

August 1, 2023

## Monthly Weather Summary – July 2023

### General

July was considerably warmer than average and is ranked second compared to the past (after July 2017) in the nationwide series of temperature measurements since 1950. In some areas this was the warmest July with regard to maximum daily temperatures whereas for minimum daily temperatures it is not ranked high, since nights in the coastal plain and the valleys were not especially warm and in some of the stations it was even close to average.

It should be noted that the first part of July was, in fact, close to average, but starting from July 12<sup>th</sup> an unusual long heatwave prevailed and it only ended near the end of the month.

### July averages and comparison to the past

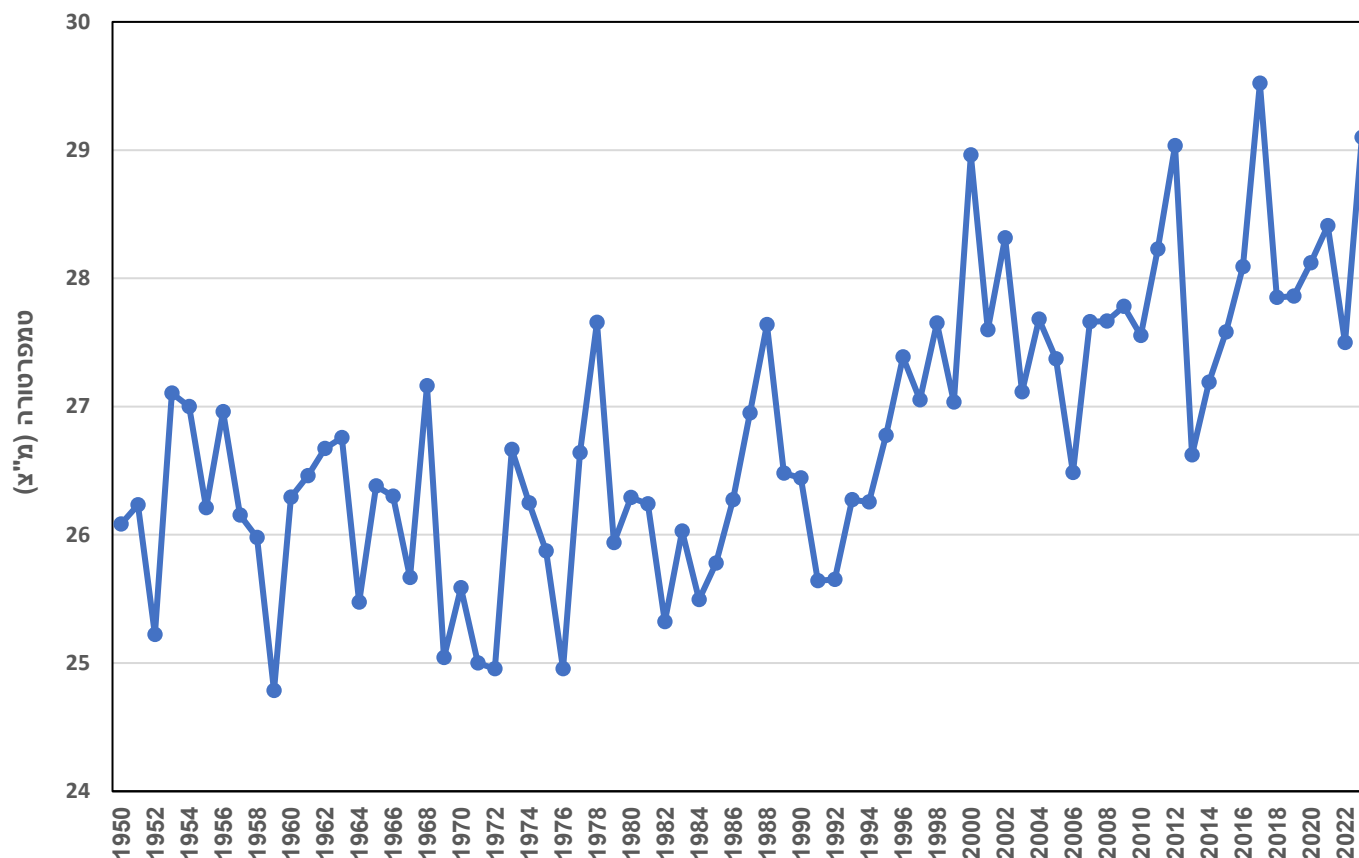
During the day, July was warmer than average (1991 to 2020) by 2 to 2.5 °C in most parts of the country. At night, there were differences between various parts of the country. In the upper Galilee and the Judean mountains temperatures were higher than average by 2 to 2.5 °C, by 1 to 1.5 in the Negev and the Arava and by 0.5 to 1 °C in the coastal plain. In the foothills of the Judean mountains and in the lower Galilee, nighttime temperatures were near average or slightly higher, they were close to average in the northern valleys and slightly lower than average in the Golan Heights.

In the nationwide series of temperature measurements since 1950, July 2023 is ranked second with regard to daily temperatures (the combined daytime and nighttime temperature). As shown in figure 1, July 2017 was warmer and the months of July in the years 2012 and 2000 were slightly less warm, on average, to the current July. It should be noted that all of the 15 warmest months of July were recorded since the year 2000, which clearly expresses the obvious warming trend of the past two-three decades.

In comparison to all past summer months, the months of August in the years 2010, 2015, 2021 as well as September 2020 were warmer than July 2023.

A comparison of past months of July at older stations (table 1), reveals that in some areas, primarily in the coastal plain, the lowlands and the northern valleys, July 2023 had the warmest maximum temperatures (figure 2). However, July of this year is not ranked especially high for minimum temperatures in these areas (sometimes it is even ranked 10<sup>th</sup>-15<sup>th</sup> or lower). This is due to minimum temperatures not being so high in these areas in a large part of the days of the month and their being, in fact, near average. In the mountains and the Arava July of this year is ranked second to fourth for both maximum and minimum temperatures.

Figure 1: Daily temperature in Israel\* in July 1950 to 2023

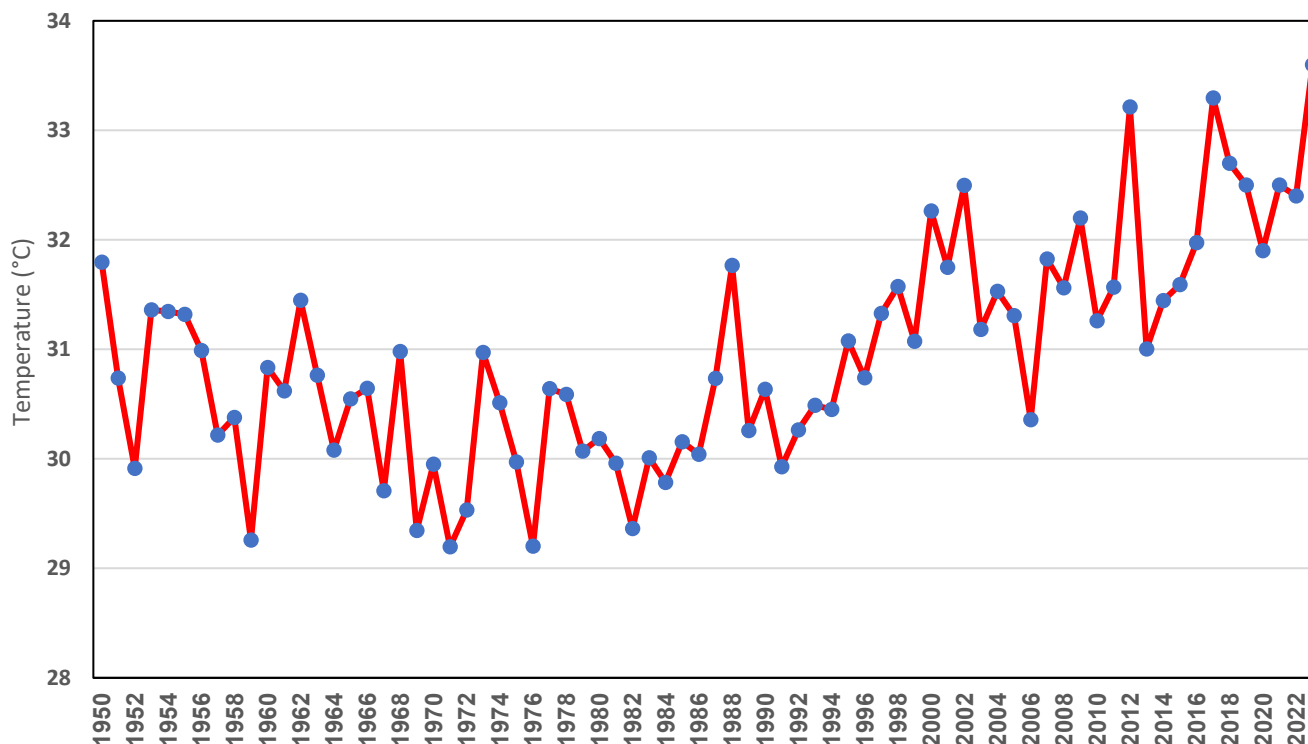


\* In order to represent all of Israel, five characteristic stations were selected which have data since 1950. The trend of the averages in these stations is similar to the trend of the averages in a larger, more varied sample of stations.

Table 1: July 2023 Compared to the Past

	Ranking of July 2023 from beginning of measurements in the station			Beginning of measurements in the station or area
	Maximum temperature	Minimum temperature	Daily temperature	
En HaHoresh	2	13	4	1949
Bet Dagan	1	12	3	1962
Ben Gurion Airport (Lod)	1	4	3	1950
Negba	1	8	3	1950
Beit Jimal	2	2	2	1920
Jerusalem	5	3	4	1861
Zefat Har Kena'an	3	3	3	1939
Neve Ya'ar	1	9	3	1951
Kefar Blum	1	15	3	1948
Zemah (Deganya)	1	21	7	1945
Tavor	1	13	2	1939
Be'er Sheva	2-1	6	3	1921
Sede Boker	2-1	6	3	1952
Sedom	3	4	4	1959
ilat	2	3	3	1949

Figure 2: Average Daily Maximum Temperature in Negba in July 2050 to 2023



### Temperatures and weather during the month

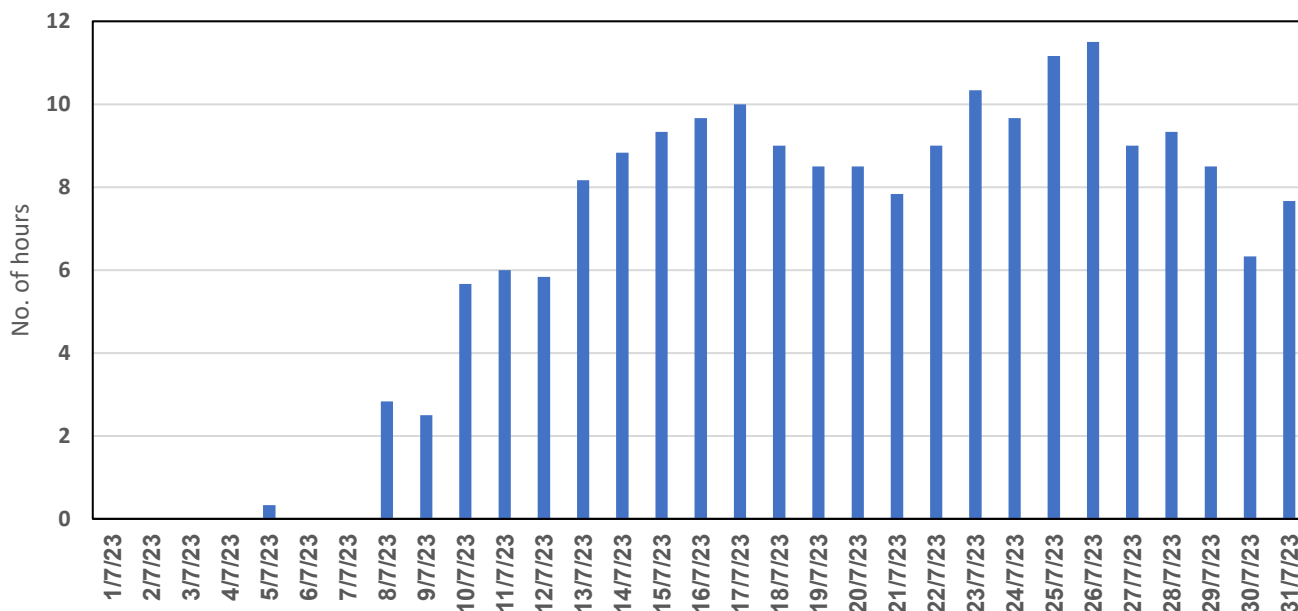
July was warmer than average (table 2), but its first part was, in fact, relatively comfortable. Until the 11<sup>th</sup> of the month, temperatures were near average and they were even lower than average in some of the days, especially inland. On July 12<sup>th</sup>, there was a noticeable warming and a heatwave began to prevail which lasted until the end of the month. During this period, there were several periods of warming and cooling, but the daily maximum temperatures were higher than average on all days (until the 29<sup>th</sup> of the month) by approximately 3 to 7 °C in the mountains and inland and by 2 to 5 °C in the coastal plain, the lowlands and the valleys. On several days, temperatures reached 43 to 46 °C in the Jordan Valley and the Arava, 35 to 37 °C in the coastal plain and the lowland, 38 to 40 °C in the northern Negev and 34 to 36 °C in the mountains. In the coastal strip, temperatures reached 31 to 32 °C with relative humidity reaching 70% to 75% at noon. In the coastal plain, the lowland, the Negev and the valleys, heavy to extreme heat stress prevailed for several hours on each day of the heatwave (figure 3 and 4) and the heat stress was usually moderate in the mountains.

In contrast, nights were relatively pleasant in the coastal plain and valleys and were, in fact, generally close to average or slightly warmer. High minimum temperatures of 24 to 26 °C in the coastal plain occurred only on a few nights, while on most nights, minimum values of 22 to 24 °C were measured, so on most nights there was only a mild heat stress or no heat stress (a state which is non-characteristic for summer heatwaves). In the mountains, nights were drier and warmer than average by 3 to 5 °C.

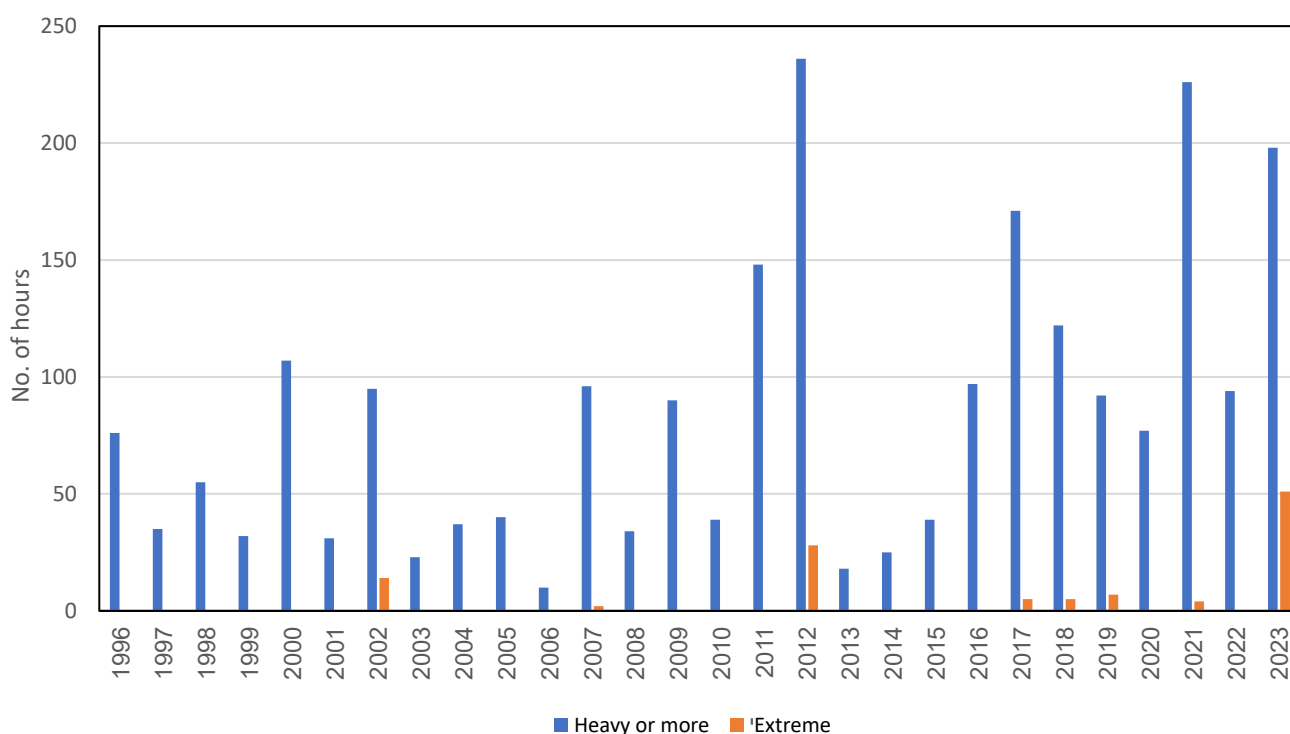
The heatwave was not exceptional in its daily peaks, but it was unusual in its length – such a long warm sequence was measured just a few times in the past. There were three warm sequences in the past 13 years, but prior to that such sequences were much rarer.

Temperatures decreased on the 30<sup>th</sup> of the month and they were near average in the mountains and inland, but on the 31<sup>st</sup> there was another warming, albeit to more moderate values compared to the heatwave.

**Figure 3\*: No. of hours per day with heavy or higher heat stress in Bet Dagan in July 2023**



**Figure 4\*: No. of monthly hours of heavy and extreme heat stress in Bet Dagan in July of the years 1996 to 2023**



\* Figure 3 presents the number with daily heavy or higher heat stress in Bet Dagan in July 2023. The steep increase starting on the 12<sup>th</sup> of the month can be seen.

Figure 4 presents the number of monthly heavy or higher heat stress hours in Bet Dagan in July from 1996 to 2023. It can be seen that a general increase in the number of hours has occurred and that in the months of July 2012 and 2021 there were more hours of heavy or higher heat stress than in July of this year, but there were more hours of extreme heat stress in the current July.

Table 2: July 2023 Temperatures\* (°C) compared to average

	Station	July 2023		Difference from 1991-2020 average	
		Maximum	Minimum	Maximum	Minimum
Coastal plain and lowland	Haifa (Technion)	30.6	23.5	+1.9	+0.7
	En HaHoresh	32.5	20.7	+1.6	+0.3
	Bet Dagan	33.8	22.8	+2.4	+0.5
	Negba	33.6	22.0	+2.1	+0.8
Northern mountains	Elon	32.7	21.5	+2.0	+0.5
	Merom Golan Picman	31.4	17.1	+1.8	+0.3
	Avne Eitan	35.3	18.7	+2.2	-1.1
	Zefat Har Kena'an	32.2	21.9	+2.2	+2.3
	Deir Hanna	33.6	23.7	+2.3	+1.3
	Tavor	36.7	22.5	+2.6	+0.5
Northern valleys	Afula, Nir HaEmek	36.5	21.7	+2.3	+0.5
	Kefar Blum	38.1	20.4	+2.2	+0.1
	Eden Farm	39.9	23.4	+2.0	0.0
	Zemah	39.8	23.9	+2.0	+0.3
Samaria and Judea	Qarne Shomron	33.4	21.1	+2.6	+0.5
	Jerusalem	32.5	22.0	+2.5	+2.0
	Beit Jamal	34.6	22.3	+1.5	+1.1
	Rosh Zurim	30.9	20.4	+2.7	+2.4
The Negev	Besor	33.9	21.6	+2.0	+0.7
	Arad	36.4	20.4	+2.9	+1.4
	Be'er Sheva	36.6	22.2	+2.1	+1.0
	Sede Boker	35.3	20.1	+1.9	+1.0
The Arava	Sedom	42.1	31.6	+1.2	+1.1
	Hazeva	42.1	27.3	+1.7	+1.1
	Yotvata	41.8	25.7	+2.5	+1.2
	Elat	42.1	28.3	+1.4	+1.0

**Table 3: Extreme Temperatures in July 2023 (°C) Compared to Past**

	July 2023				Extreme temperatures since measurements began				Years of station activity
	Extreme Maximum		Extreme Minimum		Extreme Maximum		Extreme Minimum		
	Temp	Date	Temp	Date	Temp	Date	Temp	Date	
Bet Dagan	36.8	27/7/23	19.7	4/7/23	41.5	17/07/2019	14.1	20/07/1965	2023-1962
Negba	37.8	17/7/23	18.4	4/7/23	41.7	17/07/2019	15.0	20/07/1965 13/07/1984	2023-1950
Zefat Har Kena'an	35.4	15/7/23 16/7/23	16.3	6/7/23	39.0	23/07/1956 30/07/2000	12.2	02/07/1952	2023-1867
Jerusalem*	36.8	13/7/23	17.0	1/7/23	41.1	12/7/1888 13/7/1888	11.8	01/07/1934	2023-1935
Be'er Sheva**	40.1	17/7/23 27/7/23	19.2	22/7/23	42.4	17/07/2019	12.0	08/07/1923 14/07/1933	2023-1922
Elat	45.6	28/7/23	25.3	4/7/23	48.3	31/07/2002	20.0	03/07/1973 12/07/1984	2023-1949

\* Jerusalem: Center 1950-2023, Talbiya 1948-1949, Palace Hotel 1935-1947, American Colony 1927-1935, Mount of Olives 1918-1926, German Colony 1895-1915, English Hospital on Hanevi'im Street 1989-1913, English Hospital in the Old City 1867-1915.

\*\* Be'er Sheva University 2023, Be'er Sheva the Negev Institute 1957-2023, Be'er Sheva 1957-2022.

**Figure 5: Minimum and maximum daily temperatures in Jerusalem in July 2023 compared to the multi-year average**



Figure 6: Minimum and maximum daily temperatures in Beit Dagan in July 2023 compared to the multi-year average

