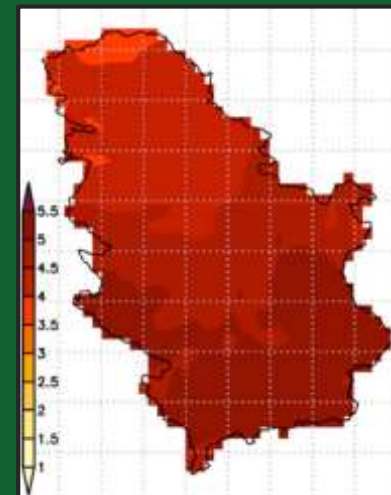
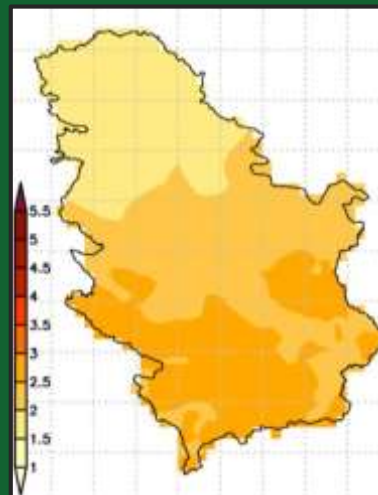


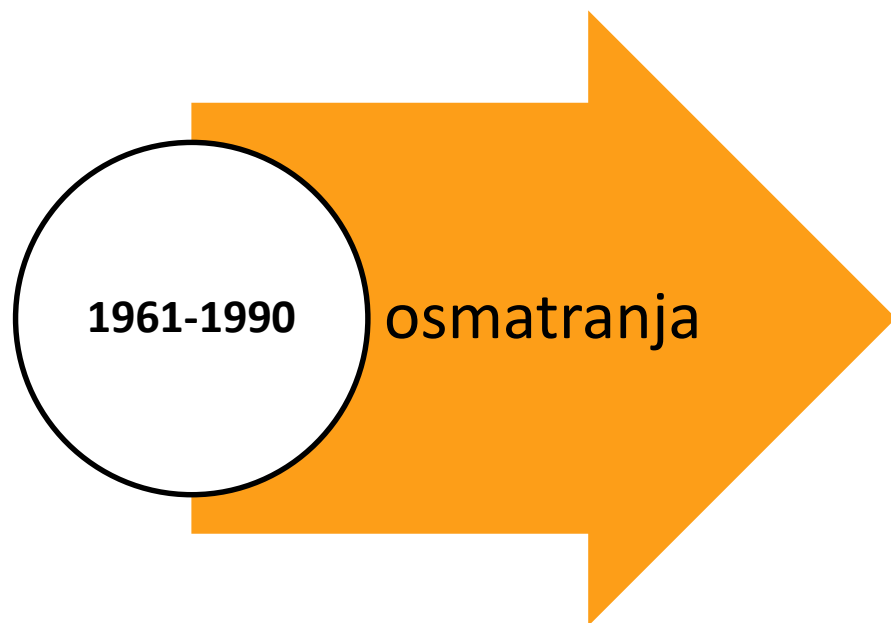
OSMOTRENE PROMENE KLIME I SCENARIJI PROMENE KLIME U REPUBLICI SRBIJI

ANA VUKOVIĆ

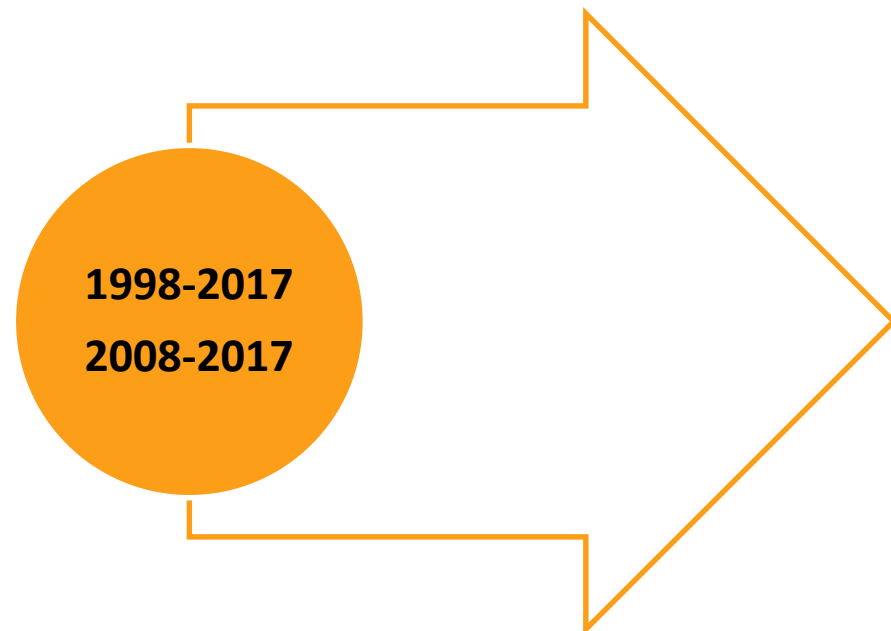
Poljoprivredni fakultet
Univerzitet u Beogradu
anavuk@agrif.bg.ac.rs

Vrdnik, 23-24 april 2019.





osmatranja



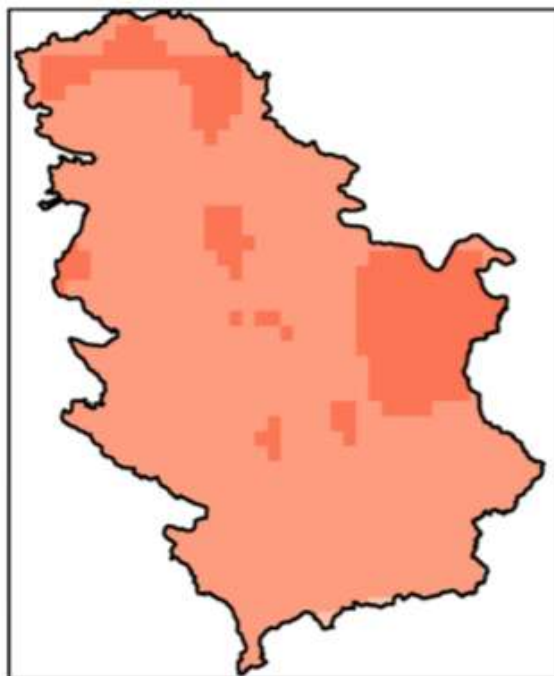
	GODINA	ODSTUPANJE
1	2014	2.33
2	2015	2.11
3	2013	1.98
4	2016	1.90
5	2017	1.86
6	2012	1.84
7	2000	1.79
8	2007	1.73
9	2008	1.65
10	1994	1.61

anomalije srednje temperature za teritoriju Republike Srbije u odnosu na 1961-1990

PROMENE KLIMATSKIH USLOVA U ODNOSU NA KLIMATOLOGIJU 1961-1990

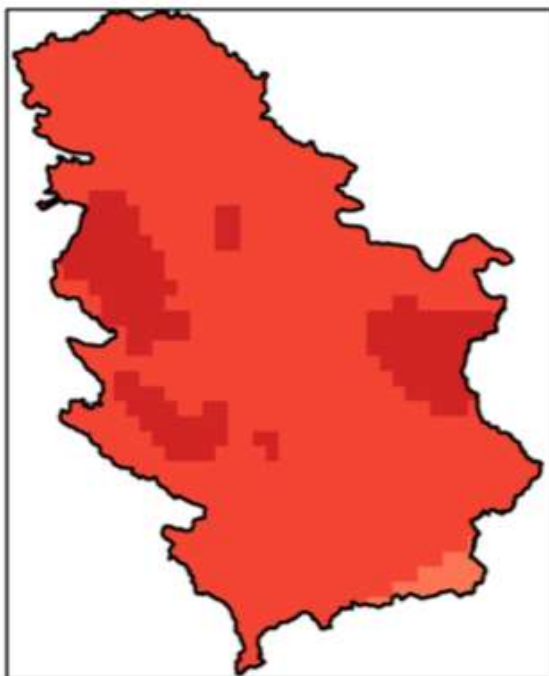
TEMPERATURA

1998-2017



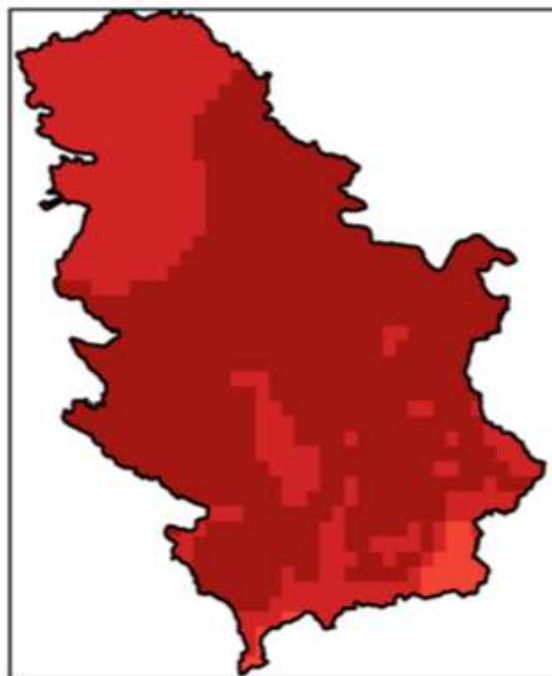
srednja

2008-2017

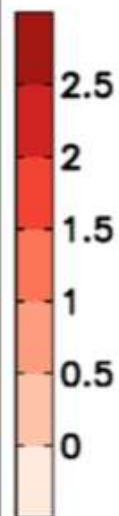


srednja

2008-2017



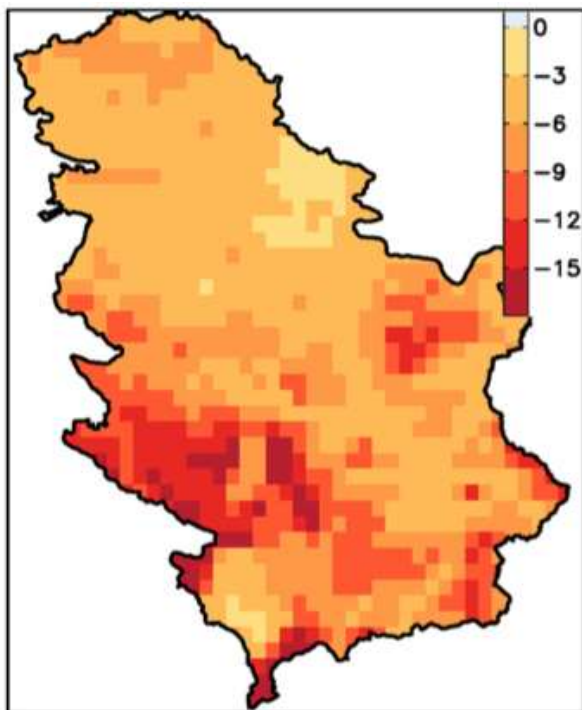
maksimalna - leto



PROMENE KLIMATSKIH USLOVA U ODNOSU NA KLIMATOLOGIJU 1961-1990

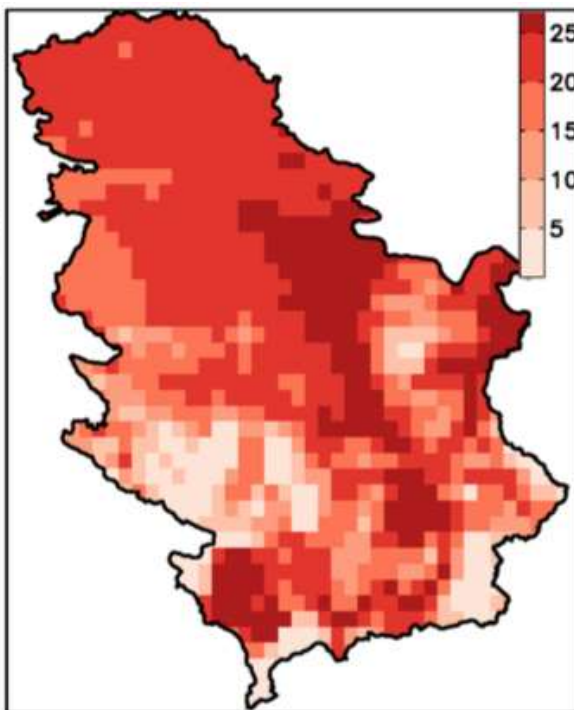
TOPLOTNI INDEKSI

2008-2017



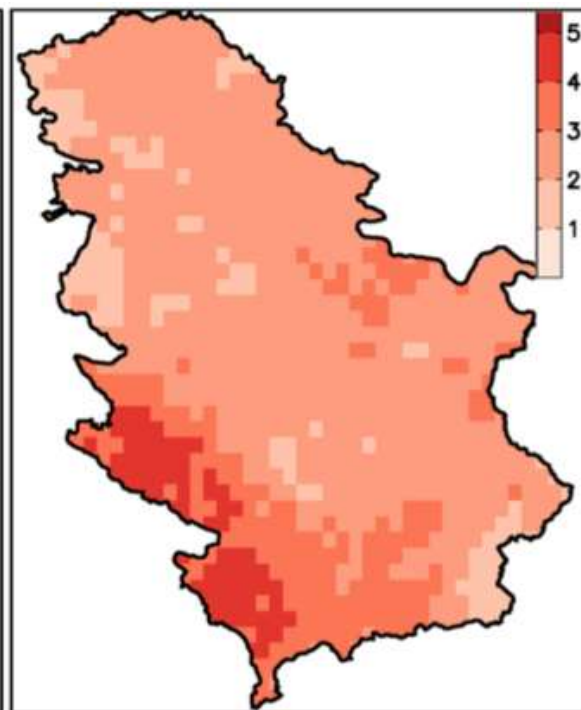
ledeni dani

2008-2017



tropski dani

2008-2017

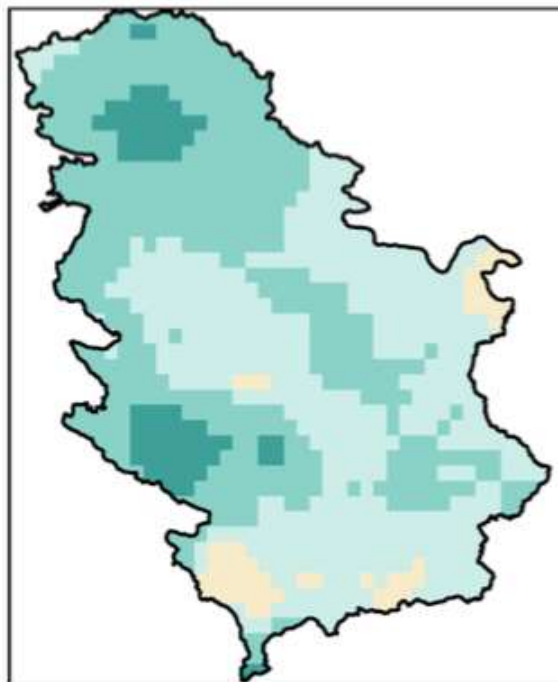


ekstremni t.talasi

PROMENE KLIMATSKIH USLOVA U ODNOSU NA KLIMATOLOGIJU 1961-1990

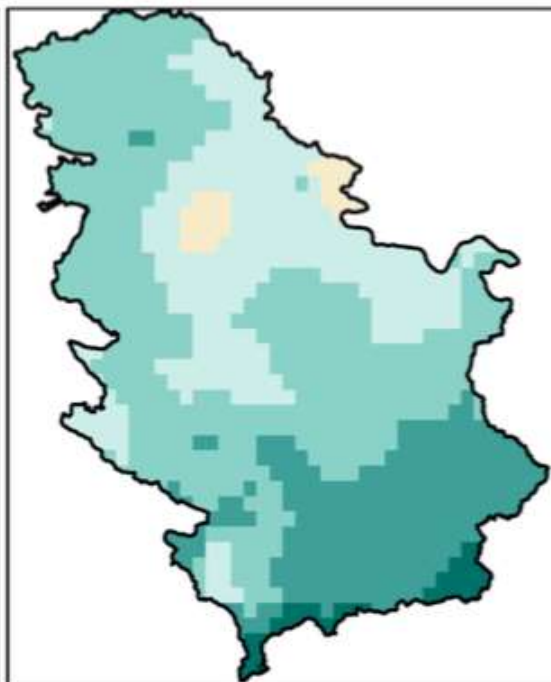
KOLIČINA PADAVINA

1998-2017



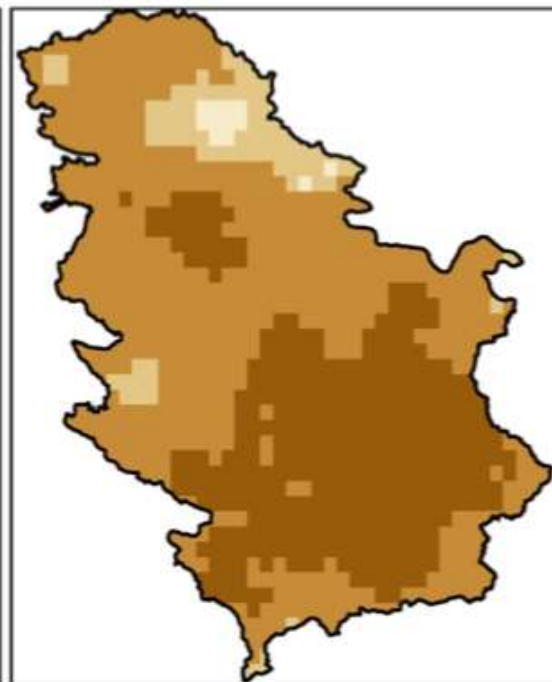
srednja godišnja

2008-2017

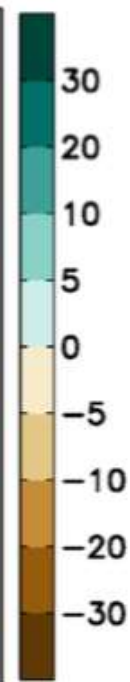


srednja godišnja

2008-2017



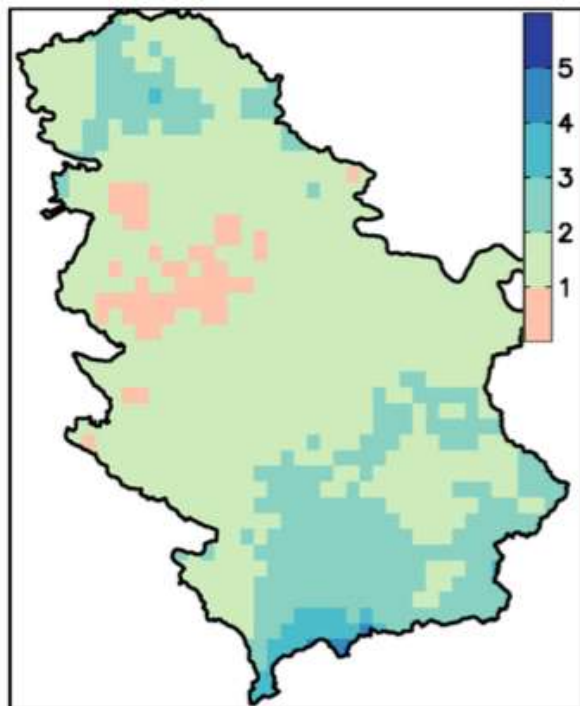
srednja letnja



PROMENE KLIMATSKIH USLOVA U ODNOSU NA KLIMATOLOGIJU 1961-1990

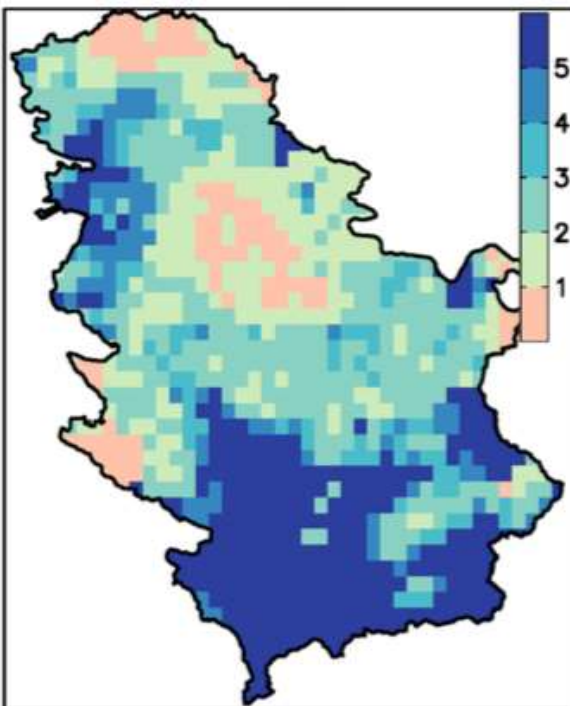
PADAVINSKI INDEKSI

2008-2017



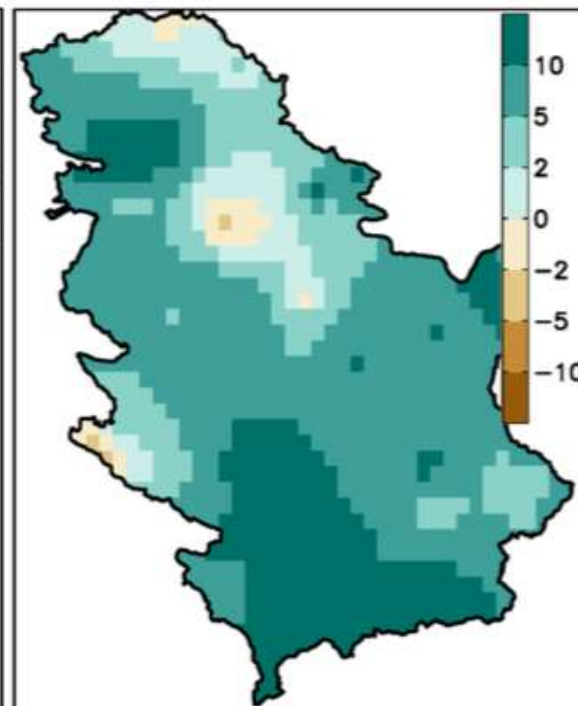
broj dana $P > 20\text{mm}$

2008-2017



broj dana $P > 40\text{mm}$

2008-2017



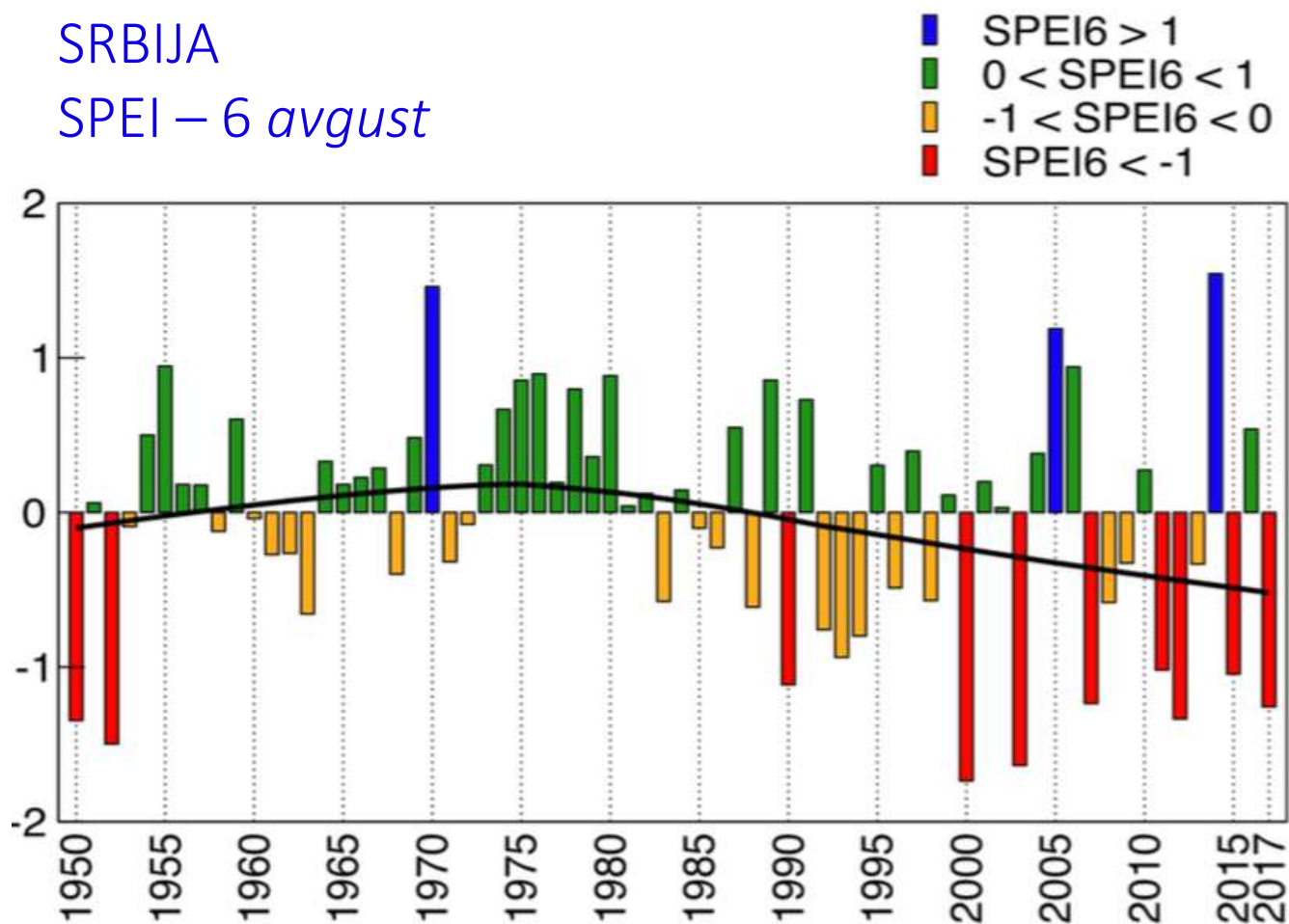
maks.dnevne pad.(%)

INDIKATOR OSMOTRENIH KLIMATSKIH PROMENA

SUŠA - SRBIJA

SRBIJA

SPEI – 6 *avgust*



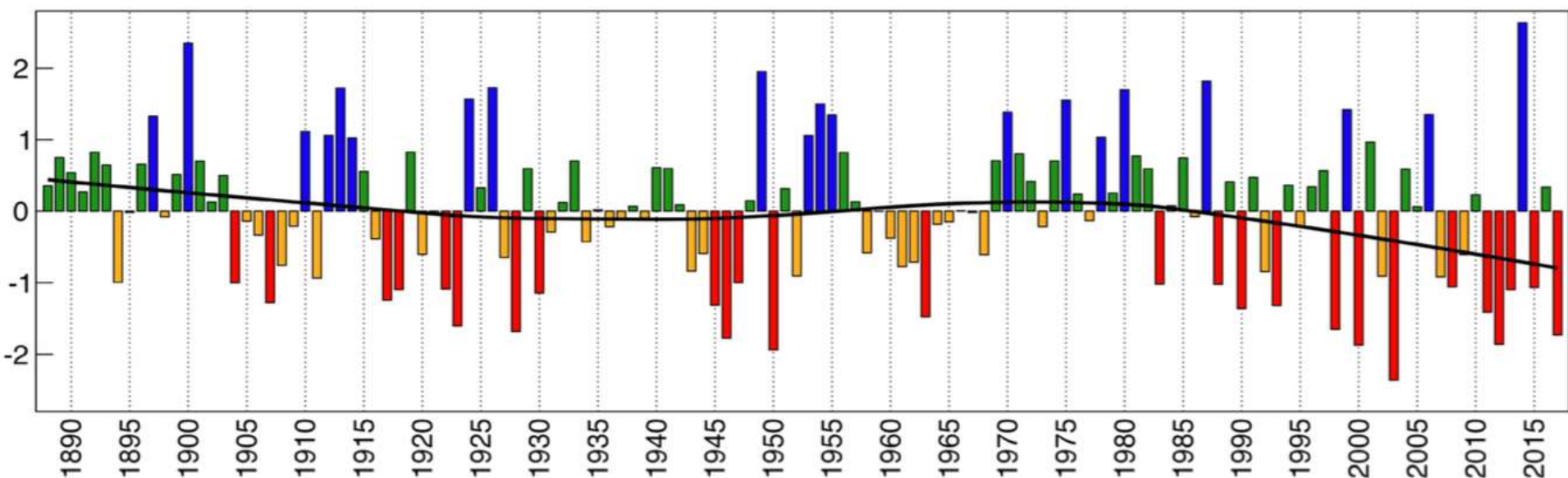
INDIKATOR OSMOTRENIH KLIMATSKIH PROMENA

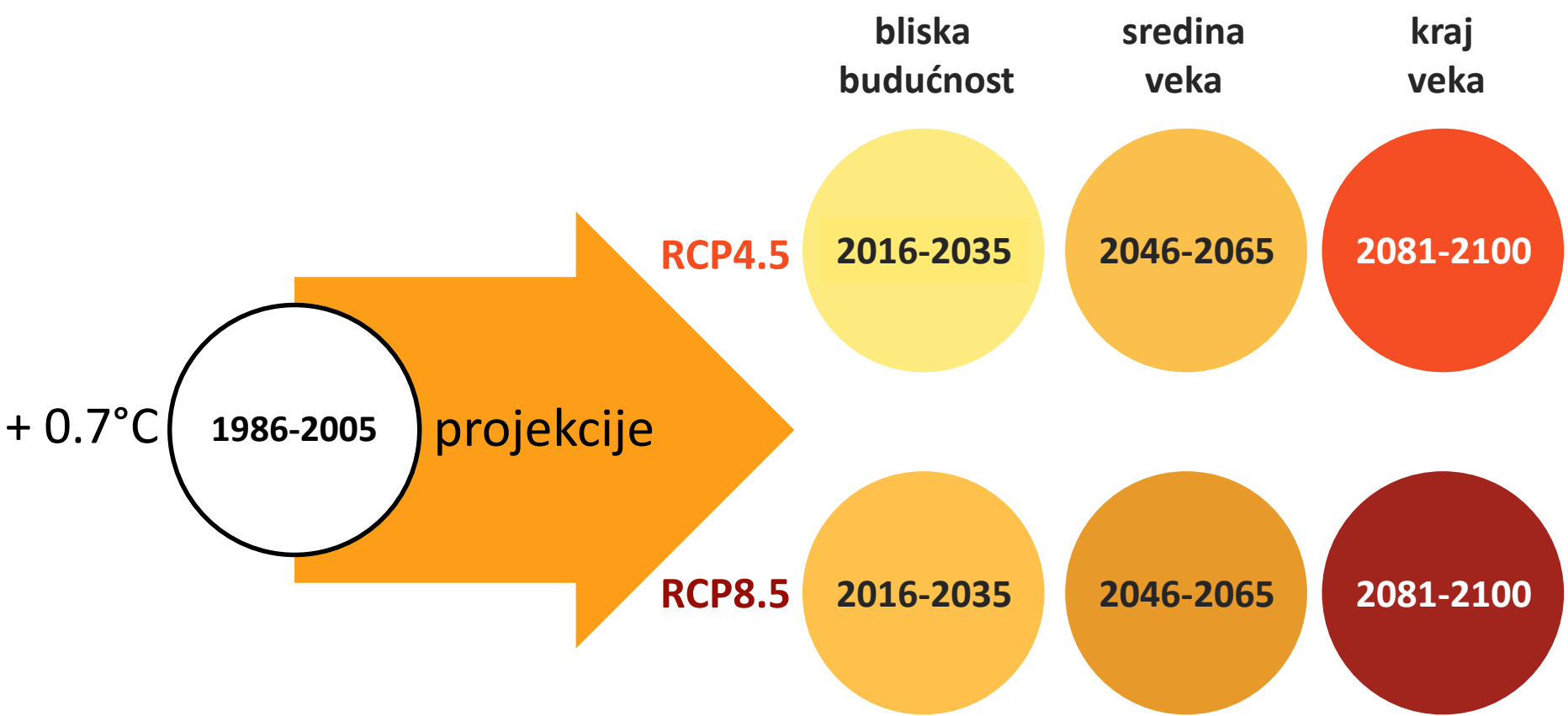
SUŠA - BEOGRAD

BEOGRAD

SPEI – 6 *avgust*

- SPEI6 > 1
- $0 < \text{SPEI6} < 1$
- $-1 < \text{SPEI6} < 0$
- $\text{SPEI6} < -1$

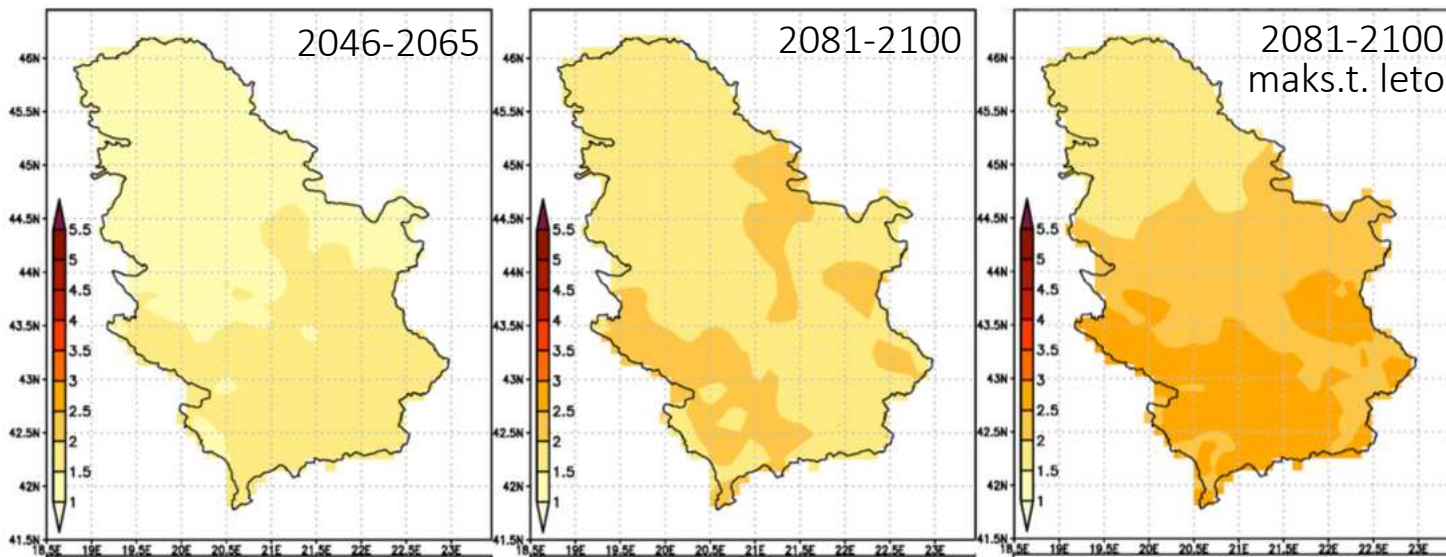




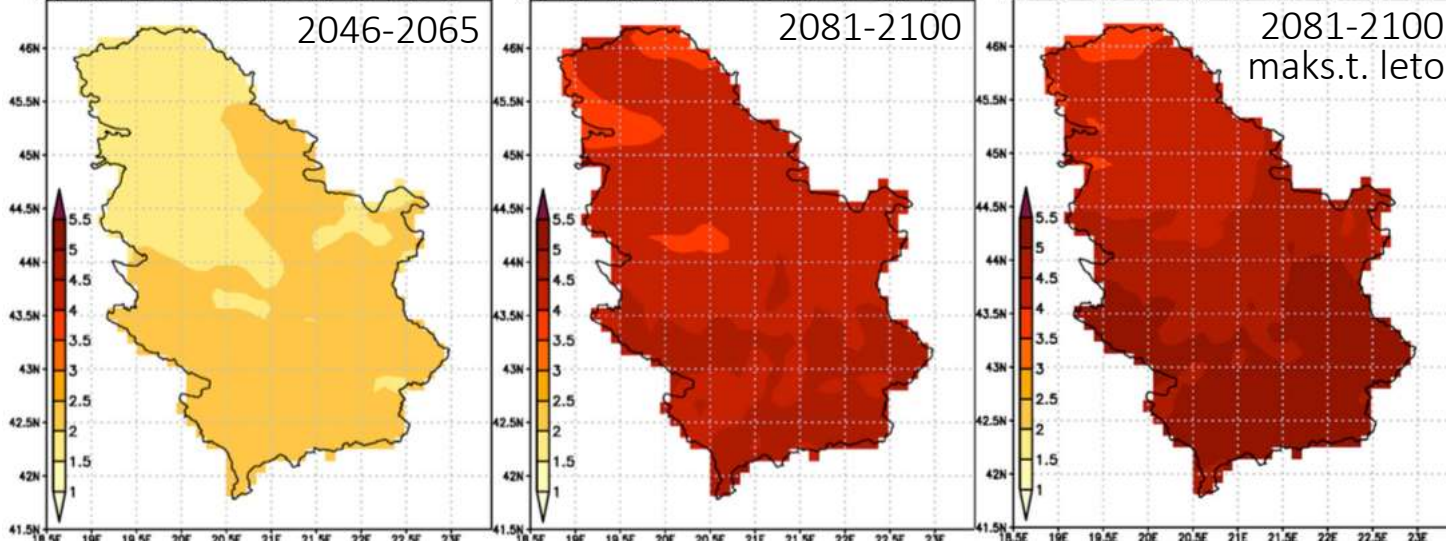
PROMENE KLIMATSKIH USLOVA U ODNOSU NA KLIMATOLOGIJU 1986-2005

TEMPERATURA

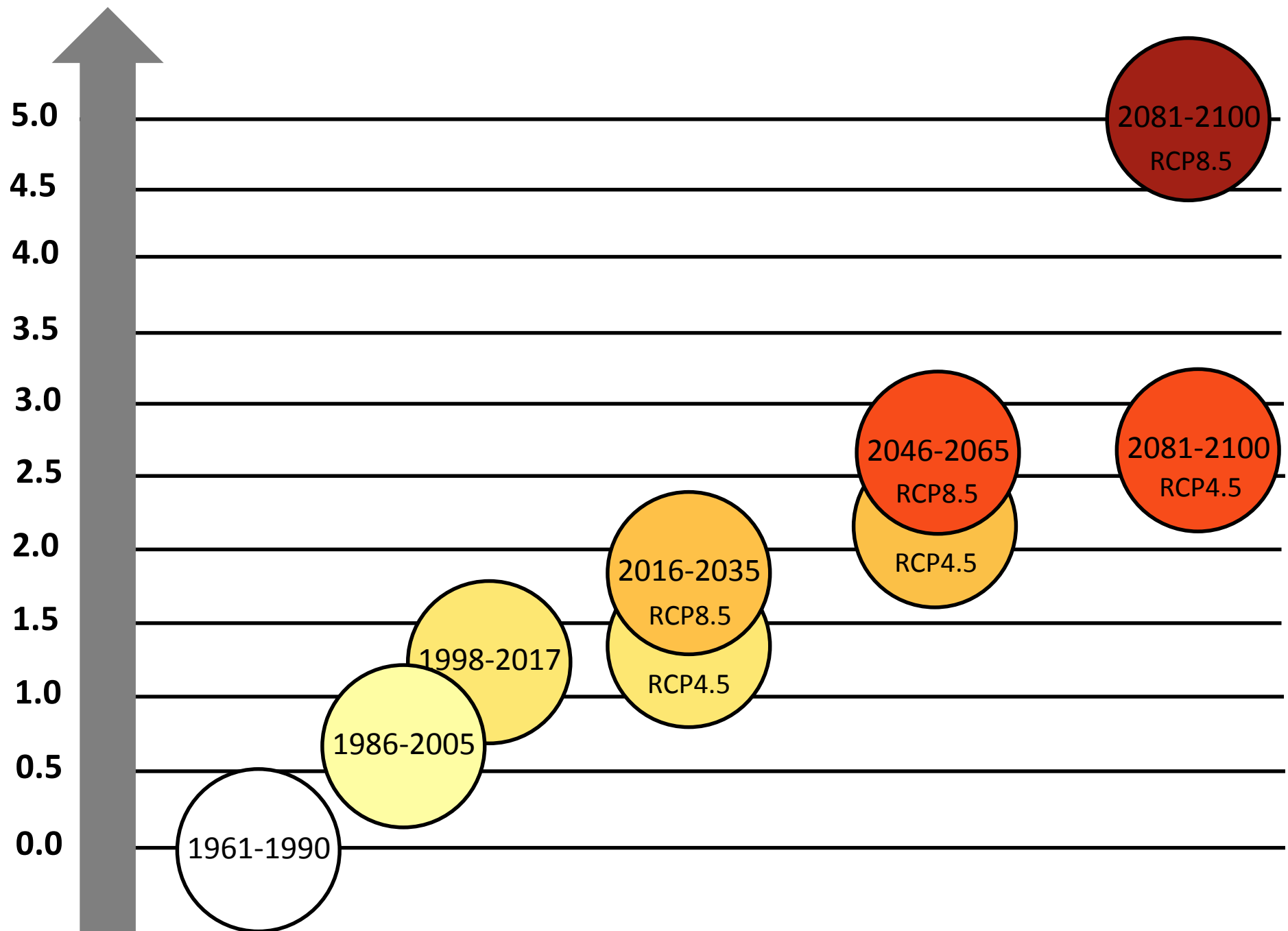
RCP4.5



RCP8.5



	GOD	DJF	MAM	JJA	SON	GOD	DJF	MAM	JJA	SON
	RCP4.5					RCP8.5				
2016-2035										
(ΔTsr)s	0.6	0.6	0.8	0.9	1.1	1.0	0.3	0.7	1.1	1.0
(ΔTmax)s	0.6	0.6	0.9	0.9	1.0	0.9	0.3	0.8	1.2	1.0
(ΔTmin)s	0.6	0.5	0.7	0.8	1.1	1.0	0.3	0.7	1.0	1.0
	RCP4.5					RCP8.5				
2046-2065										
(ΔTsr)s	1.5	1.4	1.2	2.0	1.5	2.0	2.3	1.8	2.1	2.3
(ΔTmax)s	1.6	1.5	1.2	2.1	1.6	2.1	2.4	1.9	2.3	2.4
(ΔTmin)s	1.4	1.3	1.3	1.8	1.5	2.0	2.2	1.8	2.1	2.3
	RCP4.5					RCP8.5				
2081-2100										
(ΔTsr)s	2.0	1.9	1.8	2.1	2.1	4.3	4.5	4.1	4.4	4.2
(ΔTmax)s	2.0	2.0	1.9	2.3	2.2	4.5	4.8	4.0	4.7	4.3
(ΔTmin)s	1.9	1.9	1.7	2.0	2.1	4.2	4.3	4.1	4.3	4.2

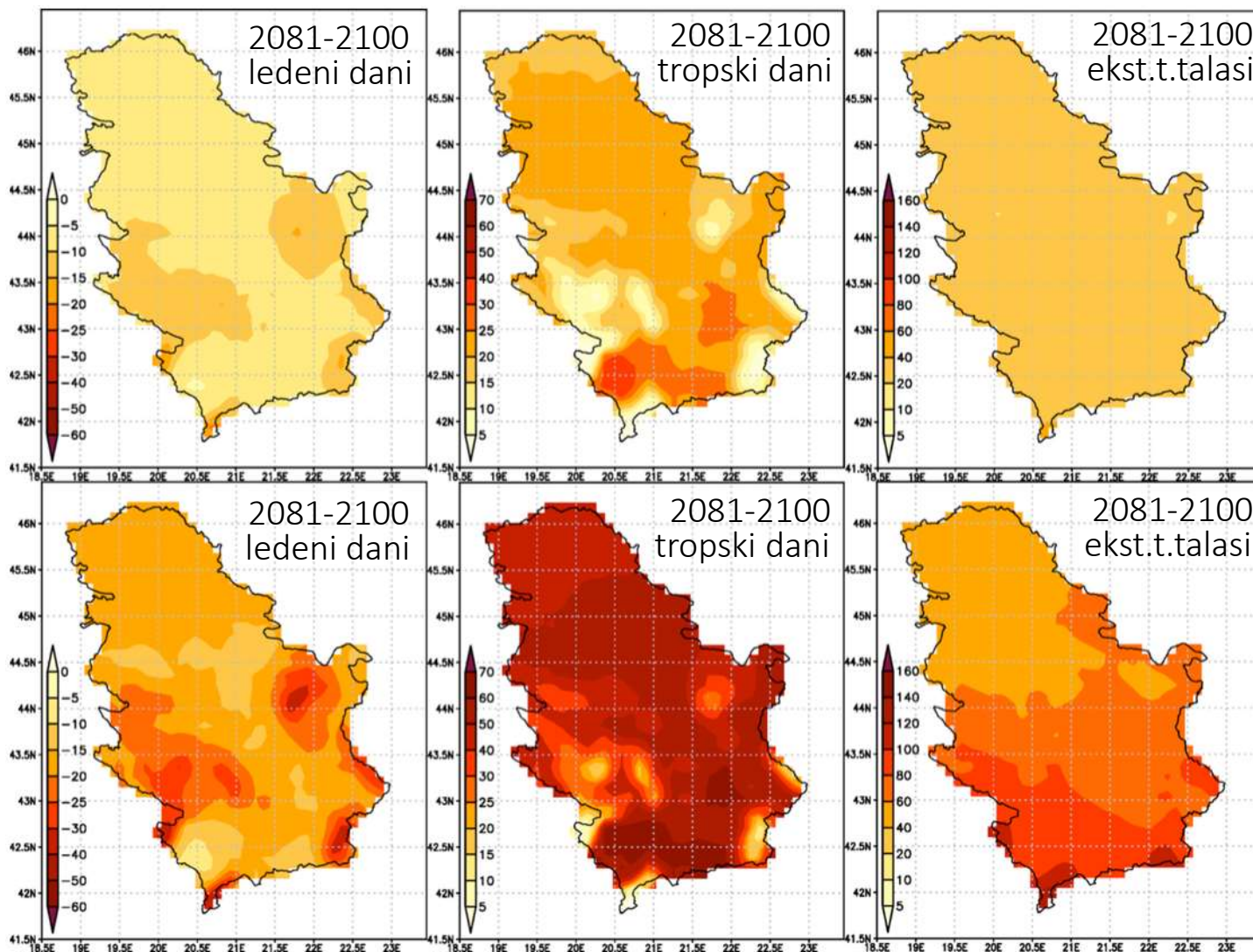


PROMENE KLIMATSKIH USLOVA U ODNOSU NA KLIMATOLOGIJU 1986-2005

TOPLOTNI INDEKSI

RCP4.5

RCP8.5



BMZD – broj mraznih dana
 BLDD – broj ledenih dana
 BLTD – broj letnjih dana
 BTRD – broj tropskih dana

BTDD – broj dana u toplotnim talasima
 BTT – broj toplotnih talasa
 BETTD – broj dana u ekstremnim toplotnim talasima
 BETT – broj ekstremnih toplotnih talasa
 VG5 – trajanje vegetacije za biološki minimum 5°C
 VG10 – trajanje vegetacije za biološki minimum 10°C

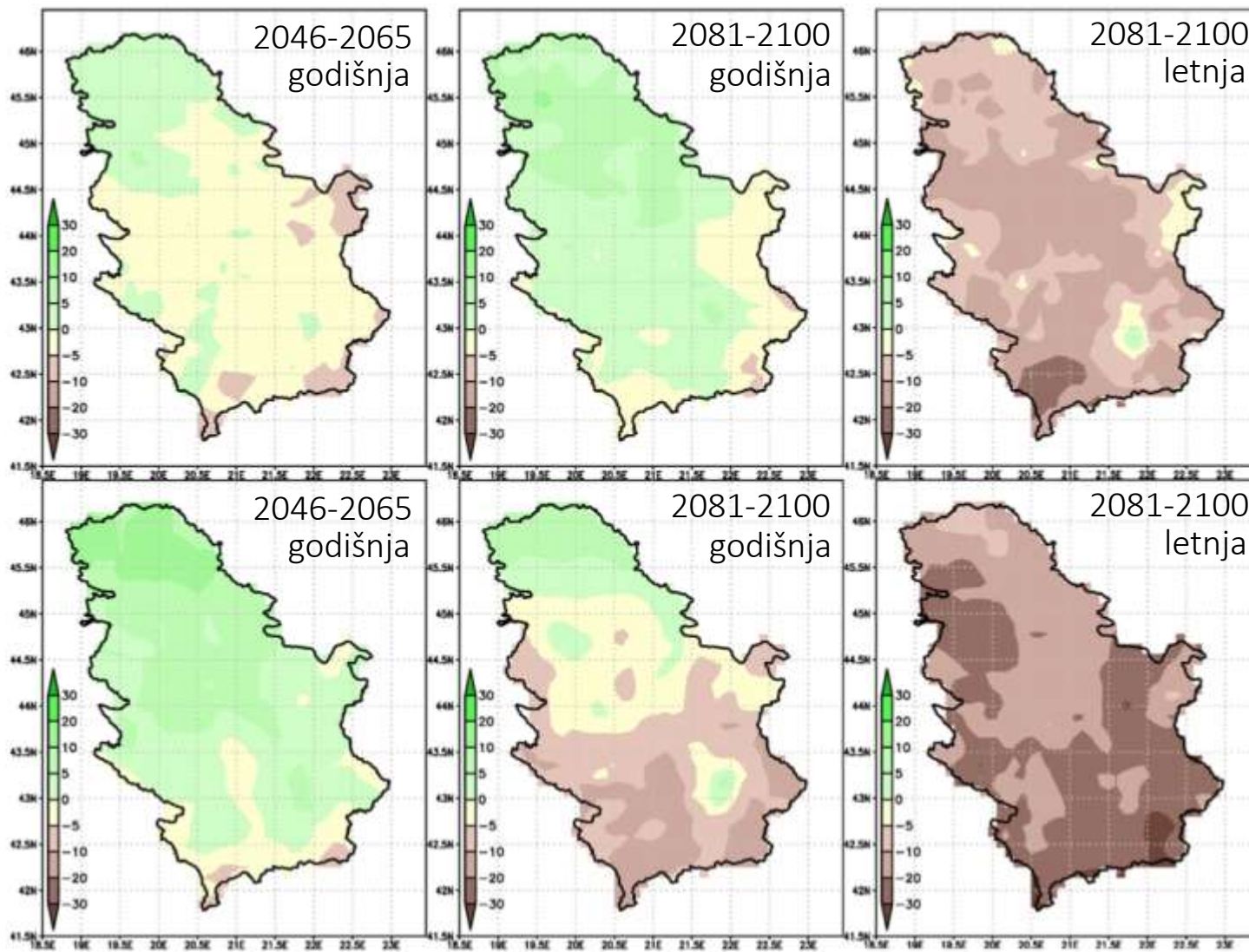
	RCP4.5									RCP8.5								
	2016-2035			2046-2065			2081-2100			2016-2035			2046-2065			2081-2100		
	(Δ)s	(Δ)x	(Δ)n	(Δ)s	(Δ)x	(Δ)n	(Δ)s	(Δ)x	(Δ)n	(Δ)s	(Δ)x	(Δ)n	(Δ)s	(Δ)x	(Δ)n	(Δ)s	(Δ)x	(Δ)n
BMZD	-8	-5	-12	-18	-13	-23	-27	-21	-35	-9	-6	-14	-28	-23	-35	-54	-42	-67
BLDD	-4	-2	-8	-8	-4	-19	-9	-4	-22	-2	0	-12	-11	-5	-24	-19	-8	-43
BLTD	11	17	2	22	30	8	27	34	10	14	18	3	26	36	9	55	70	28
BTRD	8	15	0	18	28	0	20	32	0	10	16	0	19	33	0	47	66	3
BTDD	25.8	37.9	17.9	57.6	82.8	43.4	65.8	99.1	52.6	31.8	48.3	22.1	69.6	100.3	55.3	141.3	183.6	125.7
BTT	1.4	2.5	0.2	3.1	4.1	2.2	3.0	3.8	2.0	1.7	3.0	0.8	3.4	4.6	2.3	3.8	5.0	1.9
BETTD	11.5	18.5	7.9	18.9	41.1	13.2	25.6	48.1	19.6	12.4	22.8	9.0	21.8	55.5	14.1	68.9	142.0	47.7
BETT	1.4	1.9	1.0	2.2	4.6	1.6	2.9	5.0	2.2	1.5	2.6	1.0	2.6	5.3	1.7	7.2	11.5	5.3
VG5	10	20	2	17	29	8	28	42	17	8	21	-1	29	44	16	55	90	43
VG10	11	20	4	17	31	10	26	37	16	11	22	5	28	40	18	55	77	42

PROMENE KLIMATSKIH USLOVA U ODNOSU NA KLIMATOLOGIJU 1986-2005

KOLIČINA PADAVINA

RCP4.5

RCP8.5



	GOD	DJF	MAM	JJA	SON	GOD	DJF	MAM	JJA	SON
	RCP4.5					RCP8.5				
2016-2035										
(ΔP)s	0.7	3.5	4.5	-5.8	2.0	-1.0	1.4	3.7	-4.6	2.6
(ΔP)x	6.7	12.0	16.5	7.5	12.8	4.2	12.3	14.5	6.7	10.2
(ΔP)n	-6.2	-5.0	-5.7	-18.0	-7.9	-6.6	-6.5	-3.4	-15.1	-6.5
	RCP4.5					RCP8.5				
2046-2065										
(ΔP)s	-1.4	3.0	5.6	-14.3	0.1	3.8	10.6	6.6	-8.0	5.0
(ΔP)x	5.7	11.8	17.2	-0.8	8.5	13.9	26.8	17.1	8.0	14.2
(ΔP)n	-9.2	-11.0	-3.0	-30.9	-11.0	-7.8	-1.6	-7.0	-27.4	-4.9
	RCP4.5					RCP8.5				
2081-2100										
(ΔP)s	2.3	10.0	7.1	-10.8	3.9	-4.5	15.5	7.9	-20.5	-2.7
(ΔP)x	11.5	18.8	20.6	6.6	15.7	9.7	36.9	24.7	-5.8	16.7
(ΔP)n	-6.9	-1.0	-5.5	-28.2	-5.8	-18.2	-7.1	-12.5	-38.1	-16.6

PROMENE KLIMATSKIH USLOVA U ODNOSU NA KLIMATOLOGIJU 1986-2005

PADAVINSKI INDEKSI

TSD – trajanje najdužeg suvog perioda (dani)

TPD – trajanje najdužeg perioda sa uzastopnim danima sa padavinama (dani)

Pmaks1 – maksimalne padavine akumulirane u jednom danu (%)

Pmaks5 – maksimalne padavine akumulirane u 5 uzastopnih dana (%)

PDXX – padavine akumulirane u danima sa $P > XX\text{mm}$ (%)

	RCP4.5									RCP8.5								
	2016-2035			2046-2065			2081-2100			2016-2035			2046-2065			2081-2100		
	(Δ)s	(Δ)x	(Δ)n	(Δ)s	(Δ)x	(Δ)n	(Δ)s	(Δ)x	(Δ)n	(Δ)s	(Δ)x	(Δ)n	(Δ)s	(Δ)x	(Δ)n	(Δ)s	(Δ)x	(Δ)n
TSD	1	5	-2	2	7	-1	3	8	0	2	5	-1	2	7	-1	6	14	1
TPD	0	1	-2	0	1	-2	0	1	-2	0	1	-2	0	1	-2	-1	0	-3
Pmaks1	3	11	-6	4	13	-4	6	17	-3	4	14	-4	7	16	-2	9	20	0
Pmaks5	4	16	-4	5	17	-9	8	18	-4	4	15	-6	9	23	-1	10	24	-4
PD20	7	48	-9	11	43	-15	17	61	-8	7	35	-10	21	57	-6	24	60	-12
PD30	13	64	-21	19	78	-15	29	96	-4	15	75	-11	36	95	3	48	131	-1
PD40	18	100	-50	25	150	-21	42	133	-50	20	160	-75	47	200	-9	60	180	-25

2018. NAJTOPLIJA GODINA

<http://www.hidmet.gov.rs/podaci/meteorologija/ciril/2018.pdf>

Beograd 1988-2017

anomalije srednjih godišnjih temperatura u odnosu na srednju vrednost perioda 1961-1990

--- рекорд из 2000.

