

## Climatological Report for summer 2022 in Tunisia

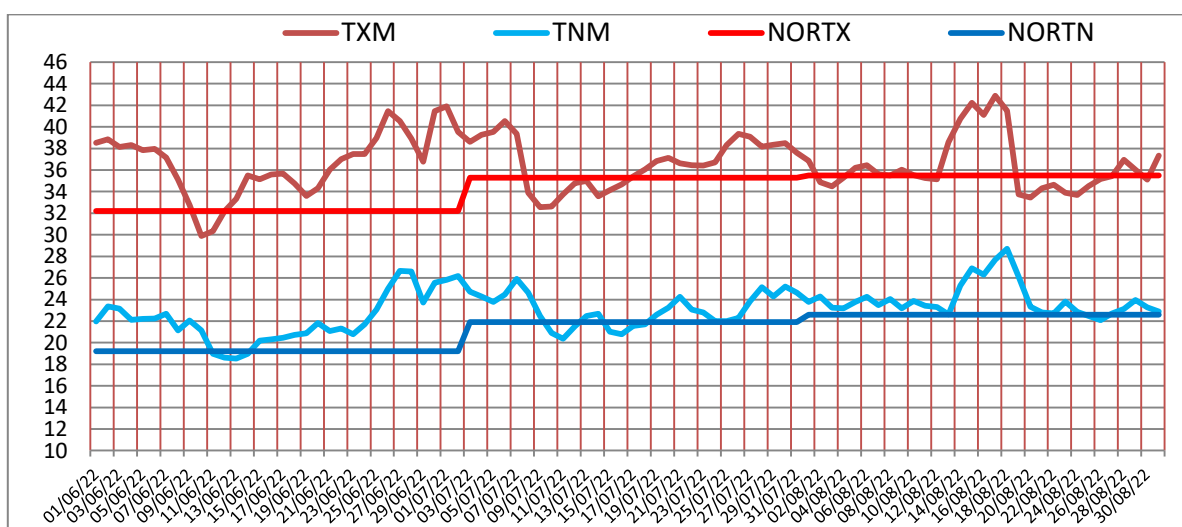
### the second hottest summer in Tunisia since 1950

The summer of 2022 (June - July - August) was marked by a remarkable and exceptional rise in temperature in most regions of the Tunisia, especially during the month of June, which ranked first in the hottest months of June. New records for maximum temperatures were recorded during this summer in many regions, which made this summer classified as the second hottest summer in Tunisia since 1950. The overall average temperature (27 main stations) was 27.8 °C, exceeding the reference average (1991-2020) by a difference of +2.0 °C. However, the summer of 2021 remains the hottest ever, with a difference of +2.2 °C.

With regard to precipitation, the seasonal total (27 main stations) amounted to 167.4 mm, which was less than the reference seasonal total (1991-2020) for the same stations (681.4 mm). 1993.

#### - Daily temperature evolution:

Continuing with the end of May, which was marked by a noticeable increase in temperature, the first decade of June witnessed significant positive differences between the average daily maximum temperatures and the reference rates, as the differences exceeded 6 degrees, then the temperatures decreased to the level of reference rates until the fifteenth day of June . The temperature also witnessed a noticeable increase in most regions, and the differences were significant and ranged between 6.7 and 9.7 degrees during the period from June 25 to July 7, 2022. Two peaks in temperatures were also recorded at the end of July and mid-August 2022.



**The daily evolution of the minimum and maximum temperatures during summer of 2022**

### List of absolute records recorded during the summer of 2022:

Maximum temperatures					Minimum temperatures				
Station	New record	Date	Old record	Date	Station	New record	Date	Old record	Date
Monastir	47.1	08/18/2022	47.0	06/03/2003	Monastir	30.1	06/25/2022	28.6	08/10/2021
Djerba	46.7	08/18/2022	46.3	08/06/2002	Djerba	28.3	08/18/2022	27.8	08/02/2015
Gafsa	46.5	07/02/2022	46.5	07/14/2018					

### - Record numbers per month during the summer of 2022:

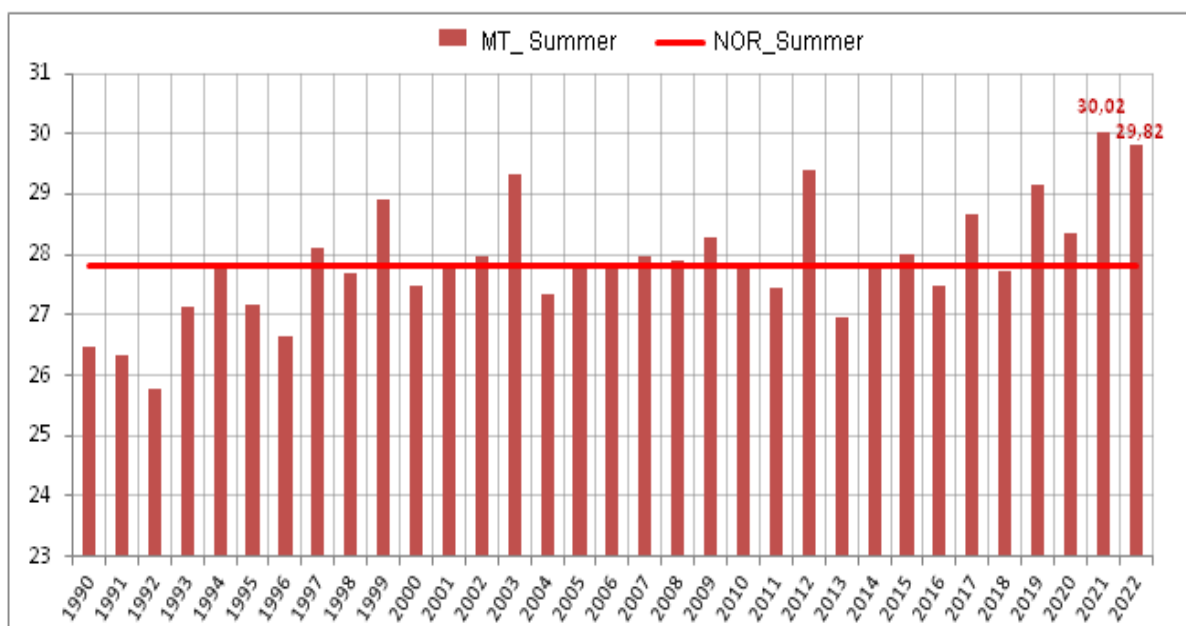
Maximum Temperature					
Mois	Station	New Record (°C)	Date	Old Record (°C)	Date
June	BEJA	47.8	06/27/2022	47.5	26/06/2022
	LE-KEF	44.3	06/27/2022	44.3	19/06/2007
	MEDENINE	47.8	06/27/2022	47.5	29/06/2021
	TOZEUR	48.7	06/28/2022	48.7	30/06/2021
	KEBILI	48.1	06/28/2022	48.1	30/06/2021
July	GAFSA	46.5	07/02/2022	46.5	14/07/2018
August	MONASTIR	47.1	08/18/2022	47	08/08/1999
	DJERBA	46.7		46.3	06/08/2002
	MEDENINE	48.3	08/18/2022	47.5	02/08/2005

Highest minimum temperature					
Month	Station	New Record (°C)	Date	Old Record (°C)	Date
June	BIZERTE	30.1	06/25/2022	26.6	06/16/1952
	KELIBIA	25.8	06/27/2022	25.6	06/28/2017
	ZAGHOUAN	26.4	06/27/2022	26.4	06/24/2020
	SILIANA	28.3	06/27/2022	27.8	06/19/2007
	BEJA	27.2	06/30/2022	26	06/28/1954
July	TATAOUINE	33.6	07/02/2022	33.5	07/02/2002
	KEBILI	31	07/07/2022	31	07/24/2017
	GABES	29	07/08/2022	29	07/26/2003
	SFAX	28.2	07/28/2022	27.5	07/29/2003
August	TOZEUR	35.5	08/10/2022	33.1	08/20/2001
	KELIBIA	28.8	08/18/2022	27.8	08/02/2015

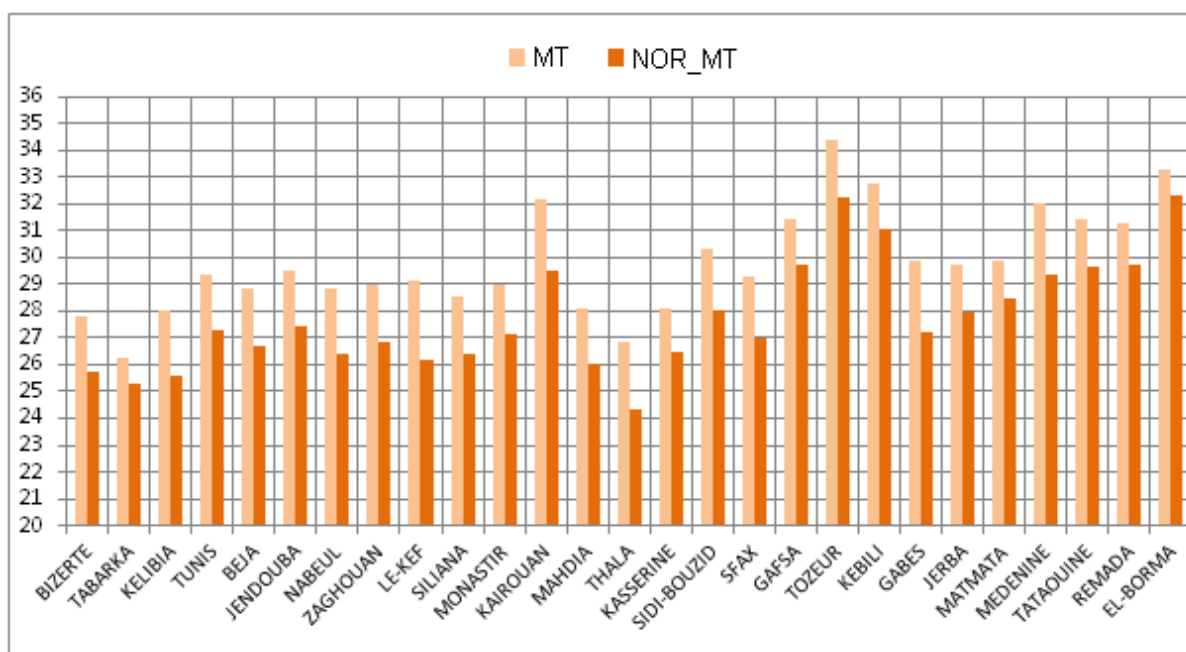
**- Mean Temperature (MT) :**

The mean temperatures of this summer varied between 26.3°C in Tabarka, and 33.2°C in El Borma and they were well above normal (NOR\_summer) in all regions.

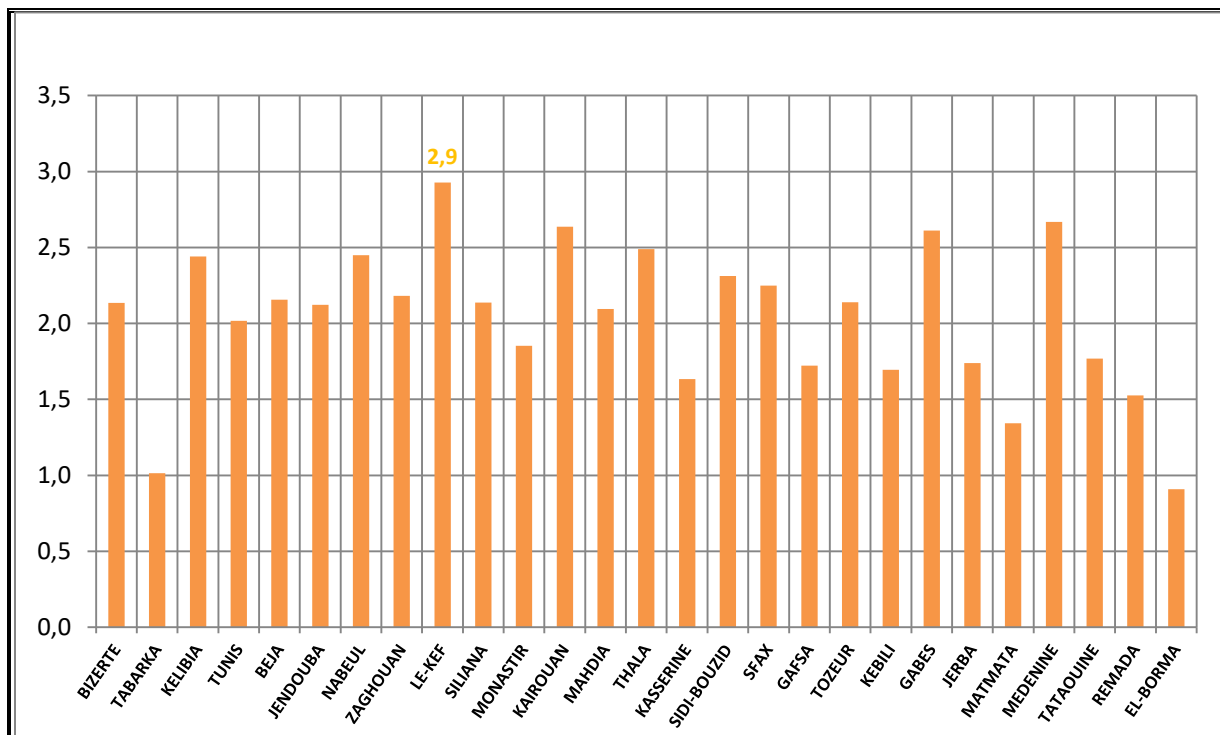
The general average (27 main stations) of the average temperature reached 29.8°C exceeding the summer normal (1991-2020) by + 2°C. As a result, this summer is ranked the **second hottest summer** after summer 2021 (30°C).



**Comparison of Mean Temperature (MT) to the NORMAL\_Summer Temperature (1991-2020) during the period (1990 - 2022)**

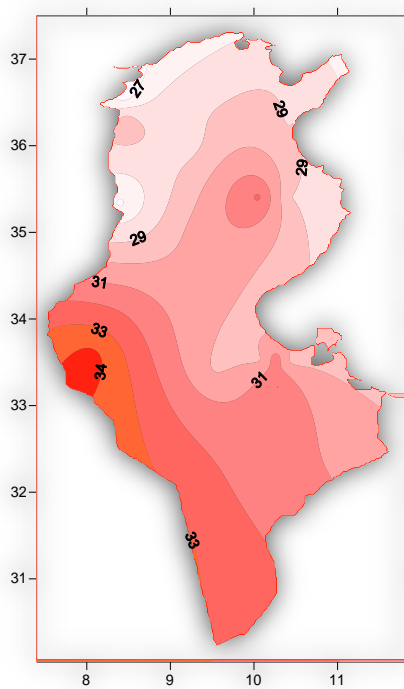


**Comparison of mean temperatures (MT by station ) to the normal (NOR MT) of the summer**

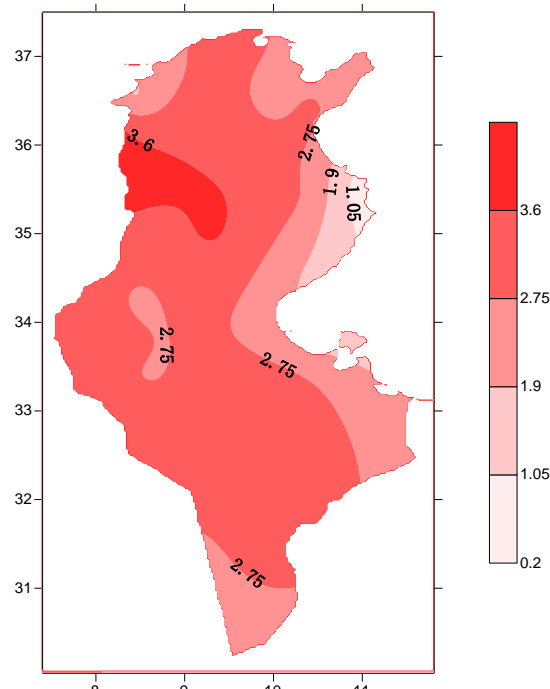


Deviation from the reference seasonal average (1991-2020) by station

**- Geographical distribution of the summer average temperature MT:**



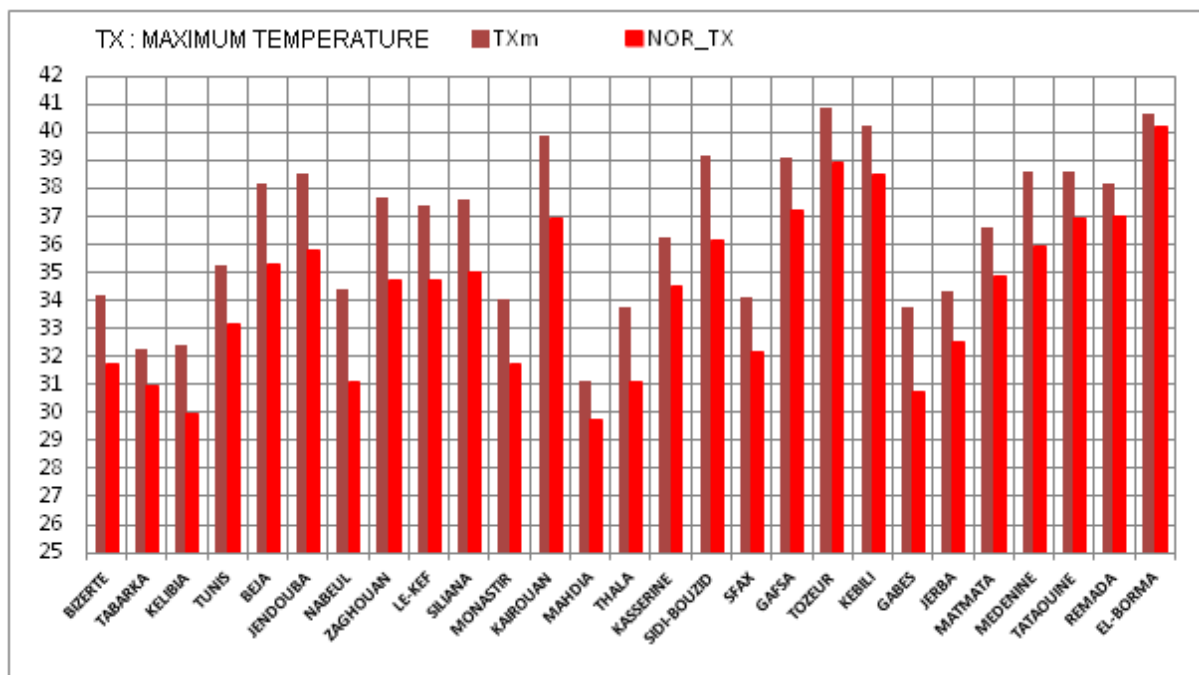
Mean temperature MT (°C)



Deviation from the seasonal normal of MT (°C)

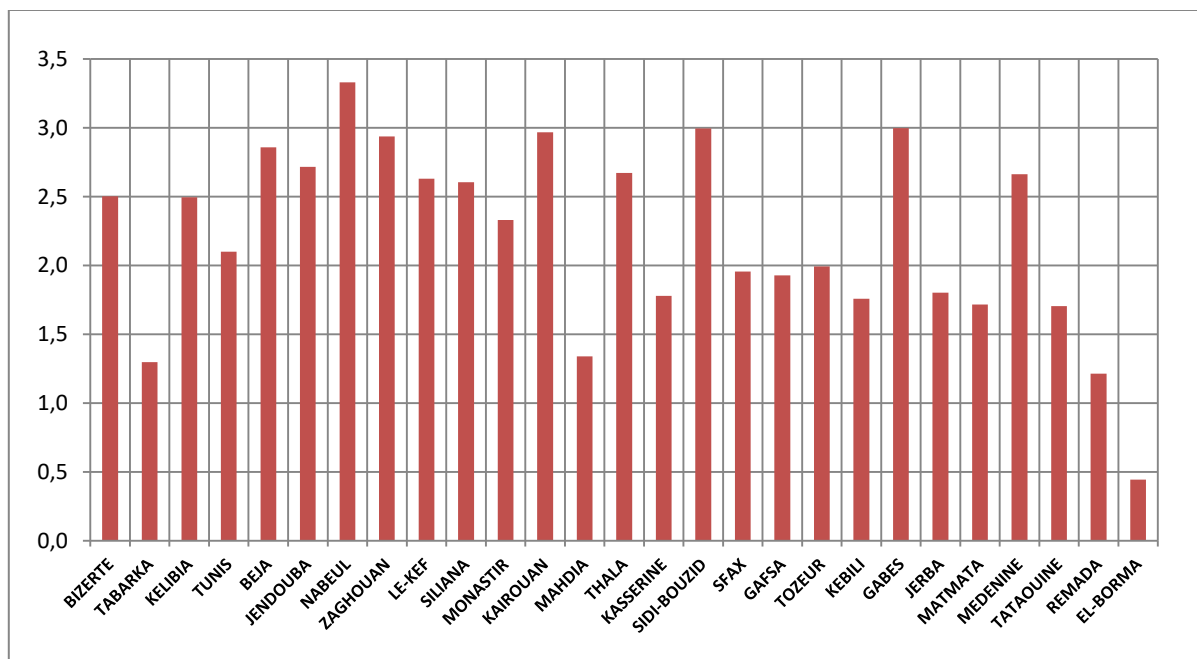
### - Maximum Temperature (TX):

The seasonal averages of the daily maximum temperature in the summer of 2022 were significantly higher than the reference seasonal norms in all regions and varied between 31.1°C in Mahdia and 40.9°C in Tozeur.



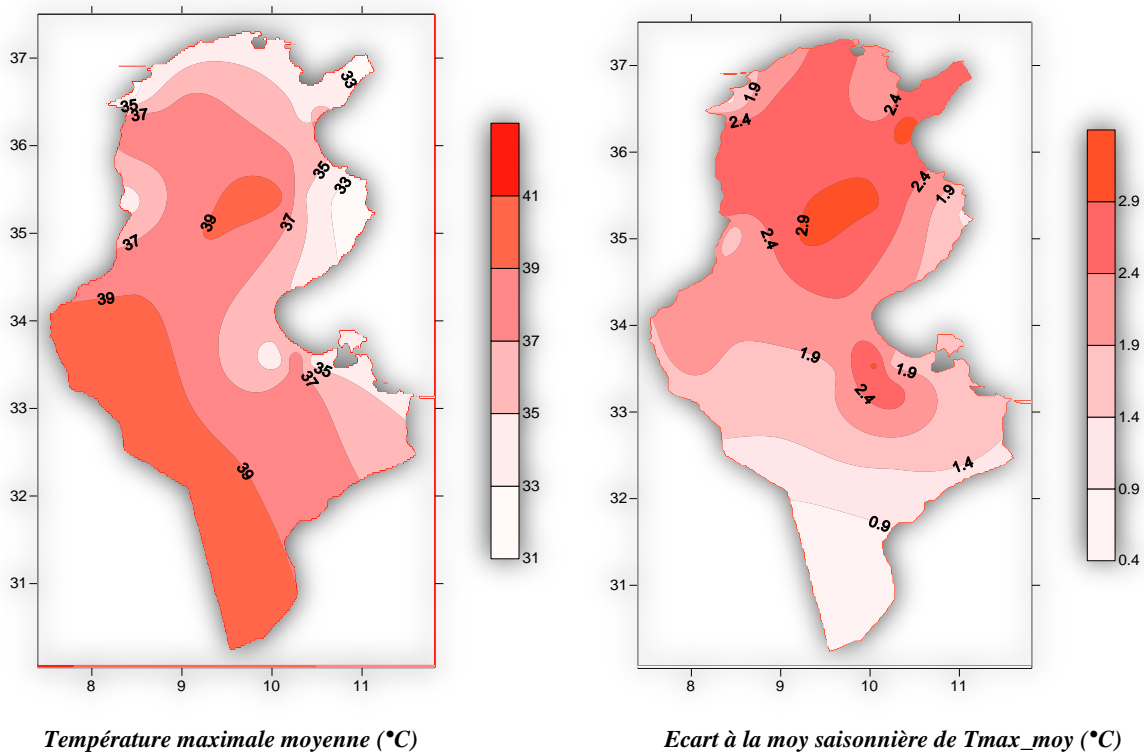
Comparison of summer maximum temperature averages to normals (1991-2020)

### - Deviations of the maximum temperature (TX) to the normal by station:



Deviation from the reference seasonal average (1991-2020)

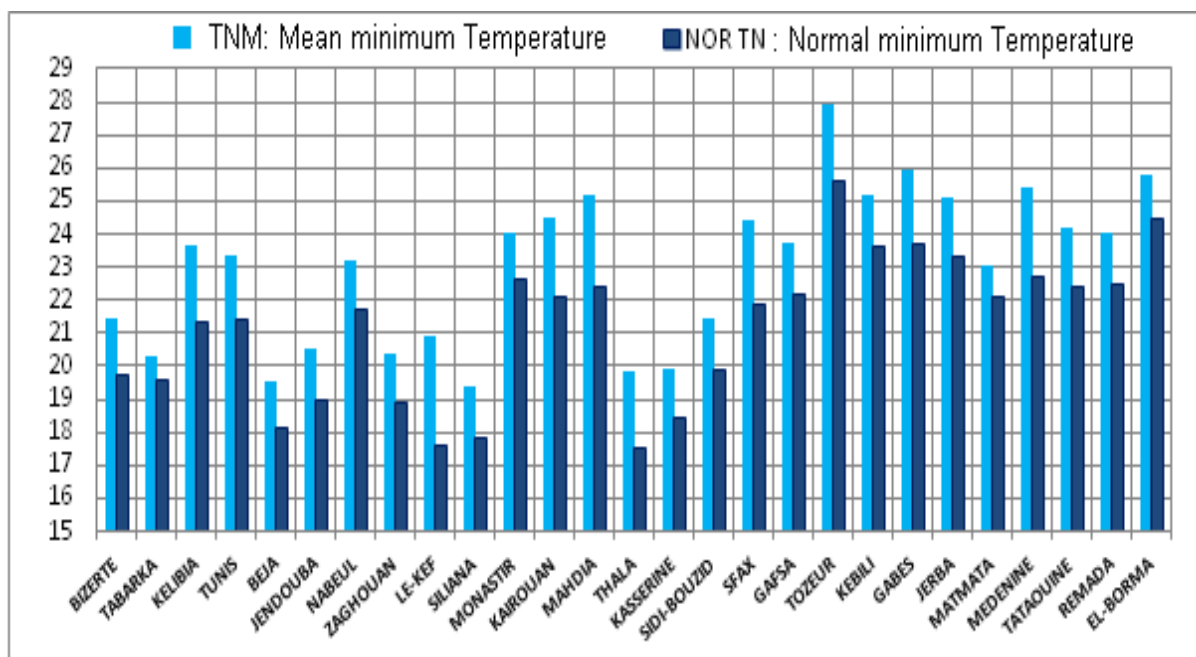
**- Geographical distribution of the summer average maximum temperature:**



**- Minimum temperature (TN) :**

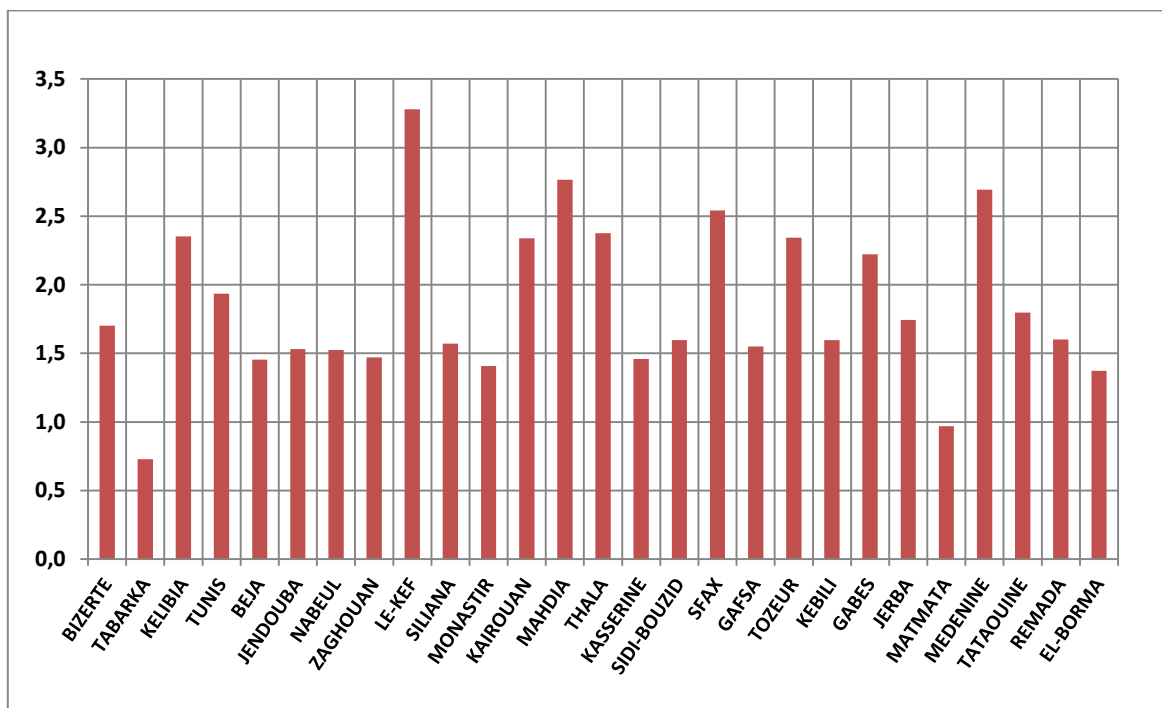
The minimum temperatures for the summer of 2022 also exceeded the reference seasonal averages in all stations and were between 19.4°C in Siliana and 27.9°C in Tozeur.

On average over all of Tunisia (27 main stations), the minimum temperature reached 23.1°C and was higher than the normal (1991-2020) with a difference of +1.8°C.



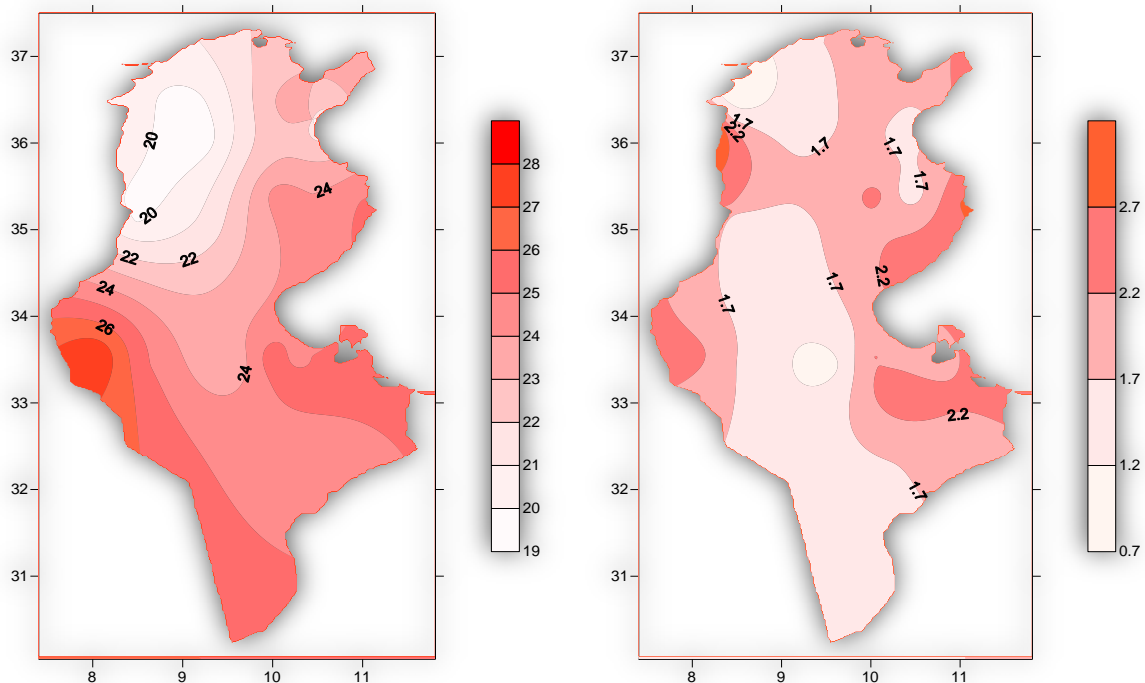
**Comparison of summer Mean minimum Temperature to normals (1991-2020) by station**

**- Deviations from the seasonal averages of the Minimum Temperature (TN) to the normals by station:**



*Deviation from the reference seasonal normal (1991-2020)*

**- Geographical distribution of the seasonal mean minimum temperature TN:**



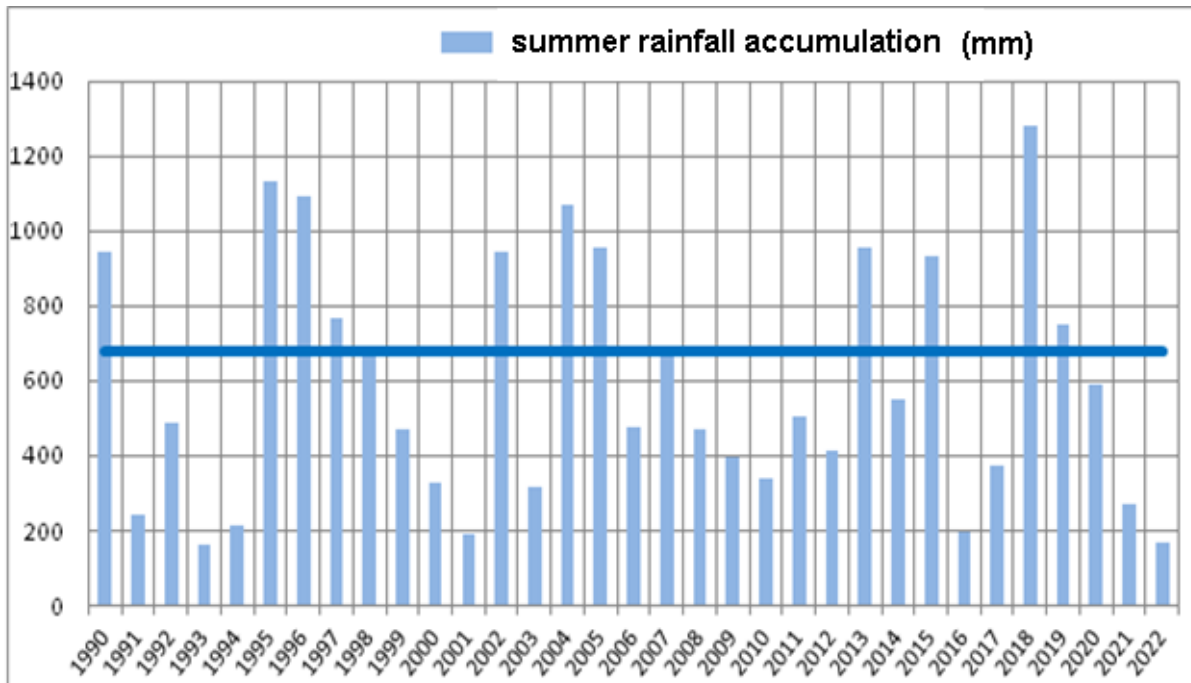
*Minimum Temperature (°C) summer 2022*

*Deviation from the seasonal average of TN(°C)*

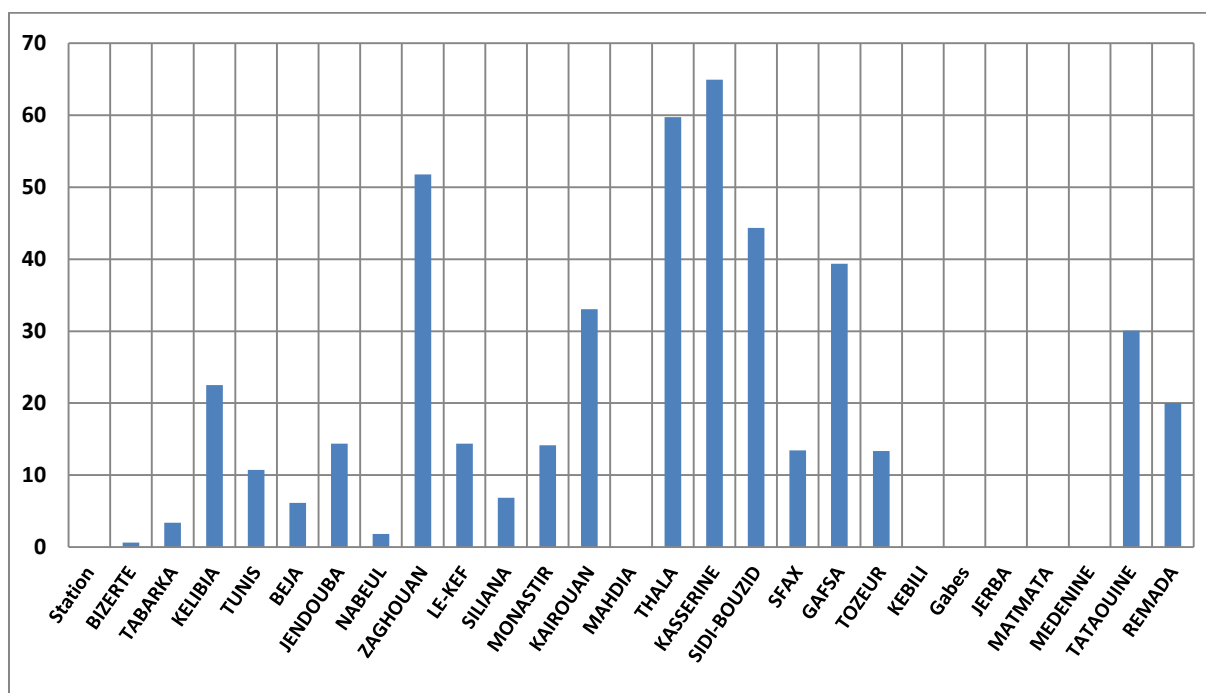


**- Rainfall:**

The seasonal rainfall accumulation of the 27 main stations reached 167.4 mm and was lower than the reference seasonal accumulation of the same stations (681.4 mm) with a deficit of 75 %.



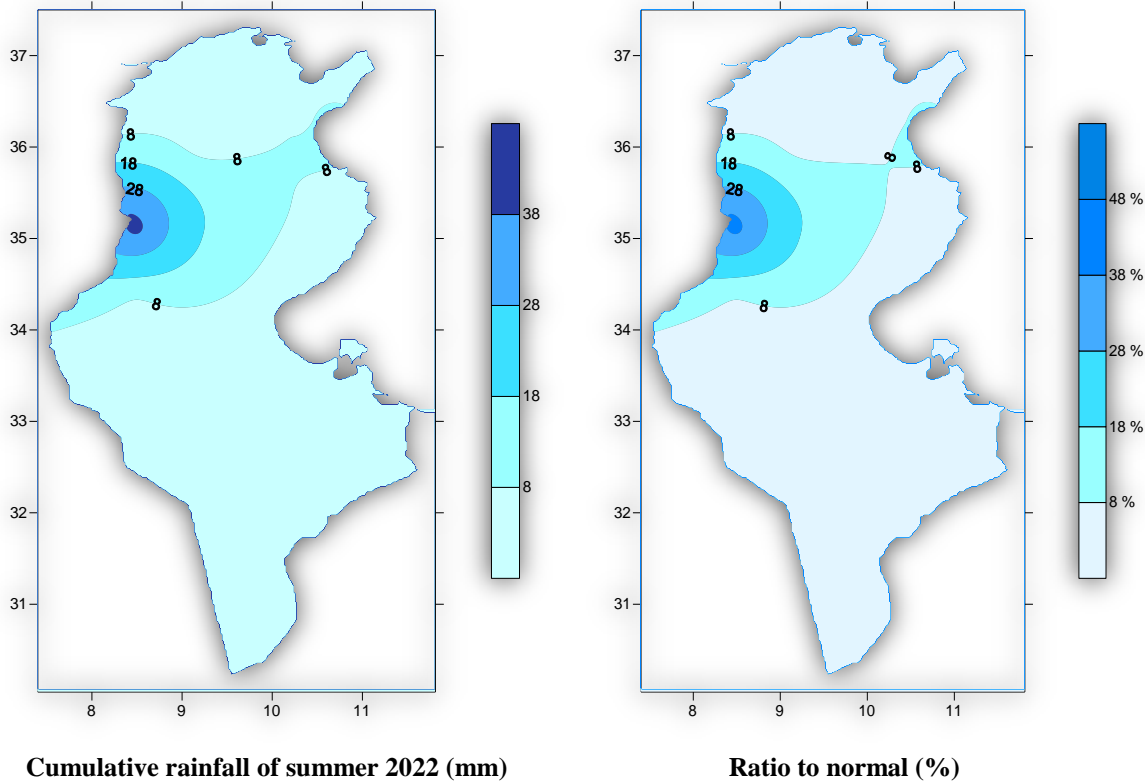
**- Percentages at seasonal norml of summer 2022 totals:**



*Rainfall accumulation ratio to normal (%)*



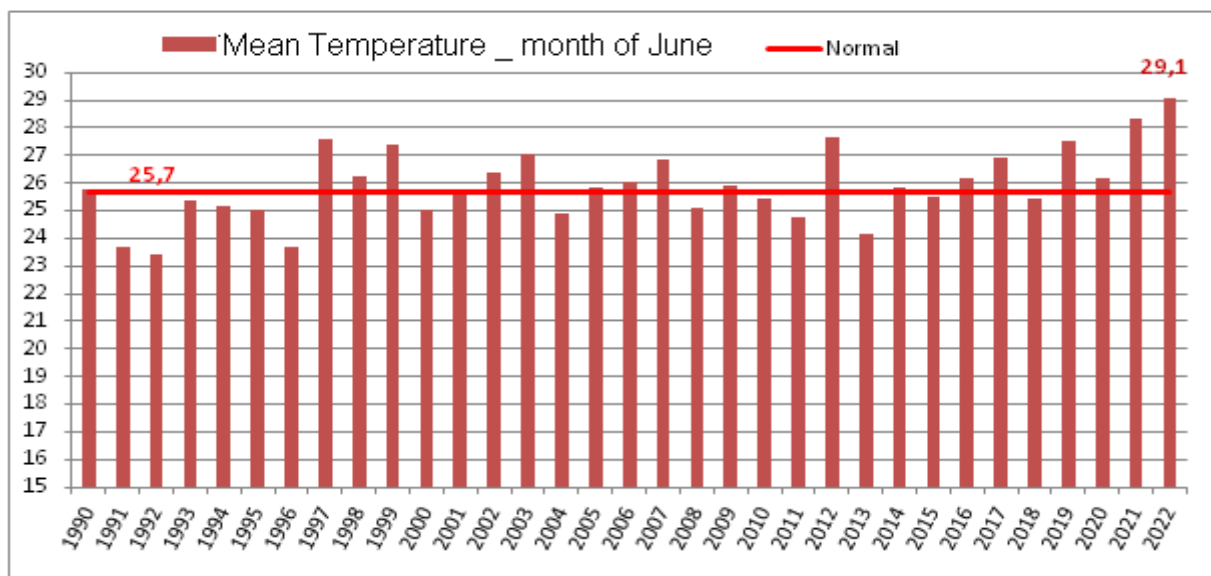
**- Geographical distribution of summer rains 2022:**



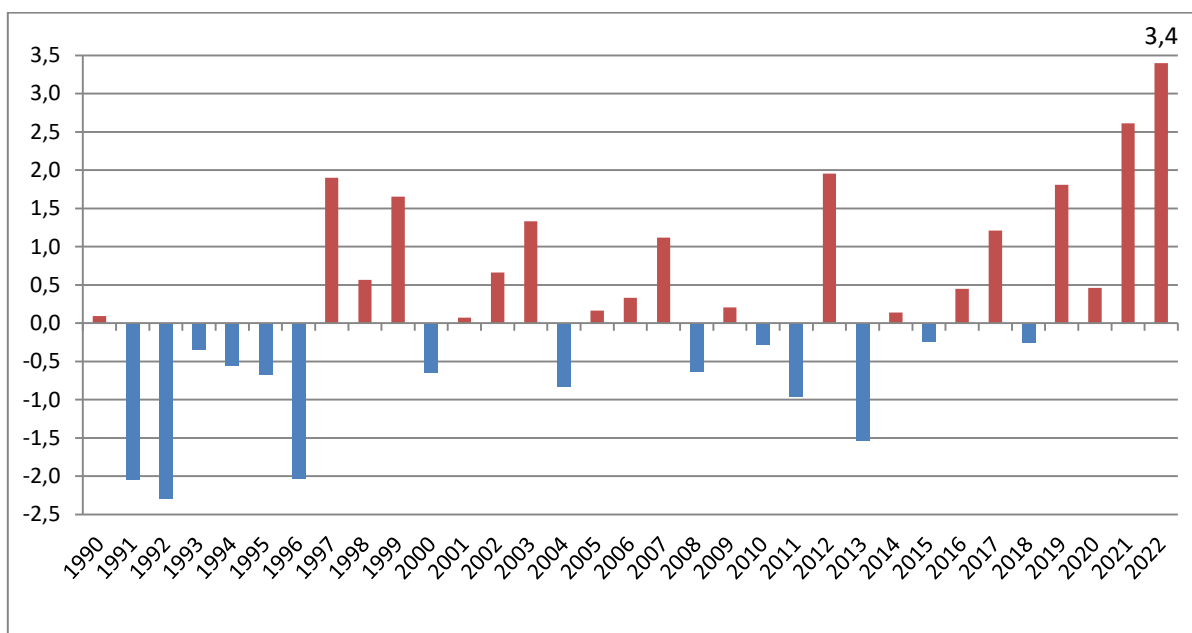
**\* Case of the month of June 2022:**

*An exceptionally hot month of June.*

The monthly average temperature of the 27 main stations representing all of Tunisia was 29.1°C and it exceeded the normal by +3.4°C, which ranked the month of June 2022 as the **1st hottest month of June.**

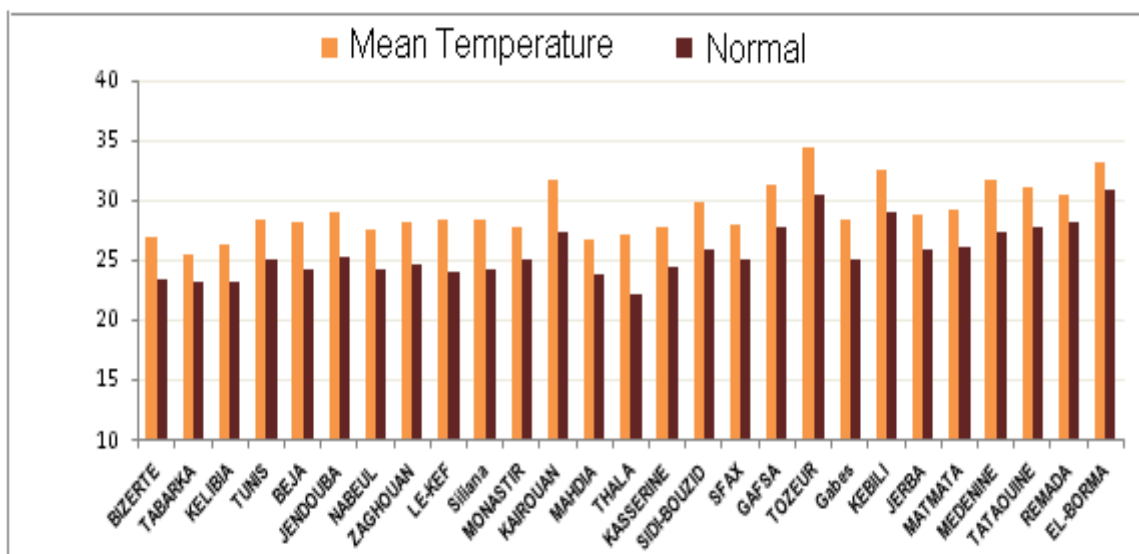


**Comparisons of mean temperatures of June to normal (1991-2020)**



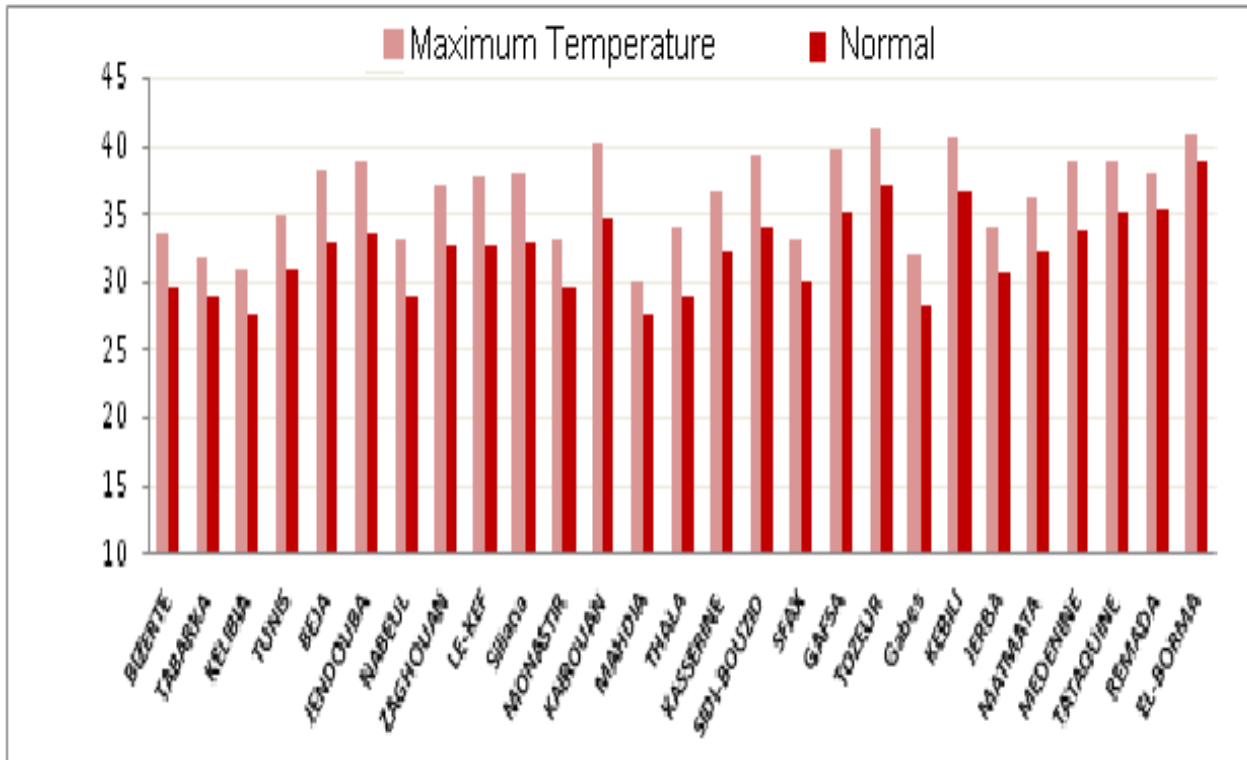
**Deviation from normal (1991-2020) in average temperatures for the month of June**

At the regional scale, mean temperature anomalies varied between +1.5°C in Tabarka and +4.6°C in Thala.

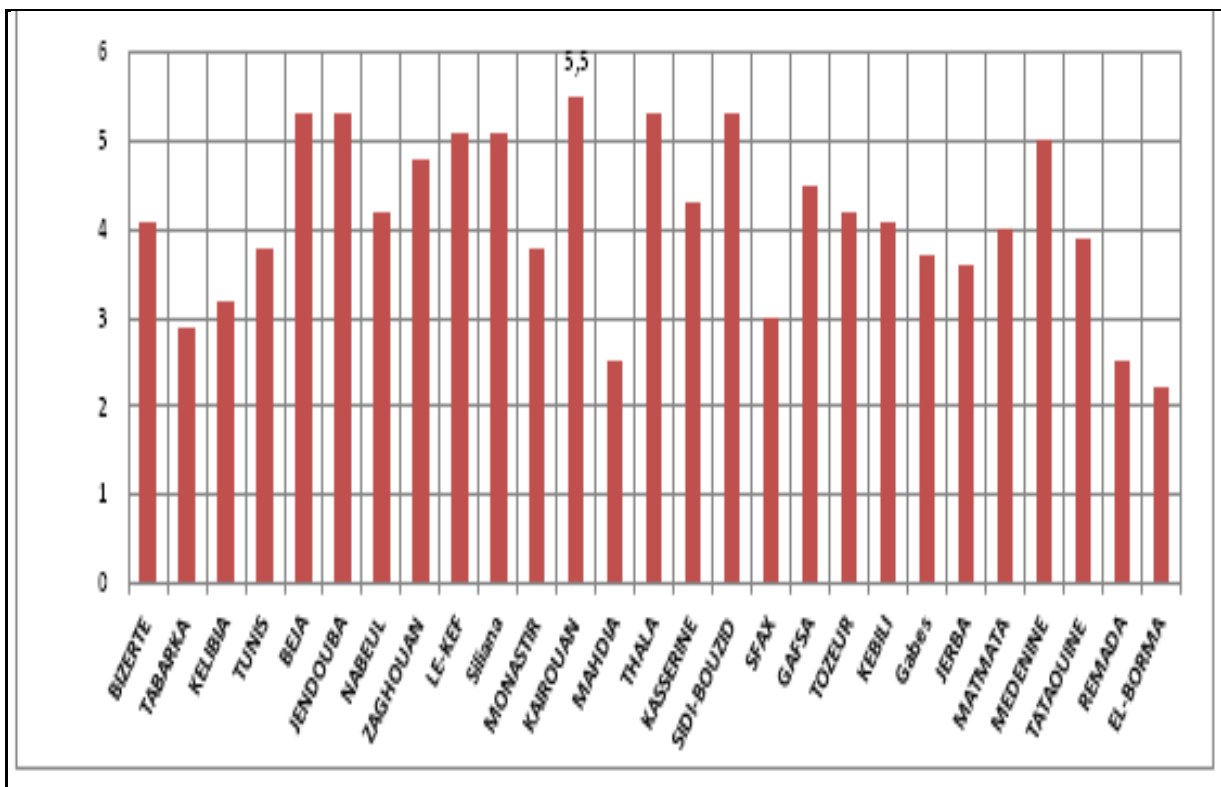


**Comparison of average and normal temperatures for the month of June**

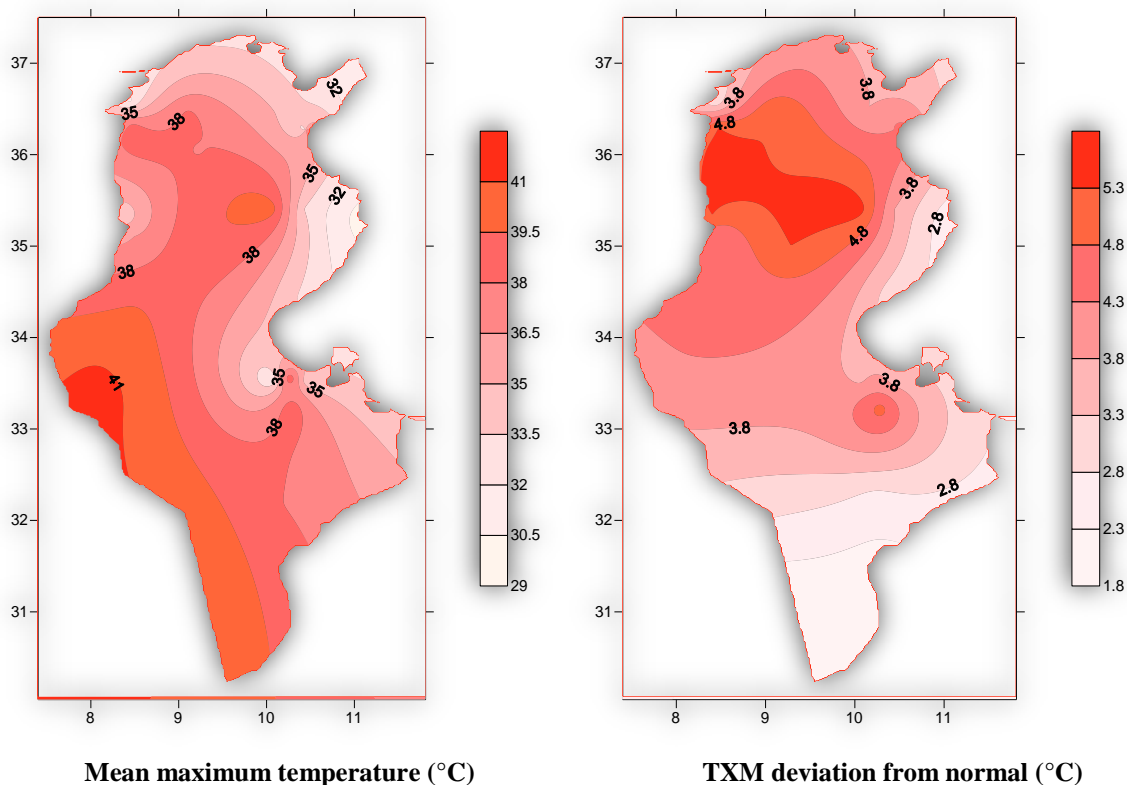
Monthly average maximum temperatures ranged from 30°C in Mahdia to 41.3°C in Tozeur and were above normal. The general average (27 main stations) reached 36.4°C and it was above the normal of 4.2°C which represents **an absolute record** of anomaly for the month of June.



Comparison of maximum Temperature and normals for the month of June



Deviation from normal (1991-2020) of the averages of the maximum temperature\_ June



### - Heat waves in June 2022:

Two heat waves have affected the country, the first from the beginning of the month and it was characterized by very high temperatures, which exceeded the normal for the month by more than 7°C and for at least three successive days on the most of our regions from north to south of the country. An anomaly of +14.2°C was recorded on the 4th of the month in Béja.

The second wave was recorded during the period from the 25th to the 28th of the month with two records recorded: one in Béja 47.8°C with an anomaly of +13.2°C and the other in Medenine 47.8°C with an anomaly of +12.5°C.

**- First wave:**

Date	06/01/2022		06/02/2022		06/03/2022		06/04/2022		06/05/2022		06/06/2022		06/07/2022	
Station	TX	Gap	TX	Gap	TX	Gap	TX	Gap	TX	Gap	TX	Gap	TX	Gap
Tunis	36.1	7.2	37.6	8.7	38.5	9.6	41.2	12.3	*	*	*	*	*	*
Beja	42.1	11.3	41.8	11	43.5	12.7	45	14.2	39.2	8.4	37.9	7.1	*	*
Zaghouan	42	11.7	39.2	8.9	40.6	10.3	41.7	11.4	39.2	8.9	38.6	8.3	*	*
El Kef	34.8	8.2	40.4	10.5	40.6	10.7	41.7	11.8	41.5	11.6	39.3	9.4	*	*
Siliana	42.1	11.6	40.2	9.7	39.6	9.1	40.7	10.2	42.3	11.8	40.3	9.8	*	*
Kairouan	44.5	12.1	42.6	10.2	42	9.6	42.7	10.3	44.1	11.7	40.7	8.3	*	*
Kasserine	38.6	8.3	37.9	7.6	37.5	7.2	38	7.7	39.1	8.8	39.8	9.5	39.1	8.8
Gafsa	42.2	9	41.4	8.2	40.4	7.2	40.5	7.3	41.4	8.2	42.2	9	42.6	9.4
Sidi Bouzid	42.6	11	41.4	9.8	39.4	7.8	39.6	8	41.9	10.3	42.5	10.9	42.9	11.3
Tozeur	43.6	8.3	43.6	8.3	42.3	7	*	*	*	*	*	*	*	*
Kebili	*	*	*	*	*	*	42.6	7.4	42.5	7.3	43.5	8.3	44.3	9.1
Medenine	42.4	10.3	41	8.9	40.3	8.2	39.5	7.4	40.6	8.5	42.3	10.2	44.3	12.2
Tataouine	42.2	8.6	41.5	7.9	41.2	7.6	*	*	*	*	*	*	*	*

- TX :maximum Temperature

- Gap : Difference =TX - Nor\_TX

**- Second wave:**

Date	06/25/2022		06/26/2022		06/27/2022		06/28/2022	
Station	TX	Gap	TX	Gap	TX	Gap	TX	Gap
Beja	41.9	7.3	47.5	12.9	47.8	13.2	*	*
El Kef	41.8	7.3	43.8	9.3	44.3	9.8	*	*
Kairouan	*	*	46.2	9.7	47.4	10.9	47.4	10.9
Gafsa	*	*	44.2	7.3	45.8	8.9	45.9	9
Sidi Bouzid	*	*	44.1	8.5	44.6	9	43.8	8.2
Tozeur	*	*	45.8	7.4	47.1	8.7	48.7	10.3
Kebili	*	*	46	7.6	47.5	9.1	48.1	9.7
Matmata	*	*	40.6	7.6	42.6	9.6	40.9	7.9
Medenine	44.9	9.6	46.2	10.9	47.8	12.5	47.7	12.4
Tataouine	*	*	45.3	8.7	46.6	10	46.1	9.5

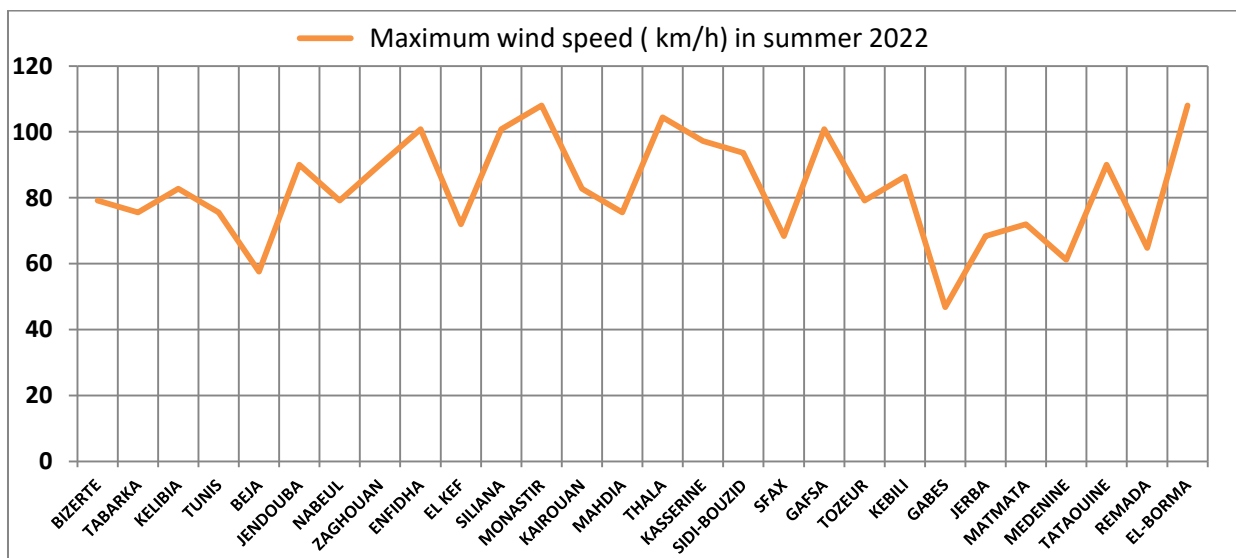
- TX :maximum Temperature

- Gap : Difference =TX - Nor\_TX

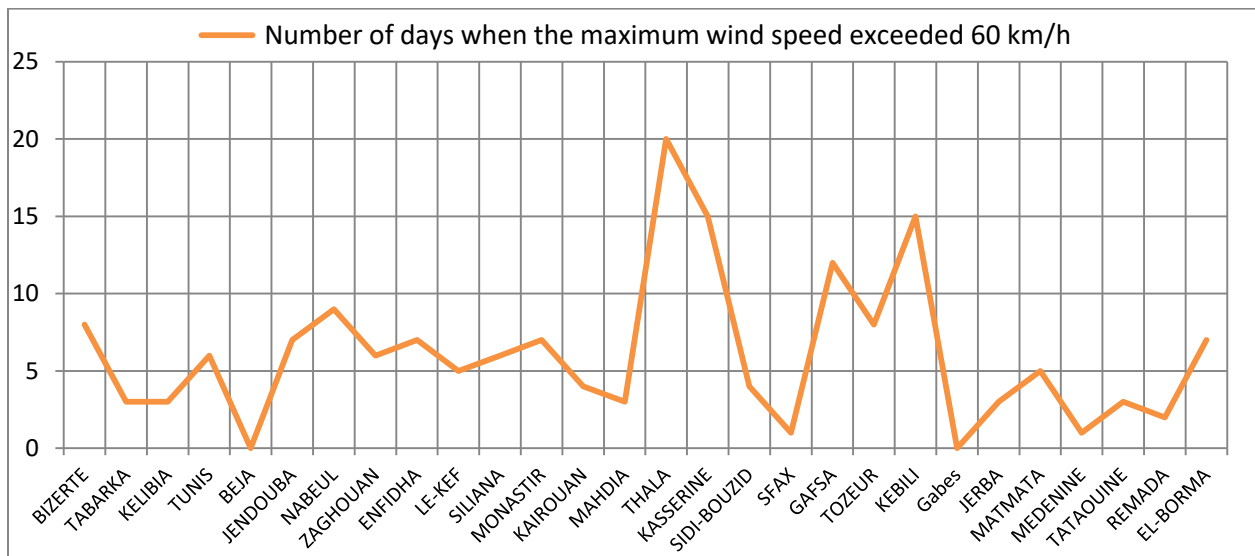
**- The winds :**

During the summer of 2022, the winds were generally light to moderate, except for some days when the wind speed was high and the maximums were between 60 and 90 km/h and sometimes exceeded 100 km/h. Indeed, during the month of June 2022, the maximum wind speed reached 101 km/h in Siliana on June 29, while in July it reached a maximum speed of 94 km/h in Thala on 02 June. month. During the month of August, the maximum wind speed reached 108 km/h at El Borma on August 02 and also at Monastir on August 15, 2022.

**- The greatest speed reached by the wind during the summer per station:**



**- Number of days when the maximum wind speed exceeded 60 km/h:**



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