FEDERAL HYDROMETEOROLOGICAL INSTITUTE OF BOSNIA AND HERZEGOVINA

CLIMATOLOGICAL ANALYSIS

SEASON

WINTER 2015/2016

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BOSNIA AND HERZEGOVINA
FEDERATION OF BOSNIA AND HERZEGOVINA
FEDERAL HYDROMETEOROLOGICAL INSTITUTE

CLIMATOLOGICAL ANALYSIS SEASONE WINTER 2015 - 2016

Sarajevo, March 2016.

Mean air temperatures during the climatological winter 2015 - 2016 (1st December 2015. – 29th February 2016.) ranged between 2,1 °C in Bugojno and 10,3°C in Neum. On the mountain areas air temperatures were in the range of -2,7 °C on Bjelasnica to 1,7 °C on Ivan Sedlo. Temperature deviations from the normal values during the winter, which covers the period (1961.-1990.) were positive. Deviation of the mean temperature than the average winter temperature ranged from 2,1 °C on Mostar to 4,3 °C in Gradacac. By percentage temperature values are classified into the category of very warm and extremely warm.

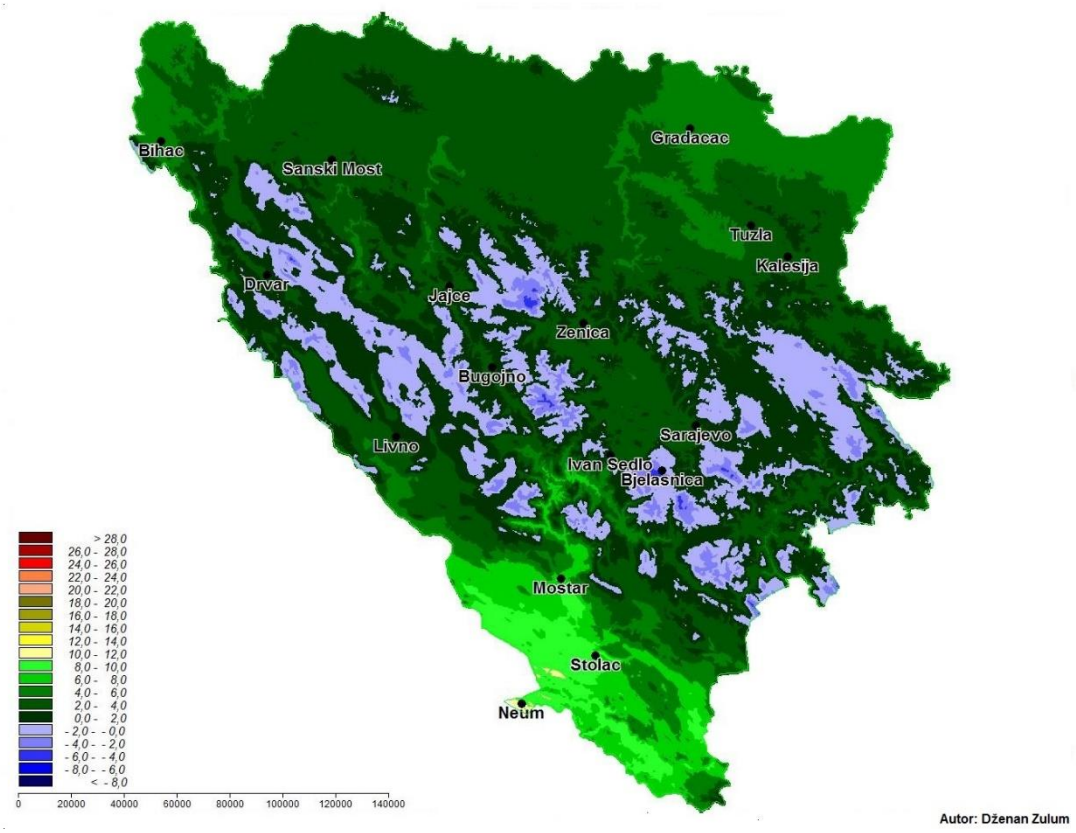
STATION	DEVIATION (ºC)				PERCENTILES
	DECEMBER	*JANUARY*	*FEBRUARY*	WINTER	
Bihać	2,3	3,3	5,6	3,7	100
Bjelašnica	4,7	0,5	4,5	3,2	100
Bugojno	-0,9	2,6	6,1	2,6	98
Drvar	0,2	2,4	4,6	2,4	95
Gradačac	3,0	3,9	6,2	4,3	100
Ivan Sedlo	2,4	2,4	5,2	3,3	100
Jajce	0,1	2,5	5,4	2,6	98
Kalesija	0,6	1,4	5,2	2,4	95
Livno	1,2	2,5	4,9	2,8	100
Mostar	0,9	1,8	3,7	2,1	100
Neum	2,2	2,2	3,4	3,0	100
Sarajevo	-0,8	2,1	5,9	2,4	98
Sanski Most	1,2	2,5	5,1	2,9	99
Stolac	-1,0	1,9	4,3	2,9	100
Tuzla	1,5	2,5	5,7	3,2	99
Zenica	0,2	2,2	5,2	2,5	98

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

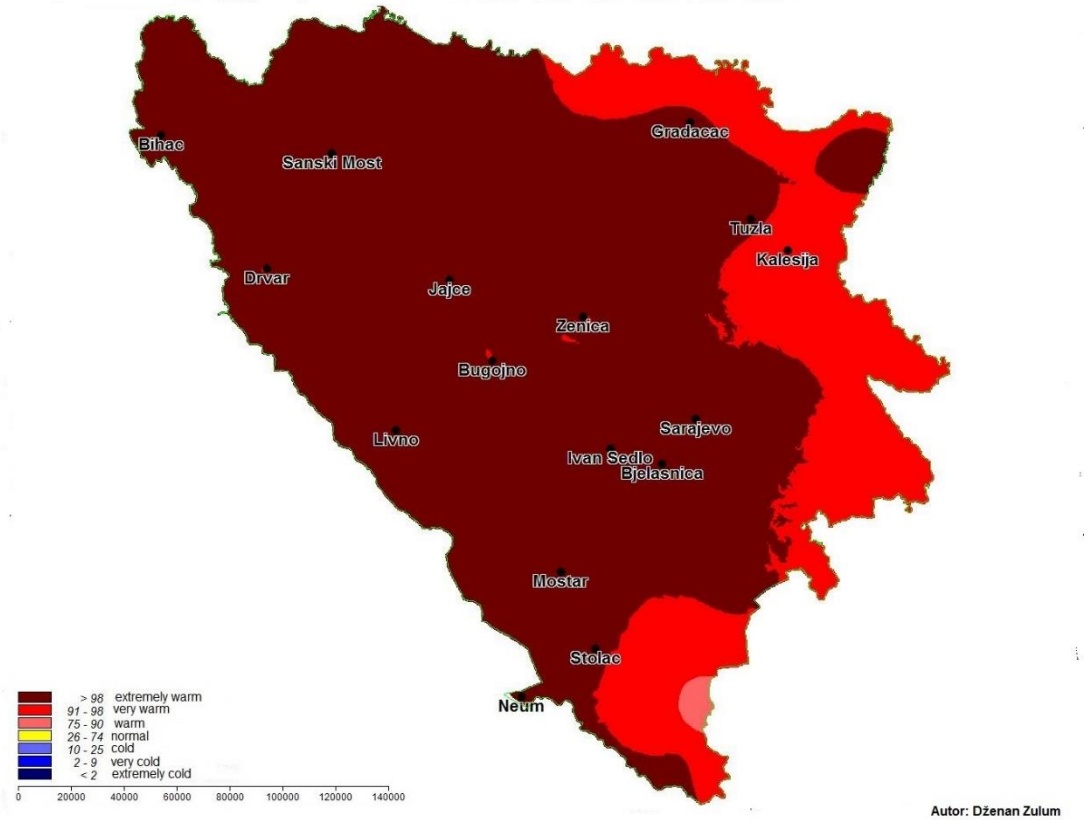
STATION	MOUNTH			STANICA	MOUNTH		
	December	January	February		December	January	February
Bihać				**Livno**			
Bjelašnica				**Mostar**			
Bugojno				**Sarajevo**			
Drvar				**Sanski Most**			
Gradačac				**Stolac**			
Ivan Sedlo				**Tuzla**			
Jajce				**Zenica**			

	ekstremno toplo		vrlo toplo		toplo		normalno		hladno		vrlo hladno		ekstremno hladno

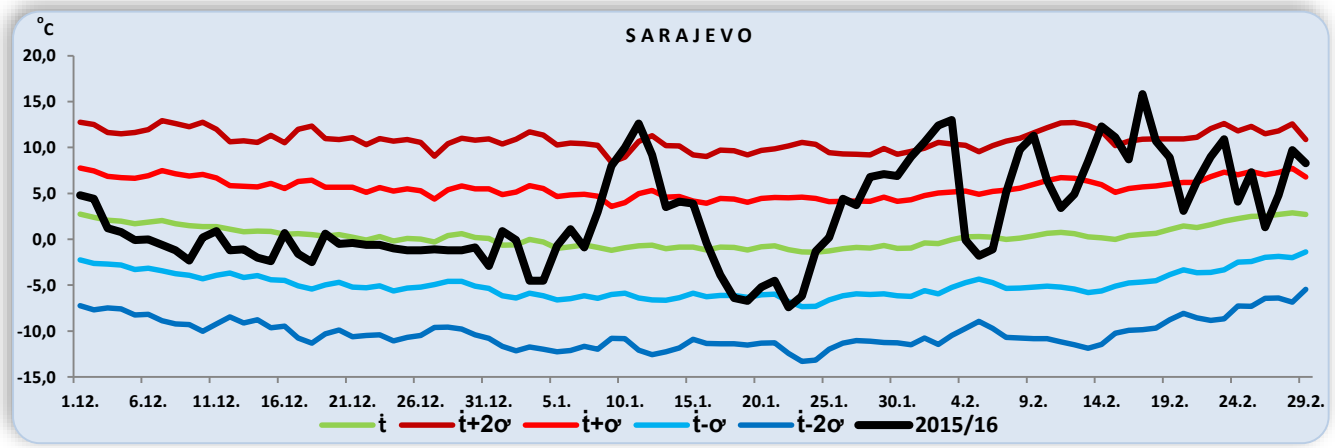
Table 2 Overview of marks mean temperature during the winter months by the method of percentiles

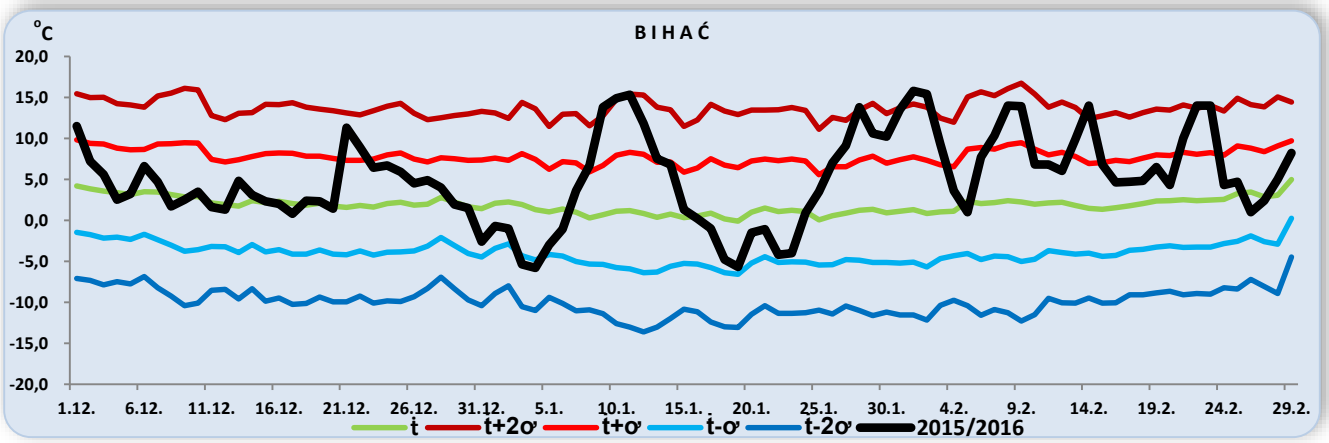


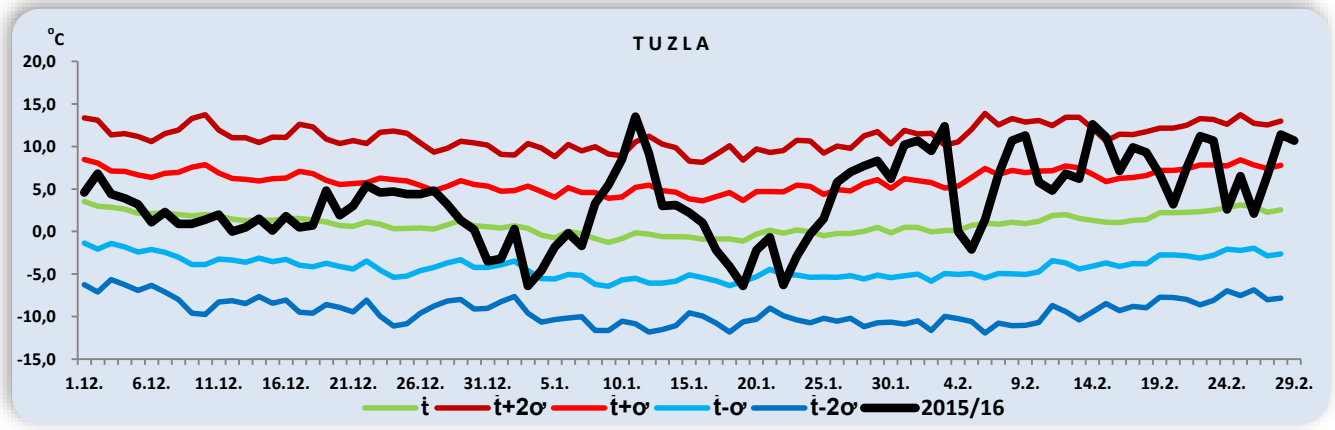
Map 1 Mean air temperature winter 2015/2016. year (ºC)

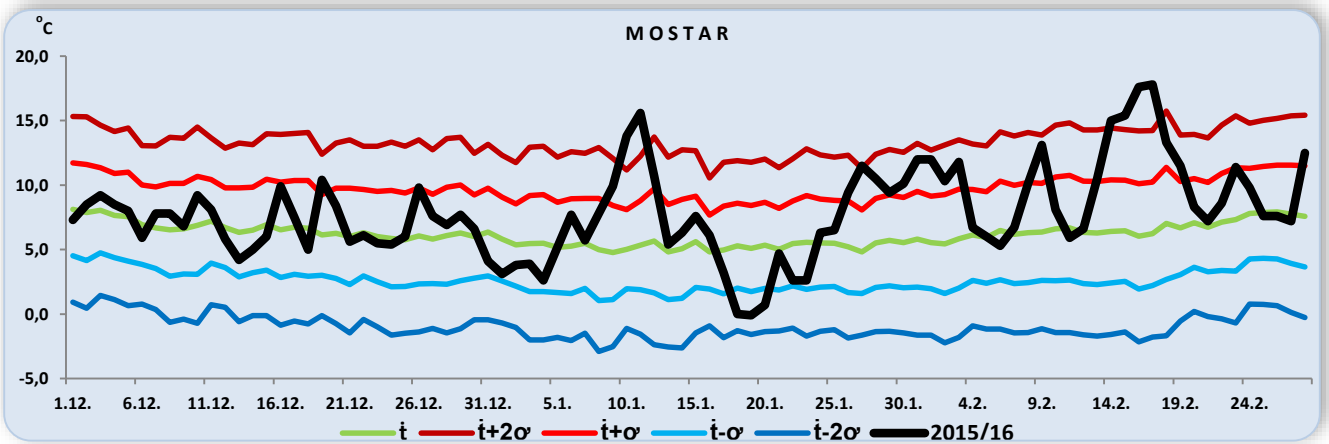


Map 2 Air temperature during winter 2015/2016 using percentile method compared to the 1961-1990 base period









Graph 1-4 Mean daily air temperatures during winter 2015-2016. year

Analysis of the monthly amount of precipitation expressed in % of average values shows that during the winter 2015 - 2016, deviations from normal precipitation amounts ranged from 56,6 % in Stolac to 122,3 % on Ivan Sedlo. By percentage amounts of precipitation are classified into categories of dry and normal.
The measured amounts of precipitation were in the range of 132,5 mm in Bugojno to 338,0 mm in Neum.

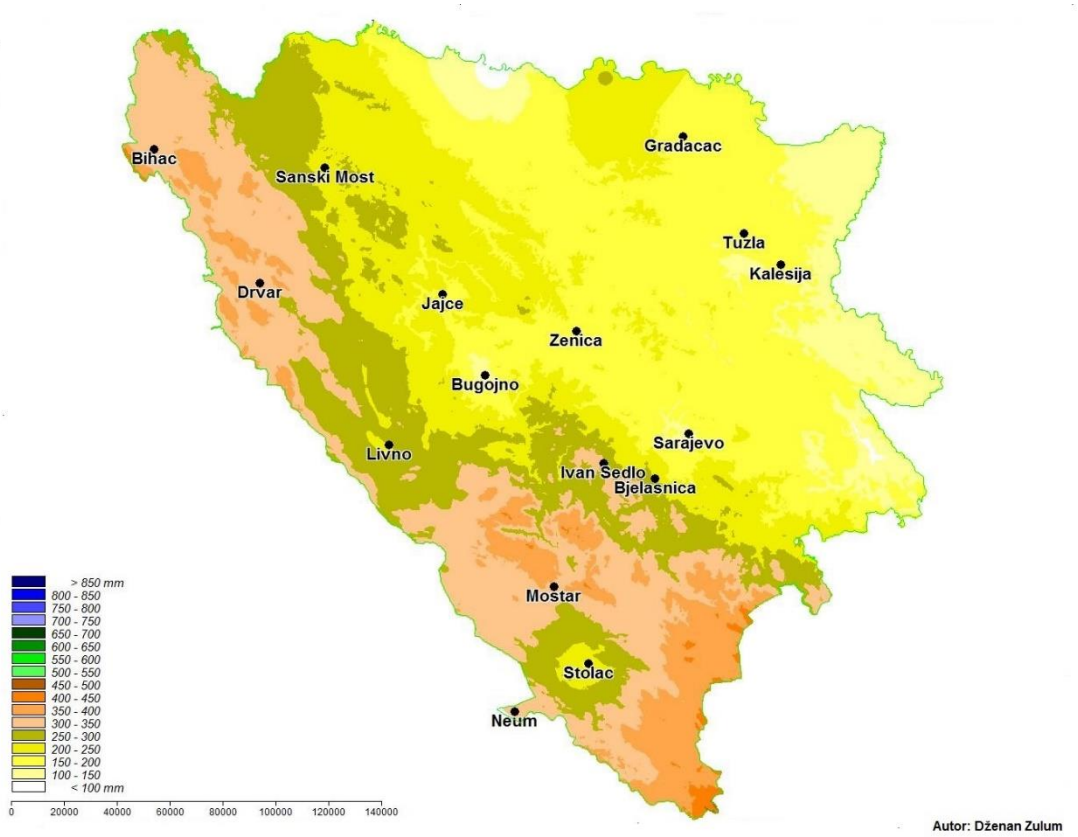
STATION	DEVIATION (%)				PERCENTILES
	DECEMBER	*JANUARY*	*FEBRUARY*	WINTER[1]	
Bihać	12,3	116,1	238,0	115,0	66
Bjelašnica	1,9	123,4	183,1	103,2	57
Bugojno	0,3	57,4	183,3	71,2	22
Drvar	0,2	115,5	272,3	118,4	69
Gradačac	4,4	136,6	130,1	87,6	40
Ivan Sedlo	1,5	67,7	167,1	122,3	69
Jajce	5,3	131,9	185,6	90,5	48
Kalesija	14,2		120,5	79,1	26
Livno	0,0	82,3	185,6	78,7	24
Mostar	0,0	78,4	133,9	66,8	17
Sarajevo	3,0	65,2	129,8	61,1	13
Sanski Most	10,1	129,7	223,7	109,5	62
Tuzla	7,3	128,6	135,8	84,4	33
Zenica	5,6	117,0	190,2	92,8	43

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

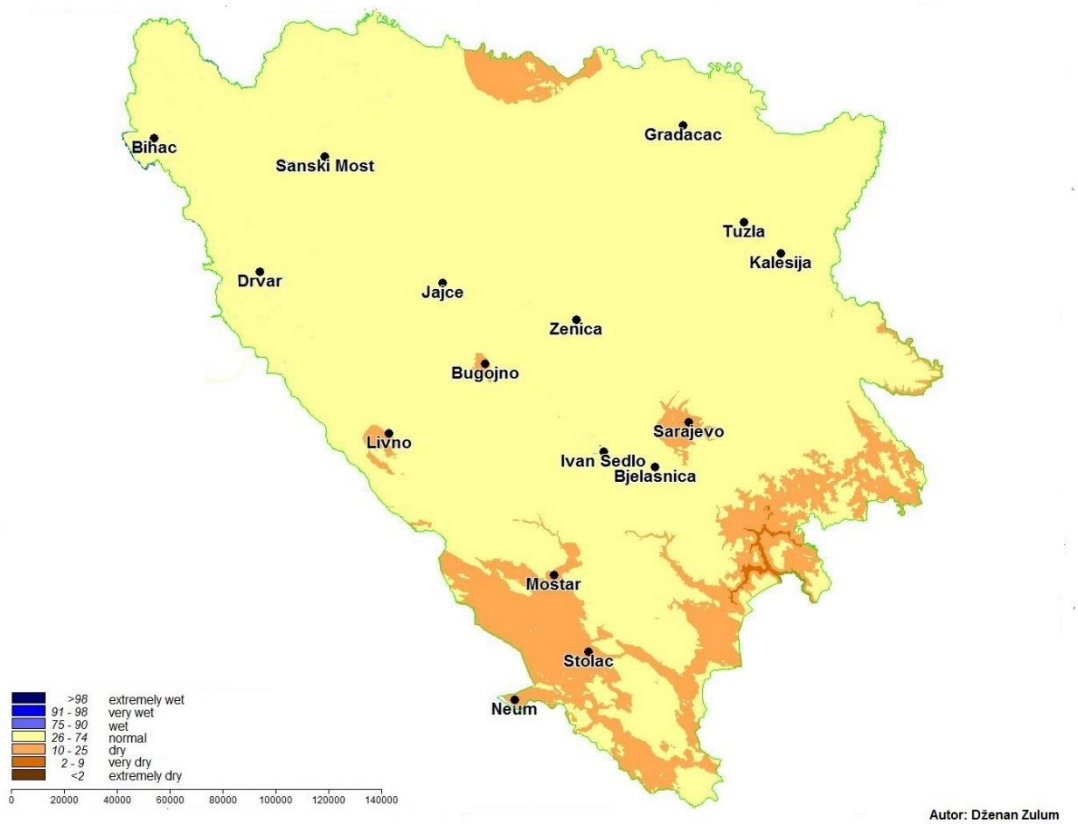
STATION	MOUNTH			STATION	MOUNTH		
	December	January	February		December	January	February
Bihać				**Livno**			
Bjelašnica				**Mostar**			
Bugojno				**Sarajevo**			
Drvar				**Sanski Most**			
Gradačac				**Stolac**			
Ivan Sedlo				**Tuzla**			
Jajce				**Zenica**			

	Extremely dry		Very dry		dry		normal		wet		Very wet		Extremely wet

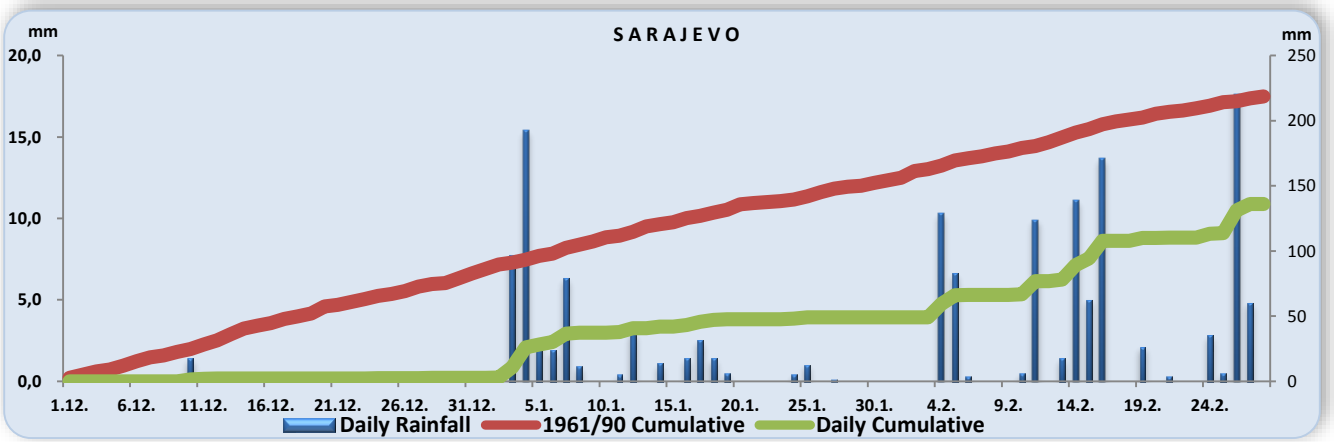
Table 6 Overview of marks on precipitation by month basis percentile

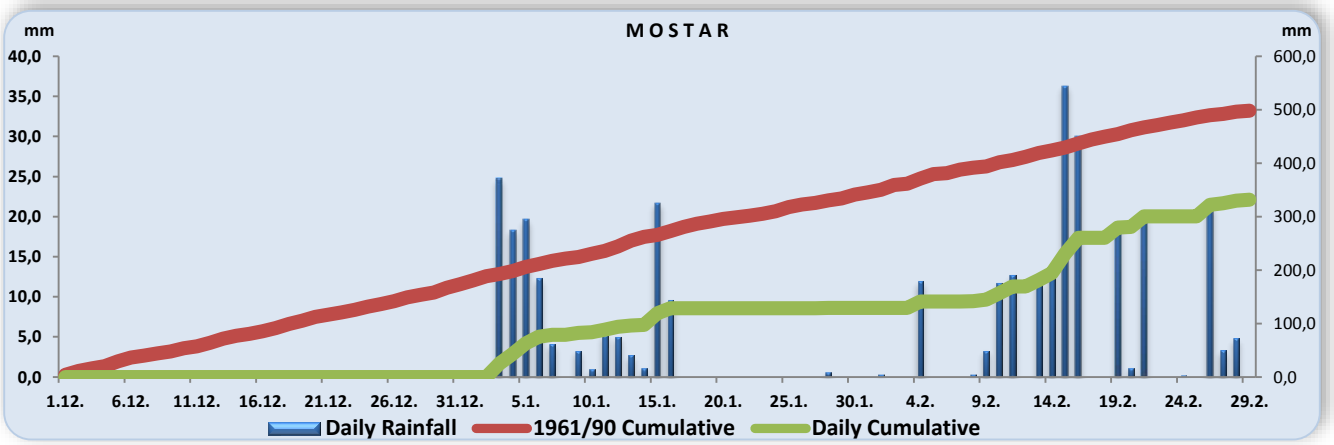


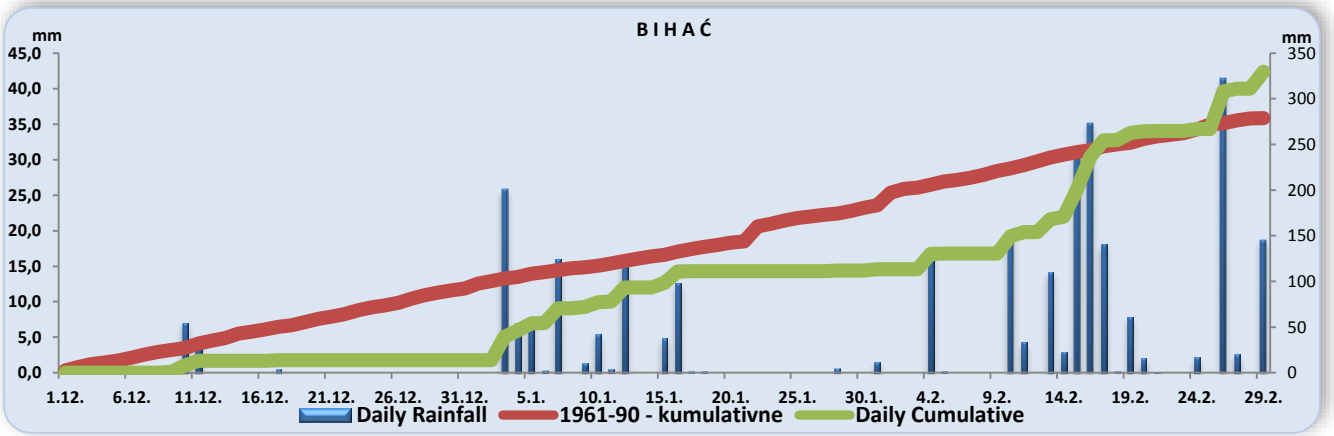
Map 3 Amount precipitation – winter 2015/2016. year (mm)

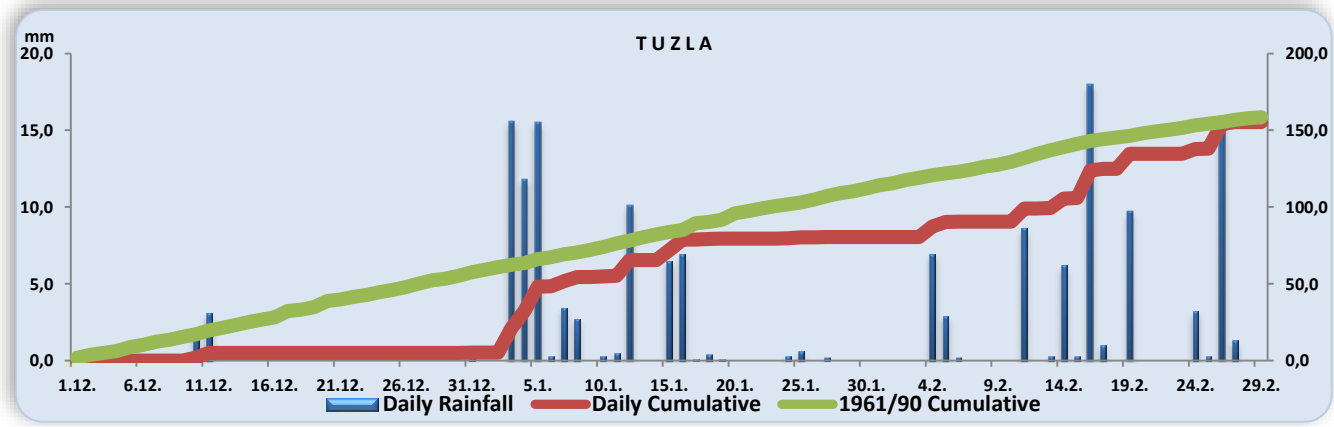


Map 4 Precipitation sums using percentile method during winter 2015/2016 compared to the base period (1961 – 1990)









Graph 5-8 daily and cumulative rainfall in the winter of 2015-2016 year.

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 December, January and February.

	MEAN DAILY MAXIMUM TEMPERATURE (°C)						MEAN DAILY MINIMUM TEMPERATURE (°C)						ACUMULATED PRECIPITATION (mm)					
	december		january		february		december		january		february		december		january		february	
	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N	R	N
Sarajevo	1,9	4,2	4,8	3,6	12,4	6,0	-2,5	-1,9	-2,4	-3,3	3,5	-2,6	2,5	84,1	46,6	66,5	87,0	62,8
Mostar	12,3	9,8	10,0	9,1	14,5	11,1	6,9	3,6	3,2	2,4	6,6	2,9	0,0	176,2	129,1	138,9	202,3	120,2
Tuzla	7,9	5,6	6,9	4,6	14,0	7,3	-1,2	-2,0	-2,7	-3,7	2,3	-2,6	5,2	67,6	75,3	56,8	74,8	48,6
Bihać	9,6	6,1	7,9	4,7	12,2	6,8	-0,3	-1,0	-0,8	-2,6	3,9	-2,0	13,7	127,9	99,7	94,1	216,2	92,6
Gradačac	7,8	5,4	7,1	4,3	12,8	6,8	1,6	-1,0	-0,1	-2,3	4,5	-0,9	2,8	65,6	81,1	58,7	80,1	46,6
Livno	11,1	5,9	6,6	5,4	10,2	6,5	-4,7	-3,1	-2,6	-4,5	1,6	-4,0	0,0	128,7	78,5	90,4	169,3	83,2
S Most	8,2	5,9	7,2	4,8	12,4	7,9	-1,7	-2,0	-3,3	-4,0	2,3	-3,2	8,5	91,9	87,8	66,7	139,2	64,2
Bjelašnica	2,0	-2,9	-4,1	-3,8	0,2	-4,7	-2,1	-7,0	-7,8	-8,2	-4,3	-9,0	1,6	108,3	96,1,1	86,2	152,8	99,2

Season		**Air Temperature (°C)**					**Precipitation sums (mm)**			
Station	**Rank***	**33**	**50**	**66**	**Observed value**	**Rank****	**33**	**50**	**66**	**Observed Value**
Sarajevo	5	1,6	0,9	-0,1	2,7	30	226,9	222,8	175,0	136,1
Mostar	4	7,0	6,3	5,7	8,0	27	504,0	430,0	352,6	331,4
Bihać	4	2,8	1,8	1,2	5,2	16	357,5	324,5	287,4	329,6
Tuzla	3	2,0	0,8	0,0	3,8	24	208,3	179,8	147,9	155,3
Zenica	4	2,0	1,1	0,3	3,1	21	206,2	174,0	145,7	154,6
Bugojno	5	1,2	0,4	-0,6	2,1	25	194,3	165,2	132,5	132,5
Gradačac	2	3,2	1,9	0,9	5,5	21	184,4	175,1	147,6	164,0
Livno	3	1,4	0,9	-0,1	3,2	24	376,2	296,0	228,9	247,8
Sanski Most	4	2,0	0,9	0,4	3,6	16	250,1	233,7	203,7	235,5
Bjelašnica	1	-5,1	-6,2	-6,9	-2,7	15	344,0	289,1	241,8	306,0

*Rank – 1981-2016 (period) – warmest season
**Rank – 1981-2016 (period) – highest seasonal precipitation

[1] The actual amount of precipitation compared to the average sum

Photo: Fog in Sarajevo. Fog was recorded in 23 days in December 2015

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