

ANALYSIS AND ASSESSMENT OF SUMMER 2012 (PRECIPITATION AND AIR TEMPERATURE) FOR GREECE

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First, an analysis of precipitation and air temperature on a monthly basis is carried out for the summer season of 2012.

Next, an assessment for the whole summer period is done. The reference climatological period used is 1961-1990.

A. ON A MONTHLY BASIS

JUNE 2012 OVERVIEW

(a) PRECIPITATION

June 2012 was a very dry month with approximately zero rainfall for the most parts of Greece except for some Northwestern areas, where the total amount of rainfall was about the normal (Figure 1-i).

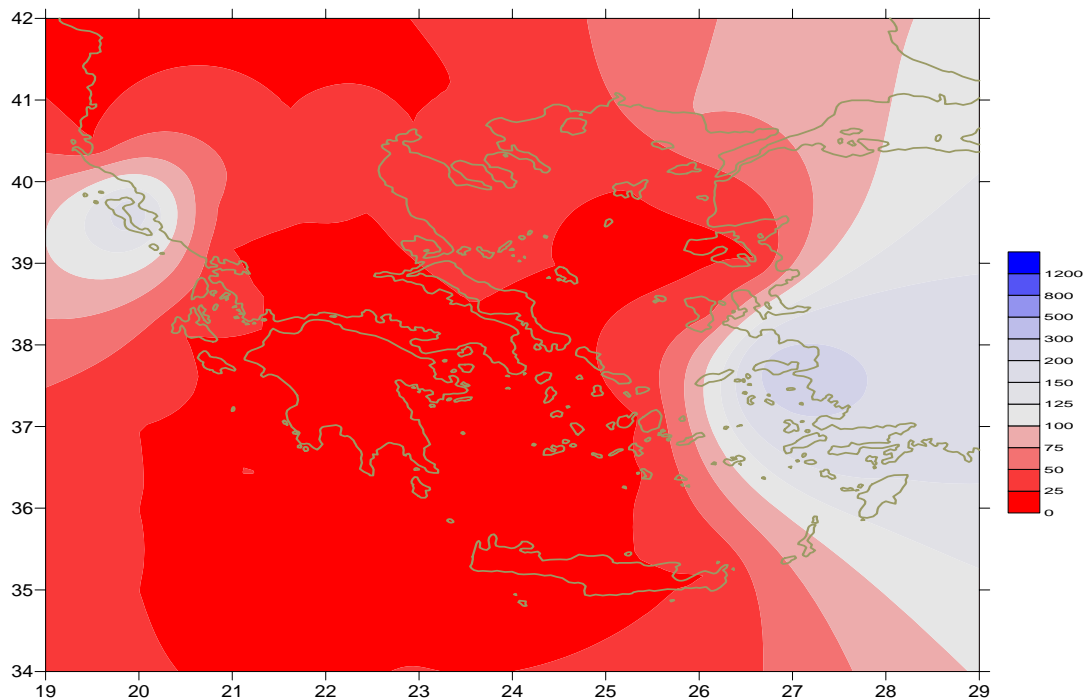


Figure 1-i. June 2012-Monthly Precipitation Height: departure from normals (%).

(b) TEMPERATURE

June 2012 was a very hot month, with mean temperature (Figure 2-i) and mean maximum temperature (Figure 3-i) above the 1961-1990 average, except for the Southeast part of the country where the values were about the normal ones.

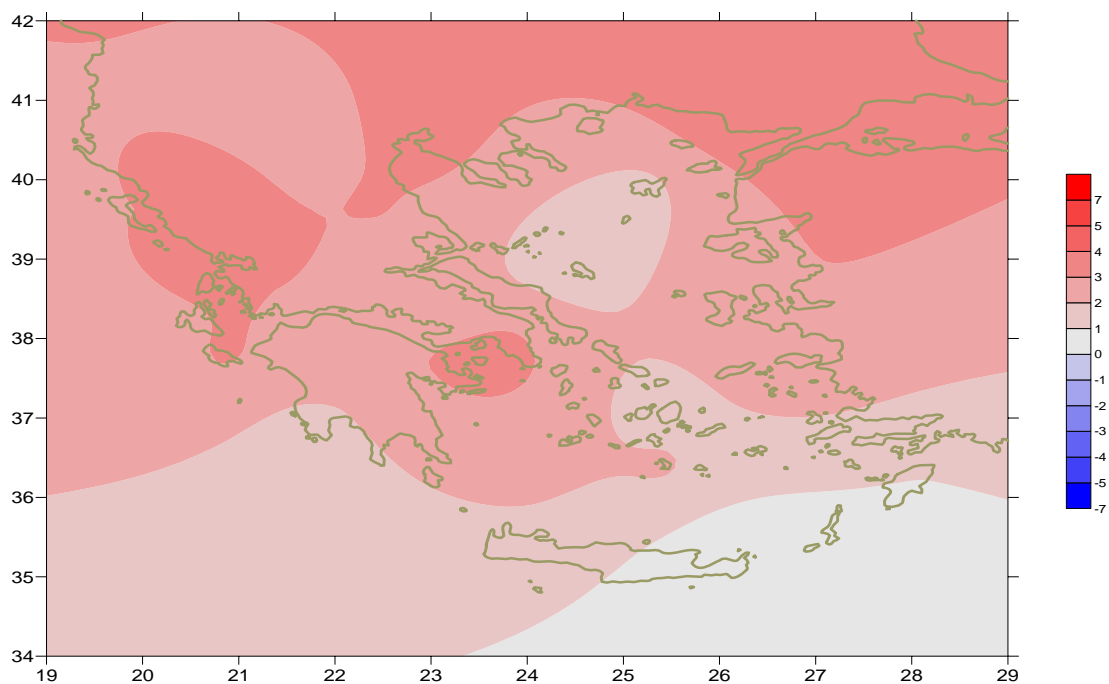


Figure 2-i. June 2012-Mean Temperature: departure from normals (°C).

Particularly, the mean maximum temperature in some areas over the mainland of Greece and the Ionian Sea Islands (west part) was more than 3 °C from the normal ones.

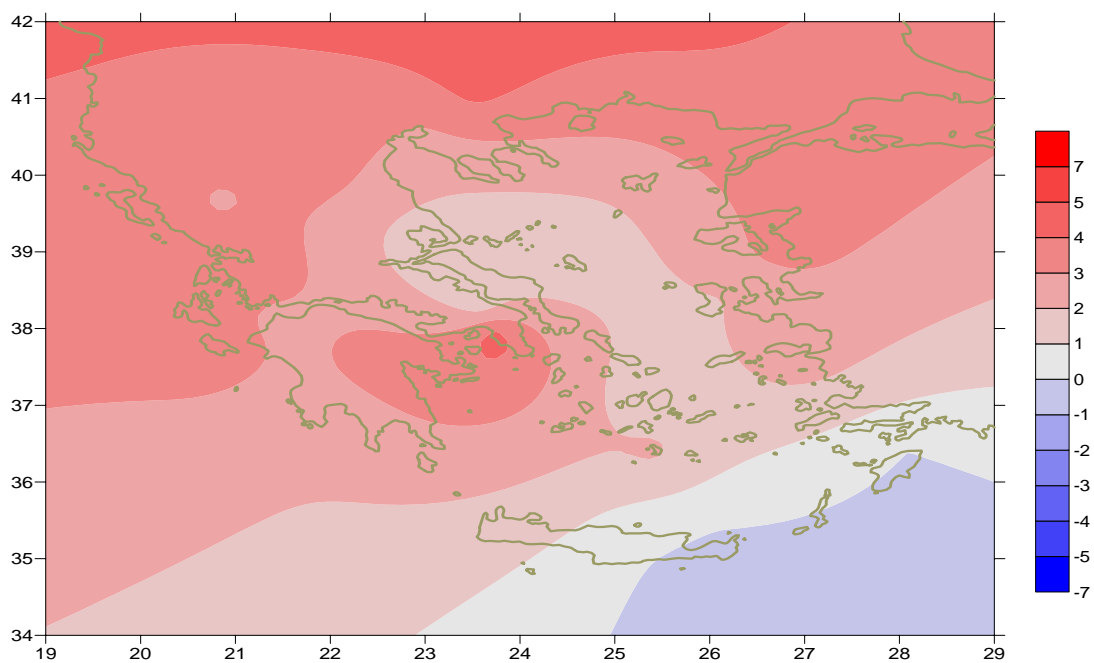


Figure 3-i. June 2012-Mean Maximum Temperature: departure from normals (°C).

Specifically, for the area of Athens (the capital city of Greece) according to the Met. Station of Thission (WMO: 16714), the mean T_{\max} =33.5 °C (+3.7 °C above normal) was the second-hottest June in the series from 1897.

Also, the mean minimum temperature exceeded the normal values, especially over the north mainland and the eastern area of Aegean Sea (Figure 4-i).

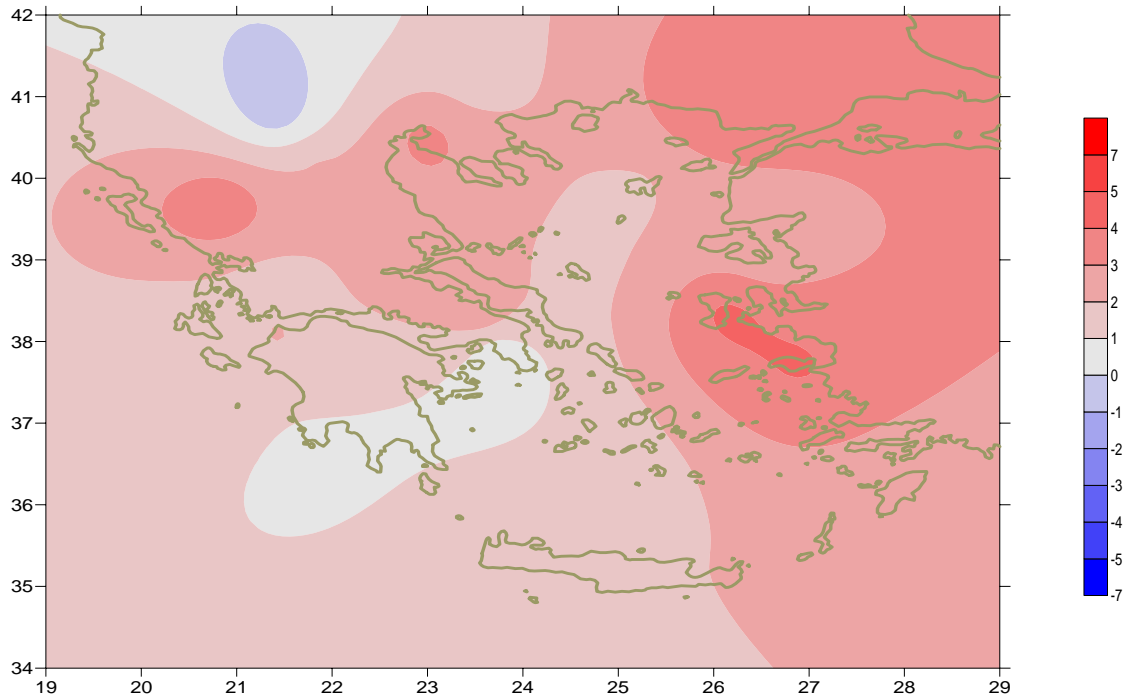


Figure 4-i. June 2012-Mean Minimum Temperature: departure from normals (°C).

(c) HEAT WAVE

A minor 2-day heat wave episode occurred during 13-14 June 2012, where only few Met. Stations recorded daily T_{\max} above 38 °C.

JULY 2012 OVERVIEW

(a) PRECIPITATION

July 2012 was also a very dry month with approximately zero rainfall for the most parts of Greece except for some specific areas over the North mainland where the total amount of rainfall (due to thunderstorms and unstable weather conditions) was about the half of normal (Figure 1-ii).

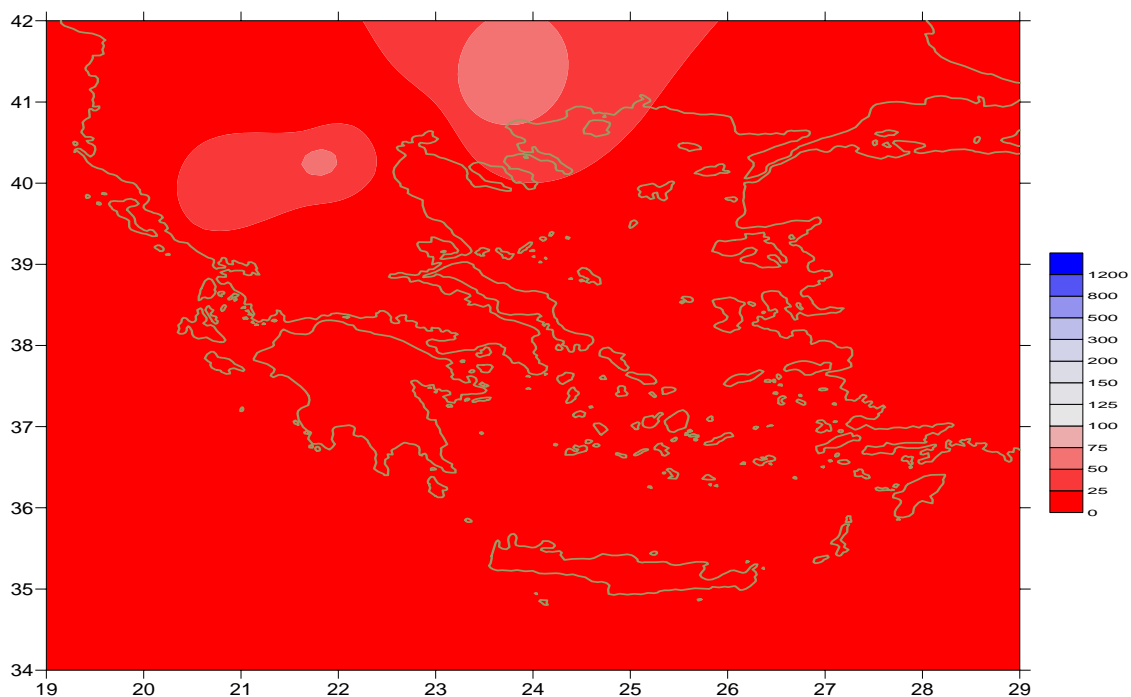


Figure 1-ii. July 2012-Monthly Precipitation Height: departure from normals (%).

(b) TEMPERATURE

The exceptional hot conditions continued during July 2012, where the mean temperature (Figure 2-ii) and the mean maximum temperature (Figure 3-ii) were widely more than 3 °C above the 1961-1990 average. Again, the area of Crete and Dodecanese experienced slightly cooler conditions with values near or equal the normal ones.

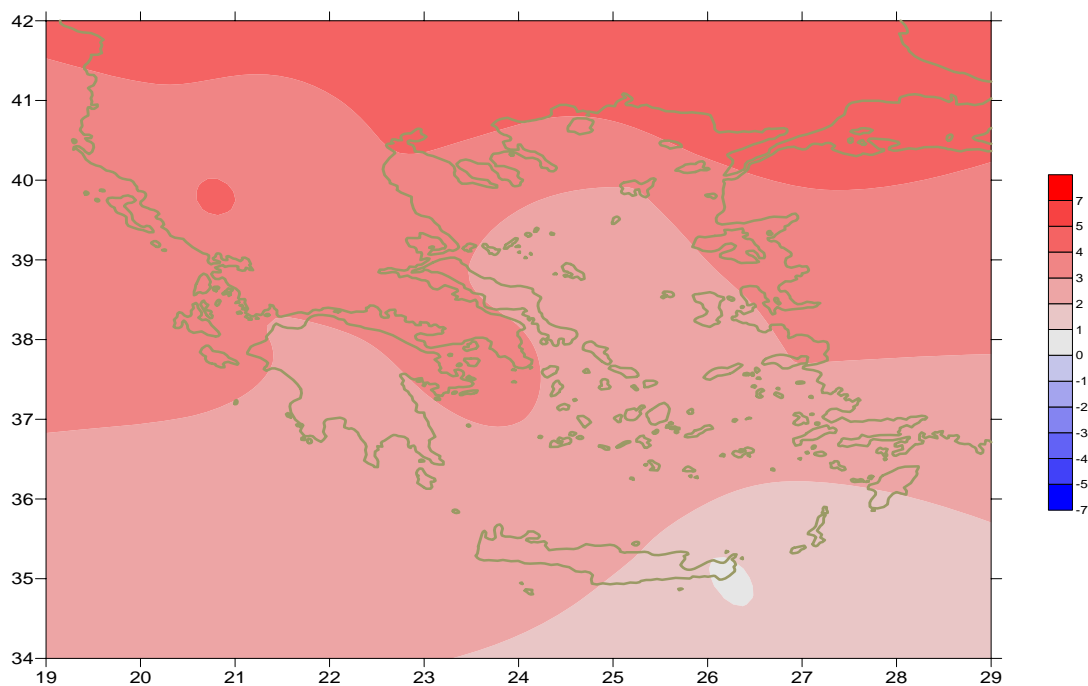


Figure 2-ii. July 2012-Mean Temperature: departure from normals (°C).

Particularly, the mean maximum temperature in some areas over the north –northeast mainland of Greece had a 5 °C positive anomaly (Figure 3-ii).

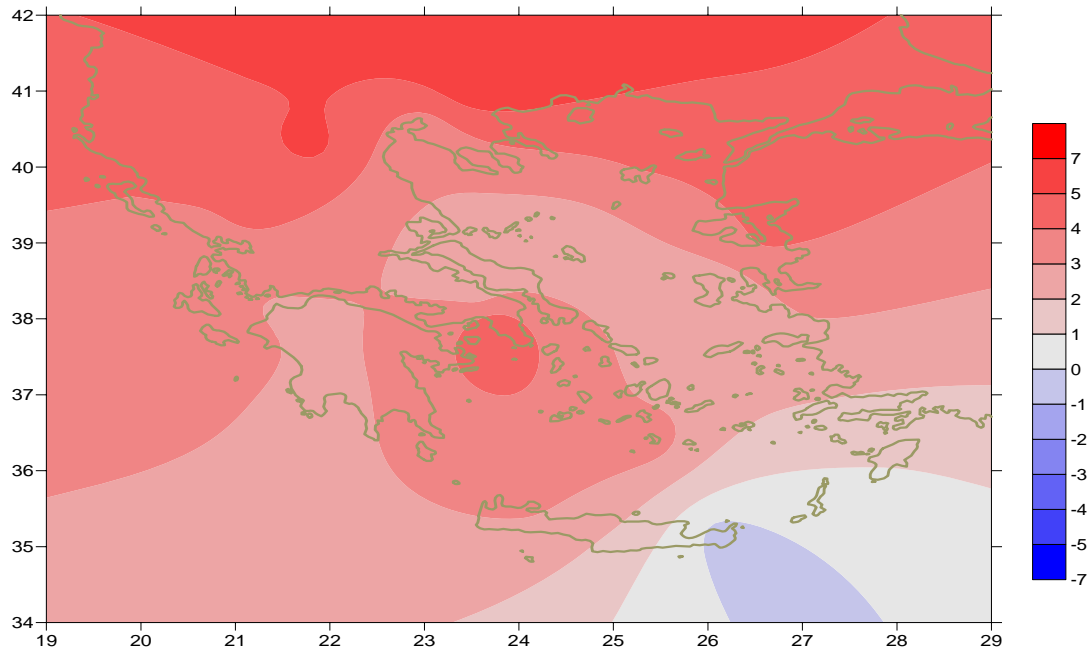


Figure 3-ii. July 2012-Mean Maximum Temperature: departure from normals ($^{\circ}\text{C}$).

For the area of Athens (the capital city of Greece) concerning the mean maximum temperature, July 2012 was the hottest ever recorded. Specifically:

- at the Met. Station of Thission (WMO: 16714) the mean $T_{\text{max}}=36.9\text{ }^{\circ}\text{C}$ (+4.6 $^{\circ}\text{C}$ above normal), a record for this month in the series from 1897.
- also, at the Met. Station of Hellinikon (WMO: 16716) the mean $T_{\text{max}}=36.4\text{ }^{\circ}\text{C}$ (+4.8 $^{\circ}\text{C}$ above normal), a record for this month in the series from 1955.

Also, the mean minimum temperature of the month exceeded the normal values, especially over the mainland and the eastern area of Aegean Sea (Figure 4-ii).

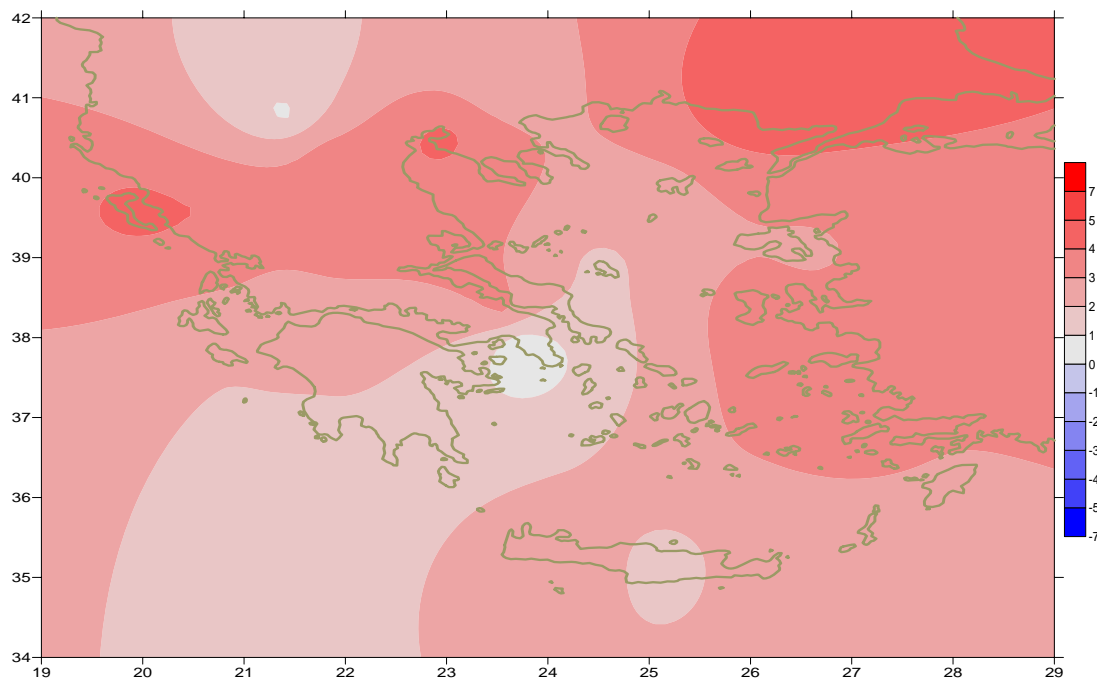


Figure 4-ii. July 2012-Mean Minimum Temperature: departure from normals ($^{\circ}\text{C}$).

(c) HEAT WAVE

A prolonged period of high temperatures above 38 °C had two peaks (11-12/July and 15-16/July). At the Met. Station of Hellinikon (WMO: 16716), 13 consecutive days of $T_{\max} > 38$ °C were recorded.

AUGUST 2012 OVERVIEW

(a) PRECIPITATION

The monthly precipitation height of August 2012 for the mainland and some places of the northern islands of Aegean Sea was close to normal. Specifically, due to severe thunderstorms with hail, some locations received amount of rain up to 500% above the normal. The rest area of Greece experienced almost zero rainfall (Figure 1-iii).

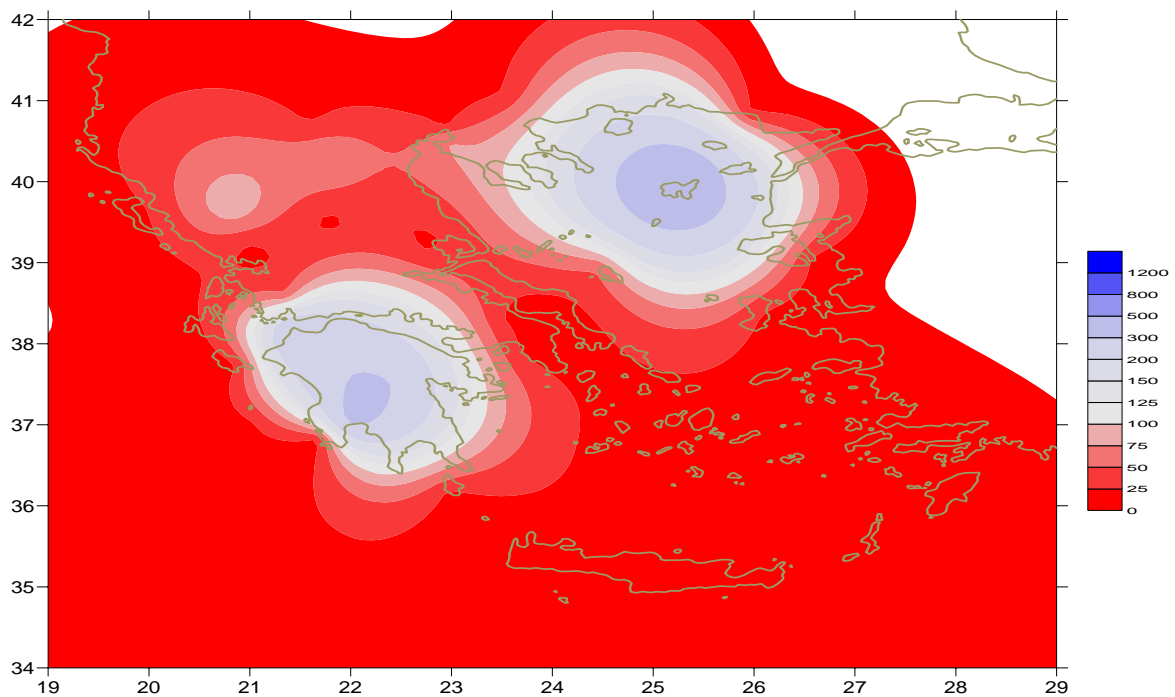


Figure 1-iii. August 2012-Monthly Precipitation Height: departure from normals (%).

(b) TEMPERATURE

The August 2012 was also a hot month with mean temperatures above normals. Particularly, the mean temperature (Figure 2-iii) in the Northeast part of Greece was almost 3 °C above the 1961-1990 average, while the mean maximum temperature in some places at this area had a 4 °C positive anomaly (Figure 3-iii)

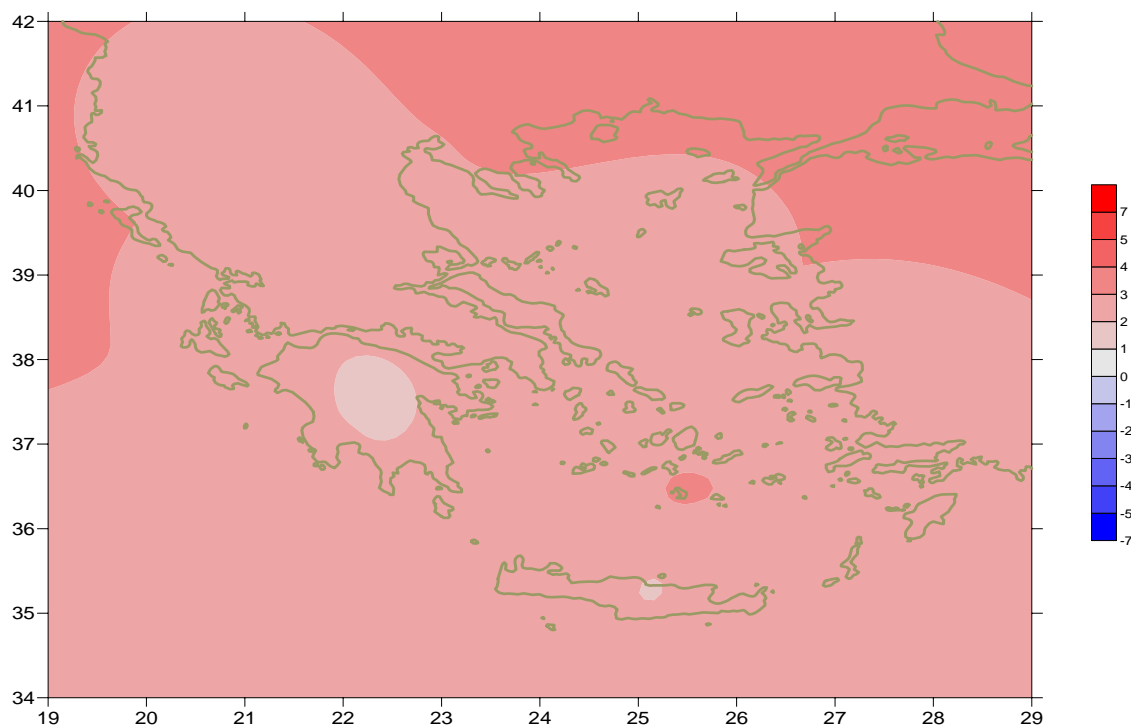


Figure 2-iii. August 2012-Mean Temperature: departure from normals ($^{\circ}\text{C}$).

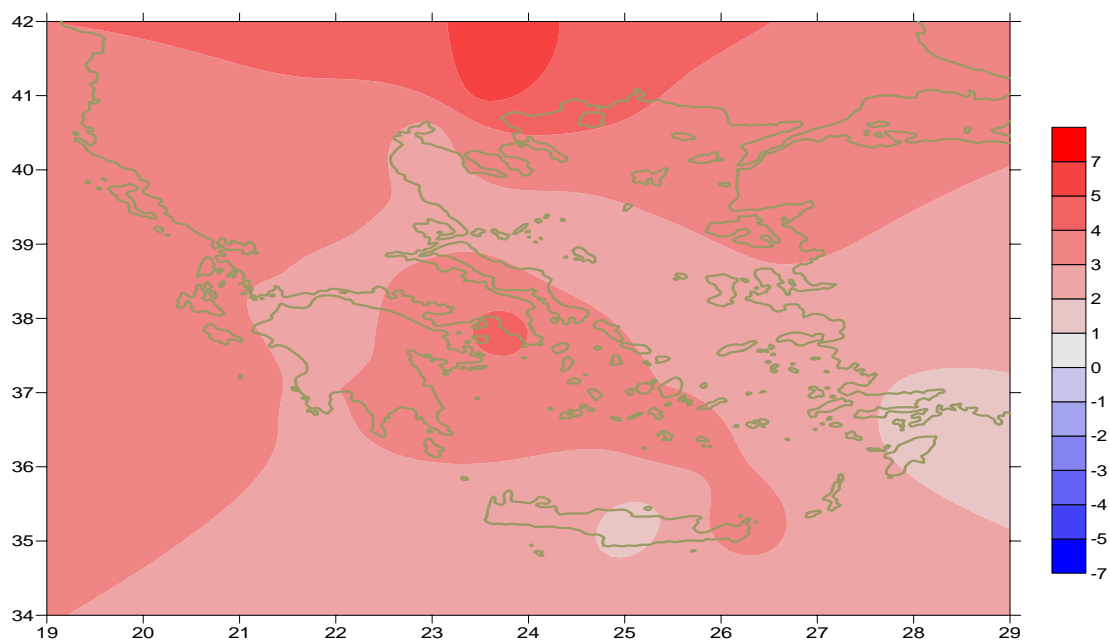


Figure 3-iii. August 2012-Mean Maximum Temperature: departure from normals ($^{\circ}\text{C}$).

Again, for the area of Athens (the capital city of Greece) concerning the mean maximum temperature, August 2012 was a very hot month. Specifically:

- at the Met. Station of Thission (WMO: 16714) the mean $T_{\max}=36.1$ $^{\circ}\text{C}$ (+3.8 $^{\circ}\text{C}$ above normal).
- also, at the Met. Station of Hellinikon (WMO: 16716) the mean $T_{\max}=35.8$ $^{\circ}\text{C}$ (+4.4 $^{\circ}\text{C}$ above normal).

Also, there is a positive anomaly for the mean minimum temperature of the month especially at the eastern area of Greece (Figure 4-iii).

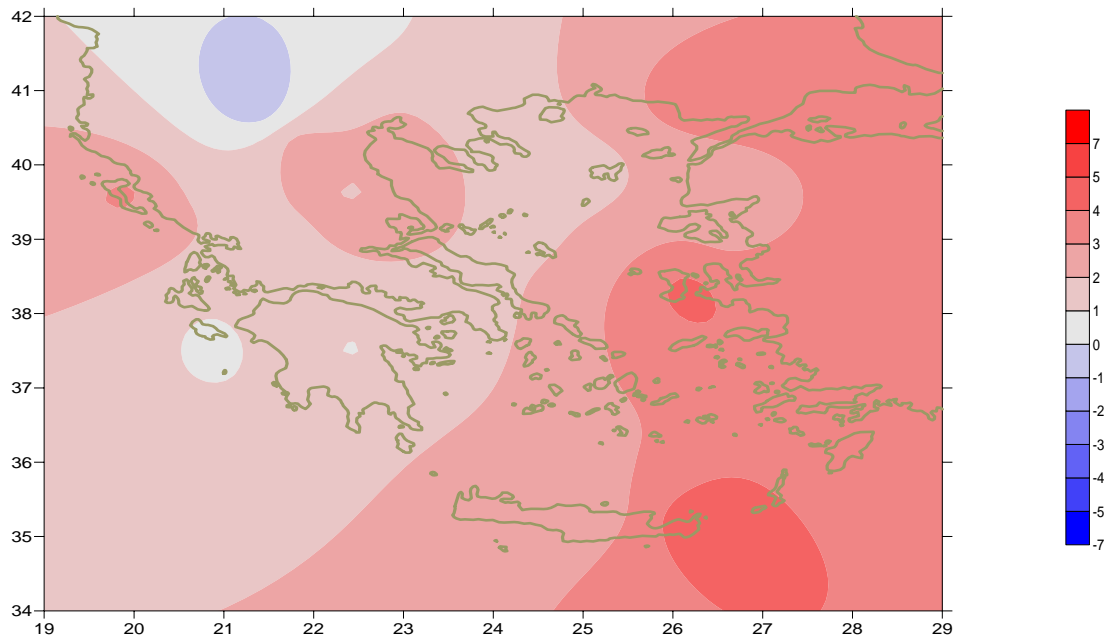


Figure 4-iii. August 2012-Mean Minimum Temperature: departure from normals ($^{\circ}\text{C}$).

(c) HEAT WAVE

A major 4-day heat wave episode occurred during 6-9 August 2012, where many Met. Stations recorded daily T_{max} above 42°C .

Also, the period of 23-27 August 2012 was characterized by very high temperatures and many Met. Stations recorded daily $T_{\text{max}} = 40^{\circ}\text{C}$.

At the Met. Station of Hellinikon (WMO: 16716), 3 consecutive days of $T_{\text{max}}=40^{\circ}\text{C}$ were recorded.

B. SUMMER 2012: ON SEASONAL BASIS

The whole summer period of 2012:

(a) regarding the precipitation, was a dry period, drier than the 1961-1990 normals, for the majority of Greek territory.

Specifically, the northern part of the country received less than the 50% of rainfall, while many areas of the eastern part had almost zero amount of rainfall. Only few locations exceed the normal amount (and in some cases up to 500%) due to severe thunderstorms.

(b) regarding the temperature, was extremely hot for the entire country, in comparison with the 1961-1990 normal values.

Specifically, this period is characterized by:

- 5 heat wave episodes ($T_{\text{max}} \geq 38^{\circ}\text{C}$) affecting mainly the mainland, but also some islands.
- The mean maximum temperature widely much above the average especially over the mainland of the country. In some cases, the positive anomalies exceeded the 4°C .
- The mean minimum temperature above the normals.