Seasonal weather forecast for the months of

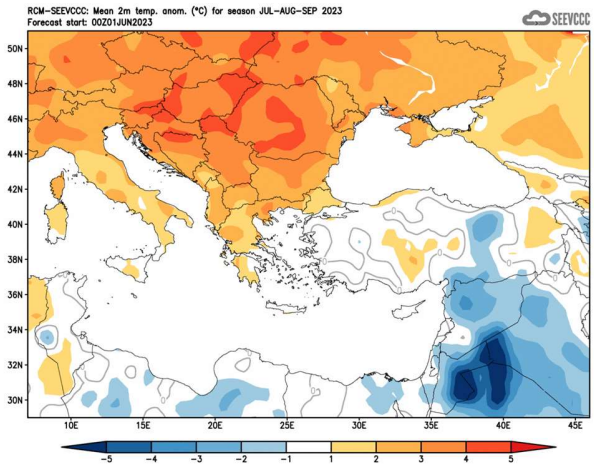
July, August and September 2023

General over view of the weather expected to prevail for July, August and September.

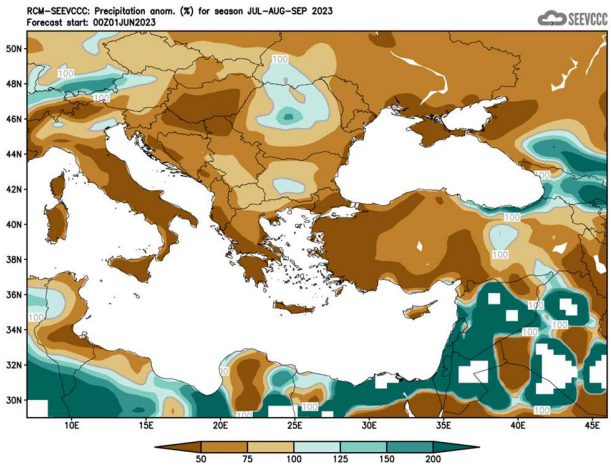
The weather for the following three months, namely **July**, **August** and **September 2023**, will be presented, with respect to the anomalies of temperature and accumulated precipitation. Normal temperatures (both maximum and minimum), are on the rise suggesting **August** as the hottest month of the year. The accumulated precipitation is at its lowest values. The period of the following three months (mainly July and August) is likely to be characterized by outbreaks of thunderstorms, initiated from thermal causes over the main plain area or over the mountainous range from orographic uplift.

Specifically, regarding the seasonal forecast for the period of **July, August** and **September 2023**, the temperature will generally be normal, as also in the greater part of Asia Minor. The Balkans will be warmer than normal, while near East will be lower than normal. The amount of the accumulated precipitation over Cyprus is expected to be below 50% of normal, except from the northern coastal areas where the accumulated precipitation is expected to range between 50% and 75% of normal (*).

Regarding the seasonal forecast, based on the climatology of the island, the accumulated precipitation is expected to be below normal (as shown in the images below). Any precipitation in Cyprus will be a result of thermal instability, in the form of a thunderstorm, with very local and temporal characteristics. For the above reason, but also due to the inability of the seasonal model to estimate precipitation for the region of Cyprus due to thermal instability, no extended comment will be made.



Divergence of temperature from normal from the mean seasonal temperature (°C) for July, August and September



Percentage (%) of the mean seasonal accumulated precipitation compared to the mean normal for July, August and September

At this point, it is worth making a brief mention of the El Niño phenomenon and how it is expected to affect the weather and climate worldwide, especially during the months of July, August and September.

The El Niño phenomenon is a natural periodic climate disturbance that occurs approximately every 2 to 7 years, when the surface of the Pacific Ocean warms significantly in its central and eastern tropical region. This change, in the surface of the Pacific Ocean, has effects on weather and climate patterns worldwide, with some areas receiving the effects of this phenomenon more strongly than others. El Niño episodes usually last 9 to 12 months.

According to the World Meteorological Organization (WMO), El Niño conditions have already developed in the tropical Pacific Ocean for the first time in 7 years, setting the stage for a likely surge in global temperatures and disruptive weather and climate patterns. According to the latest WMO update, it is predicted that there is 90% chance that the El Niño phenomenon will continue during the second half of 2023, while it is expected to be of moderate intensity. This, however, does not rule out that the occurrence of El Niño will not significantly increase the probability of breaking some temperature records and trigger more extreme heat events (heatwaves) in several parts of the world. Also, in a WMO report published last May, it was predicted that there is 98% chance that at least one of the next 5 years – and the five years' period as a whole – will be the warmest years in record, beating the record set in 2016 when there was an exceptionally strong El Niño.

As warmer than average sea surface temperatures are expected in oceanic regions, this is expected to contribute to the widespread forecast of above-normal temperatures over land as well. Without exception, for the three months of July, August and September, generally positive temperature anomalies are expected in all land area in the northern and the southern hemisphere. Also, the rainfall forecast for the next 3 months is similar to some of the normal El Niño rainfall effects, such as increased rainfall in areas of the South America, the southern USA, the eastern Africa, as well as areas of central Asia, or may cause severe droughts in Australia, Indonesia, the central America and some other areas.

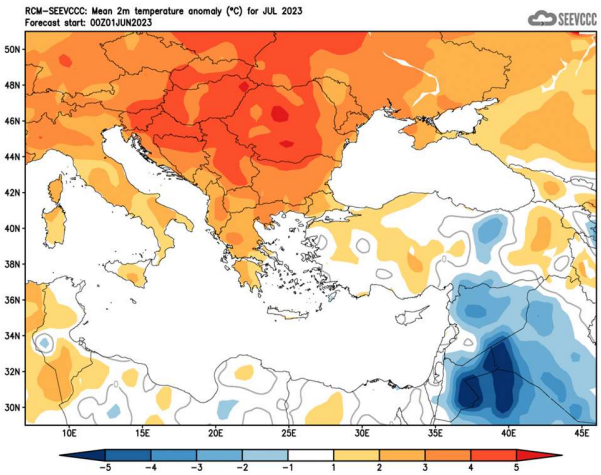
In general, the El Niño phenomenon has the opposite effect of La Niña, a phenomenon that ended earlier in 2023. In general, La Niña is the opposite climate stage of El Niño. During a La Niña event, the surface of the Pacific Ocean, in its tropical regions, cools more than normal, thereby affecting the weather and the climate patterns of many regions worldwide.

More information about the El Niño and the La Niña phenomena can be found at the following link:
https://mailchi.mp/wmo.int/world-meteorological-organization-declares-onset-of-el-nio-conditions?e=5d124da96e

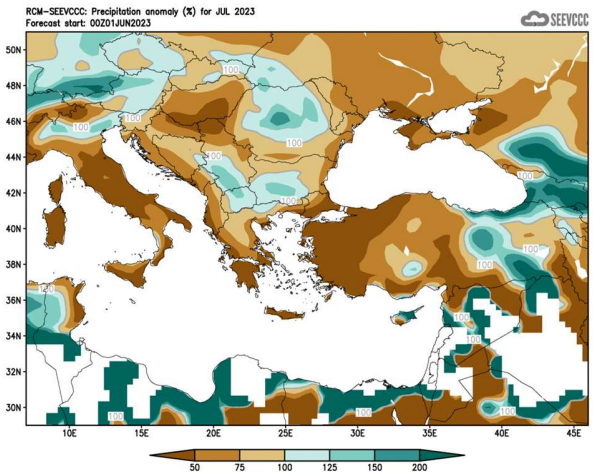
The seasonal monthly forecast in detail

July

The seasonal forecast suggests that **July's** temperature will be normal alike Asia Minor. The Balkans are expected to be warmer than normal while near and middle East is expected to be colder than normal. Regarding the accumulated precipitation, Cyprus' western – southwestern half is expected to be below 50% of normal but over the eastern – northeastern half the accumulated precipitation is expected to range up to 200% of normal (*).



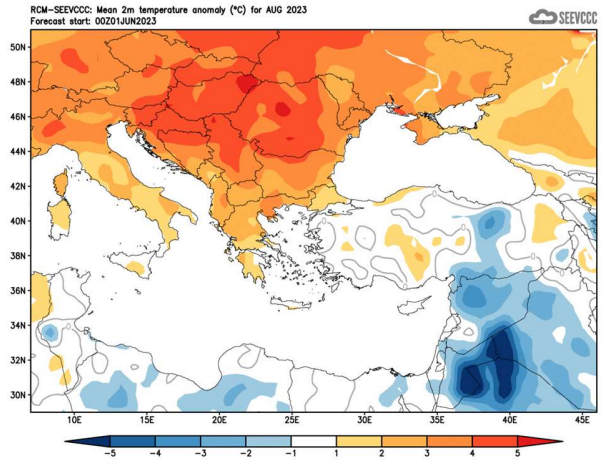
Divergence of the mean monthly temperature (°C) from normal during July



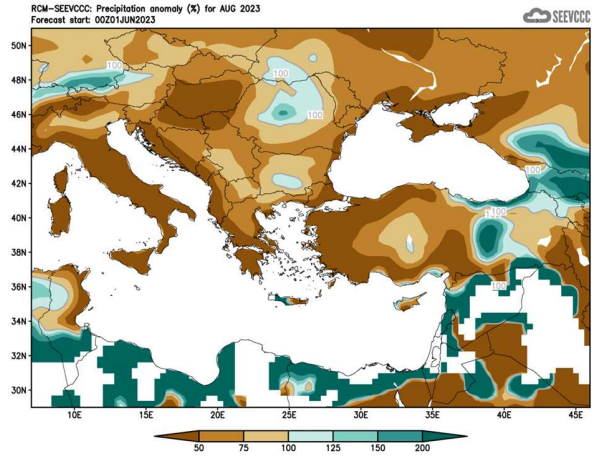
Percentage of the mean monthly precipitation (%) compared with the normal of July

August

August's seasonal forecast suggests that the temperature will generally be normal, as in Asia Minor. The Balkans are expected to be warmer than normal, while the near and middle East is once again expected to be below normal. Regarding the accumulated precipitation, it will range below 75% of normal except from the northwest coastal areas where it will be near normal (*).



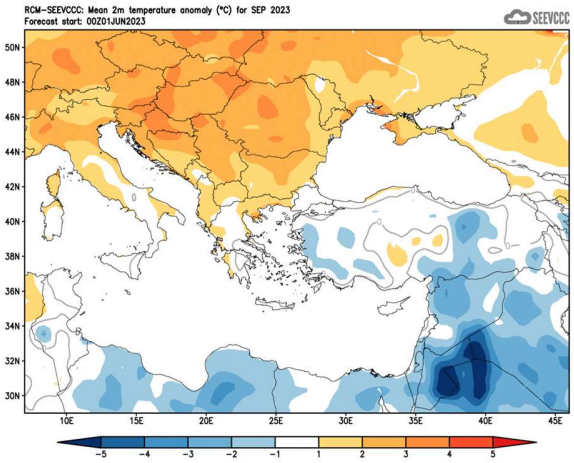
Divergence of the mean monthly temperature (°C) from normal during August



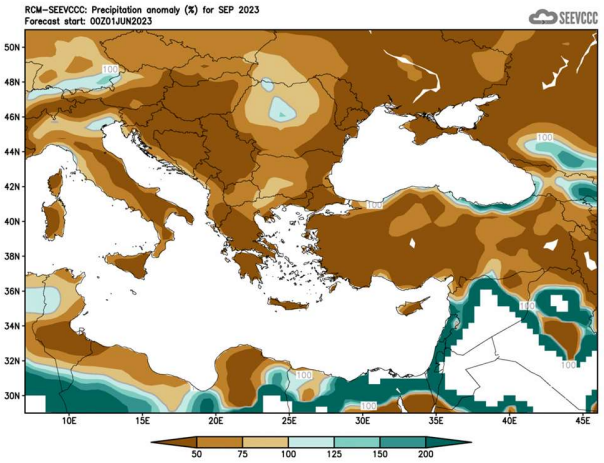
Percentage of the mean monthly precipitation (%) compared with the normal of August

September

The seasonal forecast suggests that **September's** temperature will be normal for Cyprus, the Greek area and Asia Minor, while the Balkans are expected to be warmer than normal. Near and Middle East is expected to be colder than normal. Regarding the accumulated precipitation, this will be lower than 50% of normal except from the northwestern coastal areas where is expected to range between 50% and 75% of normal. Dry characteristics has also the entire area of Asia Minor and the Balkans, while Near East is expected to be significantly above normal (*).



Divergence of the mean monthly temperature (°C) from normal during September



Percentage of the mean monthly precipitation (%) compared with the normal of September

Normal values of temperature and accumulated precipitation for July, August and September 2023

The normal values of mean maximum and mean minimum temperature and also the accumulated precipitation are presented below concerning the three months the period of forecast is covering, in order to gain a better view of the normal seasonal climate. The temperature, both maximum and minimum, is on the rise with **July's** and **August's** temperature being significantly higher than **September's**. On the other hand, the accumulated precipitation is declining during **July** and **August**, as presented by the climatological data shown on the table below. Thundery activity is likely during afternoon hours mainly inland and over the mountains, which is noted also from the table below. Note the cause of the mountainous area of Troodos range over the accumulated precipitation, mainly as a result of thundery activity, which is affecting primarily the mountainous ranges of the island. The accumulated precipitation over Prodromos station although declining towards **September** is always significantly higher, if compared to the accumulated precipitation of the other selected stations. It is worth noting that during September the accumulated precipitation starts a rise in all selected stations.

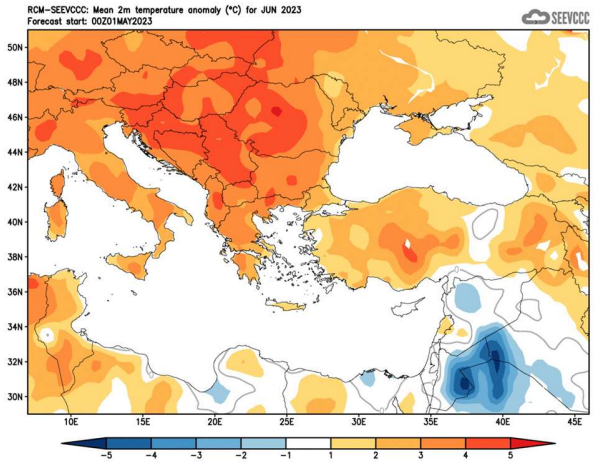
TEMPERATURE AND PRECIPITATION NORMAL VALUES FOR THE PERIOD 1981-2010									
	MEAN DAILY MAXIMUM TEMPERATURE (°C)			MEAN DAILY MINIMUM TEMPERATURE (°C)			MEAN MONTHLY TOTAL PRECIPITATION (mm)		
Area Name	**July**	**August**	**September**	**July**	**August**	**September**	**July**	**August**	**September**
NORTH COAST	33.4	33.3	30.1	21.1	21.5	19.2	0.1	0.0	4.0
WEST COAST*	29.9	30.5	29.0	20.6	21.1	19.1	0.2	0.0	3.6
MOUNTAINOUS AREAS	27.9	28.0	24.6	18.2	18.1	14.9	16.4	12.0	10.7
INLAND*	37.1	36.9	33.6	22.1	21.9	18.8	4.2	1.8	12.2
SOUTH COAST	32.5	32.9	30.9	22.0	22.3	19.8	0.5	0.3	4.3
EAST COAST**	33.2	33.5	31.9	21.8	22.0	19.6	0.1	0.1	2.9

* West Coast and Inland Values cover the period 1983-2010

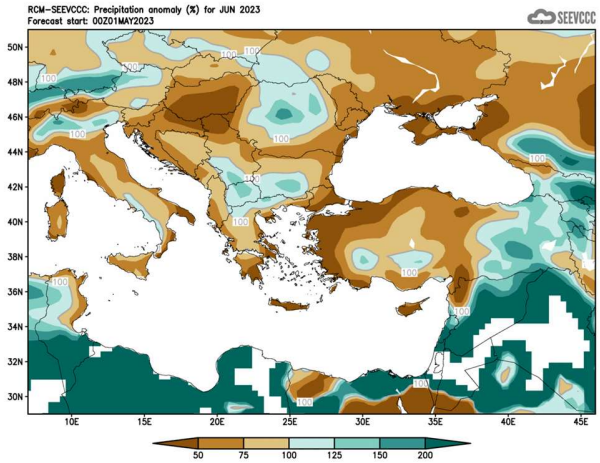
** East Coast Temperature Values cover the period 1981-2007

Evaluation of June's seasonal forecast for the area of Cyprus

The seasonal forecast suggested that **June's** temperature would generally be normal while the Balkans and Middle East would be warmer than normal. Regarding the accumulated precipitation, Cyprus was expected to be dry without the occurrence of dynamic barometric weather systems.



Divergence of the mean monthly temperature (°C) from normal during June



Percentage of the mean monthly precipitation (%) compared with the normal of June

Concerning the models' evaluation for **June**, a general judgment is that the model performed relatively well concerning the temperature. It must be mentioned that during summer months, precipitation is resulted mainly from thundery activity which has very localised characteristics and that judging is very difficult due to models limitations. Never the less, June recorded 6.4mm of accumulated precipitation resulting to 97% of the climatological precipitation (6.6mm), which ranks it as a normal month relative to its normal value. So, we notice that the model did not behave well enough with respect to the seasonal forecast of the mean monthly precipitation. However, it is worth mentioning the fact that a significant part of the area of Troodos mountain range, which due to the orography factor is an area that receives the most convective rainfall, recorded a significant negative deviation from the month's normal, which is something that the model in its general estimation suggested. Also, it is worth noting that June's main

causes of the precipitation events were not solely the thermal characteristics building up mainly around noon and early afternoon but the main causes for these events were due to dynamic factors.

The accumulated precipitation was a result of local rain showers and thunderstorms during the periods 1-2, 5-6, 8-9, 11-14,16-19 and on the 28 th-29th of June. No hail was reported during June.

TEMPERATURE AND PRECIPITATION PROVISIONAL DATA FOR JUNE 2023

St. No.	Station Name	Mean Daily Maximum Temperature (°C)	Normal Value (1981-2010)	Difference from Normal Value	Highest Daily Maximum Temperature (°C)	Lowest Daily Maximum Temperature (°C)	Mean Daily Minimum Temperature (°C)	Normal Value (1981-2010)	Difference from Normal Value	Lowest Daily Minimum Temperature (°C)	Highest Daily Minimum Temperature (°C)	Monthly Total Precipitation (mm)	Normal Value (1981-2010)	Difference from Normal Value
41	POLIS CHRYSOCHOUS	30,6	30,3	0,3	34,5	25,7	19,5	18,5	1,0	15,6	21,8	2,0	1,8	0,2
82*	PAFOS (AIRPORT)	28,5	27,6	0,9	34,1	25,6	20,1	18,0	2,1	17,2	22,1	1,2	1,3	-0,1
225	PRODROMOS (C.F.C.)	24,8	25,0	-0,2	29,8	19,5	14,0	15,0	-1,0	9,6	17,8	4,0	27,2	-23,2
666*	ATHALASSA (RADIOSONDE)	33,9	34,0	-0,1	38,7	29,8	18,7	19,1	-0,4	14,3	23,2	3,8	11,6	-7,8
731	LARNAKA (AIRPORT)	30,0	30,2	-0,2	34,0	25,6	20,3	19,4	0,9	16,5	24,1	0,8	2,0	-1,2
800**	ACHNA (DASAKI)	30,4	31,0	-0,6	37,5	26,8	19,2	18,9	0,3	14,5	23,7	1,2	1,8	-0,6

* Pafos' and Athalassa's Station Normal Values cover the period 1983-2010

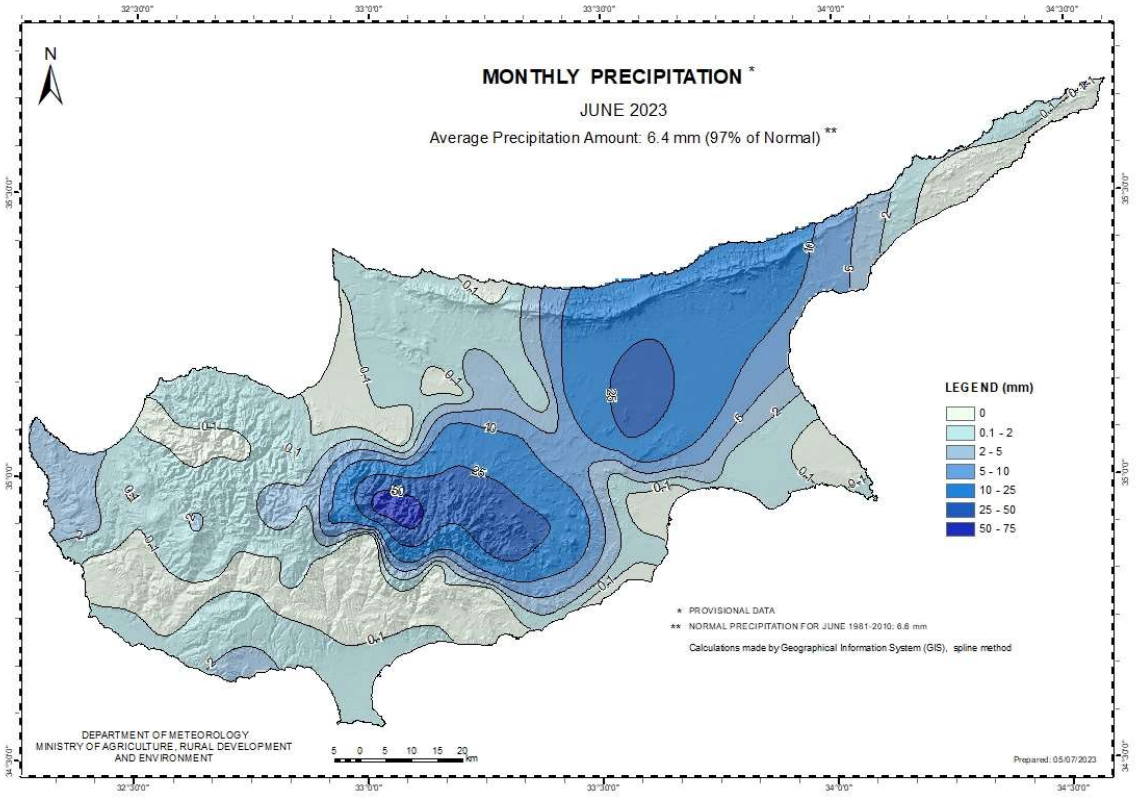
** Achna's Temperature Normal Values cover the period 1981-2007

= VALUES FROM AUTOMATIC WEATHER STATION

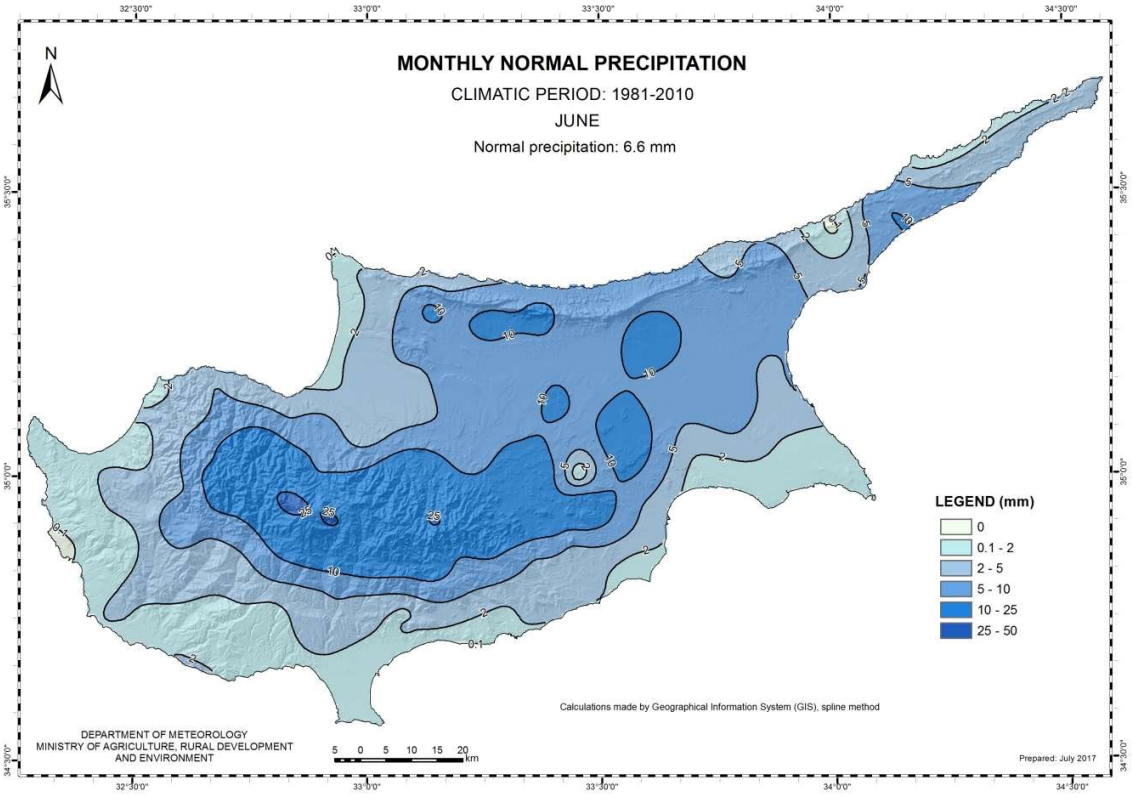
About the evaluation of the recorded temperatures, all of the maximum (table above) were around normal, as the model suggested. Extreme daily maximum temperatures were also recorded with great positive deviations, such as at the station of Paphos and Achna with extreme maximum temperatures of 34.1°C and 37.5°C, respectively, which in both cases were 6.5°C above the normal maximum temperature of each station, which is 27.6°C and 31.0°C, respectively. Extremely daily minimum temperatures were also recorded with great positive deviations, like the Achna station were the minimum temperature (23.7°C) was 4.8°C higher than the normal one (18.9°C). Also, at the station of Larnaca the minimum temperature (24.1°C) was 4.7°C above normal (19.4°C).

On the 13th of **June** an EMMA yellow warning was issued, concerning rain and thunderstorms.

For the purpose of better visualization of **June** accumulated precipitation, a chart of Cyprus with the total preliminary accumulated precipitation is presented.



A Cyprus chart with the normal (period 1981 to 2010) accumulated precipitation for the month of **June** is also presented.



(*) It is stated that due to the uncertainty of the seasonal model to correctly forecast the expected precipitation (sometimes) the seasonal forecast for precipitation is given with a reserve.