Hungarian climate report for Winter season 2010/2011

December 2011

On *Figure 1.* can be seen that the monthly mean temperature was under 0°C in most of the country except some areas in the sounthwest region. The lowest values, around -6°C, were measured in the Mátra and Bükk mountains.

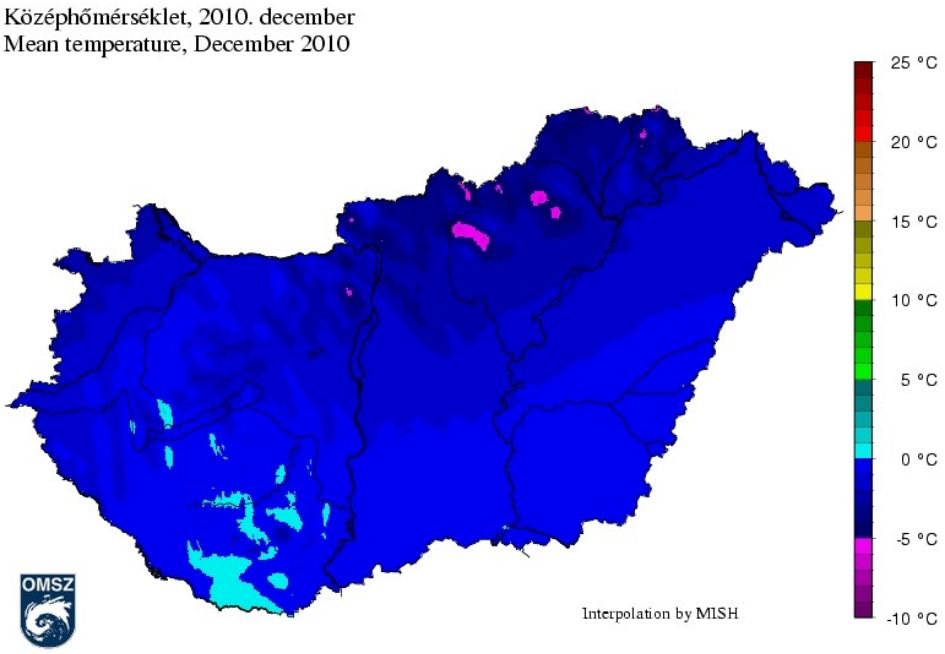

Figure 1. Mean temperature, December 2010.

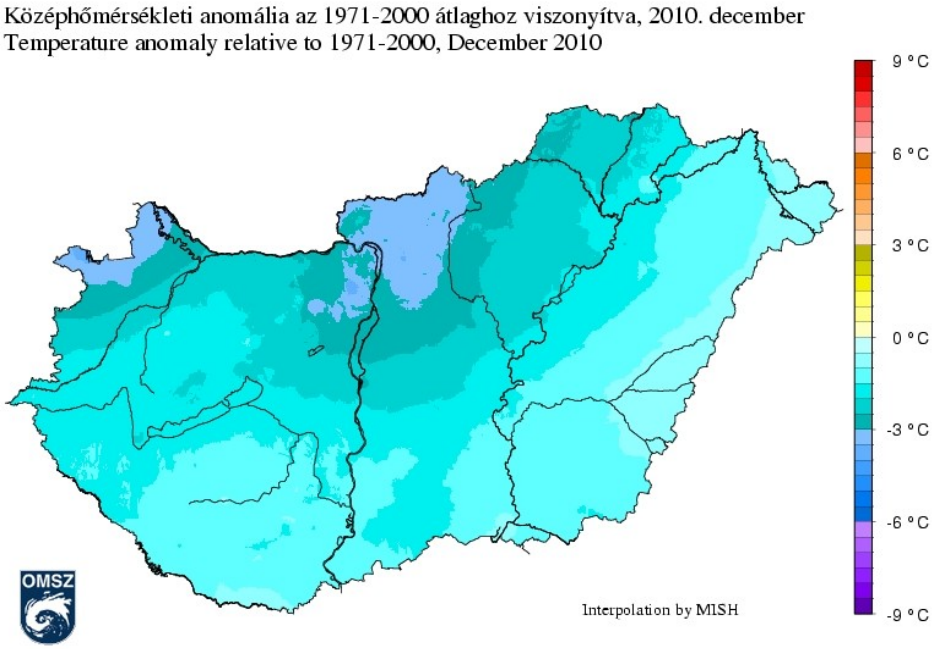

Figure 2. Temperature anomaly relative to 1971-2000, December 2010.

On *Figure 2.* it can be seen that Decemeber 2010 was colder than average in the whole country. The highest anomalies (-3 - -4 °C) can be found in the north regions and the lowest in the south regions.

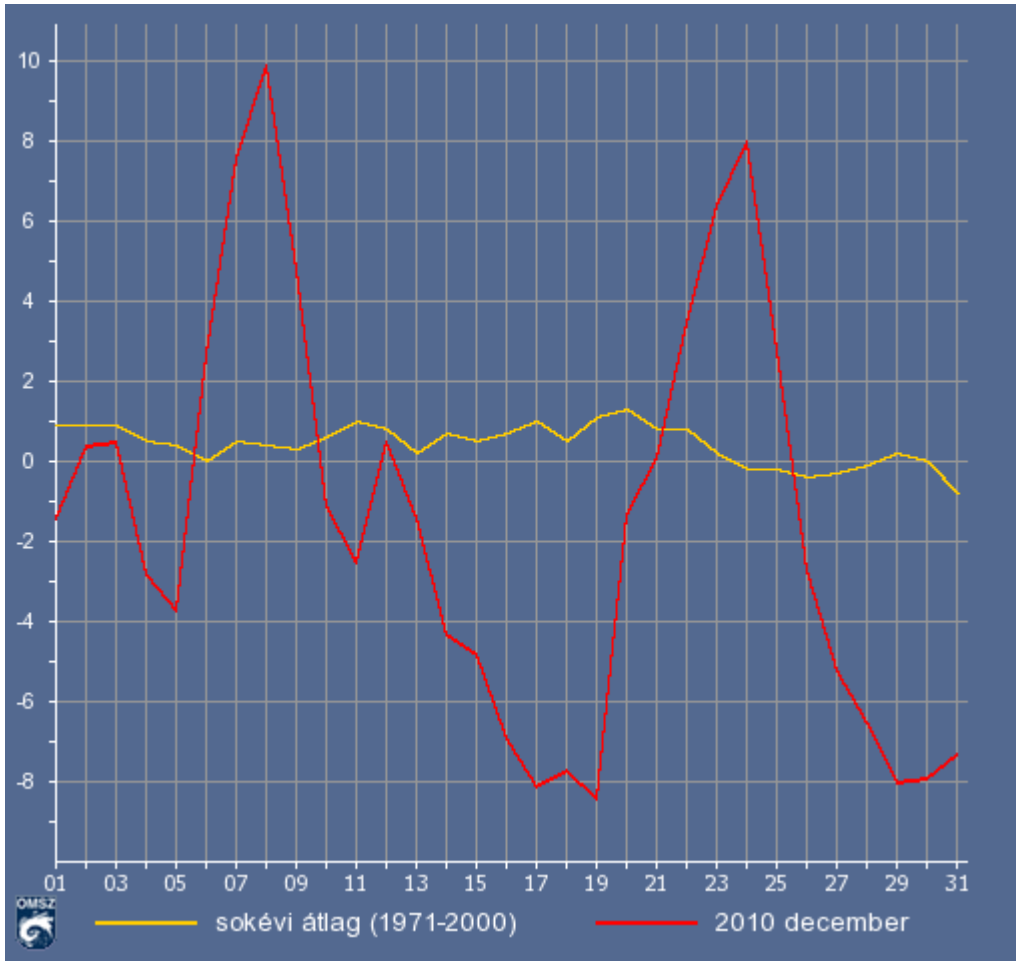

Figure 3. Daily mean temperatures in December 2010. (yellow-climate, red-December 2010)

The country wide average temperature was fairly extreme in this month. The warming at the beginning of the period reached a peak around the 8th of Decemeber with temperature around 10°C which is 9.5°C higher than the climate. The daily maximum temperature record was broken in this period, on the 7th, when 18.5°C was measured in Sellye. The middle of the month was characterized by strong cooling, on 19th of December the country wide average temperature was close to -8.5°C which was 9.5°C lower than the climate value. At the end of the month a warming was succeded by a cooling whilst at first within a few days the temperature increased by 16°C than decreased with the same amount.

Highest temperature during December 2010:	18.5 C°	Sellye	Baranya	7th December
Lowest temperature during December 2010:	-23.7 C°	Martonvásár	Fejér	19th December

The amount of precipitation was highest in the northeast regions with values around 120mm and the lowest in the northwest with values beetween 30-50mm as can be seen on *Figure 4.*

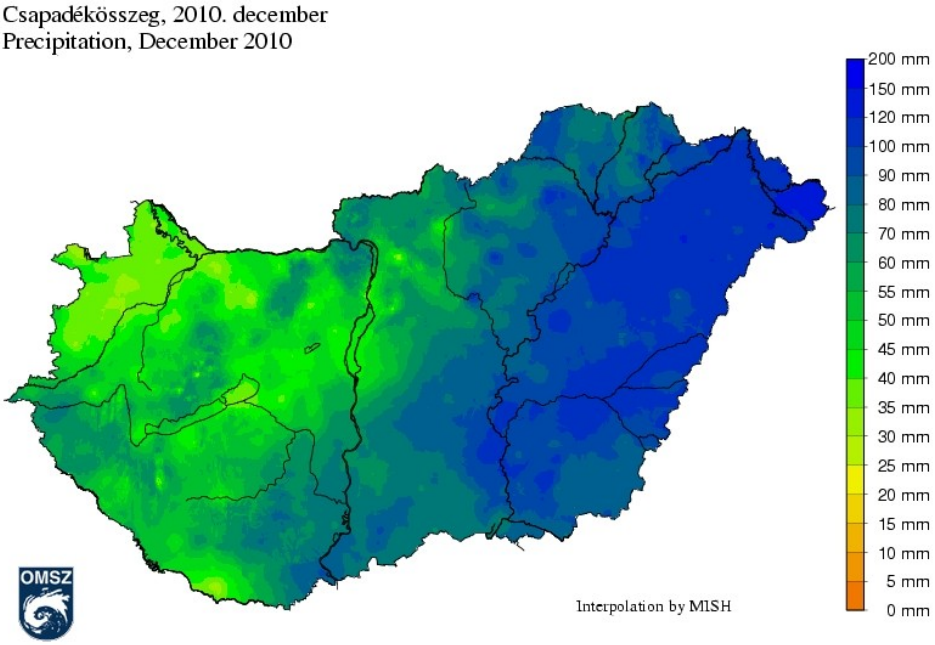

Figure 4. Amount of precipitation, Decmeber 2010

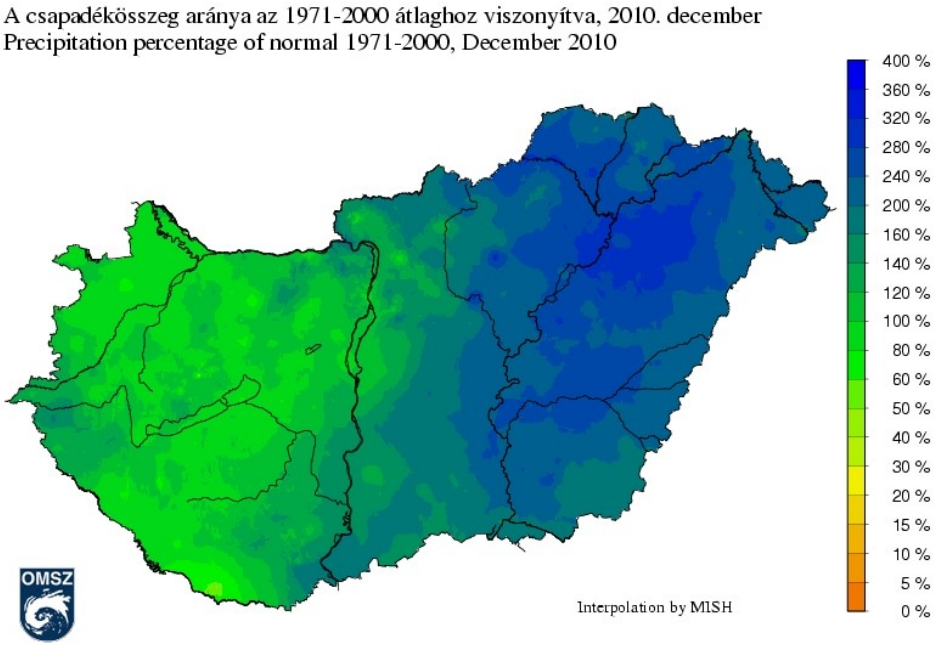

Figure 5. Precipitation percentage of normal 1971-2000, December 2010.

The spacial distribution of the precipitation anomaly shown on *Figure 5.* followed the pattern on *Figure 4.* In the west part of the country the amount of precipitation is lower than average, in the northwest it's only half of the climate, while in the east there are areas where twice as much precipitation was measured than the climate value.

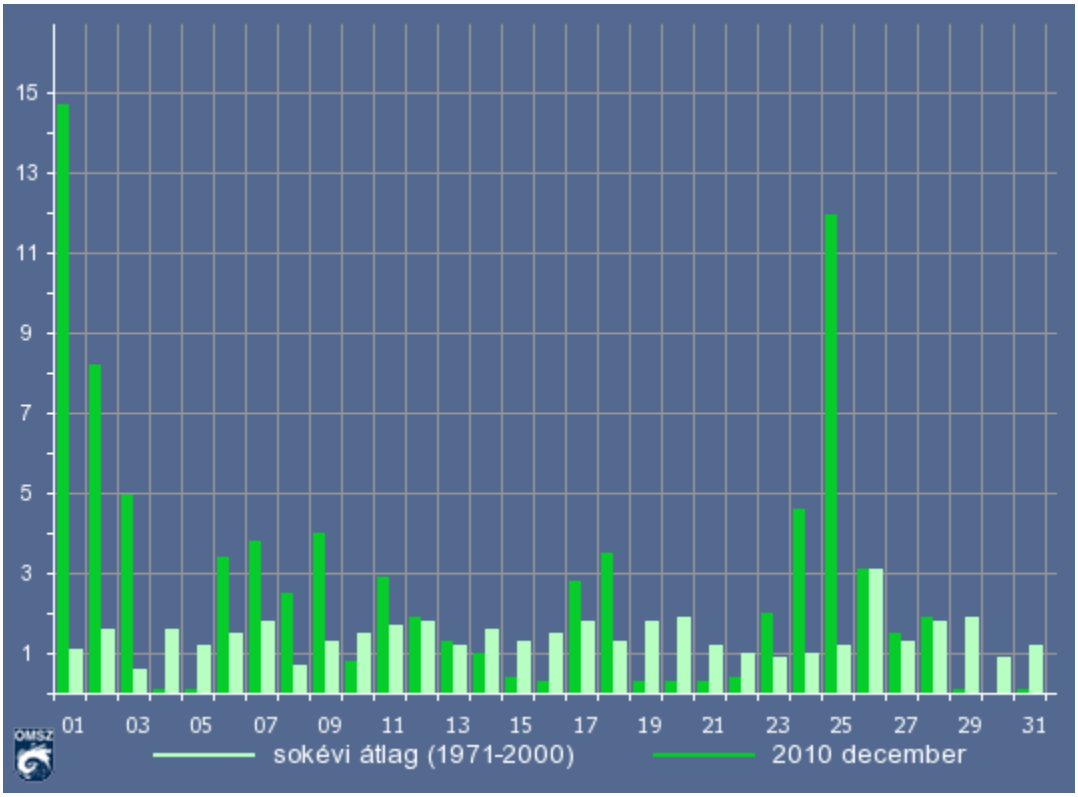

Figure 6. Daily average precipitation in December 2010.

Precipitation in excess of 10 mm in country wide average was measured on the first day of the month and on the 25th. On the 1th of December values of the range 20-30mm were observed in the east part of the country while on the 25th in the Northern Mountain Range fell 20mm precipitation.

Maximum precipitation of the month:	136.2 mm	Sonkád	Szabolcs-Szatmár-Bereg
The lowest precipitation of the month:	27.9 mm	Vérteskethely	Komárom-Esztergom
Maximum rainfall in 24 hours:	55.4 mm	Újfehértó	Szabolcs-Szatmár-Bereg

January 2011

The spatial distribution of mean temperature was characterized by a southwest-northeast direction as can be seen on *Figure 7.* While in the southwest part of the country the monthly mean temperature was around 0-1 °C the northeast part was colder with values around -1 - -2 °C.

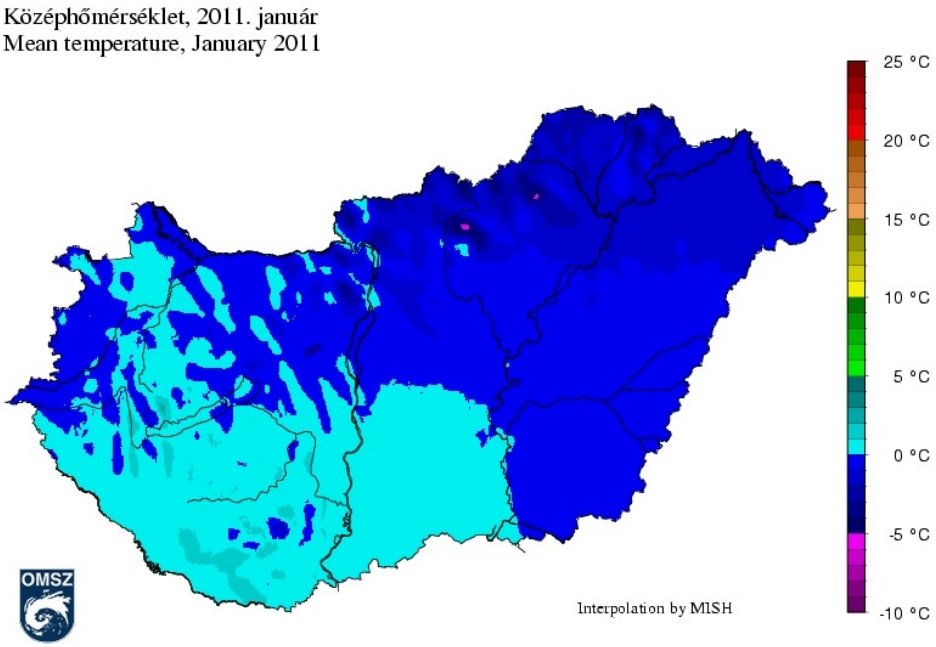

Figure 7. Mean temperature, January 2011.

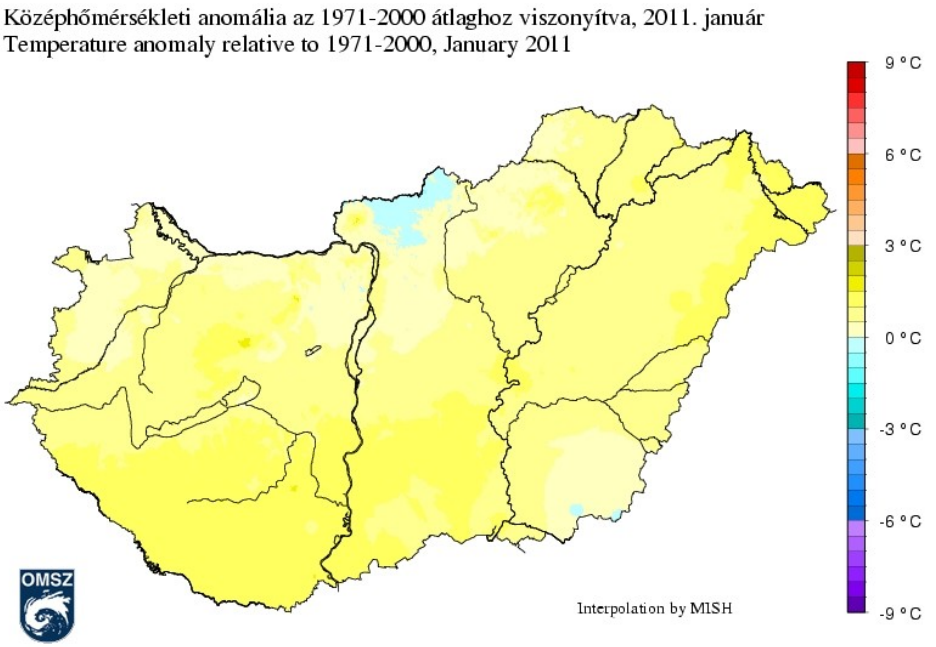

Figure 8. Temperature anomaly relative to 1971-2000, January 2011.

Figure 8. shows that most of the country had a postivie anomaly in January 2011, in the southwest part the monthly mean temperature was 2°C higher than the climate. It can be seen that only a small part of the country had negative anomalies but even there it was only around 0.5°C.

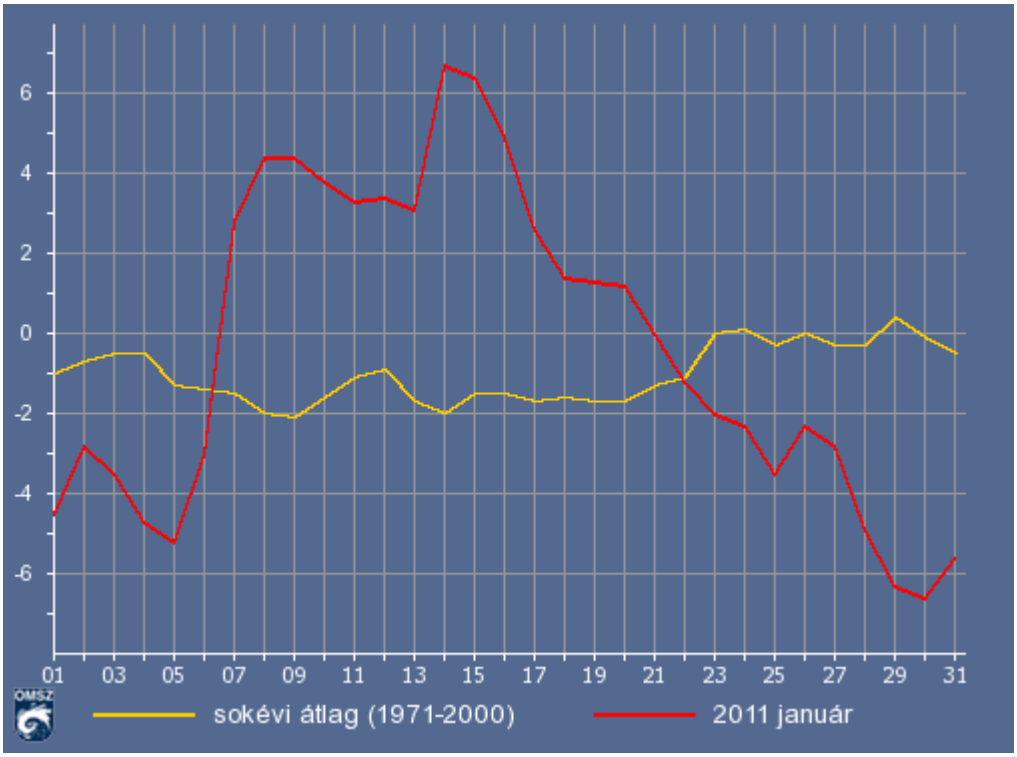

Figure 9. Daily mean temperatures in January 2011. (yellow-climate, red-January 2011)

The country wide daily mean temperature was above average from the 7th January until the 21th*(Figure 9.).* The warmest day was the 14th when the mean temperature exceeded 6 °C and the anomaly was close to +9 °C. One day later the daily maximum temperature record was broken in Szombathely where 13.6 °C was measured.

The highest temperature recorded during the month:	15.8 °C	Sellye	Baranya	January 09.
The lowest temperature recorded during the month:	-18.7 ° C	Zabar	Nógrád	January 29.

The monthly precipitation in large parts of the country remained under 20mm, proved to be the driest in the Balaton region. (Figure 10.) The highest amount of precipitation was measured in the northeastern part of the country with values in the region 25-30 mm.

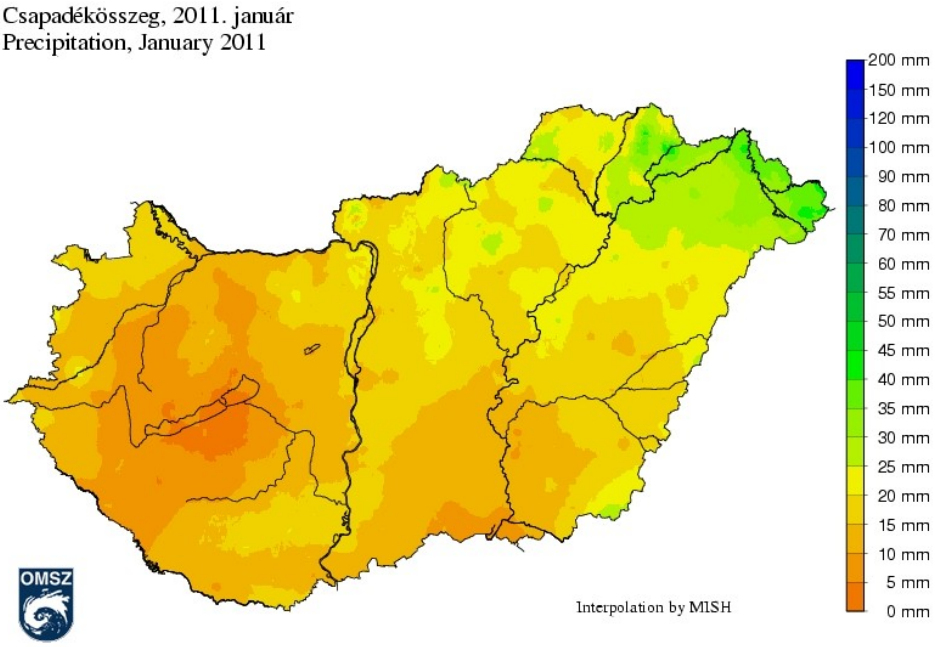

Figure 10. Precipitation, January 2011.

Almost the entire country had less precipitation than the climate this month. *(Figure 11.).* In Transdanubia, the values were less than half of the average of the 1971-2000 period while in Veszprém and Somogy counties the measured values were below 25%. More than average precipitation was measured in the Bodrogköz region but the amounts did not exceed one and a half times the value of the 1971-2000 period.

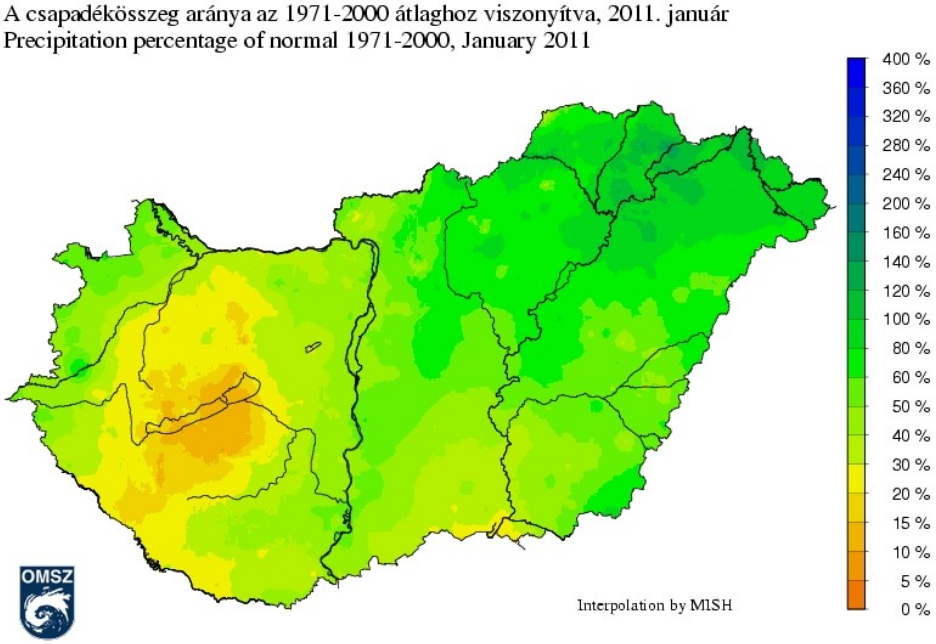

Figure 11. Precipitation percentage of normal 1971-2000, January 2011.

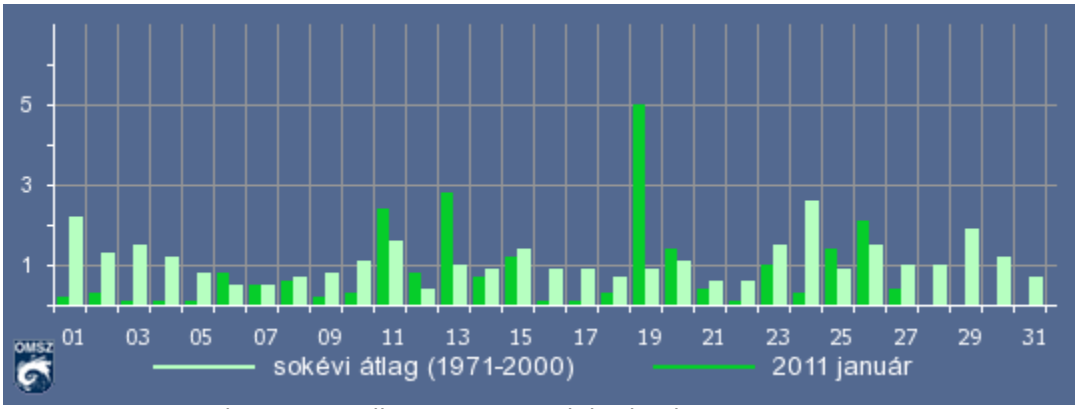

Figure 12. Daily average precipitation in January 2011.

In January the highest amount of countrywide mean precipitation was observed on the 19th. The measured daily precipitation for this day was between 11 mm and trance. The higher values were recorded primarily in the northeastern part of the country, but in South Transdanubia also occurred amounts to about 8 mm.

Maximum precipitation of the month:	46.1 mm	Sarospatak	Borsod-Abaúj-Zemplén
The lowest precipitation of the month:	3.2 mm	Kisbárapáti	Somogy
Maximum rainfall fell in 24 hours:	15.8 mm	Alsószentmárton	Baranya

February 2011

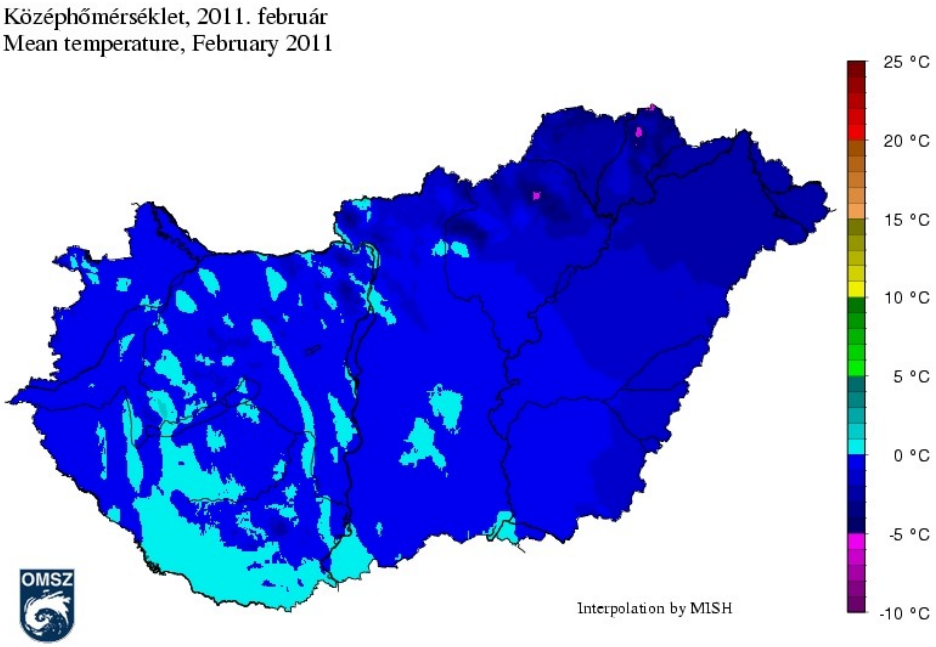

Figure 13. Mean temperature, February 2011.

The monthly average temperature in February 2011 *(Figure 13.)* was formed mostly between -1 an 0 °C. The warmer parts were at the southwest region of the country. Lower than -1 °C temperatures were measured towards the northeast, in the Nyírség -3 °C appeared as well. The coldest parts were in the Northem Mountain Range again with -6 °C in the Mátra and the Zemplén mountains.

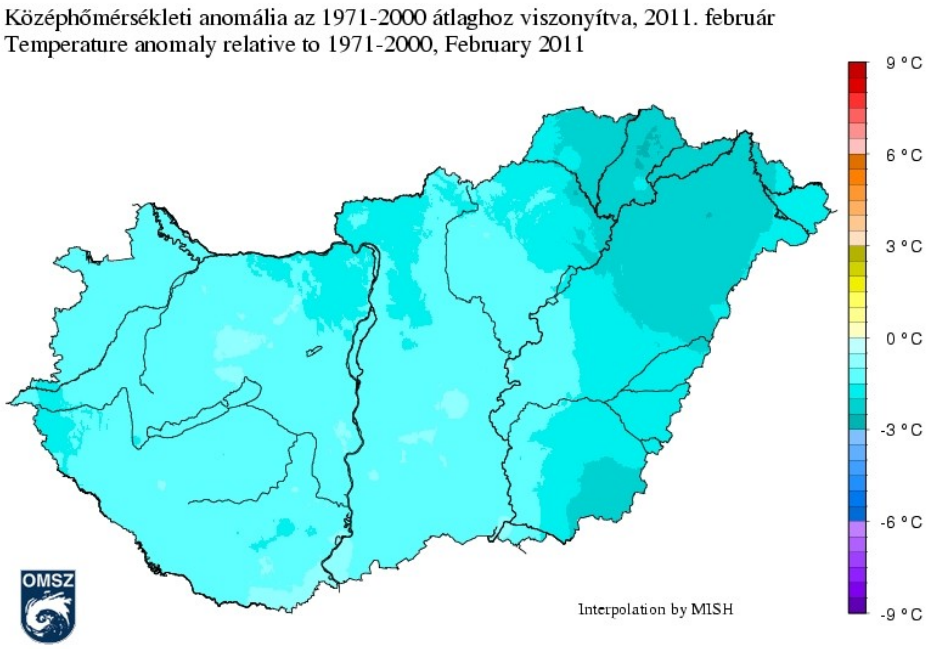

Figure 14. Temperature anomaly relative to 1971-2000, February 2011.

February was colder than usual across the country. *(Figure 14.*). The biggest anomalies, with values between -2 - -3 °C, can be seen in the east, northeast part while at the other part the anomalies were between -1 - 0 °C.

The month began with an intensive warming. (*Figure 15.).* Country wide average was the highest on the 6th when more than 4 °C average temperatures prevailed in our country. This day had the highest positive temperature anomaly as well with about +4 °C. Then, after two weeks of fluctuating temperature a similarly strong cooling began on the 19th during which the country wide average temperature fall near -5 °C. The negative anomaly was the highest on the 14th with close to -7 °C. Then, a slow thaw began until the end of the month.

The highest temperature recorded during the month:	19.3 °C	Maza	Baranya	February 07.
The lowest temperature recorded during the month:	-15.5 °C	Baska	Borsod-Abaúj-Zemplén	February 01.

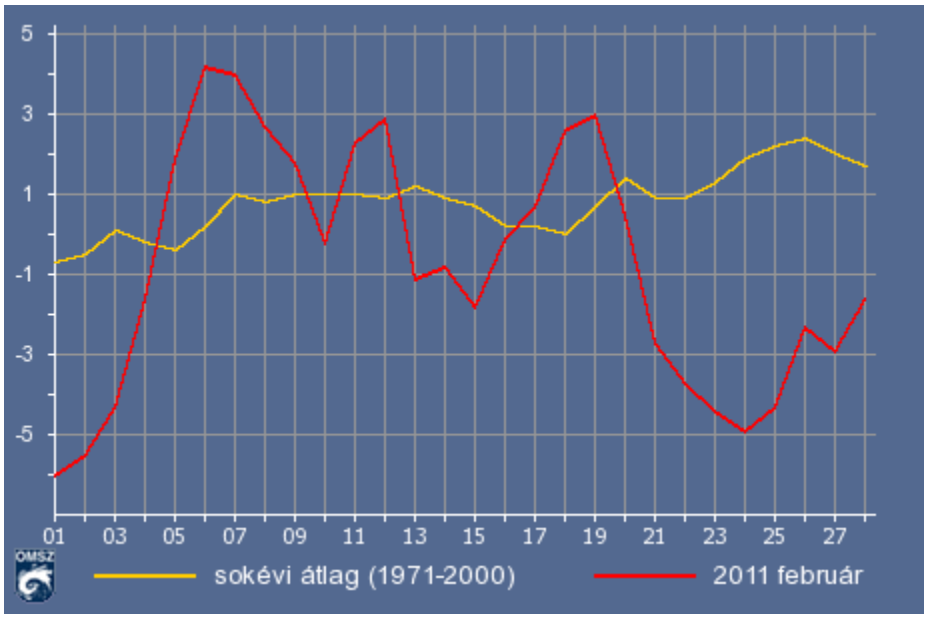

Figure 15. Daily mean temperatures in February 2011. (yellow-climate, red-February 2011)

The amount of monthly rainfall nowhere exceed 38 mm in the country. *(Figure 16.).* The highest amount of precipitation can be seen in the east part of the country while the driest was the middle region of Transdanubia where even less than 5 mm precipitation was measured.

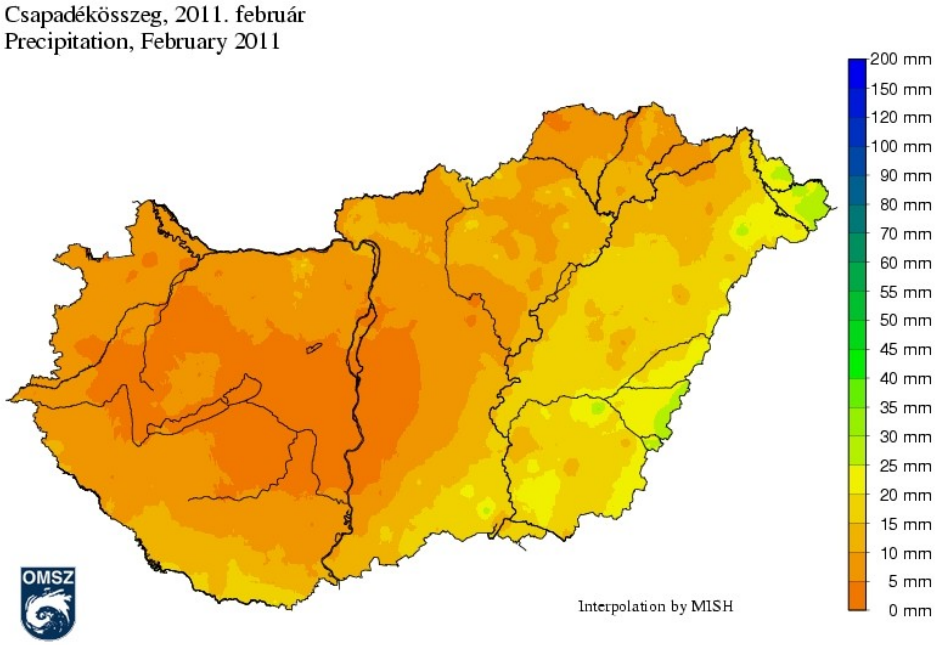

Figure 16. Precipitation, February 2011.

Except a small area at the southeast the monthly amount of precipitation was less than the average of the 1971-2000 period. The monthly precipitation anomaly shown on *Figure 17.* is following the same pattern as *Figure 16.* In some parts of Somogy county less than 10% of the climate values were measured whereas the same value for the eastern regions was mostly around 60-80%.

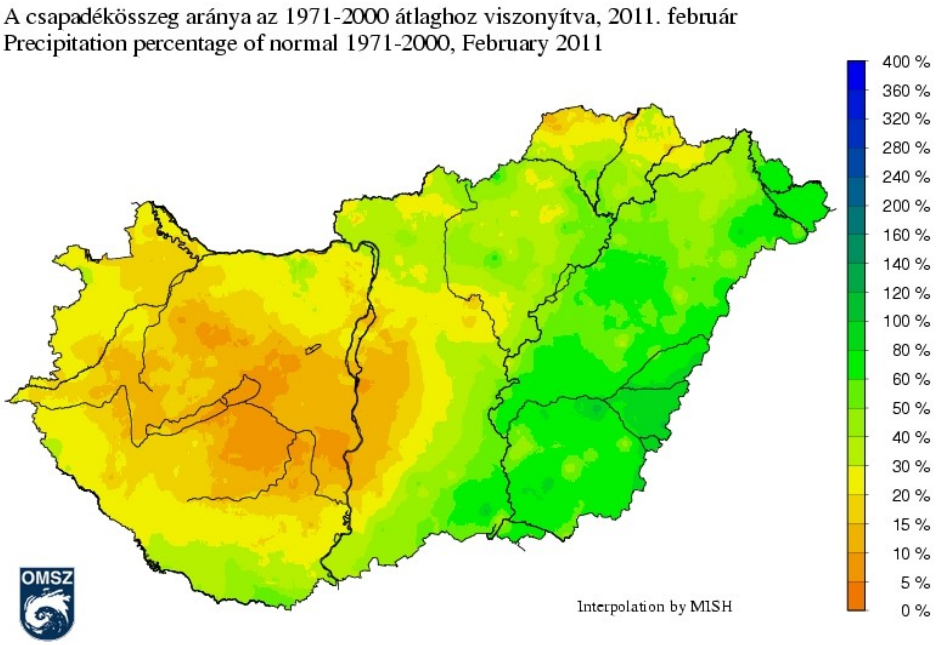

Figure 17. Precipitation percentage of normal 1971-2000, January 2011.

February is usually the driest month of the year but February 2011 was even drier than average. The only day with notable amounts of rainfall was the 24th with a country wide average of 4 mm. Precipitation arrived in the form of snow that day and was limited to the east part of the country.

Maximum precipitation of the month:	33.7 mm	Csárdaszállás	Békés
The lowest precipitation months:	1.7 mm	Hidasnémeti	Borsod-Abaúj-Zemplén
Maximum rainfall fell in 24 hours:	22.7 mm	Kiskundorozsma	Csongrád

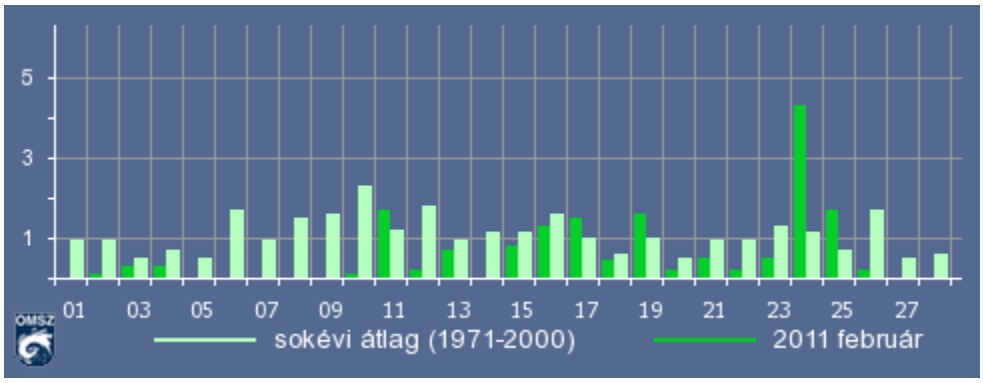

Figure 18. Daily average precipitation in February 2011.

Comparision of the forecasts with the observations and the climate of 1971-2000

In the case of the country wide monthly average temperature *(Figure 19.)* the direction of the observed anomalies compared to the climate were forecasted successfully (December and February – negativer anomaly, January – positive anomaly) but the amplitude was significantly underestimated in December and February while slightly overdrew in January. As for the precipitation *(Figure 20.)* the forecasts were even less successful. The direction of the anomaly was correct in January while December was forecasted to be drier and February to be wetter than the climate but the observed values show the opposite outcome.

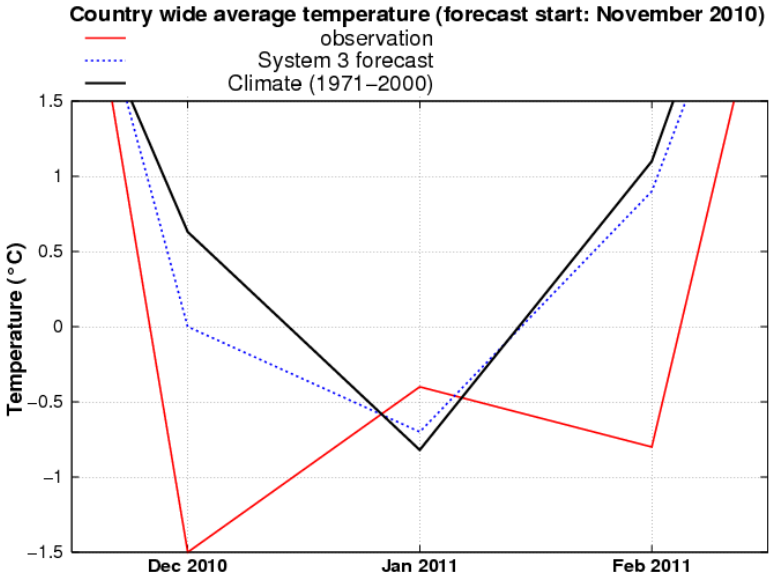

Figure 19. Country wide monthly average temperature.

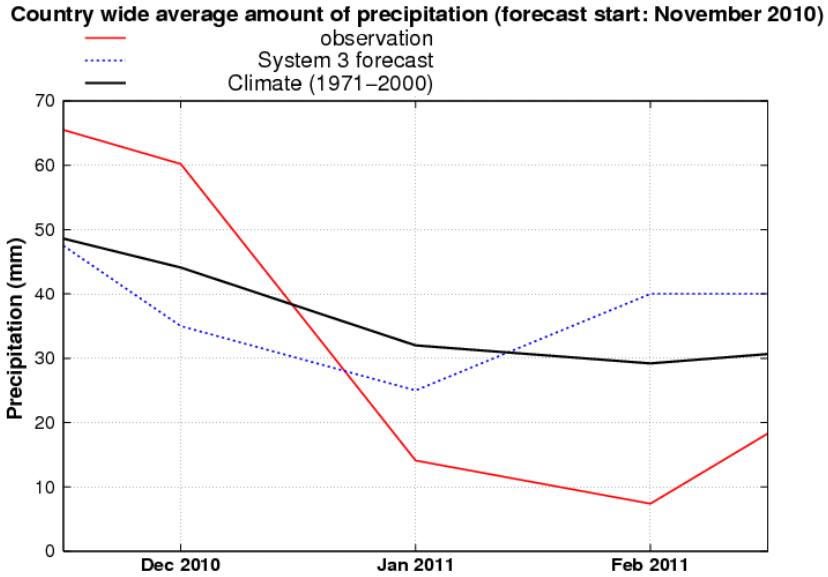

Figure 20. Country wide monthly average amount of precipitation.