



CLIMATOLOGICAL ANALYSIS OF SUMMER 2012 FOR SERBIA

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Extremely warm summer – the warmest one on record, and the third driest in history.

Analysis of the 2012 summer season in Serbia compared to the 1961-1990 reference period

Temperature

Summer 2012 was the warmest summer on record for 19 meteorological stations in Serbia.

During summer 2012, mean seasonal temperature ranged from 15.6°C on Kopaonik Mountain (central Serbia), up to 25.9°C in Belgrade, surpassing maximum mean temperatures on record for all meteorological stations.

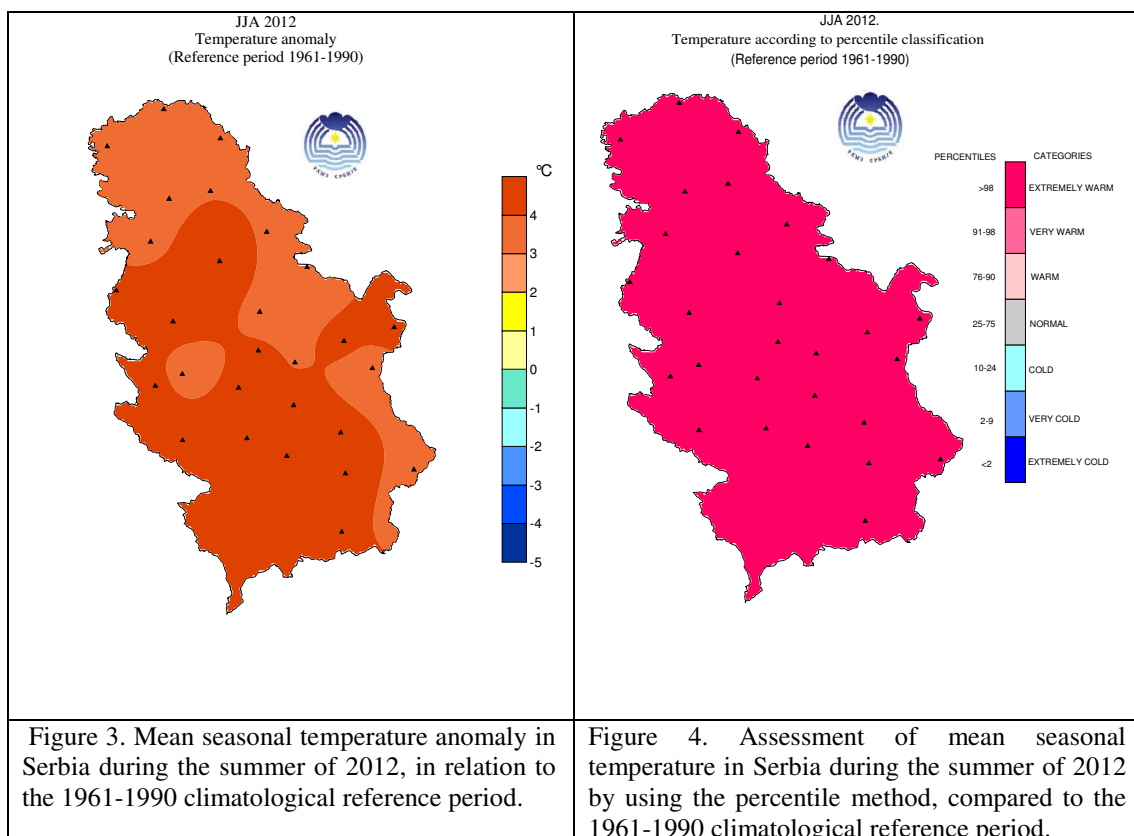
Mean summer temperature anomalies (compared to the 1961-1990 reference period) were positive in the entire Serbian territory and ranged from 3.1°C in Veliko Gradiste (north-eastern Serbia) up to 5.0°C on Kopaonik Mountain (central Serbia) (*Figure 3*).

Mean maximum summer temperature anomalies ranged from 4 to 5°C, and up to 6°C on mountains. During summer 2012, maximum daily temperature for Serbia was recorded in Cuprija (central Serbia) on July 15, and it measured 41.5 °C.

Mean minimum summer temperature anomalies ranged from 2 up to 4°C. Minimum daily temperature of 2.6°C was recorded on Kopaonik Mountain (central Serbia) on June 26, and in Sjenica (south-western Serbia) on August 29.

According to the percentile method, mean summer air temperature was in the extremely warm category for entire Serbia (*Figure 4*).

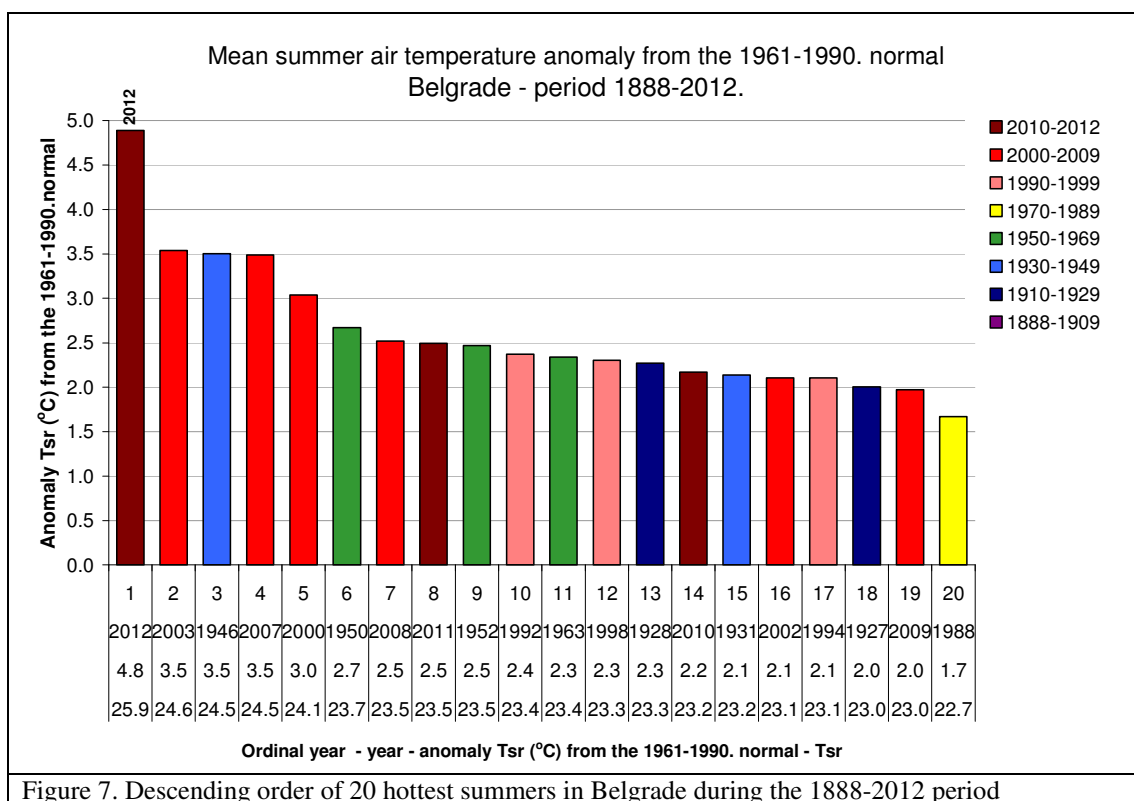
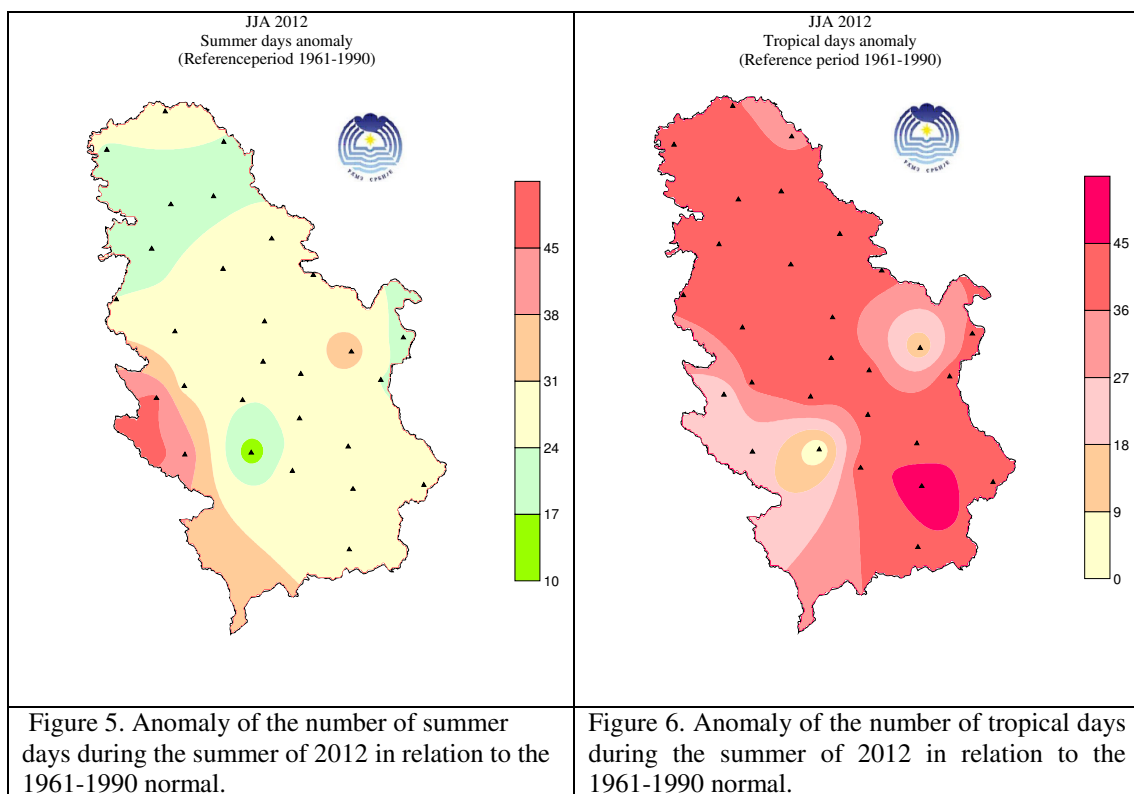
According to the tercile method, mean summer air temperature was in the warm category for entire Serbia.



The number of summer days with maximum daily air temperature above 25°C was surpassed at all meteorological stations in Serbia. A total of 88 summer days was recorded in Belgrade, surpassing the average by 26 days. The largest number of summer days (91) was recorded in Nis, Leskovac (south-eastern Serbia) and Zajecar (eastern Serbia) (*Figure 5*).

The number of tropical days with maximum daily air temperature above 30°C was surpassed in entire Serbia. The largest number of tropical days was recorded in Leskovac (south-eastern Serbia) (73), surpassing the average by 47 days, while 62 tropical days were recorded in Belgrade, 40 days above the average (*Figure 6*).

The number of tropical nights with minimum temperature above 20°C was surpassed in most of Serbia. A total of 52 tropical nights was recorded in Belgrade, which is the largest number of tropical nights on record for Belgrade.



Three heat waves were recorded on the whole Serbian territory during the summer of 2012, and in some parts four or five (Heat wave definition: period of 6 or more consecutive days in which the maximum temperature is minimum 5.1 °C higher than the average maximum temperature for each of those days during the 1961-1990

period). The first heat wave was recorded between 16 to 24 June, the second from 29 June to 15 July and the third from 19 to 26 August. Maximum daily temperature anomalies from normal (reference period 1960-1990) were up to 14.7°C.

Precipitation

Summer 2012 was one of the driest summers on record for Serbia.

Summer precipitation sum for 2012 was, in relation to the 1961-1990 reference period, below average in almost entire Serbia, exception is one station in north-eastern Serbia (Veliko Gradiste), where it was around normal (*Figure 9*).

According to the percentile method, summer precipitation sum was in the extremely dry, very dry and dry categories in almost entire Serbia. The exception to that were two stations in north-eastern and south-eastern Serbia respectively, where precipitation was in the normal category (*Figure 10*).

According to the tercile method, summer precipitation sum was below normal in entire Serbia, with the exception of one station in north-eastern Serbia, where it was within the range of normal values.

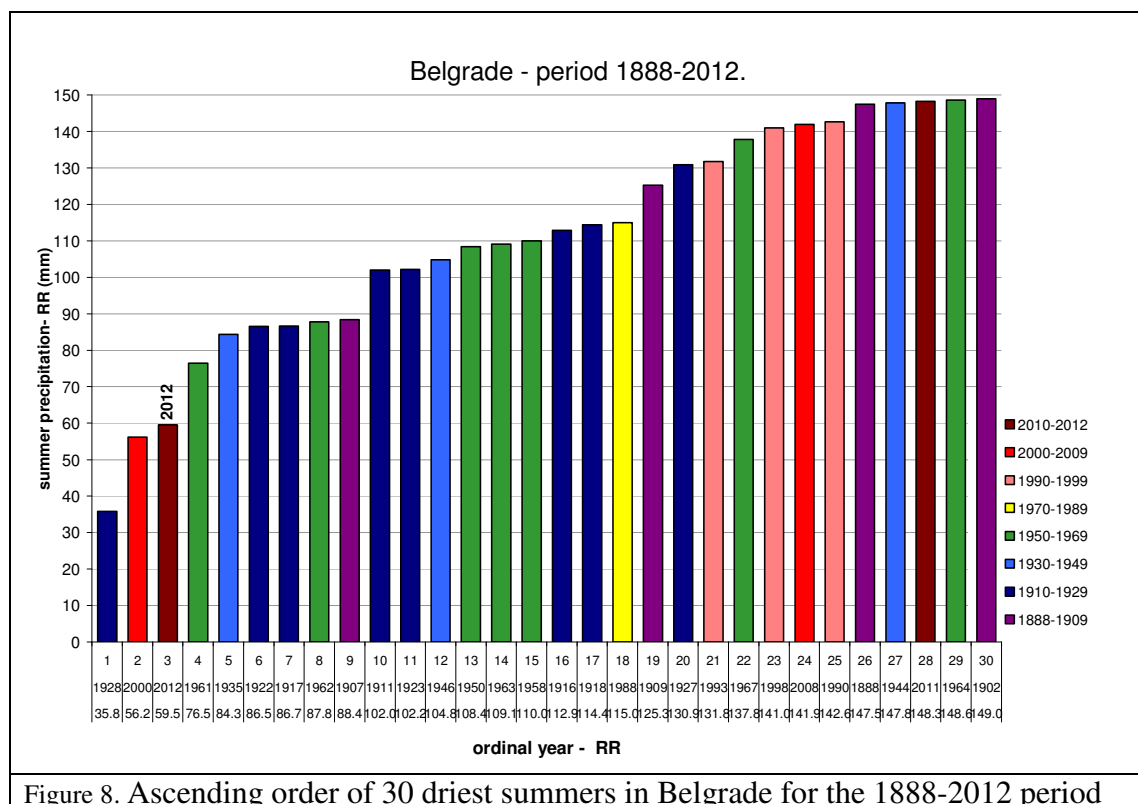
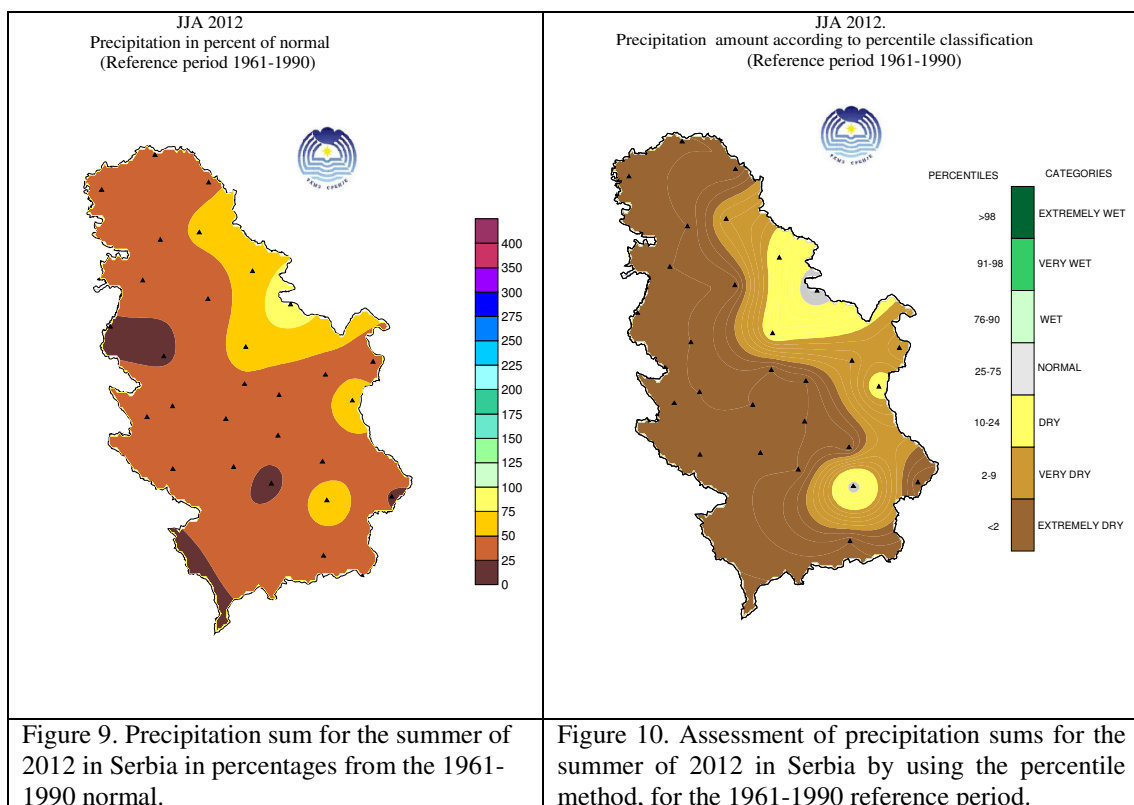
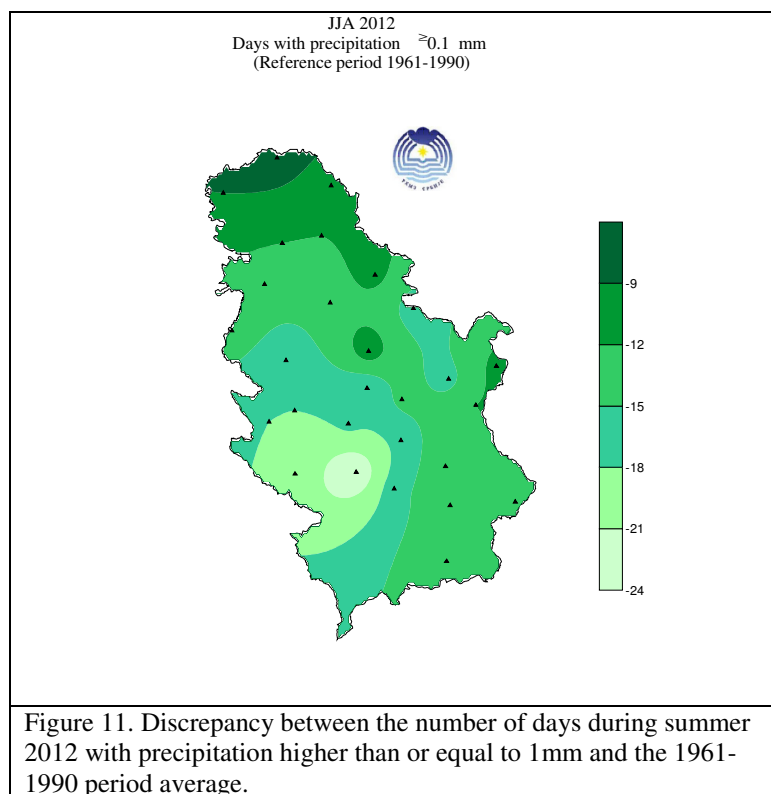


Figure 8. Ascending order of 30 driest summers in Belgrade for the 1888-2012 period



Absolute daily precipitation quantity maximum was surpassed in Veliko Gradiste (north-eastern Serbia) on July 25, amounting 152,8 mm. Precipitation quantity measuring above 50 mm was also recorded in Leskovac (south-eastern Serbia) on July 26 (55,8 mm).



The number of days with precipitation of 1 mm and above was 24 days below normal on Kopaonik Mountain (central Serbia), and 7 days below normal in Palic (northern Serbia) (*Figure 11*).

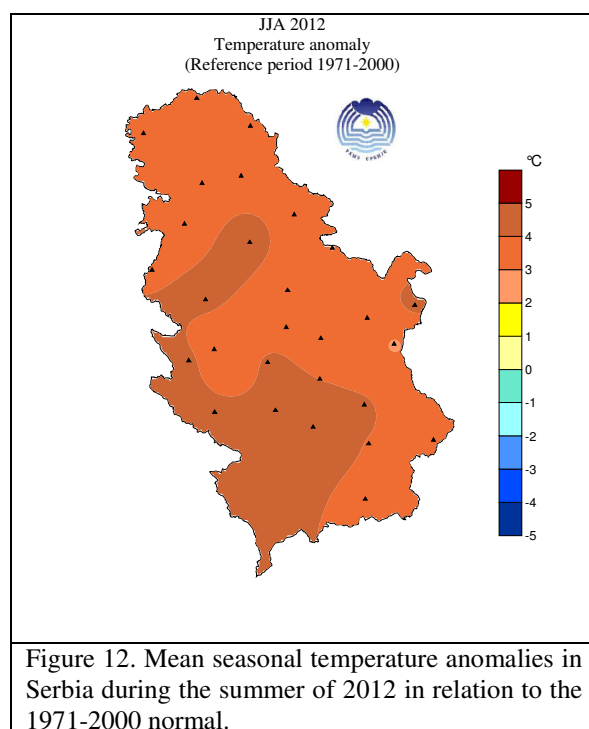
Analysis of the 2012 summer season for Serbia compared to the 1971-2000 climatological reference period

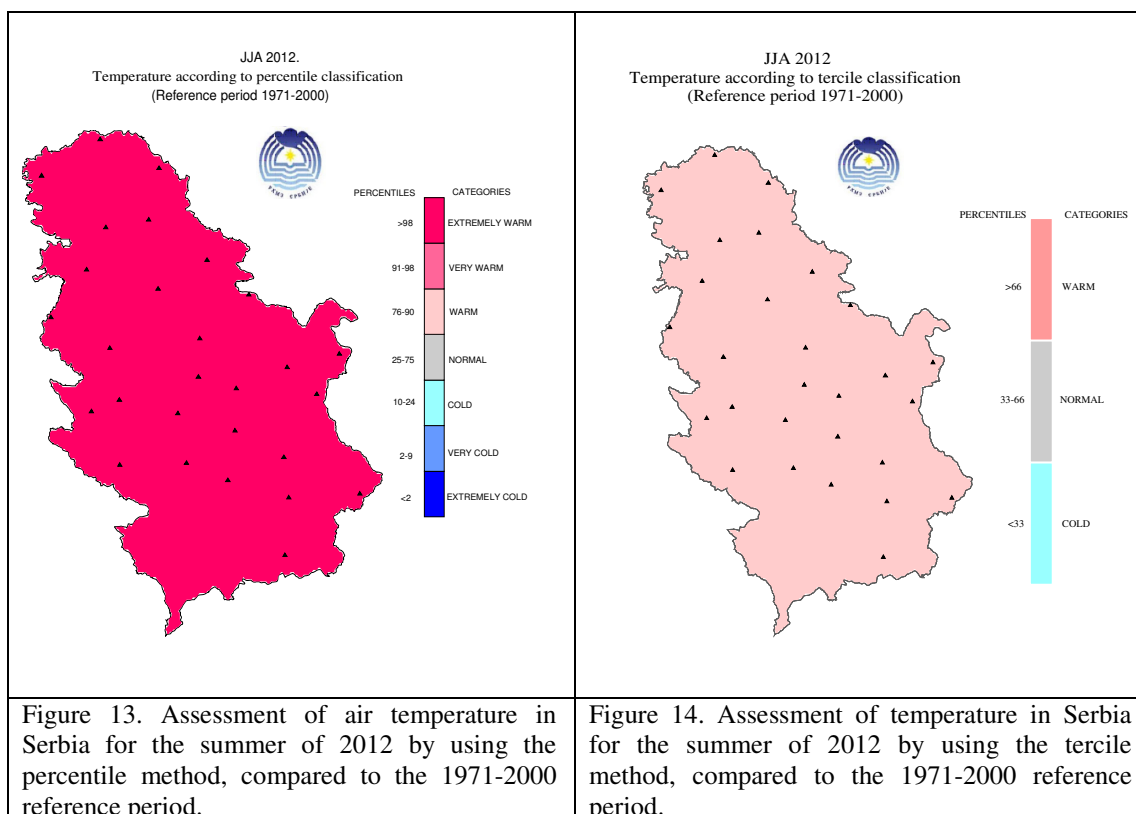
Temperature

Mean summer temperature anomalies (compared to the 1971-2000 reference period) ranged from 2.8°C in Zajecar (eastern Serbia) up to 4.4°C in Belgrade (*Figure 12*).

According to the percentile method, air temperature was in the extremely warm category in most of Serbia (compared to the 1971-2000 reference period) (*Figure 13*).

According to the tercile method, air temperature was in the warm category in entire Serbia (*Figure 14*).



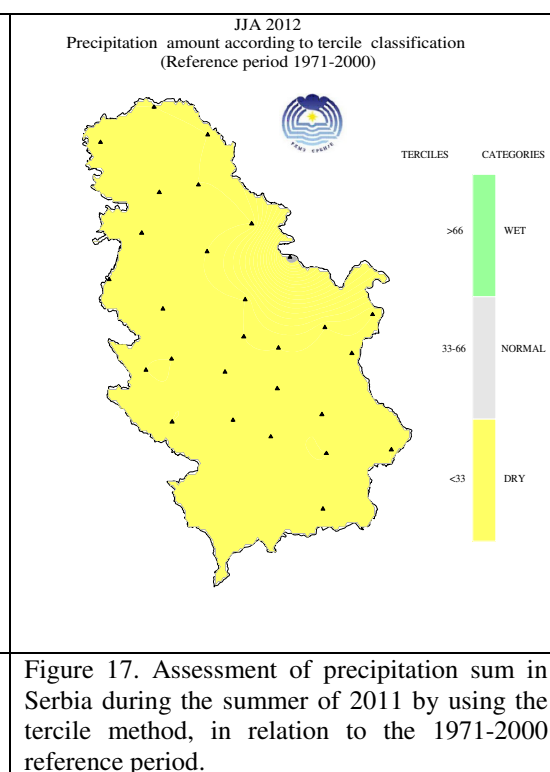
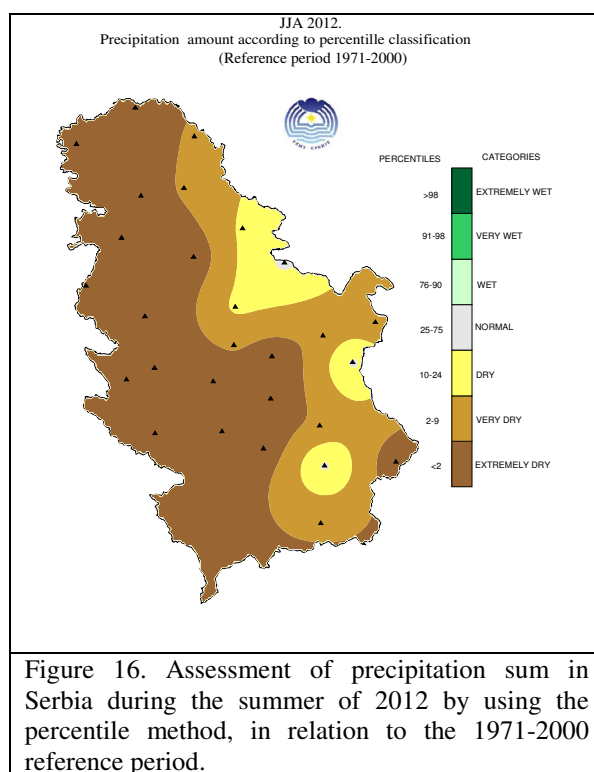
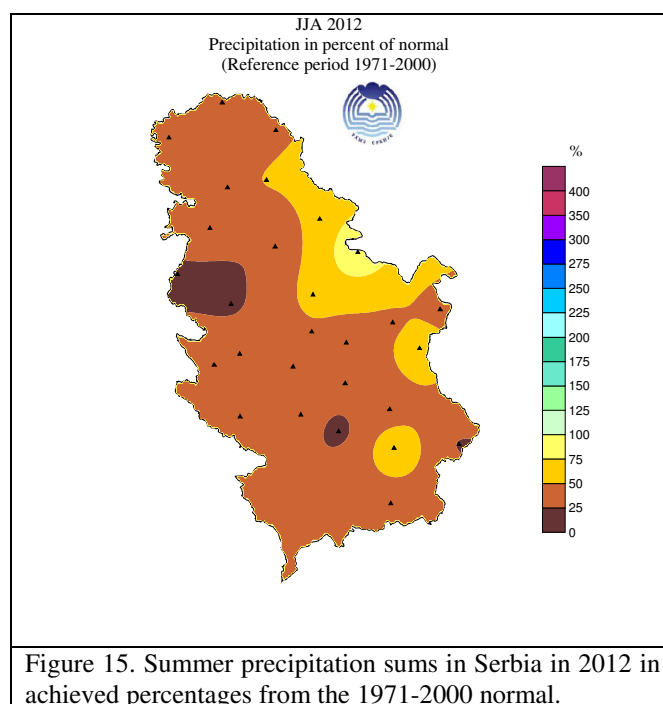


Precipitation

Summer precipitation sum for 2012 was, in relation to the 1971-2000 reference period, below average in almost entire Serbia. The only exception was one station in north-eastern Serbia, where precipitation sum was within the range of normal values (*Figure 15*).

According to the percentile method, summer precipitation sum was in the extremely dry, very dry and dry categories in most of Serbia. The exception to that were some parts of eastern Serbia where precipitation sum was in the normal category (*Figure 16*).

According to the tercile method, precipitation sum was below normal in entire Serbia, except at one station in north-eastern Serbia, where it was within the range of normal values (*Figure 17*).



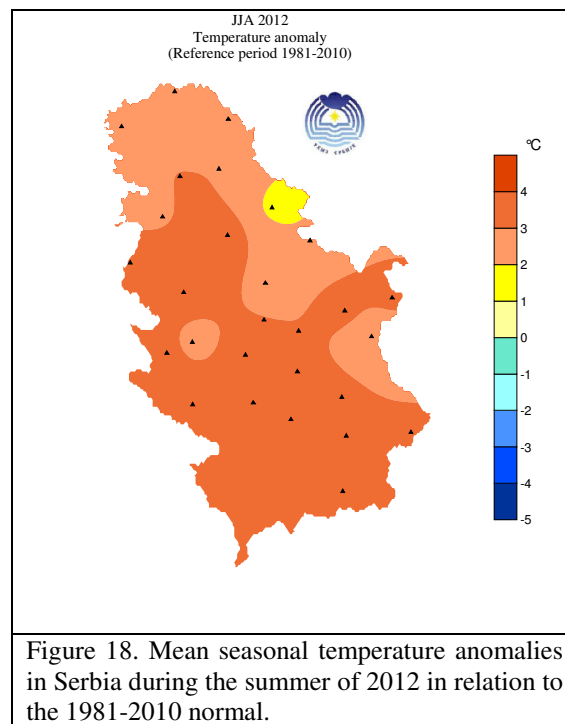
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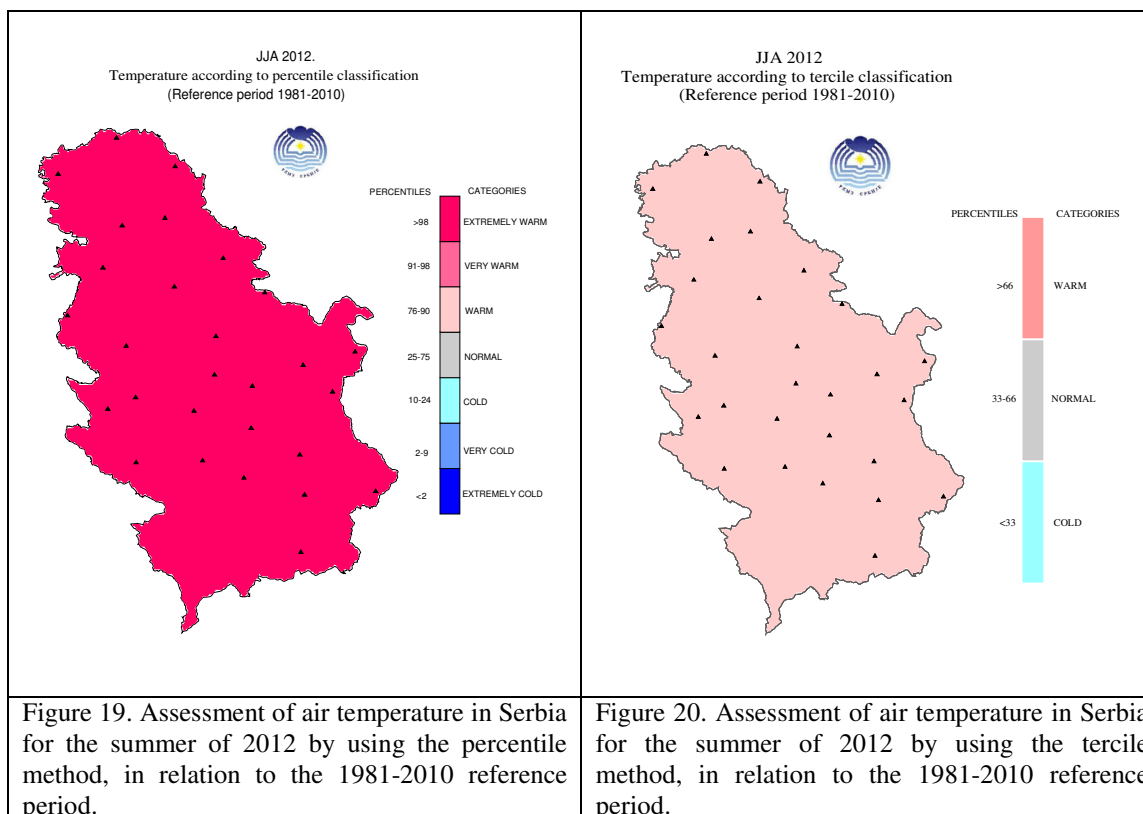
Temperature

Mean summer temperature anomalies (compared to the 1981-2010 reference period) ranged from 1.7°C in Banatski Karlovac (north-eastern Serbia) up to 3.7°C in Belgrade and Kursumlija (south-eastern Serbia) (*Figure 18*).

According to the percentile method, air temperature was in the extremely warm category in entire Serbia (compared to the 1981-2010 reference period) (*Figure 19*).

According to the tercile method, air temperature was in the warm category in entire Serbia (*Figure 20*).





Precipitation

Summer precipitation sum for 2012 for Serbia was below average in relation to the 1981-2010 reference period. The only exception was one station in north-eastern Serbia, where precipitation sum was within the range of normal values (*Figure 21*).

According to the percentile method, summer precipitation sum was in the extremely dry, very dry and dry categories in most of Serbia. The exception to that were some parts in eastern and southern Serbia (*Figure 22*).

Analysis of summer precipitation according to the tercile method shows that precipitation sum was in the dry category in entire Serbia, with the exception of one station in north-eastern Serbia, where precipitation sum was in the normal category (*Figure 23*).

