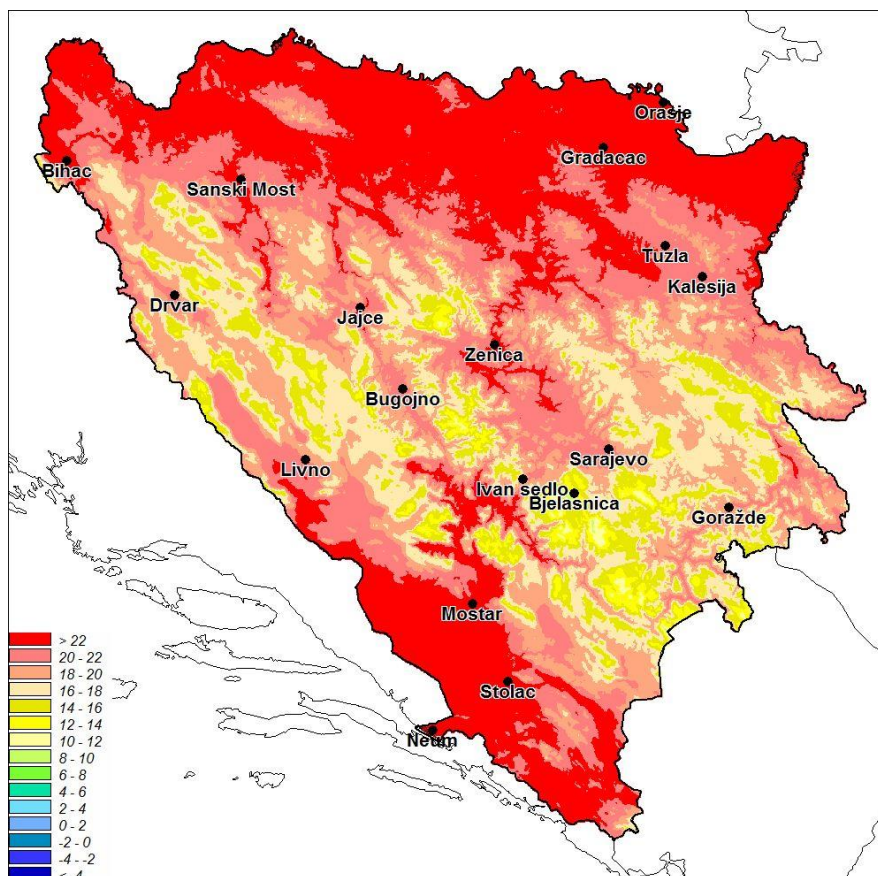
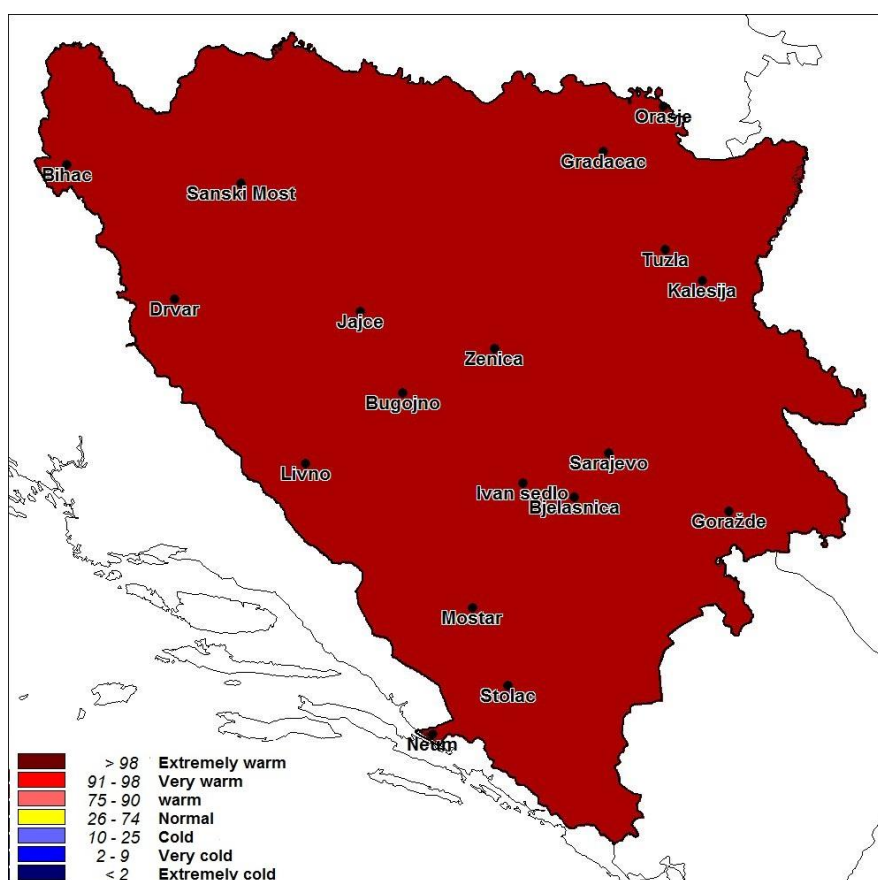


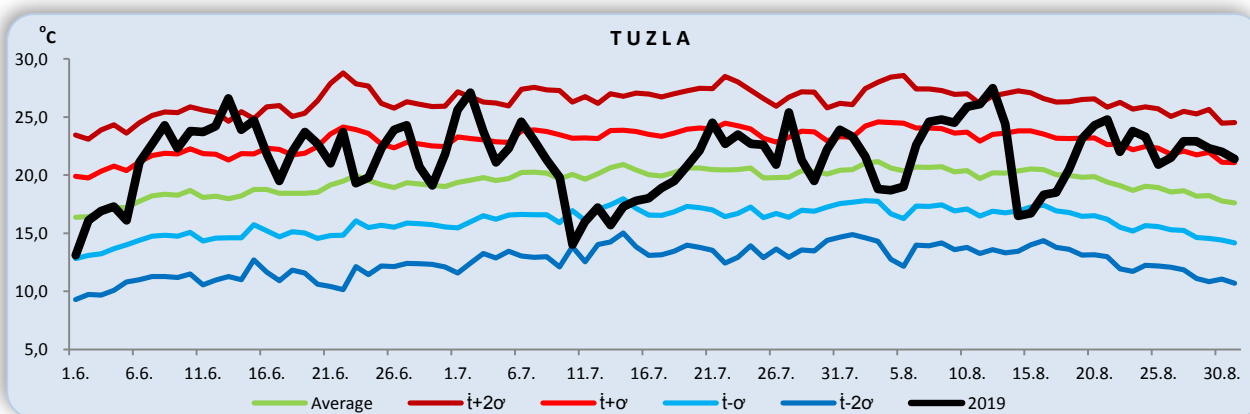
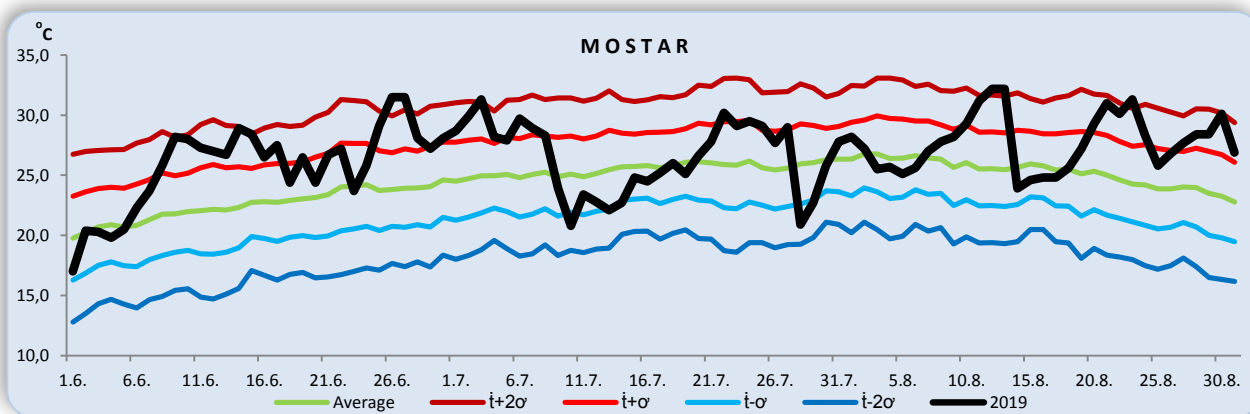
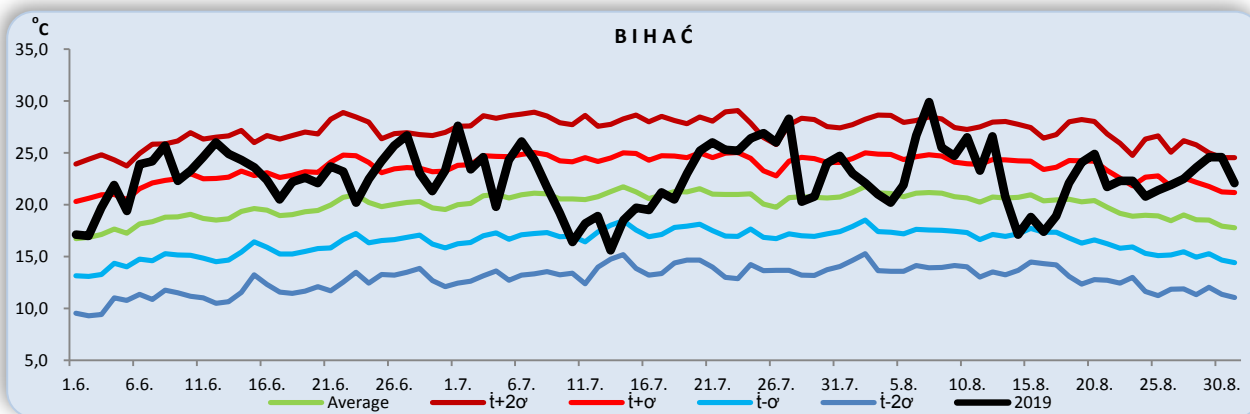
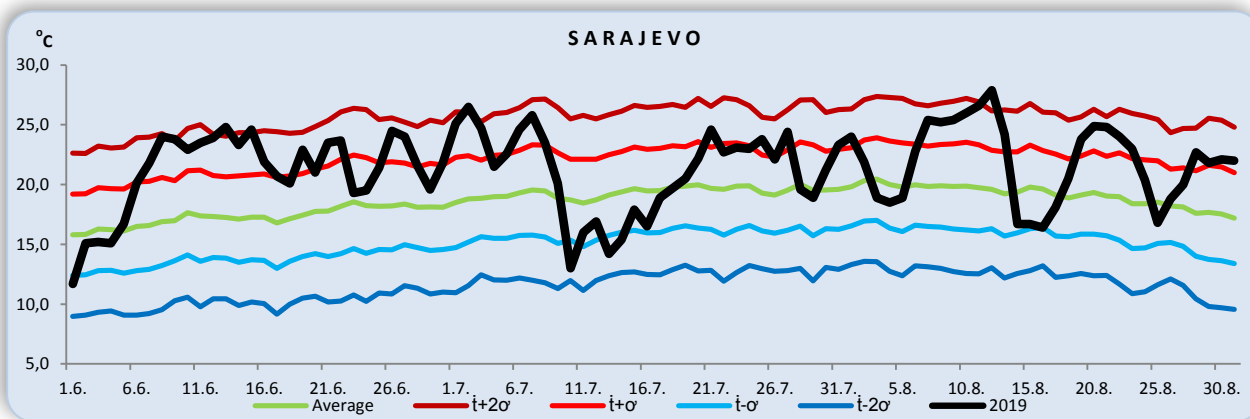
Table 3 Summer temperature in Sarajevo



Map 1 Mean air temperature summer 2019, year (°C)



Map 2 Air temperature during summer 2019, using percentile method compared to the 1961-1990 base period



Graph 1-4 Mean daily air temperatures during summer 2019. Year

Analysis of the monthly amount of precipitation expressed in % of average values shows that during the winter 2018 - 2019, deviations from normal precipitation amounts ranged from 73,5 % in Mostar, to 140,8 % on Bjelašnica. By percentage amounts of precipitation are classified into categories of normal.

The measured amounts of precipitation were in the range of 154,8 mm in Gradacac to 400,3 mm on Ivan-sedlo.

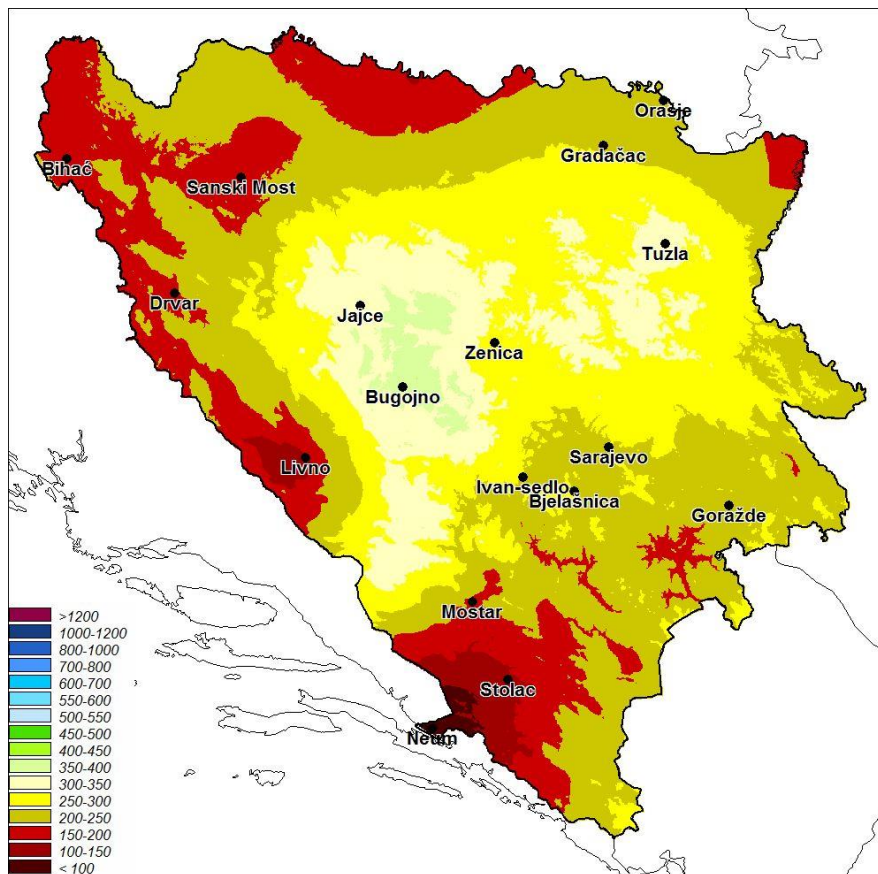
STATION	DEVIATION (%)				PERCENTILES
	JUNE	JULY	AUGUST	SUMMER ¹	
Bihać	46,1	69,3	33,1	49,4	0
Bjelašnica	40,8	118,6	103,5	84,3	39
Bugojno	246,6	185,6	99,1	181,3	100
Gradačac	106,8	95,2	67,1	91,5	43
Ivan-sedlo	106,4	114,1	44,6	87,4	49
Livno	38,2	120,1	37,1	56,9	9
Mostar	68,3	272,6	17,4	94,0	48
Neum	6,8	87,4	3,8	23,6	0
Sarajevo	106,7	84,6	98,5	97,0	43
Sanski Most	89,0	34,1	39,5	55,3	4
Tuzla	143,6	112,5	56,0	108,0	64
Zenica	170,1	142,5	58,2	126,2	84

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

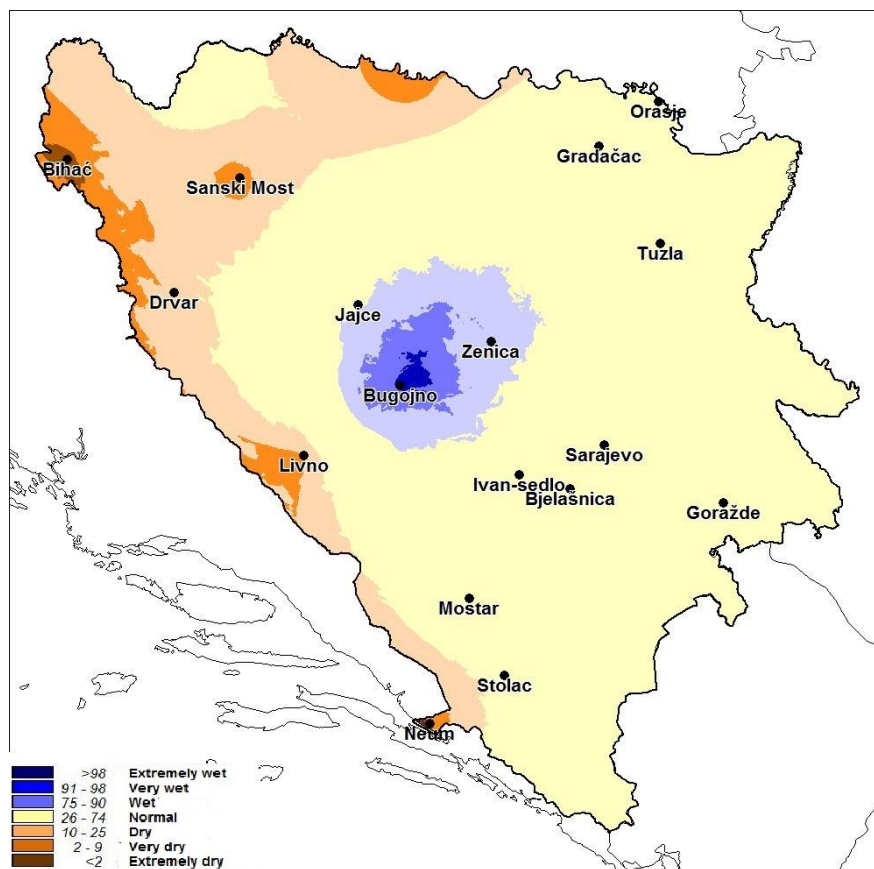
STATION	MOUNTH			STATION	MOUNTH		
	June	July	August		June	July	August
Bihać				Livno			
Bjelašnica				Mostar			
Bugojno				Sarajevo			
Drvar				Sanski Most			
Gradačac				Stolac			
Ivan Sedlo				Tuzla			
				Zenica			

	Extremely dry		Very dry		dry		normal		wet		Very wet		Extremely wet
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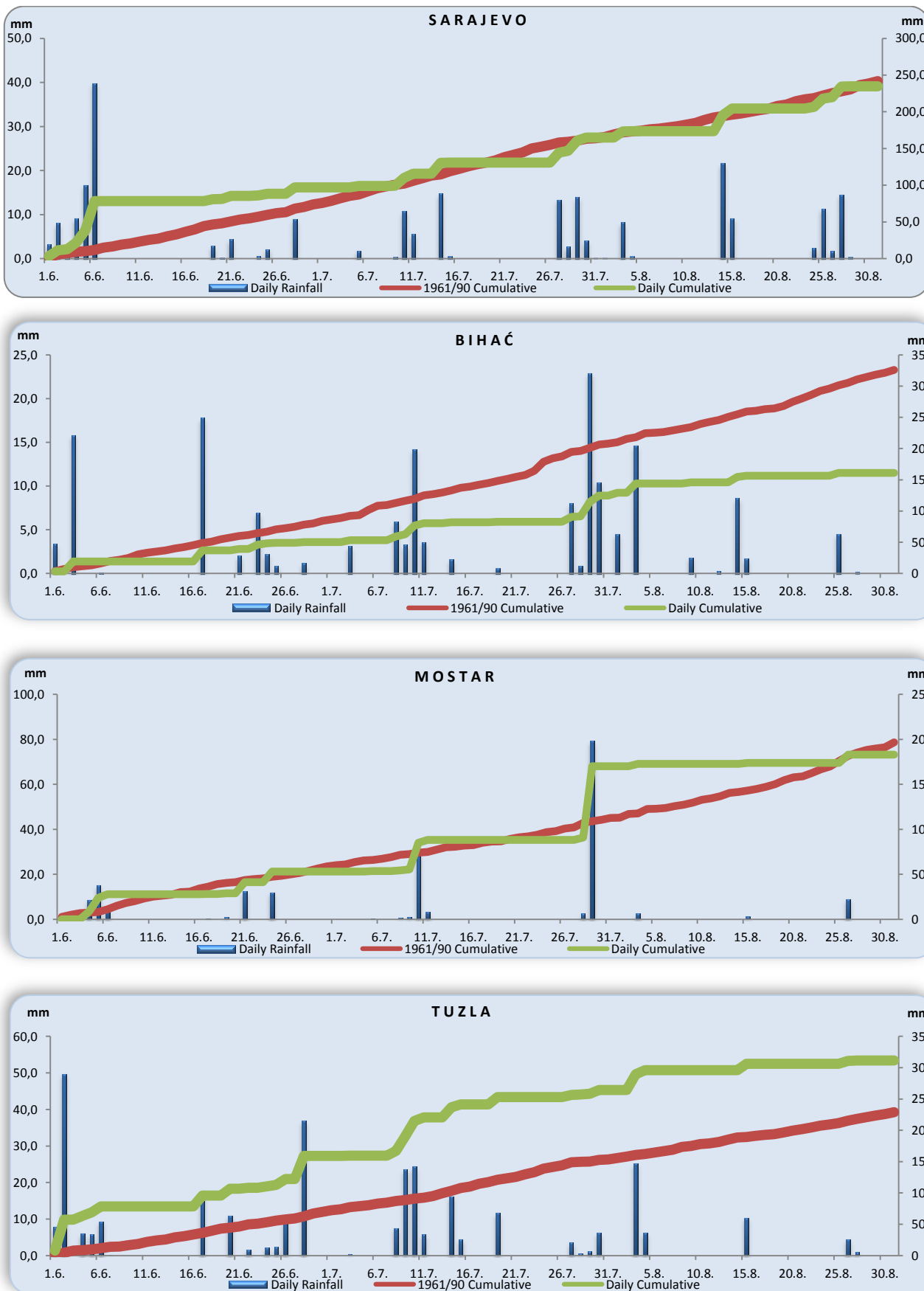
Table 6 Overview of marks on precipitation by month basis percentile



Map 3 Amount precipitation – summer 2019, year (mm)



Map 4 Precipitation sums using percentile method during summer 2019 compared to the base period (1961 – 1990)



Graph 5-8 daily and cumulative rainfall in the summer 2019 year.

Season		Air Temperature (°C)					Precipitation sums (mm)			
Station	Rank *	33	50	66	Observed value	Rank **	33	50	66	Observed Value
Sarajevo	1	19,6	19,2	87	21,3	14	258	228	202	235
Mostar	2	25,1	4,6	24,3	26,7	12	189	158	141	183
Bihać	2	20,6	20,2	19,8	22,7	30	325	274	232	161
Tuzla	3	20,2	19,5	19,0	21,6	11	332	282	251	312
Zenica	2	20,8	20,0	19,6	22,4	8	265	242	193	273
Bugojno	2	19,2	18,5	18,1	20,6	1	248	201	186	370
Gradačac	3	21,9	21,1	20,8	23,6	19	258	240	227	237
Livno	2	19,3	18,6	18,3	21,0	28	211	185	158	124
San Most	2	20,6	19,9	19,6	22,1	28	299	262	228	162
Bjelašnica	2	10,3	9,8	9,4	11,9	21	336	278	247	247

*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 - 21 climate outlook for temperature	Observed	SEECOF - 21 climate outlook for precipitation	
Bosnia and Herzegovina (FBiH)	Above normal I in almost entire Bosnia and Herzegovina (extremely warm)	Above normal (20, 30, 50) In Bosnia and Herzegovina)	Below normal west Bosnia; Normal central Bosnia and Herzegovina, Exceptive – Bugojno (extremely wet)	No predictive signal (33,34,33)	- June 1 st warmest (Bihac and Drvar); 2 nd warmest (Bjelasnica, Gradacac, Livno, Sanski Most, Sarajevo, Stolac and Tuzla. 1 st wettest (Bugojno) - Summer 5 th and 6 th warmest summer for Bosnia and Herzegovina; MS Mostar 75 days with $T_{max} \geq 30^{\circ}C$, 52 days with $T_{min} \geq 20^{\circ}C$. Extremely wet for MS Neum (coastline) and Bihac (west Bosnia)

¹ The actual amount of precipitation compared to the average sum

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