



Verification of the DJF-24 seasonal outlook over The Republika Srpska, Bosnia and Herzegovina

1. SEECOF-24, MedCOF-14 Climate outlook for the 2021 winter season:

The outlook for the DJF 2021 in Bosnia and Herzegovina indicated warmer than normal thermal conditions, with 50% probability relative to the 1981–2010 base period. Data analyse showed that the climatological winter 2020/2021 was **4th warmest** over the RS, with significantly above-normal temperature, based on the tercile method (Figure 1 above). The outlook for a warm winter was correct.

According to the SEECOF-24/MedCOF prognosys for the winter 2020/2021 usual climate precipitation pattern indicated, relative to the 1981–2010 climatology. Based on the climatological monitoring of precipitation, the climatological winter was significantly above normal range in most of the stations over the RS territory. It was **5th wettest winter** for the RS since 1951 (Figure 1 below). The outlook for a **usual weather changing pattern** (no signal, 33.3,33.3,33.3) was correct for most of the RS, because of the increasing precipitation trend which occurred over the last 30 years (figure 6). Warmer and wetter air masses come with more frequent southerly wind, causing warmer and wetter weather conditions (figure 4). Actually, among the 20 wettest years over 1950-2021, 10 are from the period after 1990.

2 Analyse: A more detailed visualisation of analysed climate indices follows

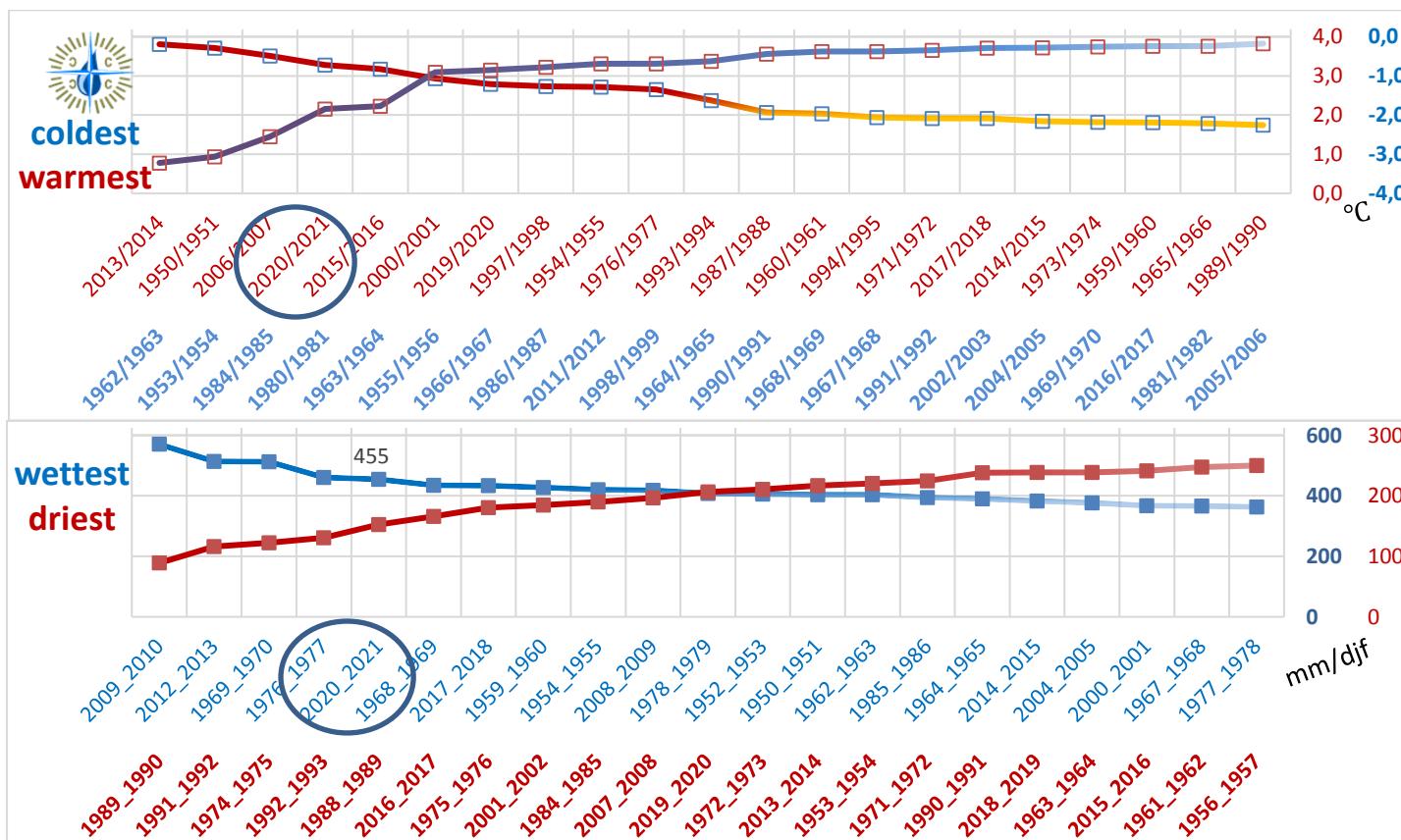


Figure 1: the 20 top warmest/wettest DJF seasons over the RS over the period 1950-2021

Table 1. DJF-2021 t_{mean} statistics over RS (ref 1981-2010)

Station	t_{mean} 1981- 2010	STD	z (SPI)	Percentille	PercRank	t_{mean} 2021	anomaly	lower tercille	upper tercille	median	tercille category
Бања Лука Bana Luka	1.5	1.74	1.86	0.97	0.97	4.7	3.2	0.6	2.2	1.3	above
Приједор Priedor	1.4	1.51	1.88	0.97	0.97	4.2	2.8	0.5	2.1	0.8	above
Нови Град NoviGrad	1.2	1.69	1.59	0.94	0.93	3.9	2.7	0.5	1.9	1.1	above
Добој Doboy	1.3	1.59	2.02	0.98	0.98	4.6	3.2	0.7	2.2	1.0	above
Бијељина Bijeljina	1.6	1.79	1.84	0.97	0.98	4.9	3.3	0.6	2.2	1.4	above
Соколац Sokolac	-2.4	1.52	2.01	0.98	0.98	0.7	3.1	-3.0	-1.5	-2.8	above
Билећа Bileca	3.9	1.11	1.36	0.91	0.92	5.4	1.5	3.2	4.2	3.7	above
Гацко Gacko	-0.7	1.14	2.30	0.99	0.97	2.0	0.8	-1.2	-0.5	-0.9	above
Чемерно Chemerno	-2.1	1.26	1.67	0.95	0.93	0.0	0.7	-2.7	-1.5	-2.2	above
Требиње Trebine	6.2	0.98	1.48	0.93	0.90	7.6	1.0	5.7	6.6	6.2	above
Дринић Drinic	-0.7	1.50	1.89	0.97	0.93	2.1	2.8	-1.3	-0.2	-0.9	above
Фоча Focsha	0.7	1.29	2.22	0.99	0.98	3.6	2.9	0.3	1.1	0.5	above
МркГрад MrkonicG	0.5	1.69	1.53	0.94	0.81	3.1	2.6	-0.2	1.0	0.3	above

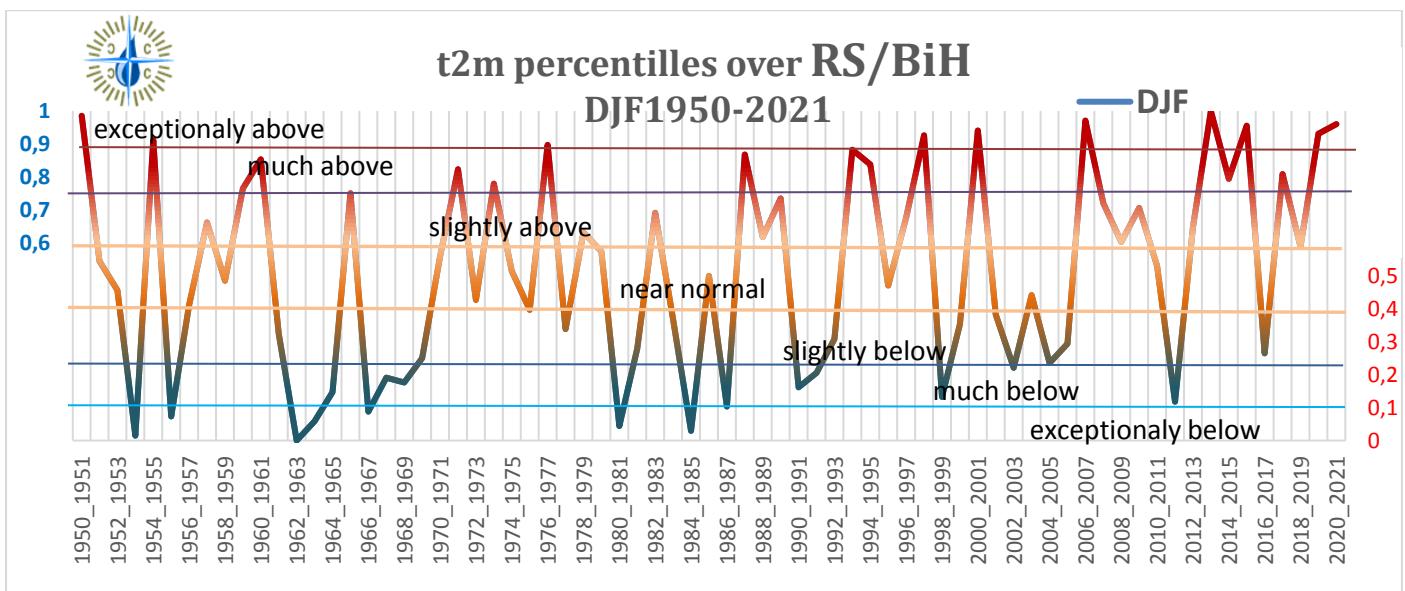


Figure 2: percentile distribution of the winter tmean over RS (ref 1981-2010)

Temperature and Precipitation for the winter months over the period 2001-2021, averaged over the Republic of Serbska territory

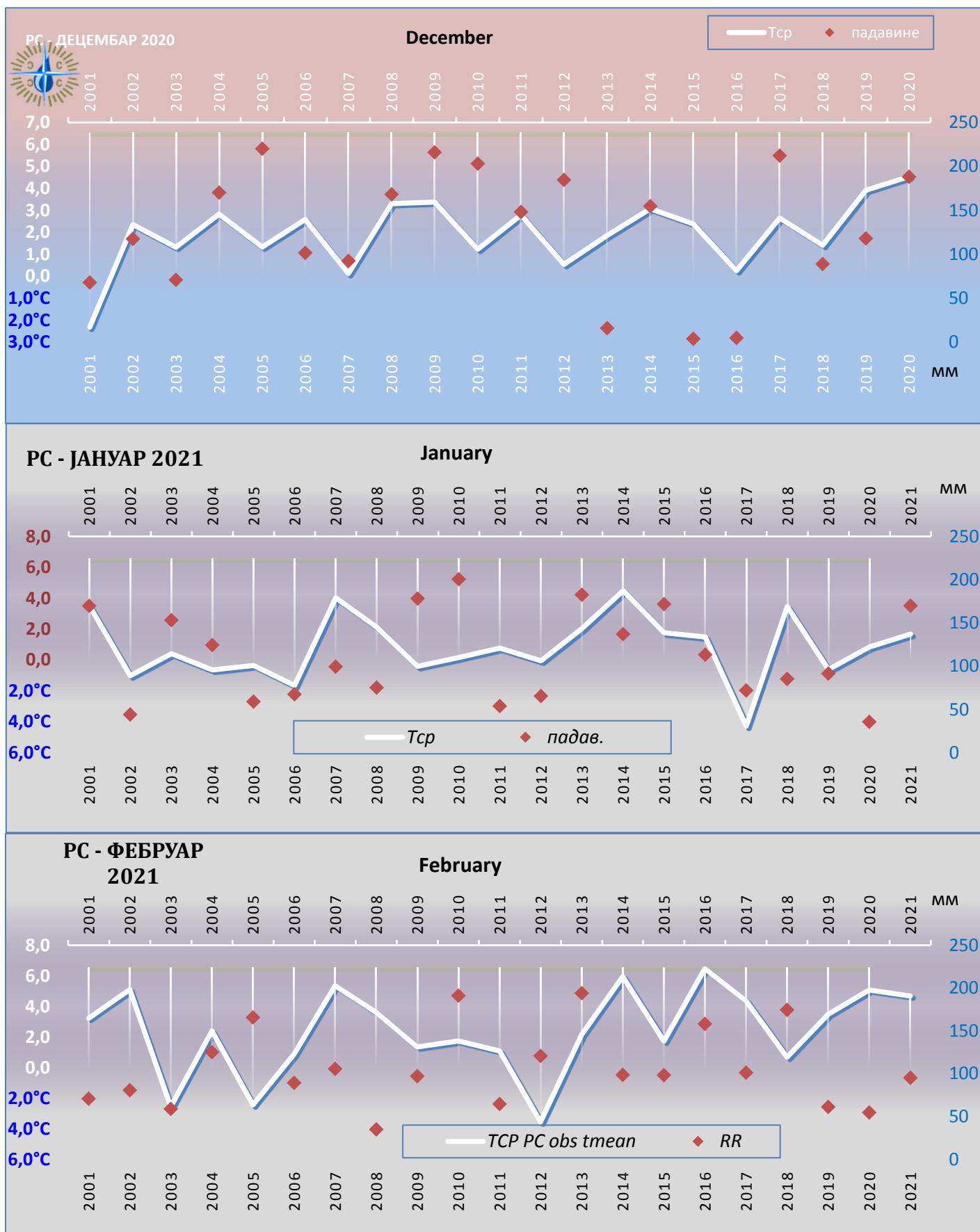


Figure 3: T2m (white line) and precipitation total (red) averaged over the RS for the particular years (2001-2021)

Cloudiness for December and January were above normal, February below normal, which caused warmer and wetter winter 2021 season.

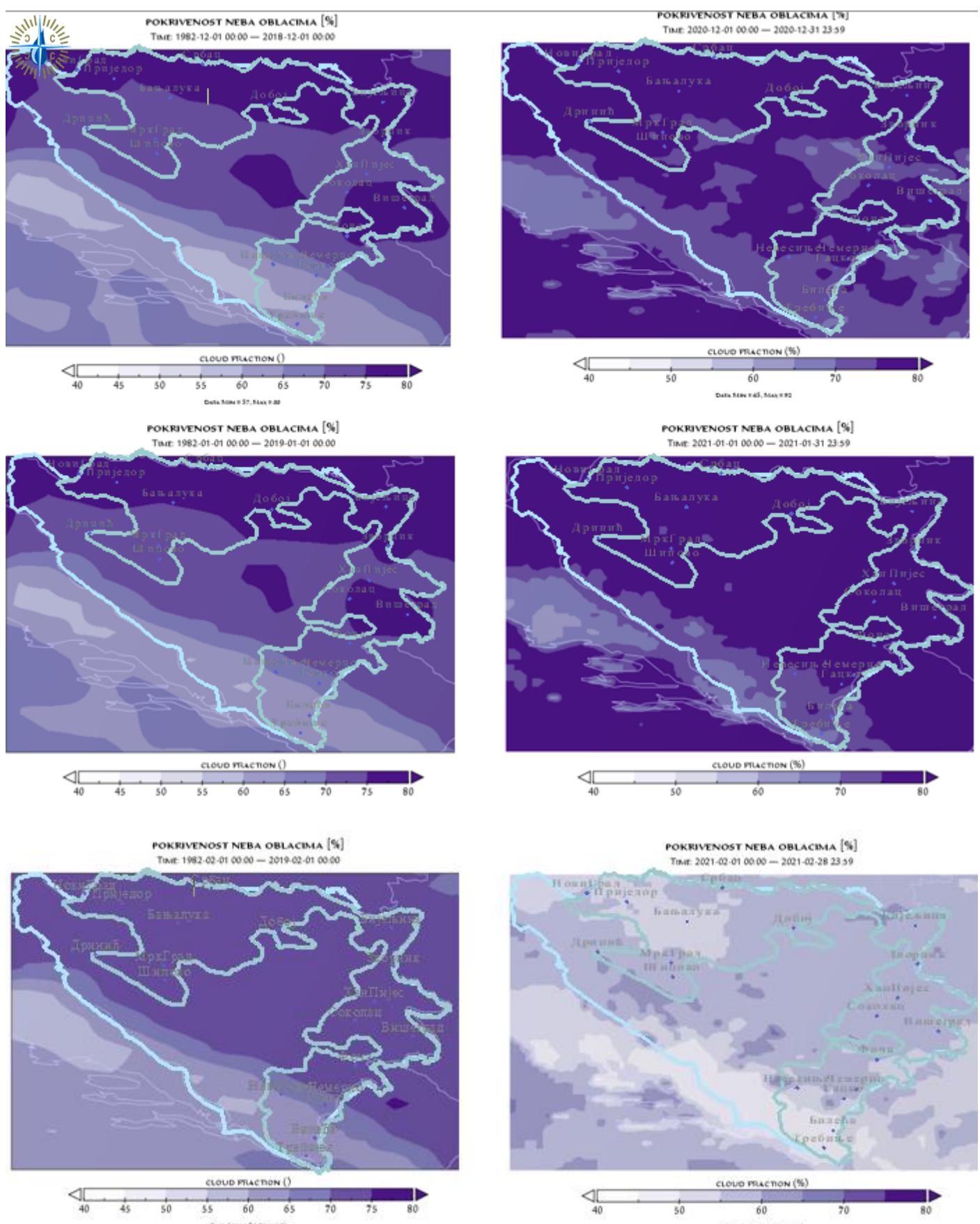


Figure 4: mean DJF cloud fraction over the 1982-2019 (left) and Decembar,January, February 2021 (left) according to EUMETSAT/CMSAF data source

Table 2. DJF-2021 precipitation statistics over the RS particular climatological stations (ref 1981-2010);

Station	z (SPI)	NORMSDIST (z) (percentile)	PercRank (ref1981- 2010)	djf 2021 (mm)	djf 2021 (%)	djf 2021 surplus/def (%)	33,33	66,67	50,00	tercile anom.categ
Бања Лука Bana Luka	0.53	0.70	0.75	264	118	17.6	209	250	232	above
Приједор Priedor	1.01	0.84	0.83	269	132	32	175	228	208	above
Нови Град NoviGrad	0.44	0.67	0.69	273	116	16	224	264	239	above
Добој Doboy	0.17	0.57	0.54	200	105	5	175	217	195	normal
Бијељина Bijeljina	0.06	0.52	0.49	163	102	2	140	182	161	normal
Соколац Sokolac	1.73	0.96	0.92	294	168	68	150	207	179	above
Билећа Bileca	2.17	0.99	0.97	922	193	93	384	550	502	above
Гацко Gacko	1.46	0.93	0.88	822	169	69	381	573	472	above
Чемерно Cxemerno	1.82	0.97	0.95	890	181	81	381	615	488	above
Требиње Trebine	1.72	0.96	0.93	962	171	71	460	681	568	above
Дринић Drinic	0.66	0.75	0.69	380	126	26	239	331	282	above
Фоча Focxa	2.27	0.99	0.98	451	207	107	148	254	193	above
МркГрад MrkonicG	2.35	0.99	0.97	422	180	80	213	260	250	above

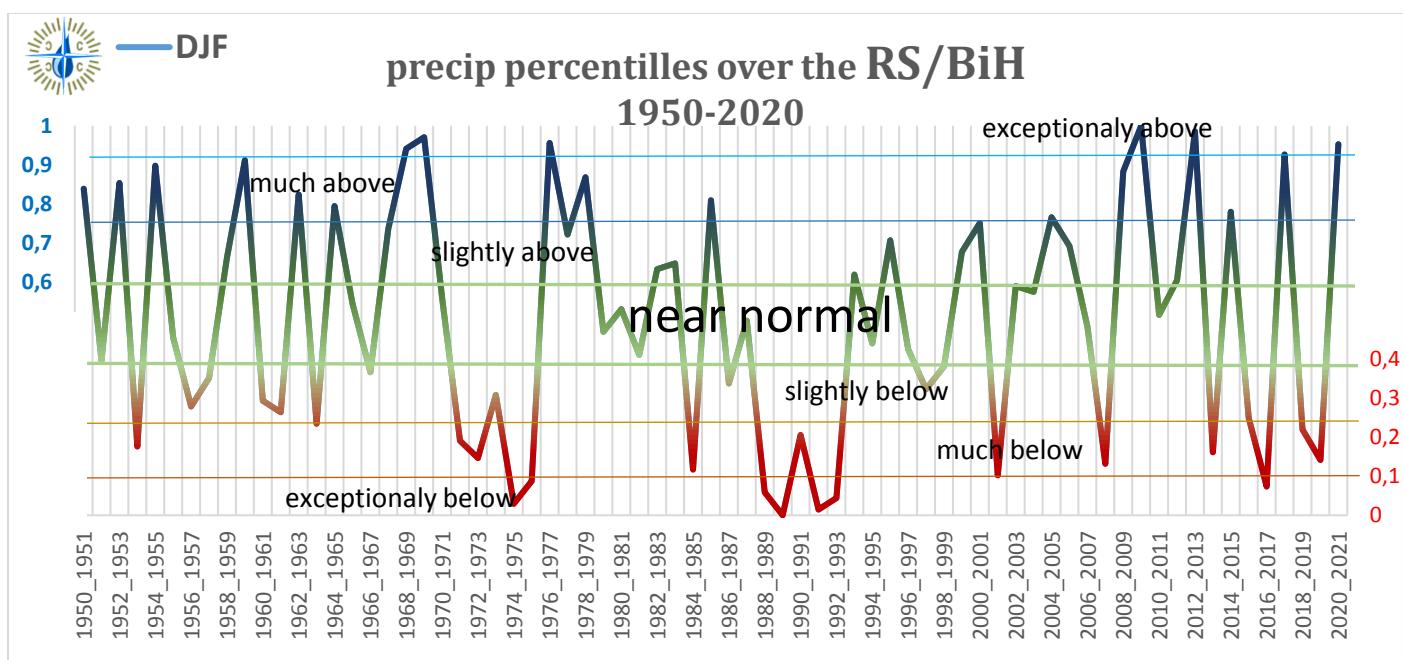


Figure 5: Percentile ranks for precipitation, based on 1981-2010 period for the climatological winter season

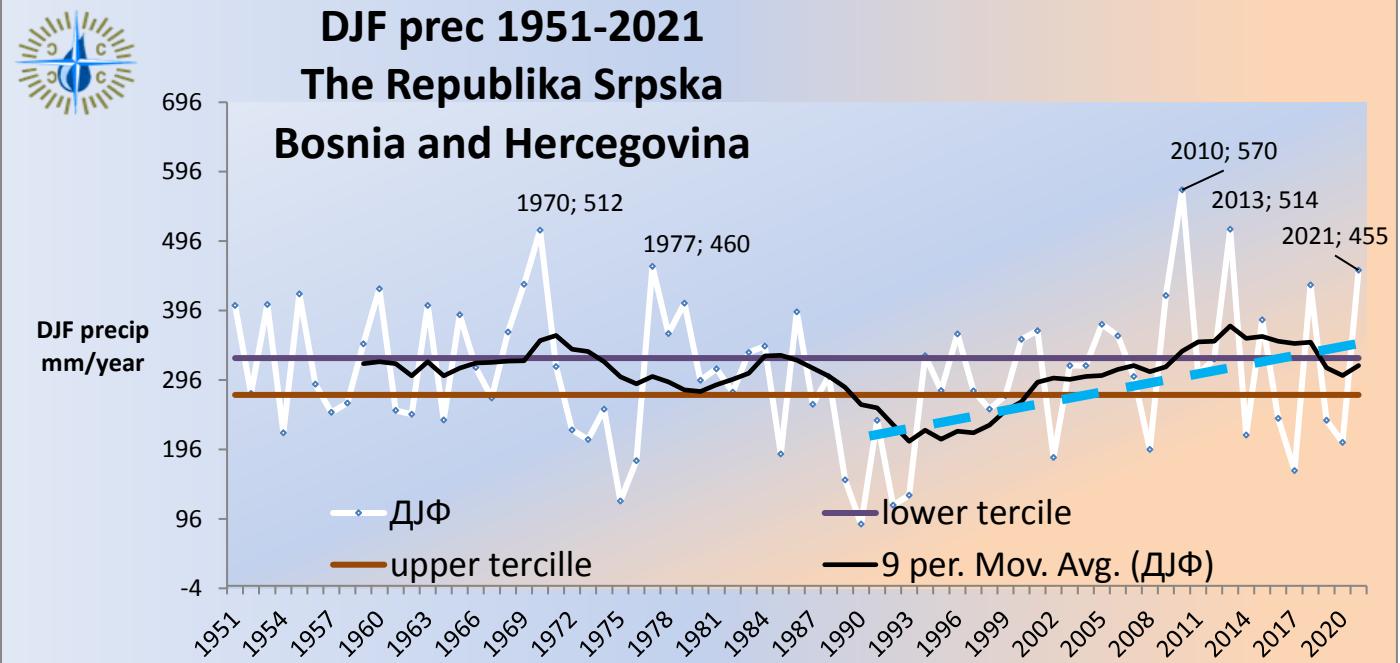


Figure 6: mean DJF precip total, averaged over the RS (1950-2021)

2. High impact events:

**DJF season 1951-2021 was exceptionally above normal precipitation over the most RS,
5th wettest since 1950**

3.Verification of the SEECOF-20 & MedCOF-11 climate outlook for the 2019 winter

Country	Seasonal temperature (DJF)		Seasonal precipitation (DJF)	
	Observed	SEECOF24, MedCOF-14 climate outlook	Observed	SEECOF20, MedCOF-11 climate outlook
The Republika Srpska - Bosnia and Herzegovina	<u>above normal</u>	Above normal	<u>Above normal</u>	No signal

The outlook for winter 2021 for both elements, mean temperature and precipitation was correct.