SUMMER SEASON 2013 IN SRPSKA, BOSNIA AND HERZEGOVINA

Srpska encountered drought in summer season 2013 within the context of slightly to moderate dry in the north part of, hot or very hot weather pattern, with air temperature around 92nd percentile (the 5th warmest summer according to data from 1960 onward).

Rainfall height ranged from 111-333mm/JJA. The driest part was Semberia, eastern part of Srpska (deficit at Bijeljina: -56.4%). Banja Luka (Krajina region), the capital town of Srpska registered the 3rd lowest heigt of rainfall from 1883 to present (figure 1,2,3).

Banja Luka

month	rainfall 2013 (mm)	normal 1981-2010	trend %	SPI index	percentile
June	**54,3**	112,6	-51,8	-1,15	0,13
July	**27,4**	81,6	-66,4	-1,16	0,12
August	**36,3**	77,1	-52,9	-0,83	0,20

Bijeljina

month	rainfall 2013 (mm)	normal 1981-2010	trend %	SPI index	percentile
June	**56,5**	105,3	-46,3	-0,91	0,18
July	**36,5**	72,2	-49,5	-0,82	0,21
August	**18,1**	65,5	-72,4	-1,07	0,14

Sokolac

month	rainfall 2013 (mm)	normal 1981-2010	trend %	SPI index	percentile
June	**41,4**	93,2	-55,6	-1,27	0,10
July	**28,4**	71,9	-60,5	-1,38	0,08
August	**70,6**	72,7	-2,9	-0,05	0,48

Jun, July, August 2013 rainfall total in Srpska compared to 1981-2013 climatology: **the lack of rainfall during summer season from 2011 to 2013.**

Figure 1: JJA Rainfall total 1881-2013, the capital of Srpska

JJA rainfall 10-years running average in Banja Luka, shows decreasing trend, from 1881 to present (moderate continental climate, fig 2) .

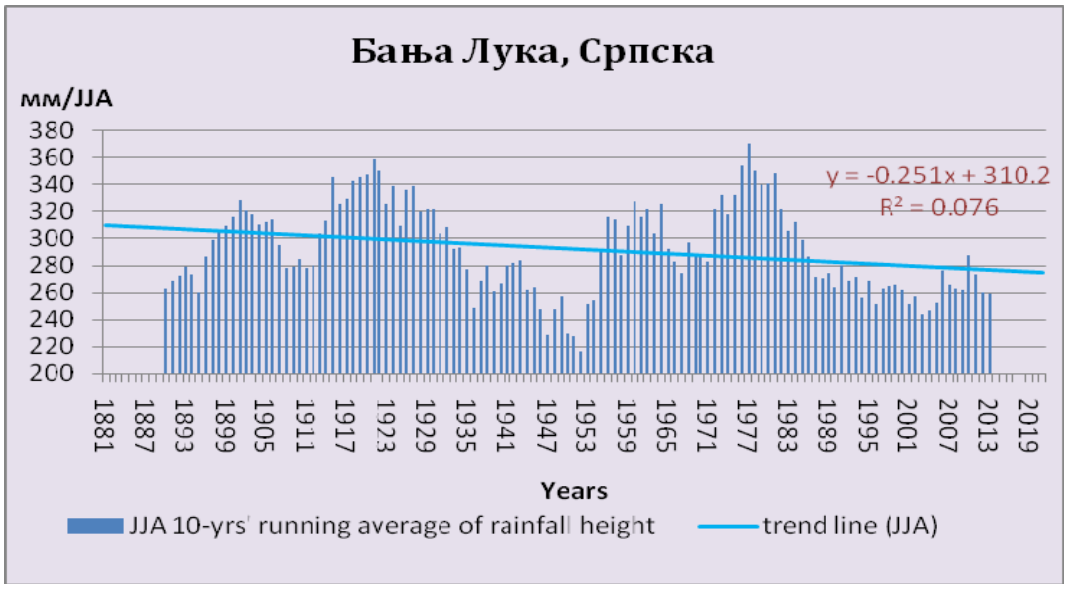

Figure 2: JJA decades' running mean value of precipitation 1881-2013, northwestern part of Srpska

The estimation of the JJA 2013 rainfall (a probability of 35% for "below normal" and "normal" and 30% for above normal) was correct, according to observed data, ie all three cathegories happened (Fig 3) though probability for drought shoud had been greater, for the most places had shown below normal values.

Figure 3: JJA 2013 precipitation amount regarding to 1981-2010 climatology

Met. Station	33,33%	66,67%	50,00%	JJA 2013	trend %
Бања Лука	73,62	104,18	88,33	118,00	33,58
Приједор	198,38	270,84	219,27	135,60	-38,16
Нови Град	201,22	291,47	243,00	150,40	-38,11
Добој	215,00	320,88	272,35	169,30	-37,84
Бијељина	215,67	277,74	255,10	111,10	-56,45
Соколац	197,73	259,00	228,55	140,40	-38,57
Билећа	143,67	196,00	174,80	224,80	28,60
Гацко	158,37	222,07	183,85	157,50	-14,33
Чемерно	171,97	246,01	197,60	191,40	-3,14
Требиње	133,13	228,67	160,95	222,60	38,30

JJA 2013 air temperature in average, has shown above normal value for +1,1^{o}C, relating to 1981-2010 climatology, The probabilistic consensus forecast for tercile categories of anomalies of seasonal-mean temperature, relative to the period 1981-2010, was 40% for normal and 40% for above normal, what happened, according to observed values (tab1), Mean temperature: at the northern part 22,2^{o}C; mountainous region16,6^{o}C; southern parts 23,4^{o}C (figure 4 and 5),

Figure 4: JJA 2013 Mean temperature (°C) in Srpska regarding to tercile

ref, Period / Station	*33,33%*	*median (50,00%)*	*66,67%*	*summer 2013*	*difference from normal*
Бања Лука B, Luka	19,93	20,80	20,57	22,27	1,47
Бијељина Bijeljina	19,99	21,22	20,92	22,70	1,49
Билећа Bileća	20,08	21,20	20,87	22,20	1,00
Добој Doboj	19,52	20,43	20,27	21,60	1,17
Приједор Prijedor	20,03	21,10	21,07	22,20	1,10
Соколац Sokolac	15,10	16,32	15,97	17,40	1,08
Требиње Trebinje	23,47	23,52	24,40	24,50	0,98
Чемерно Čemerno	13,76	14,20	14,12	15,70	1,50
Гацко Gacko	16,43	17,05	16,93	18,60	1,55

Mean temepartures are made from three time measurements at 07am, 2 and 9 pm hours, local time using standard formula 1/4(T07+T02+2*T09).

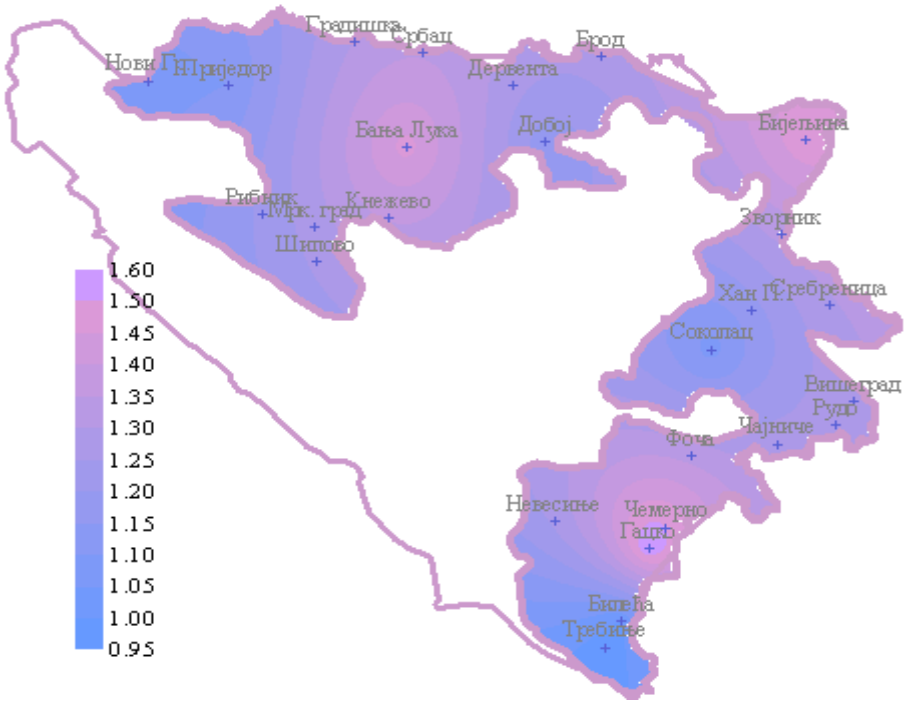

Figure 5: Spatial distribution of summer mean temperature anomaly, regarding to 1981-2010 median at the meteorological stations in Srpska, Bosnia and Hercegovina