

Annex

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Assessment of the SEECOF-16 Climate Outlook for Slovenia for winter season 2016/17

SEECOF-16 Climate Outlook for Slovenia for the winter season 2016/17

The consensus statement of SEECOF-16 stated that the most probable scenario over the Mediterranean basin was a cyclonic signal in the western part and a high geopotential anomaly over Middle East. For this reason the consensus for a positive gradient of probabilities for the warmer than normal winter, stretching from the north to the south of the SEECOF region, was reached. The exception was domain of the Pannonian Plain, central parts of the Balkan Peninsula, Carpathian region and Ukraine, where the normal winter temperature conditions were favoured. For western Slovenia the probabilistic forecast for the tercile categories of anomalies for winter mean temperature, relative to the period 1981–2010, was 20 % for below, 30 % for near- and 50 % for above-average conditions (zone 2, Figure 1). For eastern Slovenia, under the influence of the Pannonian Plain, the probabilistic forecast for winter temperature was 30%, 40 % and 30 % for below-, near- and above-average conditions (zone 1, Figure 1).

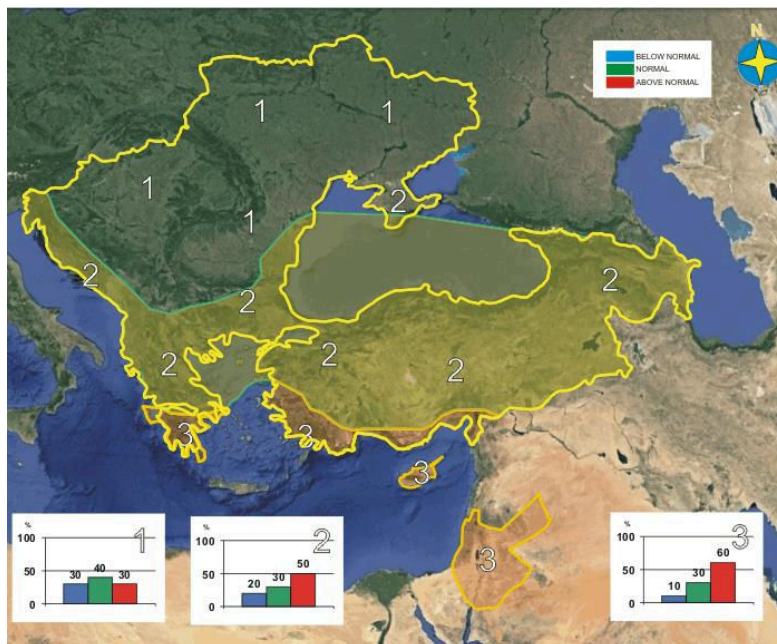


Figure 1. Graphical presentation of the winter 2016/17 temperature outlook

For precipitation, the uncertainties in regional prediction were higher than for temperature. Nevertheless along the coasts and its hinterland of Adriatic, Ionian and Aegean Sea a wetter than normal winter was favoured. In eastern Mediterranean, Israel, Jordan, southern and south-eastern parts of Turkey, eastern and southern part of South Caucasus region a drier than normal winter was likely to predominate. For the rest of the region no large-scale precipitation signal was present in the forecasts. Winter precipitation conditions outlook for Slovenia stated that probabilities for below-, near- or above-average conditions were approximately equal for the eastern part of the country. The probabilistic forecast for the below-, normal- or above- normal tercile categories for winter precipitation, relative to the period 1981–2010, was 33 %, 34 % and 33 % (zone 2, Figure 2). For western Slovenia a wetter than normal conditions were favoured, with a probabilistic forecast of 25 %, 35 % and 40 % for below-, normal- and above-average precipitation (zone 1, Figure 2).

Figures 1 and 2 show the probabilistic consensus forecast for tercile categories of anomalies of seasonal temperature and precipitation, relative to the period 1981–2010.

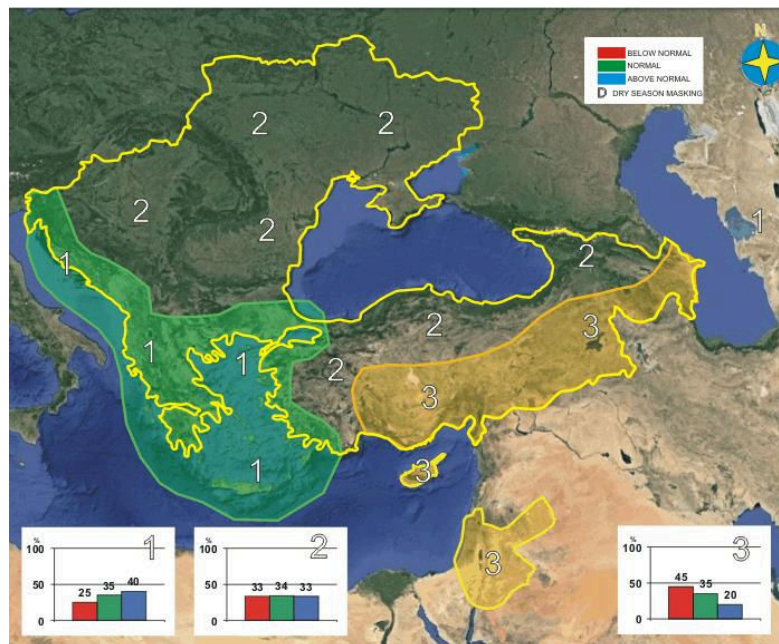


Figure 2. Graphical presentation of the winter 2016/17 precipitation outlook

Analysis of winter season 2016/17

Average air temperature in winter 2016/17 in Slovenia was above the multi-annual average of the 30-year period 1981–2010 for the Alpine region in the north-western parts of the country, whereas for the rest of the country the temperature anomaly was below the multi-annual average (Figure 3). Corresponding air temperature anomalies for winter 2016/17 (months December, January and February) were between $-1.3\text{ }^{\circ}\text{C}$ to $0.9\text{ }^{\circ}\text{C}$, average anomaly was $-0.6\text{ }^{\circ}\text{C}$ (average value from 25 stations). Absolute anomalies didn't exceed $2\text{ }^{\circ}\text{C}$. In the eastern to north-eastern parts of the country the anomalies were below $-1\text{ }^{\circ}\text{C}$, whereas in the rest of the country anomalies didn't exceed -1 to $1\text{ }^{\circ}\text{C}$.

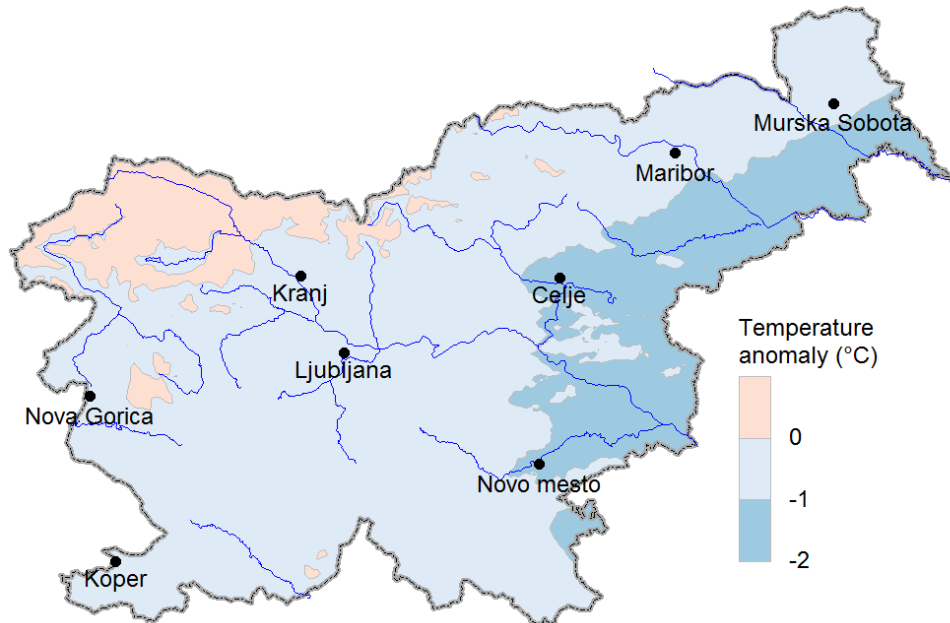


Figure 3. Mean air temperature anomaly in Slovenia in winter 2016/17, relative to the 1981–2010 average. Data are from 25 climate stations.

According to tercile ranks, thermal conditions in Slovenia in winter 2016/17 were above-normal, relative to the period 1981–2010, in the small north-western part of the country, below-normal for the central to north-eastern parts and normal in the rest of the country (Figure 4).

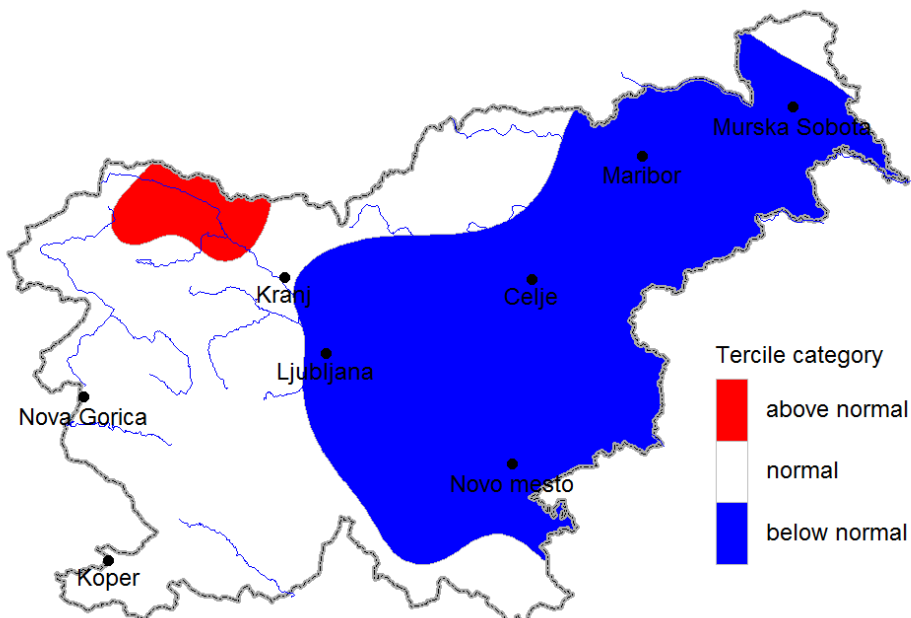


Figure 4. Mean air temperature tercile category of anomaly in Slovenia in winter 2016/17, relative to the period 1981–2010. Data are from 25 climate stations.

Precipitation index in winter 2016/17 in Slovenia, relative to the period 1981–2010, was mainly below average and average only in the coastal, south-western part of the country (Figure 5).

Only in two stations precipitation index reached 100 %. Precipitation index was within the range from 34 % to 101 %, average precipitation index was 59 % (average value from 154 stations).

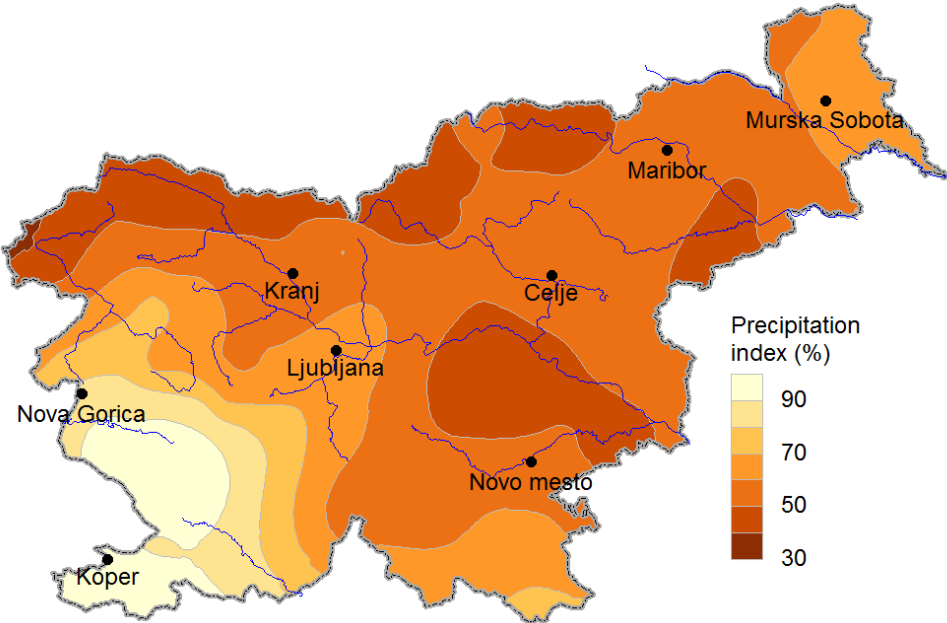


Figure 5. Precipitation index in Slovenia in winter 2016/17, relative to the 1981/82–2010/11 average. Data are from 154 precipitation stations.

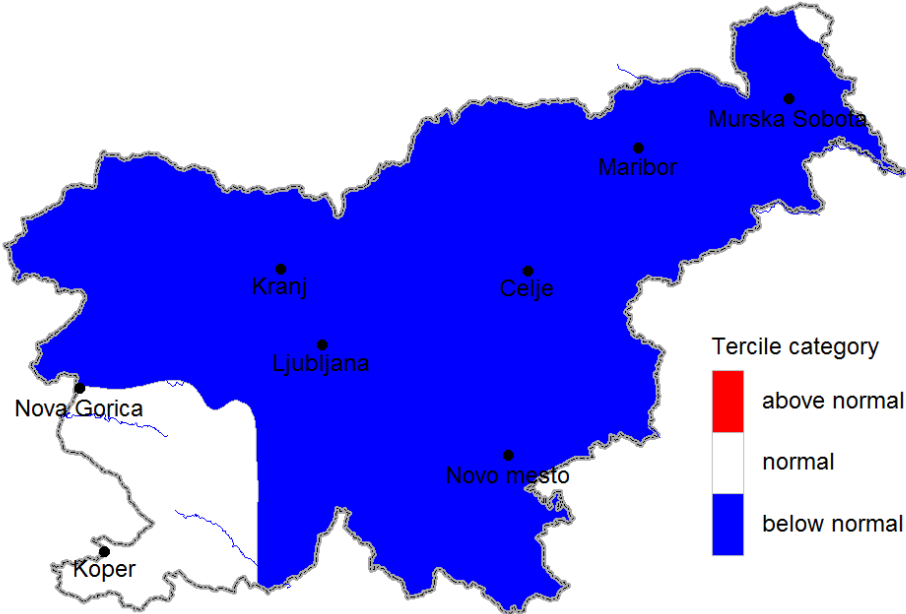


Figure 6. Precipitation tercile category of anomaly in Slovenia in winter 2016/17, relative to the period 1981–2010. Data are from 156 precipitation stations.

In the most part of Slovenia precipitation was within the first (below-normal) tercile, compared with 1981–2010 period (89 % of the stations), precipitation in 11 % stations was in the second (normal) tercile and there was no stations in above-normal tercile (Figure 6). Precipitation was

normal in the coastal areas and in the small part of northeast of Slovenia, whereas in the most part of the country precipitation was below normal.

Average air temperature in *December 2016* was above the multi-annual average of the 30-year period 1981–2010 in western and north-western part of Slovenia and below average in central, eastern, south-eastern and north-eastern Slovenia. Air temperature anomalies were between $-1.9\text{ }^{\circ}\text{C}$ to $3.2\text{ }^{\circ}\text{C}$ (Figure 7), average anomaly was $-0.5\text{ }^{\circ}\text{C}$ (average value from 26 stations). In some parts of the Alps anomalies exceeded $3\text{ }^{\circ}\text{C}$. According to tercile ranks, thermal conditions in Slovenia were above-normal, relative to the period 1981–2010, in the Alps and some parts of western Slovenia, below-normal in southern, eastern and north-eastern Slovenia and normal in some parts of western and northern Slovenia.

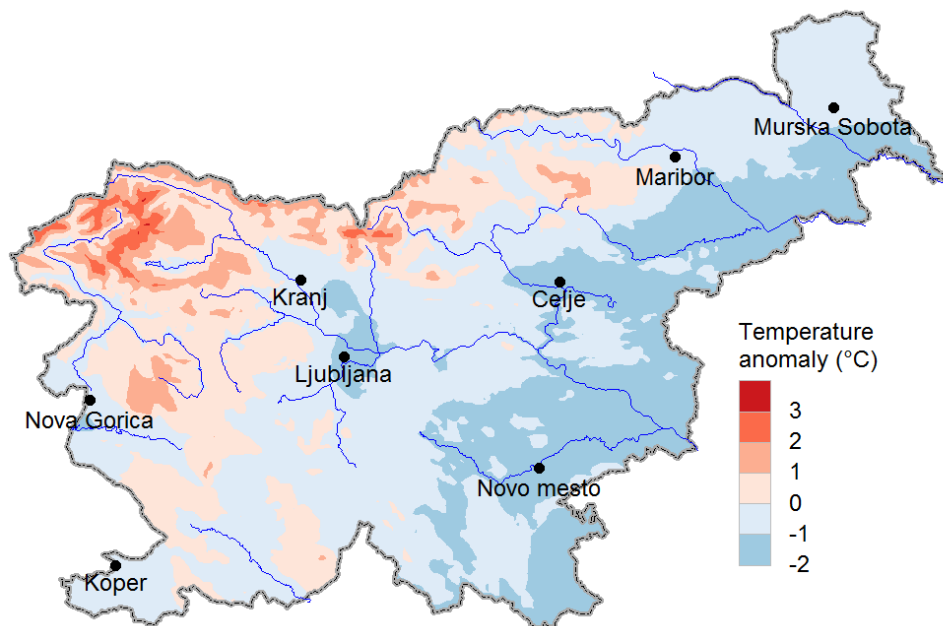


Figure 7. Mean air temperature anomaly in Slovenia in December 2016, relative to the 1981–2010 average. Data are from 26 climate stations.

Precipitation index in *December 2016*, relative to the period 1981–2010, was deeply below average in the whole country (Figure 8). Precipitation index was within the range from 0 % to 18 %, its average value was 1 % (average value from 156 stations). In whole Slovenia precipitation was within the first (below-normal) tercile.

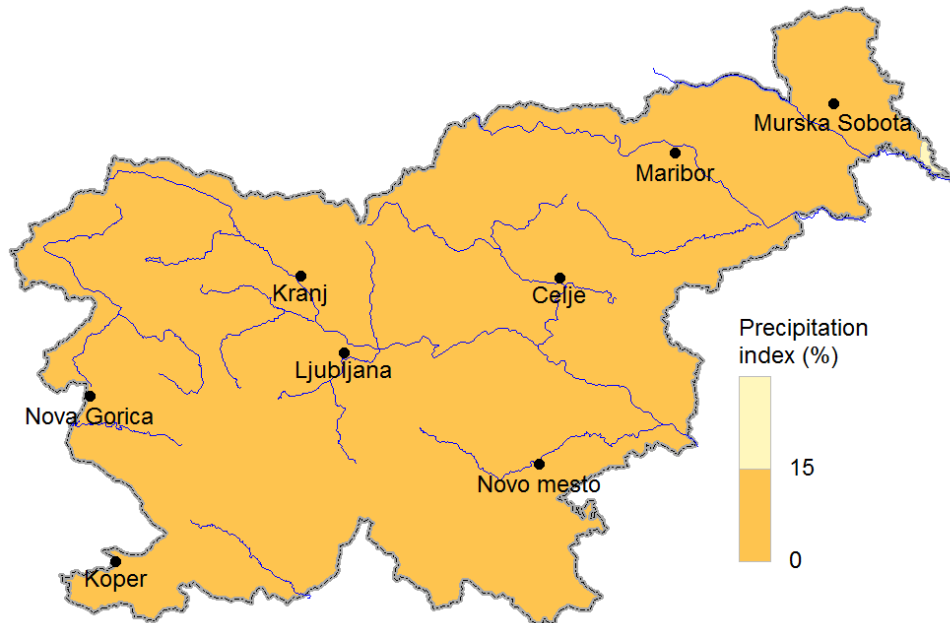


Figure 8. Precipitation index in Slovenia in December 2016, relative to the 1981–2010 average. Data are from 156 precipitation stations.

Average air temperature in *January 2017* was also below the multi-annual average of the 30-year period 1981–2010. Anomalies were between $-4.8\text{ }^{\circ}\text{C}$ to $-2.2\text{ }^{\circ}\text{C}$ (Figure 9), their average value was $-3.5\text{ }^{\circ}\text{C}$ (average value from 25 stations). According to tercile ranks, thermal conditions in Slovenia were below-normal, relative to the period 1981–2010, for the whole country.

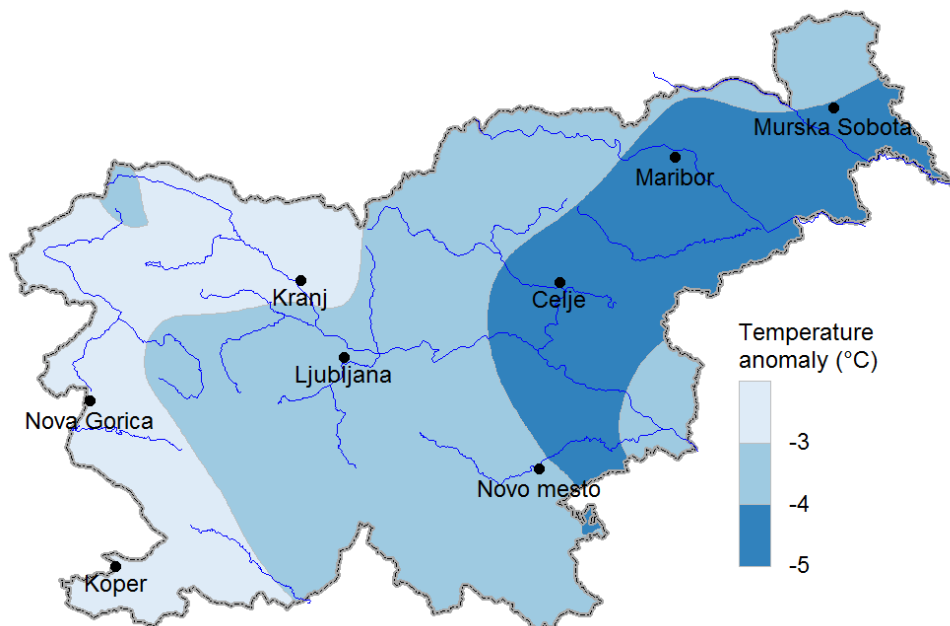


Figure 9. Mean air temperature anomaly in Slovenia in January 2017, relative to the 1981–2010 average. Data are from 25 climate stations.

Precipitation index in *January 2017* was below 100 %, relative to the period 1981–2010, for the most of the country, except for the south-east (Figure 10). Precipitation index was within the range from 36 % to 131 %, its average value was 64 % (average value from 154 stations). In the most western and north-western parts of Slovenia precipitation was within the first (below-normal) tercile, compared with the period 1981–2010 (46 % of the stations), in other parts precipitation was within the normal tercile. Only one weather station reported precipitation within above-normal tercile.

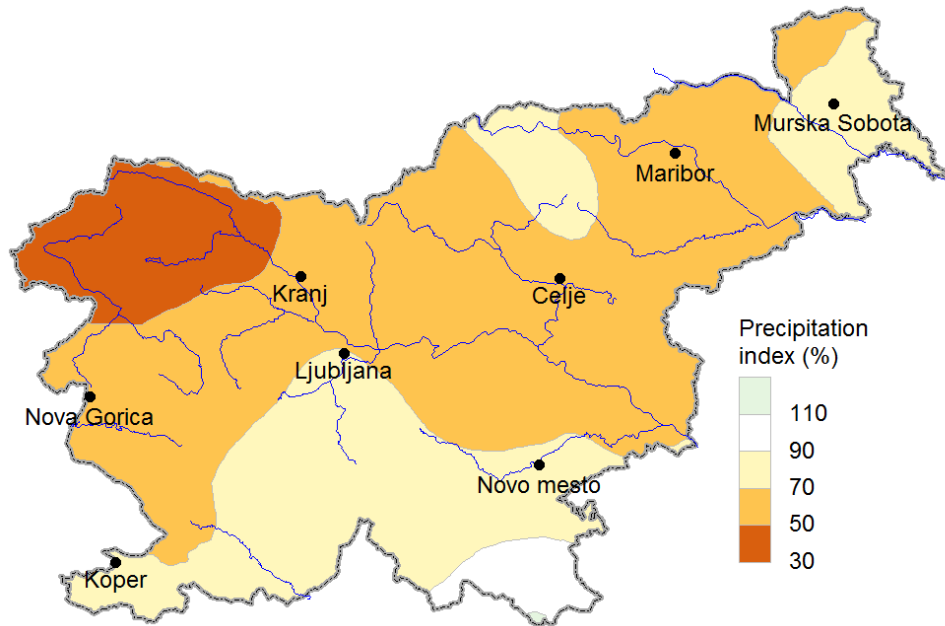


Figure 10. Precipitation index in Slovenia in January 2017, relative to the 1981–2010 average. Data are from 154 precipitation stations.

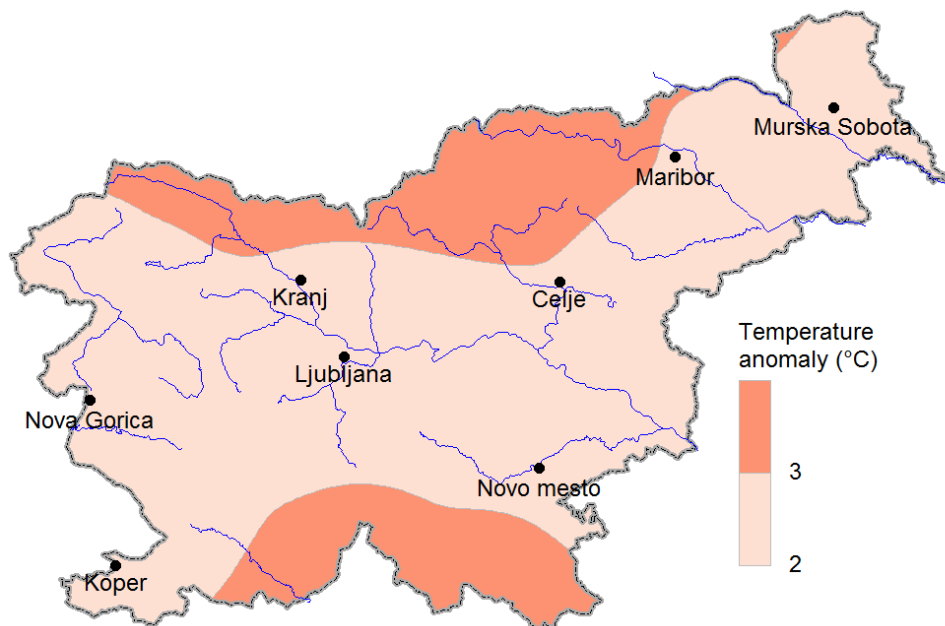


Figure 11. Mean air temperature anomaly in Slovenia in February 2017, relative to the 1981–2010 average. Data are from 25 climate stations.

After below average temperature conditions in January the average air temperature in *February 2017* was above average. Air temperature anomalies were between 2.1 °C to 3.5 °C (Figure 11), the average anomaly was 2.9 °C (average value from 25 stations). Anomalies were the greatest in the north and south of Slovenia. According to tercile ranks, thermal conditions in Slovenia were above normal, relative to the period 1981–2010, for the whole country.

Precipitation index in *February 2017*, relative to the period 1981–2010, was above average in the most of the country, except in some parts of eastern and northern Slovenia (Figure 12). Especially in the west Slovenia, some precipitation stations reported up to three times of average precipitation. Precipitation index was within the range from 76 % to 310 %, its average value was 154 % (average value from 154 stations). In the most part of western Slovenia, some parts of east and north-east Slovenia precipitation was within the third (above average) tercile, compared with the period 1981–2010 (62 % of the stations), elsewhere precipitation was within normal tercile.

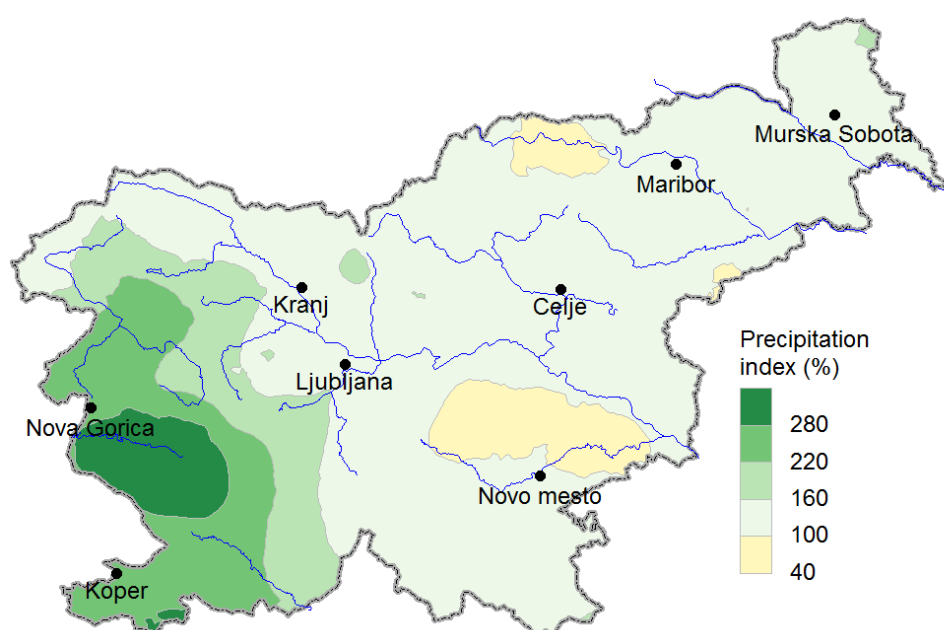


Figure 12. Precipitation index in Slovenia in February 2017, relative to the 1981–2010 average. Data are from 154 precipitation stations.

The summary for winter 2016/17 and monthly (December, January and February) temperature and precipitation conditions can be found in the Table 1.

Table 1. The summary for winter 2016/17 temperature and precipitation in Slovenia

SLOVENIA	Temperature anomaly, relative to the period 1981–2010	Average temperature anomaly	Precipitation index, relative to the period 1981–2010	Average precipitation index
December 2016	–1.9 to 3.2 °C	–0.5 °C	0 to 18 %	1 %
January 2017	–4.8 to 2.2 °C.	–3.5 °C	36 to 131 %	64 %
February 2017	2.1 to 3.5 °C	2.9 °C	76 to 310 %	154 %
Winter 2016/17	–1.3 to 0.9 °C	–0.6 °C	34 to 101 %	59 %

High Impact Events

No high impact events in winter 2016/17.

Verification of the SEECOF-16 Climate Outlook in Slovenia for winter season 2016/17

In the table 2 a verification summary of the SEECOF-16 climate outlook for the winter season 2016/17 (DJF) can be found. The climatological reference period is 1981–2010.

Table 2. SEECOF-16 climate outlook verification summary for Slovenia for winter 2016/17

Country	Seasonal temperature (DJF)		Seasonal precipitation (DJF)	
	Observed	SEECOF-16 climate outlook for temperature	Observed	SEECOF-116 climate outlook for precipitation
SLOVENIA	<i>western Slovenia:</i> normal, above-normal in some parts in north-west <i>eastern Slovenia:</i> below-normal	<i>western Slovenia:</i> warmer than normal <i>eastern Slovenia:</i> near-normal	<i>western Slovenia:</i> normal in the south-west, below-normal in north-west <i>eastern Slovenia:</i> below-normal	<i>western Slovenia:</i> wetter than normal <i>eastern Slovenia:</i> no clear signal

Users' Perception of the SEECO=F-16 Outlook

Slovenia Meteorological Service at the Slovenian Environment Agency at the moment doesn't provide seasonal outlook for the country.