Republic Hydrometeorological Service of Serbia

Kneza Viseslava 66 11000 Belgrade Republic of Serbia



EMERGENCY CLIMATOLOGICAL BULLETIN OF PRECIPITATION

19-21 APRIL 2017

Belgrade, 21 April 2017

Division for Climate Monitoring and Climate Forecast Department of National Center for Climate Change, Climate Model Development and Disaster Risk Assessment web: <u>http://www.hidmet.gov.rs</u> mail: <u>office@hidmet.gov.rs</u> In the period from 19 to 21 April, the highest precipitation totals were recorded at the territory of Vojvodina, parts of western Serbia and northernmost areas of the country, as for the mountains, the snow cover depth ranged from 6 cm in Sjenica to 43 cm at Kopaonik.

Synoptic situation

On 18 April, the territory of our country was on the front side of the trough with axis across western Europe. Simultaneously, cyclogenesis took place in the Genova Bay. Deepening of the trough and incursion of the cold air across western Europe led to cutoff and cyclone at altitude. The following day, the cold front within this cyclone in the southwestern upper circulation moved across Serbia eastward toward northeast of the Peninsula (center moving toward Black Sea). The following day, our country was still under the prevalence of this cyclone, that is occluded front in the ground. Subsequently, April 21 was marked by rise of the geopotential at altitude due to the cyclone transfer toward northeast, as well as pressure rise on the surface at the anticyclone periphery emanating from western Europe. Cold and cloudy weather with rain prevailed, at places with sleet and snow, in the hilly-mountainous parts with the formation of the snow cover.



Figure 1. Synoptic situation for 19 April 2017 at 00 UTC



Figure 2. Satellite image for 19 April at 18:00 UTC



Figure 3. Satellite image for 20 April at 00:00 UTC

Table 1. Categories of the minimum daily air temperatures compared to the percentiles for the period from 1 to 21 April

day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
PALIĆ	Ν	Ν	Ν	W	Ν	Ν	Ν	Ν	Ν	Ν	W	С	Ν	Ν	W	W	С	VC	EC	С	VC
SOMBOR	Ν	Ν	W	W	W	W	Ν	Ν	Ν	Ν	Ν	Ν	Ν	W	W	Ν	Ν	С	VC	VC	С
KIKINDA	Ν	Ν	Ν	W	Ν	Ν	С	Ν	Ν	Ν	Ν	С	Ν	Ν	Ν	Ν	VC	VC	VC	С	VC
ZRENJANIN	W	EW	W	W	Ν	С	VC	Ν	Ν	Ν	Ν	С	Ν	W	Ν	Ν	С	С	VC	С	С
NOVISAD	Ν	EW	Ν	W	Ν	Ν	С	Ν	Ν	Ν	Ν	С	Ν	W	Ν	Ν	VC	VC	EC	С	С
SR.MITROVICA	W	N	EW	W	Ν	W	Ν	Ν	С	Ν	Ν	С	Ν	W	Ν	W	Ν	EC	VC	VC	С
BEOGRAD	W	EW	EW	W	Ν	Ν	С	Ν	Ν	Ν	Ν	Ν	Ν	W	Ν	W	С	С	VC	VC	VC
LOZNICA	Ν	W	N	Ν	W	W	С	Ν	Ν	Ν	Ν	Ν	С	W	Ν	W	Ν	EC	EC	VC	VC
VALjEVO	Ν	N	N	Ν	W	W	Ν	Ν	Ν	С	Ν	Ν	С	W	Ν	W	Ν	EC	С	VC	VC
V.GRADIŠ TE	Ν	EW	W	W	W	Ν	Ν	Ν	Ν	С	Ν	Ν	VC	Ν	Ν	W	Ν	EC	VC	VC	С
SM.PALANKA	Ν	N	N	W	W	W	Ν	Ν	Ν	С	С	Ν	С	W	С	W	Ν	EC	С	VC	VC
KRAGUJEVAC	Ν	Ν	Ν	W	W	W	Ν	Ν	Ν	С	Ν	Ν	С	W	Ν	W	Ν	VC	С	VC	VC
KRALjEVO	Ν	N	N	W	W	W	Ν	Ν	Ν	С	Ν	Ν	С	W	Ν	W	Ν	VC	С	VC	VC
POŽEGA	Ν	Ν	Ν	W	W	W	Ν	W	Ν	С	Ν	Ν	С	EW	Ν	W	Ν	EC	С	VC	С
ZLATIBOR	W	W	W	W	Ν	Ν	С	Ν	Ν	Ν	W	Ν	Ν	W	W	Ν	Ν	VC	EC	EC	EC
ĆUPRIJA	Ν	W	W	W	W	W	Ν	Ν	W	С	Ν	Ν	С	W	Ν	W	Ν	С	С	С	С
KRUŠEVAC	Ν	N	N	W	Ν	W	Ν	Ν	Ν	С	Ν	Ν	С	W	Ν	W	Ν	VC	С	С	С
NEGOTIN	Ν	Ν	Ν	W	W	Ν	Ν	Ν	W	Ν	С	W	С	W	С	W	Ν	Ν	С	С	С
ZAJEČAR	Ν	Ν	С	W	W	W	Ν	Ν	Ν	С	С	Ν	С	Ν	С	W	Ν	Ν	Ν	VC	С
CRNI VRH	W	W	W	Ν	Ν	Ν	С	С	Ν	Ν	W	Ν	W	Ν	W	Ν	С	С	VC	EC	EC
KOPAONIK	Ν	EW	W	Ν	Ν	Ν	С	С	Ν	Ν	Т	Ν	W	W	W	Ν	С	VC	VC	EC	EC
SJENICA	Ν	Ν	С	W	W	W	Ν	Ν	Ν	VC	Ν	W	С	W	W	Ν	Ν	EC	С	VC	VC
NIŠ	Ν	W	W	W	W	W	Ν	Ν	Ν	С	Ν	Ν	Ν	W	Ν	W	Ν	Ν	С	С	VC
VRANjE	Ν	Ν	Ν	W	Ν	W	Ν	Ν	Ν	С	Ν	W	С	W	Ν	W	Ν	С	С	VC	VC
DIMITRO VGRAD	Ν	Ν	Ν	W	W	W	VC	Ν	Ν	С	Ν	W	С	Ν	Ν	Ν	Ν	Ν	С	С	VC
LESKOVAC	Ν	N	N	VW	W	W	Ν	Ν	W	С	Ν	W	Ν	Ν	W	W	Ν	Ν	С	С	С
KURŠ UMLIJA	Ν	N	N	W	W	W	С	Ν	W	С	Ν	N	Ν	W	W	W	Ν	VC	Ν	С	С
B.KARLOVAC	N	EW	N	W	w	N	N	N	N	N	N	N	N	N	N	w	С	VC	VC	FC	VC

EW	EXTREMELY WARM
VW	VERY WARM
W	WARM
N	NORMAL
С	COLD
VC	VERY COLD
EC	EXTREMELY COLD

CLIMATOLOGICAL ANALYSIS OF PRECIPITATION FOR THE PERIOD FROM 19 TO 21 APRIL 2017

The highest precipitation totals for the period from 19 to 21 April were recorded at the territory of Vojvodina, in parts of western Serbia and hilly-mountainous areas.

19 April - more significant precipitation sums in southwestern and northern Serbia. At main meteorological stations, the highest precipitation sums were measured at the following stations: Kopaonik and Zlatiboru 52.6 mm, Novi Sad 44.2 mm and Loznica 42.5 mm.

At precipitation and climatological stations, the highest precipitation totals were recorded at the following stations: Rasno (Sjenica) 55.0 mm, Karajukica Bunari (Sjenica) 40.0 mm, Nova Varos (Zlatibor) 39.0 mm and Jamena (Sremska Mitrovica) 38.4 mm.

20 April – highest precipitation totals in southeastern and eastern Serbia. At main meteorological stations, the highest precipitation totals were measured at the following stations: Leskovac 14.0 mm, Dimitrovgrad 11.6 mm and Zajecar 11.3 mm.

At precipitation and climatological stations, the highest precipitation totals were measured at the following stations: Kladovo (Negotin) 28.5 mm, Radovnica (Vranje) 21.4 mm, and Novi Pazar (Sjenica) 21.2mm.

21 April – highest precipitation totals in western Serbia. At main meteorological stations, highest precipitation sums were measured at the following places: Loznica 13.5 mm, Kopaonik 13.3 mm and Valjevo 12.8 mm.

Table 2	2.	Precipitation	sums	in	mm	for	the	period	from	19	to	21	April,	average	values	of	the	monhtly
precipitation sums for the 1981-2010 base period, and accuracy percentage																		

Station/district	19 April	20 April	21 April	sums(m m)	April average	%
Kopaonik/ rasinski	32.0	7.3	13.3	52.6	88.7	59
Zlatibor/ zlatiborski	43.1	5.1	4.4	52.6	79.1	66
Novi Sad/ južnobački	36.5	3.2	4.5	44.2	49.2	97
Loznica/ mačvanski	26.0	3.0	13.5	42.5	62.8	68
Zrenjanin/srednjebanatski	34.5	2.0	3.0	39.5	43.3	91
Sombor/ zapadnobački	24.9	8.8	4.2	37.9	45.3	84
Palić/ severnobački	28.1	1.7	7.9	37.7	44.0	86

Table 3. Precipitation sums in mm for the period from 19 to 21 April based on the data from precipitation and climatological stations C	Name of the station	Type of the station	19 April	20 April	21 April	totals(mm)
Kraljevo	Rudnik_planina	Ks	28.0	7.2	26.7	61.9
Loznica	Krupanj	Ks	26.0	5.0	31.0	62.0
Loznica	Crnča	Ks	20.5	4.8	45.5	70.8
Loznica	Varna	Ps	29.5	5.0	17.5	52.0
Loznica	Gornja Trešnjica	Ps	23.7	4.8	31.0	59.5
Loznica	Dvorska	Ps	24.0	5.0	33.0	62.0
Loznica	Joševa	Ps	21.2	13.2	32.8	67.2
Loznica	Petkovica	Ps	30.4	5.6	16.6	52.6
Loznica	Planina	Ps	25.5	7.5	48.0	81.0
Loznica	Razbojište	Ps	24.5	8.5	26.0	59.0
Sjenica	Karajukića Bunari	Ks	40.0	11.2	5.0	56.2
Sjenica	Rasno	Ps	55.0	5.2	4.1	64.3
S.Mitrovica	Jamena	Ps	38.4	7.2	19.6	65.2
S.Mitrovica	Čalma	Ps	24.2	8.5	17.5	50.2
S.Mitrovica	Šid	Ps	34.6	7.5	10.1	52.2
Zlatibor	Nova Varoš	Ps	39.0	6.5	8.5	54.0



Figure 4. Precipitation sums in Serbia measured on April 19, 2017 (precipitation from 8am 18 April to 8am 19 April 2017) from meteorological stations at which measurements are taken (28 main meteorological stations, 49 climatological and 296 precipitation stations)



Figure 5. Spatial distribution of the precipitation sums for 19 and 20 April 2017 (precipitation from 8am 18 April to 8am, 20 April 2017) from meteorological stations at which measurements are taken (28 main meteorological station, 49 climatological and 287 precipitation stations)



Figure 6. Precipitation episode for the period from 19 to 21 April 2017 (precipitation from 8am 18 April to 8pm 21 April) from meteorological stations at which measurements are taken (28 main meteorological stations, 44 climatological and 262 precipitation stations)

Cumulative precipitation sums for the period from 19 to 21 April for Novi Sad are 97% from the April average (April average for the 1981-2010 period)

Cumulative precipitation sums for the period from 19 to 21 April for Loznica are 68% from the April average (April average for the 1981-2010 period)

Cumulative precipitation sums for the period from 19 to 21 April for Kopaonik are 59% from the April average (April average for the 1981-2010 period)

Cumulative precipitation sums for the period from 19 to 21 April for Zlatibor are 66% from the April average (April average for the 1981-2010 period)



Graph 1. Cumulative precipitation sums for Loznica and percentage departure of the average for the 1981-2010



Graph 2. Cumulative precipitation sums for Kopaonik and percentage departure of the average for the 1981-2010



Graph 3. Cumulative precipitation sums for Zlatibor and percentage departure of the average for the 1981-2010

Snow cover

Snow cover observed in Serbia in the period from 19 to 21 April 2017 was not the latest. Snow cover observed in Loznica on 19 April 2017 was the latest ever recorded at that station. At most places, the latest snow cover was recorded on average during the last decade of April. The onset of the snow cover in the upland was recorded latest on June 23, 1999 at Kopaonik, on June 17 1989 in Sjenica, and in the lowland on May 3, 1970 in Kursumlija.

Table 4: Snow cover depth (cm) in the period from 19 to 21 April 2017 and the date of the latest snow cover

Station	19 April	20 April	21 April	Date of the latest snow cover
Palic	4			24.IV.1988(1cm)
Sombor	1			21.IV.1997(1cm)
Loznica	1			19.IV.2017(1cm)
Crni Vrh	1	15	14	22.V.1987(4cm)
Zlatibor	22	24	27	25.V.1991(1cm)
Sjenica	9	7	6	17.VI.1989(3cm)
Kopaonik	23	33	43	23.VI.1999(1cm)

Table 5: Snow cover depth (cm) recorded at precipitation and climatological stations on 21 April 2017

		Туре	Snow
MMS	Name of the station	of the	cover
		station	depth (cm)
Kraljevo	Rudnik_planina	Ks	27
Leskovac	RC Kukavica	Ks	26
Loznica	Gornja Trešnjica	Ps	33
Loznica	Dvorska	Ps	20
Loznica	Planina	Ps	63
Loznica	Postenje	Ps	20
Loznica	Razbojište	Ps	55
Sjenica	Karajukića Bunari	Ks	20
Sjenica	Reževiće	Ps	22
Sjenica	Rasno	Ps	24
S.Palanka	RC Bukulja	Ks	23
Valjevo	Jagodići	Ps	23
Zlatibor	Nova Varoš	Ps	22
Zlatibor	Ljubiš	Ps	20
Zlatibor	Negotina	Ps	20



Figure 7. Snow cover in Serbia 19 April 2017 (28 main meteorological stations, 49 climatological and 296 precipitation stations)



Figure 8. Snow cover in Serbia for 20 April 2017 (28 main meteorological stations, 49 climatological and 296 precipitation stations)



Figure 9. Snow cover in Serbia for 21 April 2017 (28 main meteorological stations, 46 climatological and 281 precipitation stations)