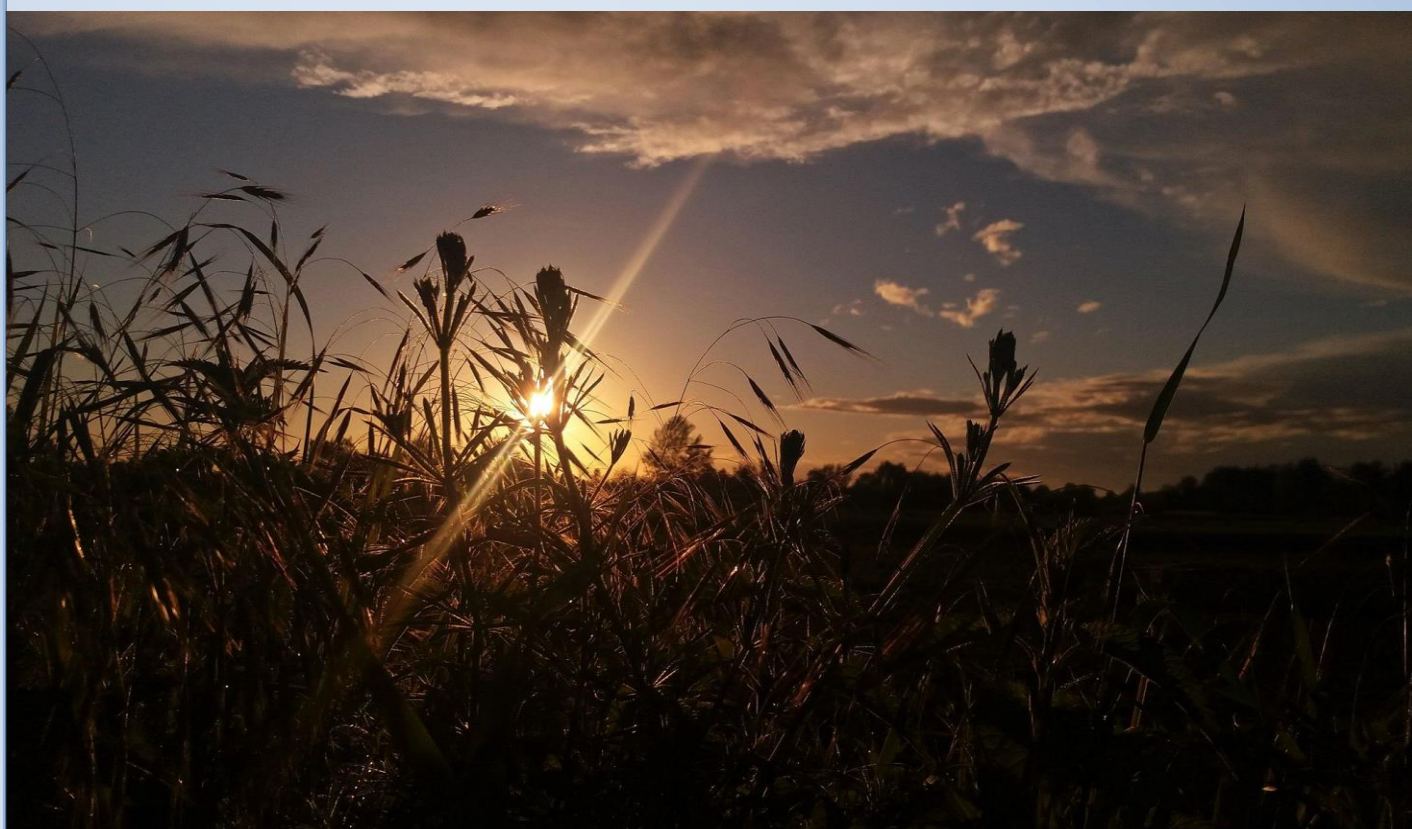


# CLIMATOLOGICAL ANALYSIS

**SEASON**

SUMMER 2016



BOSNIA AND HERZEGOVINA  
FEDERATION OF BOSNIA AND HERZEGOVINA  
FEDERAL HYDROMETEOROLOGICAL INSTITUTE

# CLIMATOLOGICAL ANALYSIS SEASONE SUMMER 2016

Sarajevo, Oktober 2016.

Mean air temperatures during the climatological summer 2016. year (1<sup>st</sup> June – 31<sup>th</sup> August) ranged between 19,3 °C in Livno and Bugojno and 25,1 °C in Mostar. On the mountain areas air temperatures were in the range of 10,2 °C on Bjelasnica to 16,4 °C on Ivan Sedlo. Temperature deviations from the normal values during the summer, which covers the period (1961-1990) were positive. Deviation of the mean temperature than the average summer temperature ranged from 0,9 °C on Ivan Sedlo to 2,1 °C in Bugojno and Zenica. By percentage temperature values are classified into the category of warm, very warm and extremely warm.

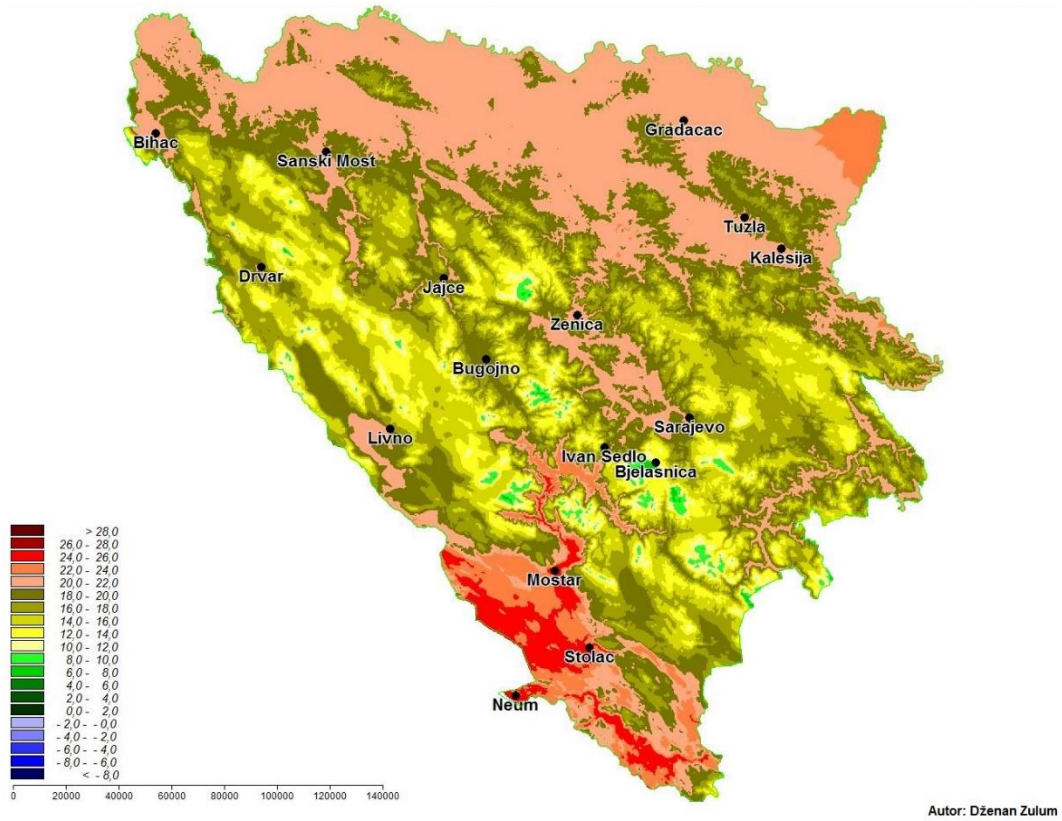
STATION	DEVIATION (°C)				PERCENTILES
	June	July	August	Summer	
Bihać	1,9	2,9	0,4	1,7	100
Bjelašnica	2,1	2,0	0,1	1,4	93
Bugojno	2,8	2,9	0,8	2,1	100
Drvar	1,6	2,1	0,9	1,6	100
Gradačac	2,2	2,0	0,5	1,6	95
Ivan Sedlo	1,7	1,4	-0,5	0,9	90
Kalesija	2,7	2,7	0,4	1,9	100
Livno	2,0	2,4	1,1	1,8	100
Mostar	1,4	2,1	1,5	1,7	100
Sarajevo	2,6	2,2	0,1	1,6	98
Sanski Most	2,2	2,2	0,4	1,6	100
Stolac	1,0	2,2	1,8	1,7	100
Tuzla	2,4	2,2	0,2	1,6	100
Zenica	2,9	2,8	0,8	2,1	100

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

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

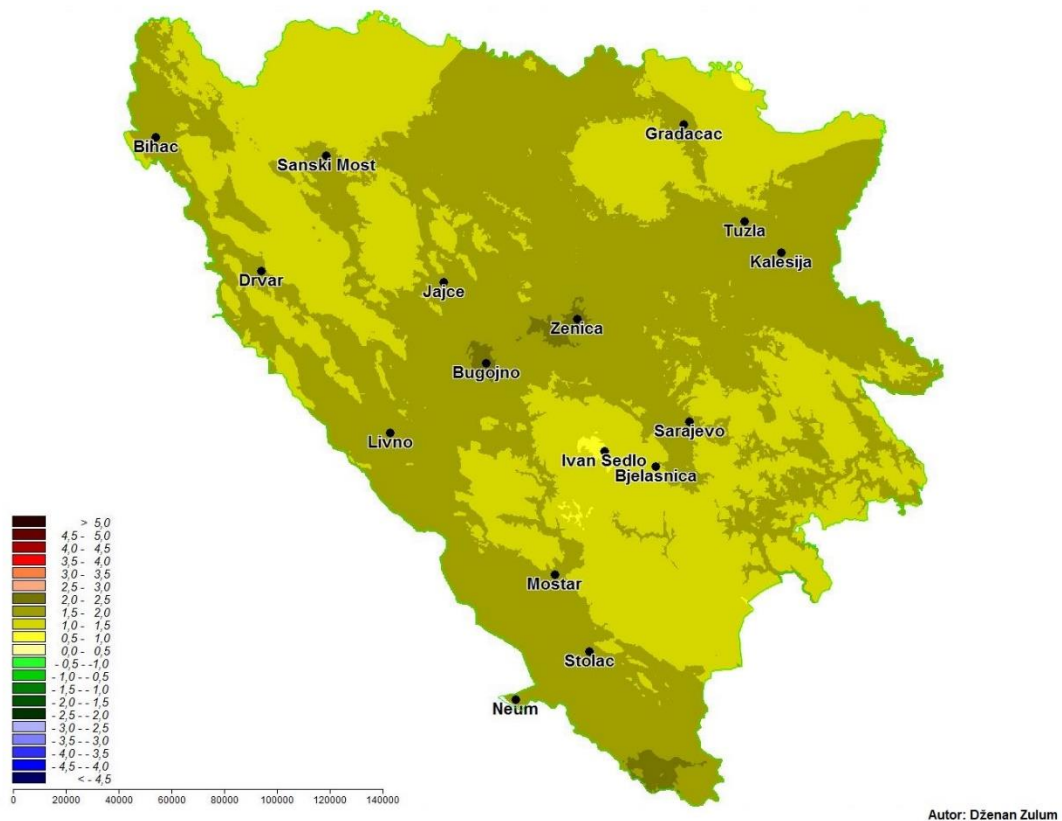
	ekstremno toplo		vrlo toplo		toplo		normalno		hladno		vrlo hladno		ekstremno hladno
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Table 2 Overview of marks mean temperature during the summer months by the method of percentiles



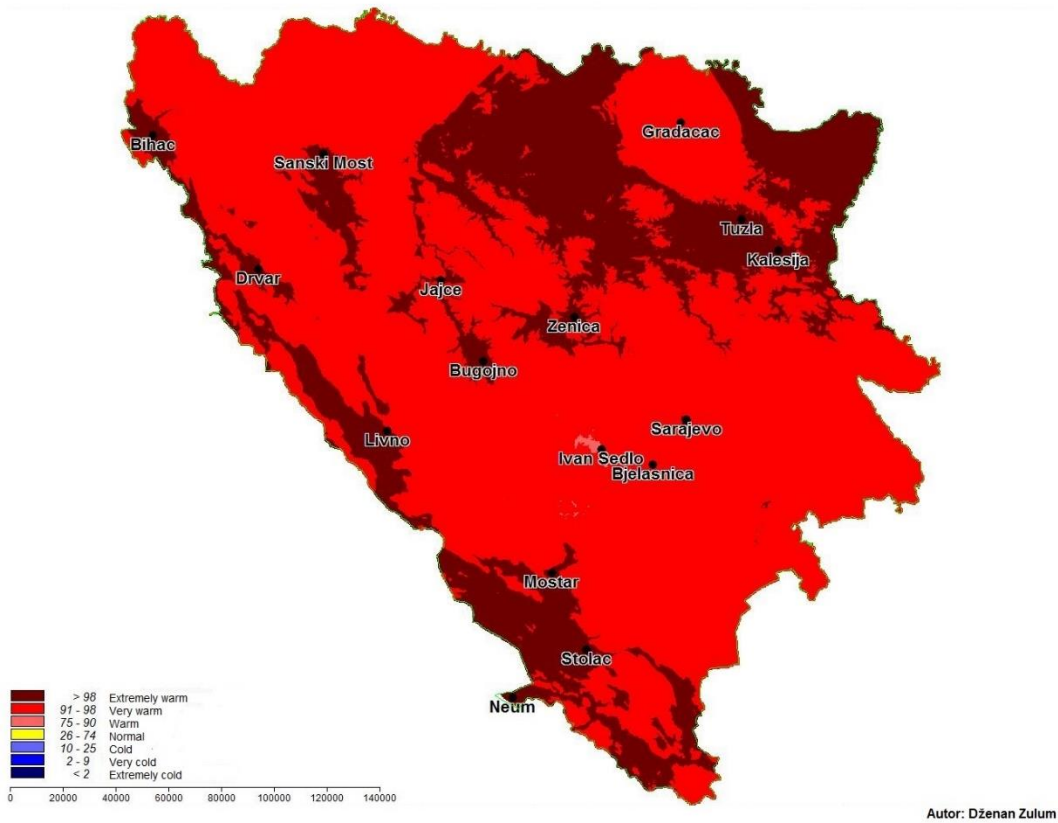
Autor: Dženan Zulum

Map 1 Summer mean air temperature at 2016. year (°C)

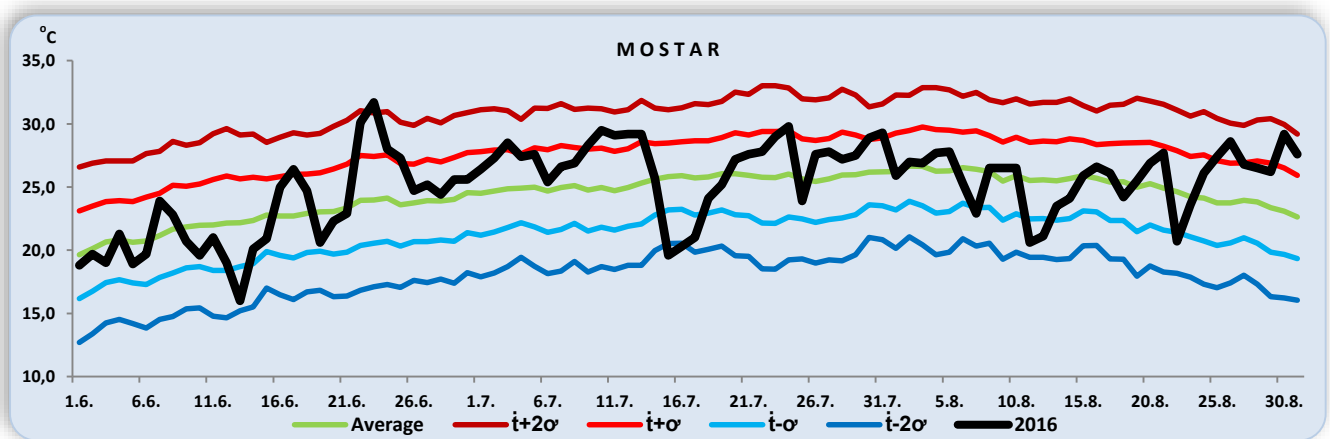
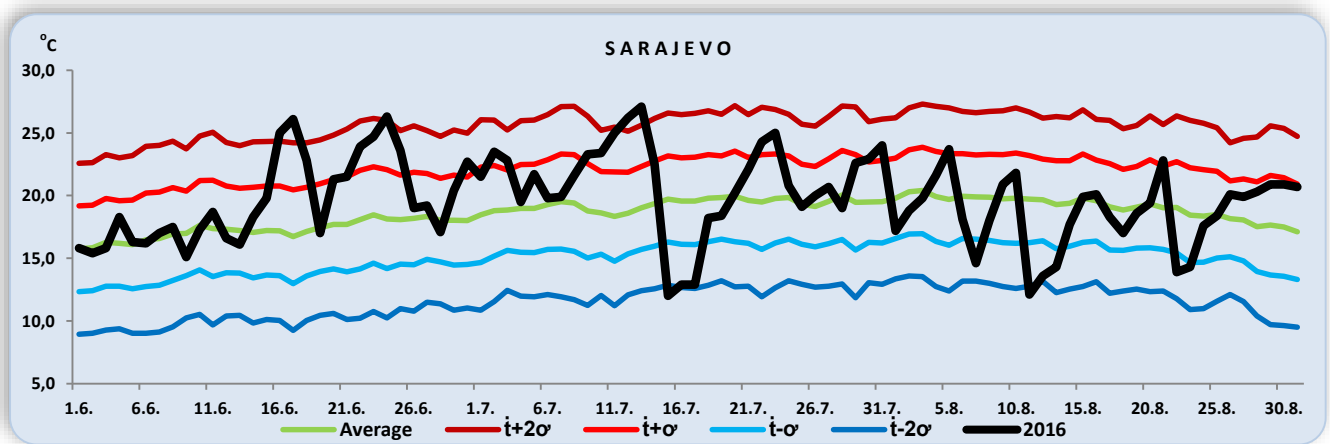


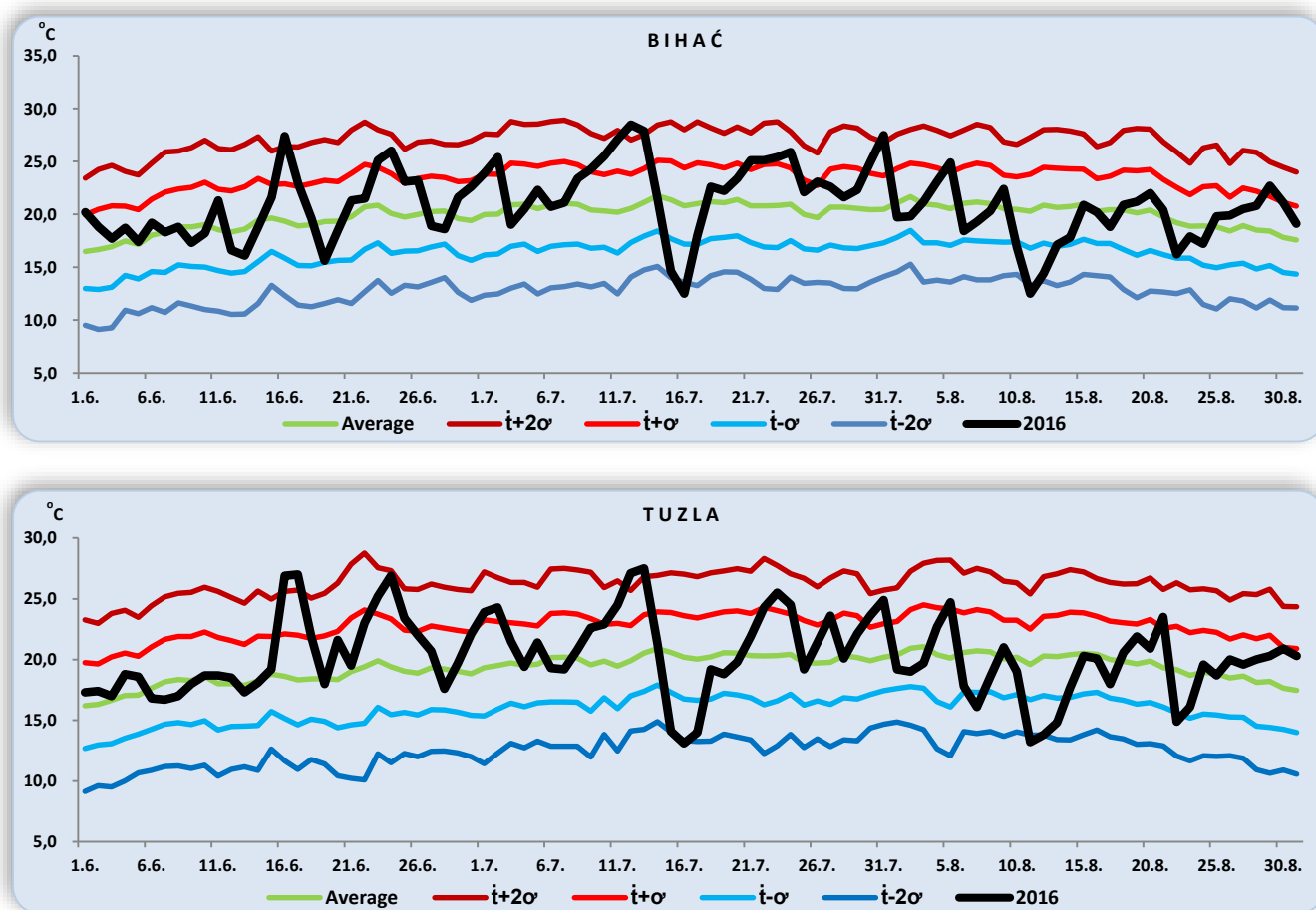
Autor: Dženan Zulum

Map 2. Deviation of the mean air temperature summer of 2016. (°C) compared to the average temperature (1961-1990)



Map 3 Air temperature during summer 2016 using percentile method compared to the 1961-1990 base period





Graph 1-4 Mean daily air temperatures during the summer 2016.

Analysis of the monthly amount of precipitation expressed in % of average values shows that during the summer 2016. year deviations from normal precipitation amounts ranged from 65,7 % in Stolac to 152,9 % in Kalesija. By percentage amounts of precipitation are classified into categories of extremely dry, normal and rain.

The measured amounts of precipitation were in the range of 90,5 mm in Neum to 425,4 mm in Kalesija.

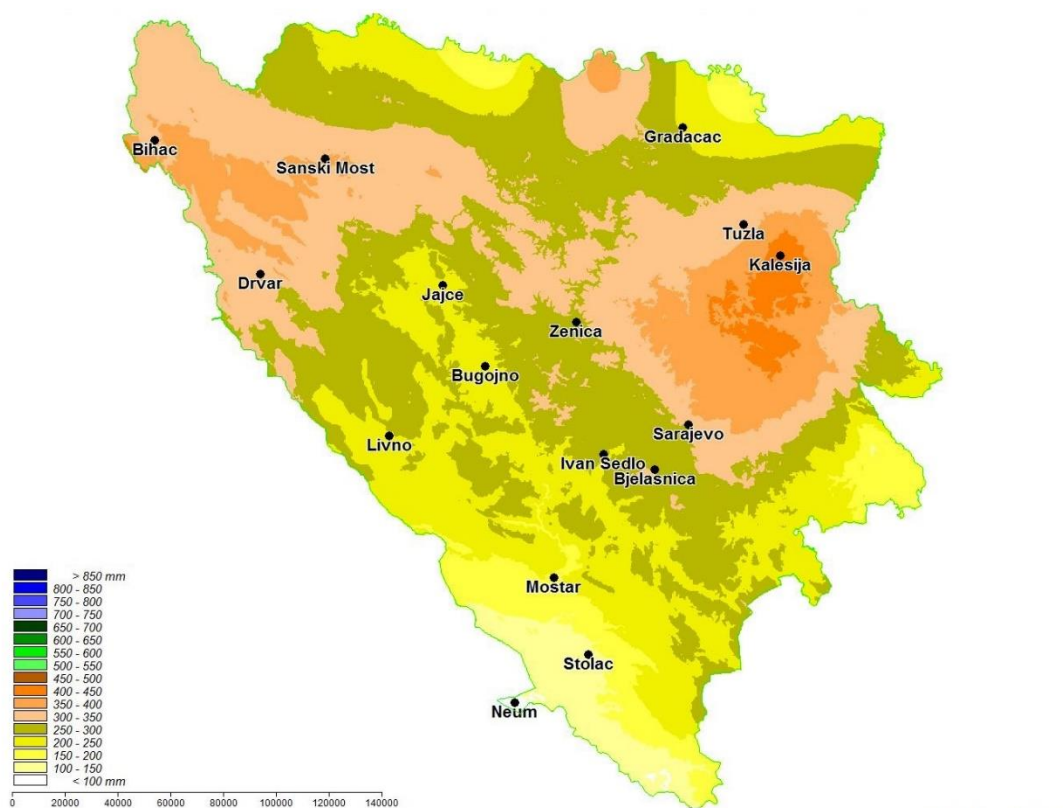
STATION	DEVIATION (%)				PERCENTILES
	JUNE	JULY	AUGUST	SUMMER <sup>1</sup>	
Bihać	108,3	96,6	117,1	107,4	60
Bjelašnica	161,5	52,2	63,1	97,2	52
Bugojno	79,3	108,5	142,9	105,0	57
Gradačac	53,8	149,3	79,8	93,4	45
Ivan Sedlo	86,5	120,7	77,0	93,1	52
Kalesija	104,5	150,0	217,0	152,9	95
Livno	94,9	132,7	107,5	108,1	68
Mostar	150,8	137,4	10,3	94,6	50
Sarajevo	105,9	130,4	149,2	126,7	83
Sanski Most	104,4	159,4	99,2	120,8	78
Tuzla	73,2	134,4	139,5	112,3	64
Zenica	84,1	215,1	122,4	134,5	86

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

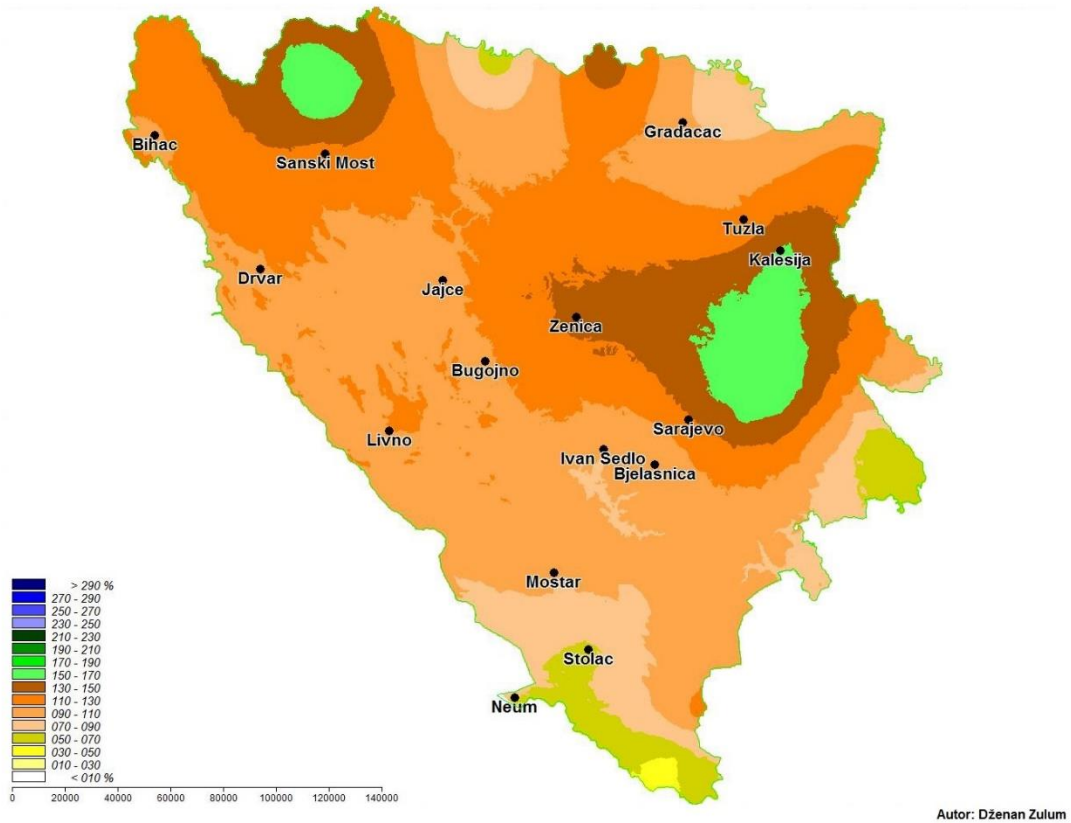
STATION	MOUNTH			STATION	MOUNTH		
	June	July	August		June	July	August
Bihać				Livno			
Bjelašnica				Mostar			
Bugojno				Sarajevo			
Drvar				Sanski Most			
Gradačac				Stolac			
Ivan Sedlo				Tuzla			
Jajce				Zenica			



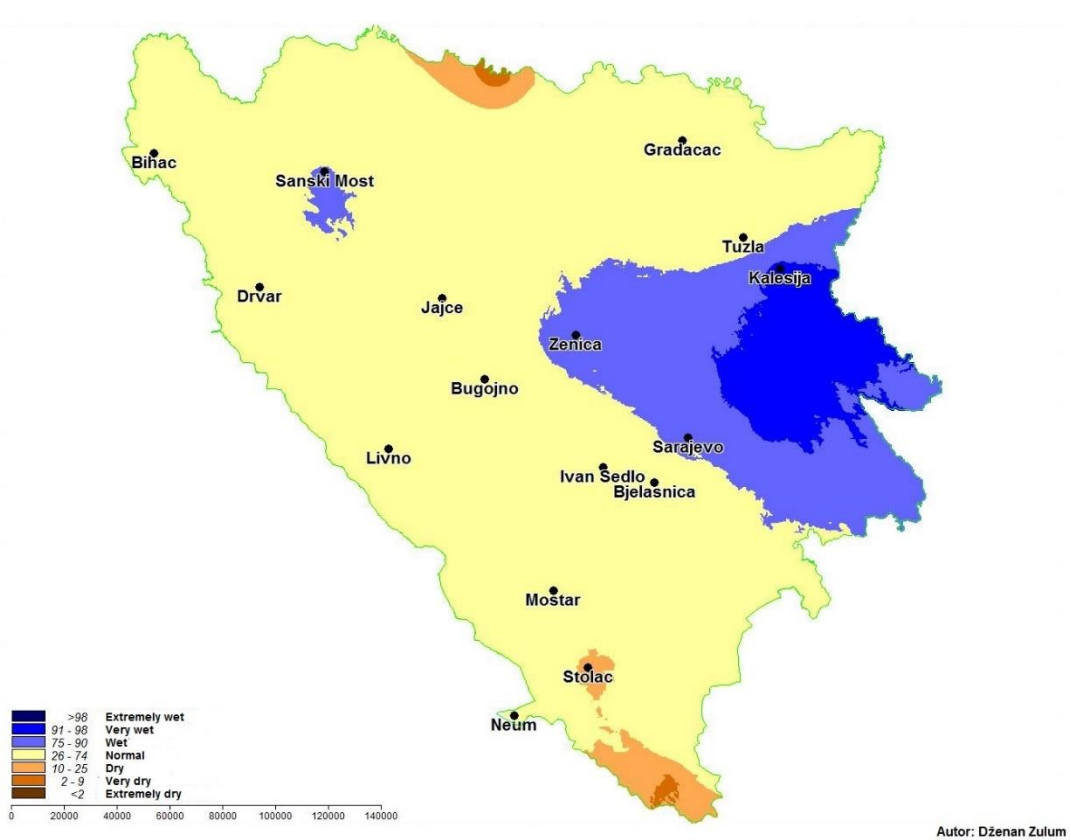
Table 6 Overview of marks on precipitation by month basis percentile



Map 4 Amount precipitation – summer 2016. year (mm)

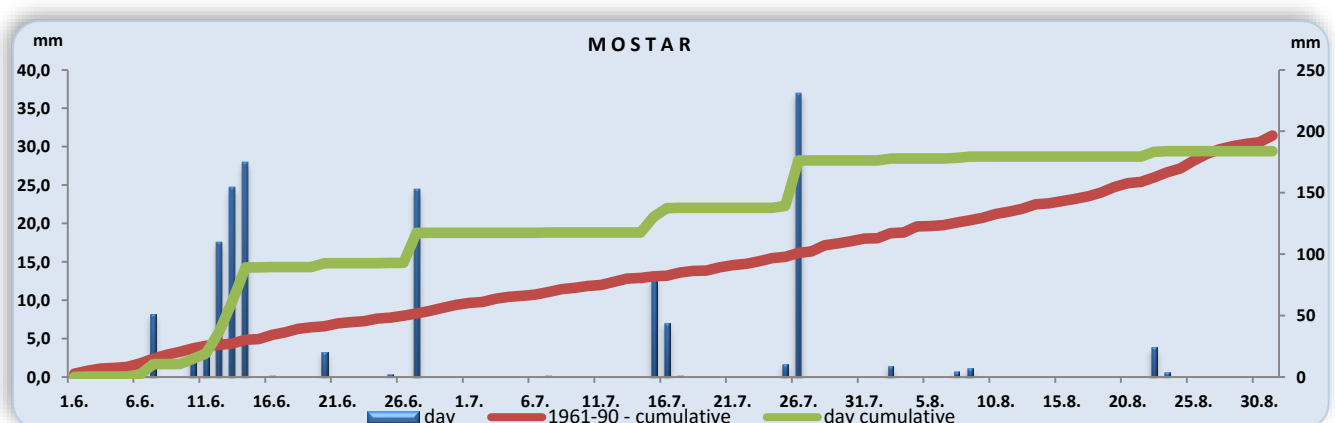
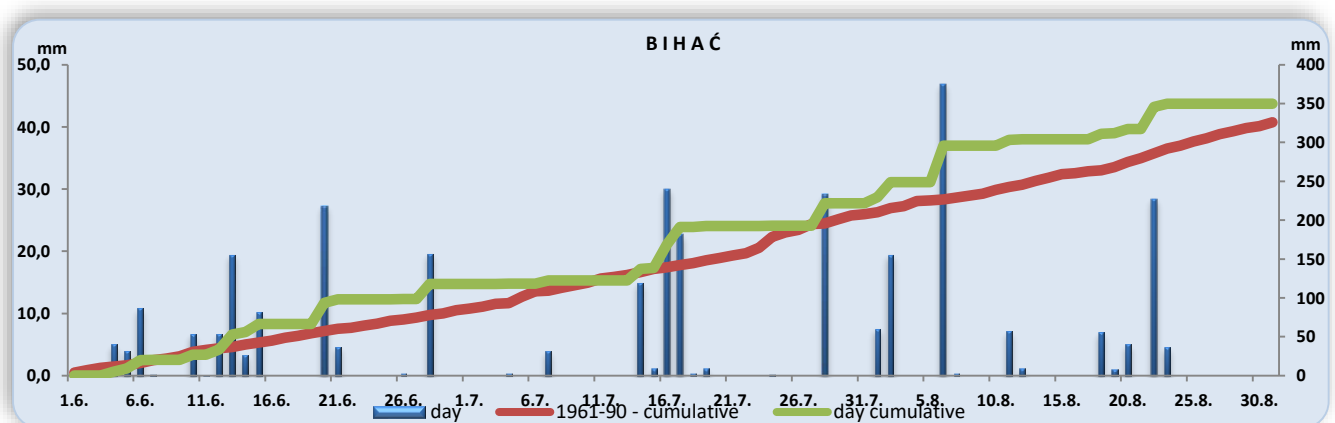
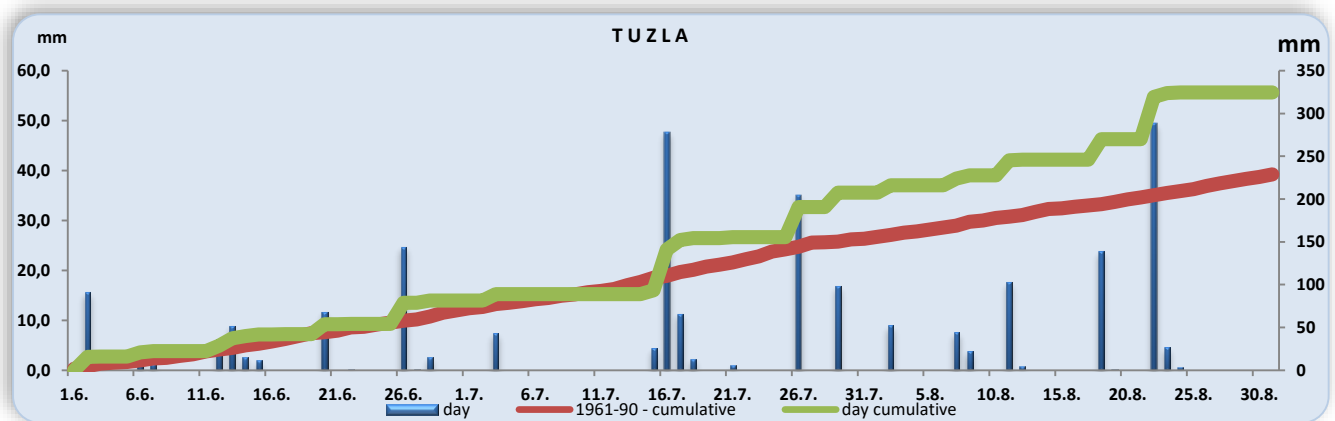
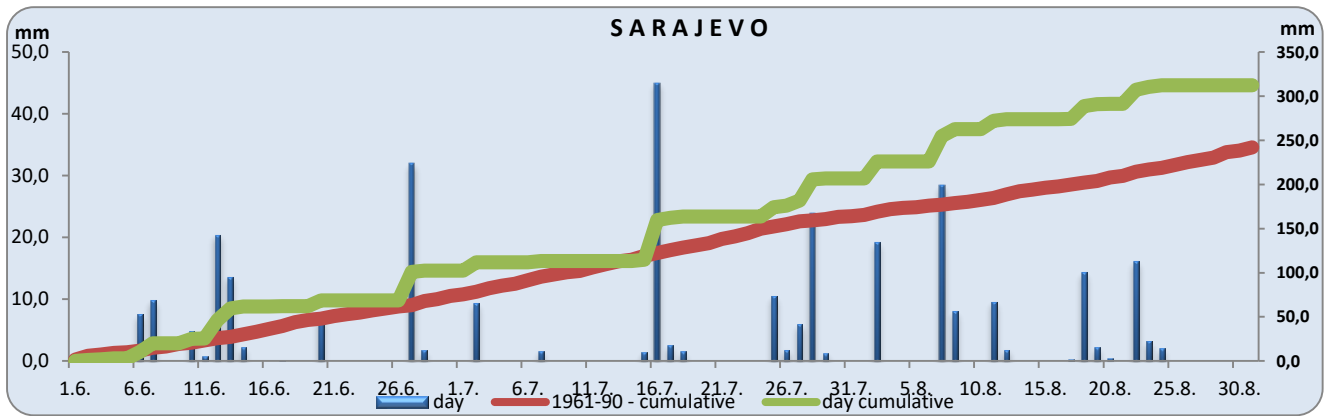


Map 5 Deviation of total rainfall for summer 2016 in (%) of normal rainfall (1961-1990)



Map 6 Precipitation sums using percentile method during summer 2016 compared to the base period (1961 – 1990)





Graph 5-8 daily and cumulative rainfall in the summer of 2016.

The table below presents the normal (1981-2010) values (N) versus the recorded (R) values of both temperature (mean max and mean min) and accumulated precipitation for the winter period of June, July and August.

	MEAN DAILY MAXIMUM TEMPERATURE (°C)						MEAN DAILY MINIMUM TEMPERATURE (°C)						ACUMULATED PRECIPITATION (mm)					
	June		July		August		June		July		August		June		July		August	
	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N
Sarajevo	26,7	24,0	28,7	27,0	25,7	27,2	13,9	11,9	15,0	13,7	13,4	13,7	96,4	93	104,5	74	149,5	69
Mostar	29,0	28,9	33,0	32,5	32,0	32,7	17,3	16,7	20,4	19,6	20,0	19,6	117,4	70	58,9	43	10,3	60
Tuzla	26,9	25,3	28,3	27,7	26,3	27,8	14,2	12,6	15,1	14,2	13,5	13,8	81,4	124	125,9	92	139,5	78
Bihać	26,2	25,4	29,7	27,9	26,8	27,5	14,6	12,7	16,3	14,1	13,8	13,9	118,1	109	103,8	84	117,1	89
Gradačac	27,0	25,3	29,1	27,6	27,6	27,5	16,7	14,9	18,2	16,7	16,2	16,3	52,3	108	129,7	75	59,7	64
Livno	24,1	23,7	27,9	27,0	26,0	27,4	11,4	9,6	12,7	11,5	11,9	11,1	117,4	82	67,2	49	107,5	60
S Most	26,7	25,9	28,6	28,3	26,1	28,2	14,1	12,3	15,0	13,8	14,0	13,5	108,8	110	153,0	75	92,2	73
Bjelašnica	12,1	10,9	13,8	13,3	12,5	13,4	6,9	5,5	9,0	7,8	7,5	8,2	179,6	119	43,9	89	62,2	101

Season		Air Temperature (°C)						Precipitation sums (mm)				
Station	Rank*	33	50	66	Observed value	Rank*	33	50	66	Observed Value		
Sarajevo	24	18,6	19,2	19,6	19,7	26	228	266	299	306		
Mostar	23	24,0	24,6	25,0	25,1	23	136	158	189	184		
Bihać	24	19,7	20,2	20,6	20,9	24	232	274	325	350		
Tuzla	23	18,9	19,5	20,0	20,2	23	240	282	332	325		
Zenica	26	19,6	20,0	20,7	21,1	27	181	242	258	289		
Bugojno	22	18,0	18,5	19,2	19,4	19	186	201	242	214		
Gradačac	19	20,7	21,1	21,8	21,6	16	225	249	258	242		
Livno	23	18,2	18,6	19,1	19,3	26	158	196	211	235		
S. Most	22	19,6	19,9	20,3	20,5	27	228	266	299	354		
Bjelašnica	22	9,2	9,8	10,2	10,2	16	242	286	336	286		

\*Rank – 1981-2010 period (coldest/wormest season and lowest/highest seasonal precipitation)

Country	Seasonal temperature		Seasonal precipitation		High Impact Events*
	Observed	SEECOF-13 climate outlook for temperature	Observed	SEECOF-13 climate outlook for precipitation	
Bosnia and Herzegovina	Above normal	Above to near normal (20, 40, 40)	Below normal	Above to near normal (40, 40, 20)	

<sup>1</sup> The actual amount of precipitation compared to the average sum

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