The State of Israel
Ministry of Transport
The Israel Meteorological Service

2 April 2023

Monthly weather summary – March 2023

March on the whole was warmer and rainier than the average, but rainfall amounts were unevenly distributed. In the interior parts of the country, especially in its southern part, March was considerably rainier than average, while in the western parts it was around the average.

It should be noted that this is the fourth March in the last five years that is rainier than average. However before that there was a sequence of four years in which March was warm and dry.

March was warmer than the average, and this was especially noticeable in the first part of the month with a few days of Sharav and almost no rainfall. The second part of the month was cooler, and included most of the month's rainfall amounts.

The deficit that existed at the beginning of the month with regard to the amount of accumulated rain since the beginning of the season has decreased due to the rainy month, but it still exists, and the cumulative amounts have reached about 75% of the average for the entire season.

Rainfall amounts

March was rainier than average, and this was especially noticeable in the southern part of the country. The rainiest area was the northwestern Negev (north of the Gaza envelope), where 100 mm to 130 mm of rain fell, which is more than twice the monthly average. Beeri recorded 168 mm of rainfall, making it the rainiest March at this station since measurements began in 1947. In other stations in the region, March 2023 is ranked around the fifth place (recently March 2020 was rainier).

In other parts of southern Israel, March was also rainy, with rainfall in the Negev and the Arava reaching 1.5 to 2 times the average and even more. In the Judean Mountains, 90 mm to 130 mm of rain fell, which is 150% to 180% of the monthly average (147 mm of rain fell in Zur Hadassah). Other rainy areas in March were the southern coastal plain, Samaria, the northern valleys, the Golan Heights, and the Lower Galilee, where monthly amounts reached 110% to 150% of the average (Figure 1).

The least rainy areas in March were mainly the northern and central coastal plain with near-average or smaller amounts of rain (90% to 100% of the average). In some areas, such as the Sharon region, March was even drier than usual with amounts of 70% to 80% of the average. In the Upper Galilee, the amounts were close to average.

Table 1 shows the rainfall data for March compared to the average at several stations.

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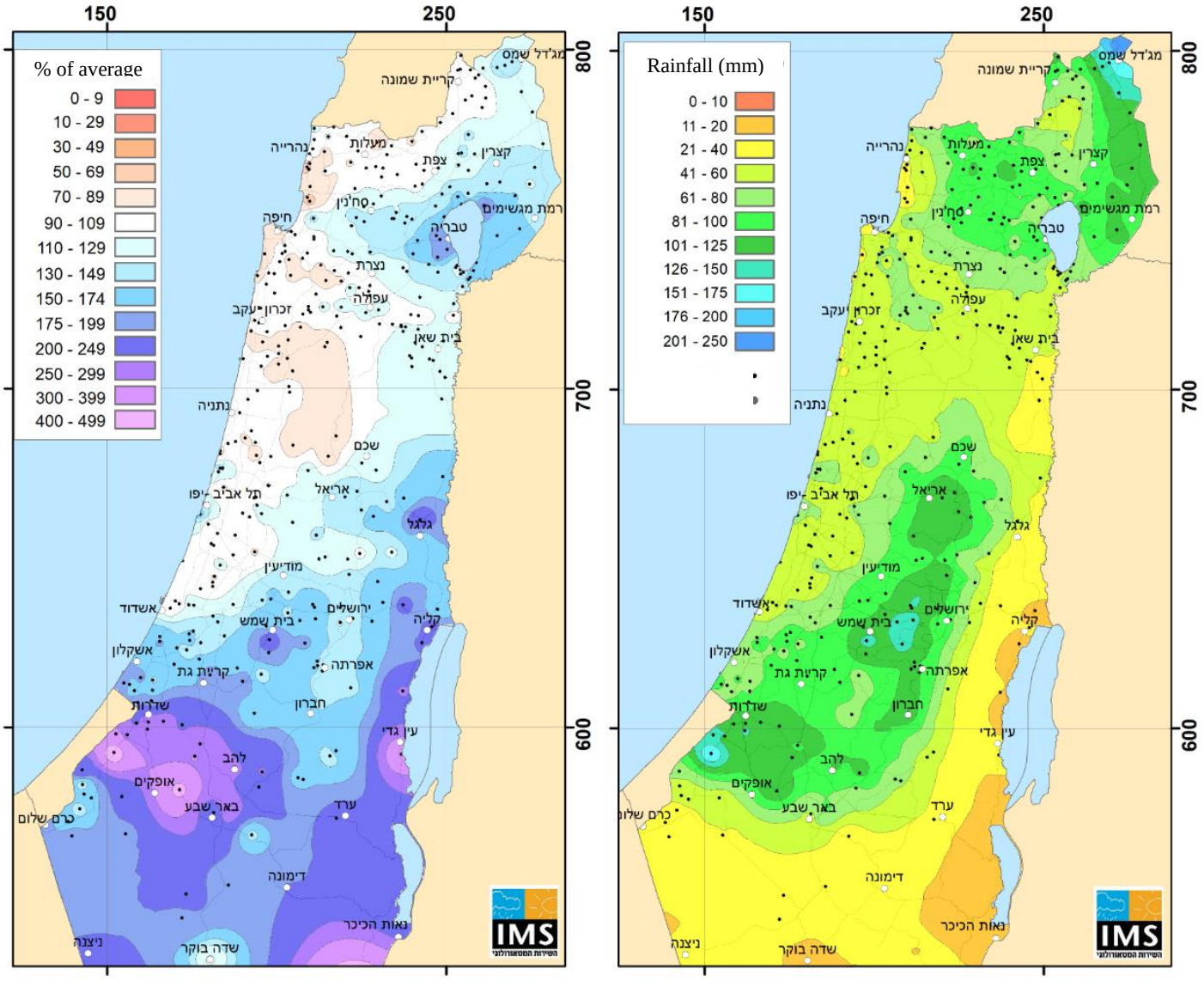


Figure 1: Rainfall amounts in March (right - mm) and comparison to the monthly multi-annual average (left - %)

Table 1: Rainfall amounts in March 2023 in comparison with the multi-year average for the month*

Area	Station	Rainfall in March 2023 (mm)	Multi-year average for March (mm)*	% of average for March
Coastal plain and the Judean Foothills	Rosh Haniqra	64	55	116%
	Nahariyya	54	54	100%
	Evron	38	54	70%
	Haifa Technion	56	65	86%
	Haifa (Port)	33	48	69%
	Yagur	62	70	89%
	En Hashofet	64	63	102%
	Zichron Yaakov	52	56	93%
	Amikam	56	60	93%
	Gilad	49	64	77%
	En HaHoresh	51	55	93%
	Bene Dror	46	55	84%
	Kefar Hess	55	62	89%
	Nir Eliyyahu	47	61	77%
	Nahshonim	66	55	120%
	Hakfar Hayarok	51	57	89%
	Tel Aviv Coast	66	40	165%
	Mikve Yisrael	48	49	98%
	Bet Dagan	58	55	105%
	Ben Gurion Airport	59	60	98%
	Rishon Lezion	52	51	102%
	Palmahim	52	43	121%
	Nezer Sereni	69	58	119%
	Gan Shlomo	48	52	92%
	Nir Galim	51	49	104%
	Qevuzat Yavne	58	52	112%
	Be'er Tuveya	86	58	148%
	Nizanim	88	48	183%
	En Zurim	77	56	138%
	Negba	86	53	162%
	Zikim	85	41	207%
	Erez	91	45	202%
	Dorot	117	43	272%
	Yakhini	131	50	262%
	Nahal Oz	132	44	300%
	Beeri	168	35	480%
	Besor	34	24	142%
Northern Mountains	Nimrod Fortress	144	98	147%
	Merom Golan Picman	111	102	109%
	Gamla	109	73	149%

Table 1 (cont.): Rainfall amounts in March 2023 in comparison with the multi-year average for the month*

area	station	Rainfall in March 2023 (mm)	Multi-year average for March (mm)*	% of average for March
Northern Mountains	Elon	88	85	104%
	Kabri	53	65	82%
	Metula	105	100	105%
	Kefar Giladi	85	90	94%
	Meron	99	100	99%
	Zefat Har Kenaan	81	76	107%
	Harashim	100	106	94%
	Deir Hana	81	66	123%
Northern Valleys	Neve Ya'ar	52	55	95%
	Afula Nir HaEmek	53	45	118%
	Banias	118	82	144%
	Dafna	73	71	103%
	Kefar Blum	61	57	107%
	Ayyelet Hashahar	64	50	128%
	Ginnosar	77	49	157%
	Zemah	54	42	129%
	Sede Eliyyahu	37	31	119%
Central Mountains	Kedumim	61	79	77%
	Elkana	74	66	112%
	Eli	114	81	141%
	Shiloh	102	59	173%
	Har Harsha	94	84	112%
	Talmon	102	80	128%
	Pesagot	117	89	131%
	Zova	129	83	155%
	Jerusalem Center	99	67	148%
	Ma'ale Adumim	58	33	176%
	Beit Jimal	139	61	228%
	Zur Hadasa	147	82	179%
	Rosh Zurim	110	70	157%
Negev	Arad	37	18	206%
	Beer Sheva	60	26	231%
	Revivim**	26		
	Sede Boqer**	15		
	Mizpe Ramon**	16		
	Neot Smadar**	22		
Jordan Valley** and the Arava	Gilgal	39	18	217%
	Sedom**	13		
	Hazeva**	26		
	Paran**	20		
	Timna (Ramon Airport)**	24		
	Elat**	18		

* The multi-year average refers to the years 1991 to 2020. For stations that did not operate during this entire period, the averages are adjusted for these years.

** In arid regions, the comparison to the average is presented literally (without exact percentages) due to the low absolute values of rainfall amounts and averages

Number of rainy days

The number of rainy days in March (from a threshold of 1 mm) was close to the average in northern Israel and higher in the rest of the regions. In the north of the country and in the coastal plain there were 6 to 8 days of rain, which is close to the average in the north and higher than the average in the southern and central coastal plain, where the monthly average is 4 to 6 days. Samaria and Judea had 7 to 9 days of rain (the monthly average is 5 to 7 days) and the Negev had 4 to 6 days of rain compared to a monthly average of 3 to 4 days.

February also had above-average rainy days, but in the months that preceded it the number of rainy days was lower than the average, especially in December and January, so the number of rainy days from the beginning of the season to the end of March is smaller than the average. However, it should be noted that the relative scarcity of rainy days corresponds with the rainfall amounts, which are lower than the average (Table 2).

Table 1: Number of rainy days* in March and from the beginning of the season compared to the average**

	Number of days March 2023	March average**	No. of days from the beginning of the season	Average since the beginning of the season**
Nahariyya	6	6	37	47
En HaHoresh	6	6	36	43
HaKefar Hayarok	5	6	34	42
Bet Dagan	6	5	31	40
Negba	7	5	36	35
Be'eri	6	4	26	31
Kefar Giladi	10	8	43	49
Merom Golan	9	8	40	48
Zefat Har Kenaan	7	8	40	48
Afula Nir HaEmek	7	6	35	41
Jerusalem Center	8	6	33	38
Beit Jimal	8	5	34	37
Rosh Zurim	9	6	36	39
Dorot	6	4	31	32
Be'er Sheva	5	4	28	24
Kefar Blum	8	7	37	45
Ayyelet HaShahar	8	6	33	42
Deganya Alef	6	6	30	38
Sede Eliyyahu	5	4	28	33
Sedom	2	1	8	8
Elat	2	0.5	7	3

* Number of rainy days from a threshold of 1 mm
** Multi-year average for 1991 to 2020

Rain events

a. March 6-8: Small amounts of up to 2 mm of rain fell in different parts of the country. In the southern coastal plain and parts of the Galilee, 3 to 5 mm of rain fell and in Avne Eitan 10 mm of rain were recorded.

b. March 13-15: In large parts of the country (northern Israel, central and southern coastal plain, northwestern Negev) 20 to 40 mm of rain fell, in the northern Golan Heights and Mount Hermon 50 to 70 mm of rain, and in the southern coastal plain, the Judean Foothills and the western Judean and Samaria mountains rainfall totals were 40 to 60 mm. The amounts of rain that fell in the east and south of the country (the Jordan Valley, the Dead Sea, the Arava and the Negev) were relatively high for this area – 10 to 20 mm. Some areas had well-developed clouds with thunderstorms, strong rainfall, hail, and strong wind gusts. In the port of Ashkelon, a maximum gust of 108 km/h was measured on the 13th of the month. Two people were killed after a crane fell in the port of Ashkelon.

c. March 18-20: In the northern and central mountains, as well as in the southern coastal plain and northwestern Negev, 50 to 70 mm of rain fell. In the Sderot area, more than 100 mm of rain were measured. In the coastal plain and northern valleys, 25 to 50 mm of rain fell, in the northern Negev 20 to 30 mm, and south of Beer Sheva only a few mm of rain fell.

d. March 23-25: Rain fell in most parts of the country, except in the central and southern coastal plain. In the north of the country, 2 to 5 mm of rain fell (in the northern Golan Heights 5 mm to 10 mm were recorded). Rainfall of 3 to 6 mm occurred in the Negev and the Arava as well. The largest amounts fell in Samaria and Judea, where 10 mm to 20 mm were recorded, and even higher amounts locally. In Tapuah, 28 mm of rain fell and in Beit Jimal 46 mm. Most of the rain in this station was recorded in the afternoon of the 25th due to a powerful rain cell that precipitated 39 mm in half an hour, of which 21 mm fell in ten minutes, 30 mm in 15 minutes, and 35 mm in twenty minutes (rain intensity of 126 mm per hour for ten minutes, 120 mm per hour for 15 minutes, 105 mm per hour for 20 minutes, and 78 mm per hour for 30 minutes). This is a record rainfall intensity for periods of 10 to 30 minutes at Beit Jimal in more than 60 years of measuring rainfall intensity at the station.

e. March 29-30: Small amounts of rain. In the north and center of the country, 3 mm of rain fell in general, and in the central mountains 5 mm to 8 mm of rain fell.

Rainfall since the beginning of the season

Although March was rainier than the average, it did not manage to close the gap of the cumulative rainfall, only to narrow it. The cumulative rainfall amounts from the beginning of the season to the end of March reach, from a national perspective, about 75% of the average for the entire rainy season, after reaching about 65% of the average at the beginning of the month.

The rainfall deficit is more pronounced in the north of the country. In the northern mountains, the Hula Valley, the northern coastal plain and the Sharon region, rainfall amounts since the beginning of the season are about 60% to 70% of the average for the entire season, and in the northern valleys and the Sea of Galilee region 70% to 80% of the average. In the central and southern coastal plain, the deficit is smaller, with amounts of about 75% to 85% of the average. In the southern part of the area, the cumulative amounts are already close to average for the entire season, and at the Gaza Envelope area they even exceed it. In the Judean Mountains, the amounts reach 80% to 90% of the average, and on the eastern slopes down to the Jordan Valley they exceed the average. In the Negev, since the beginning of the season, the cumulative amounts of rain are about 70% to 90% of the average, while in the Arava they exceed the average (Figure 2 and Table 3).

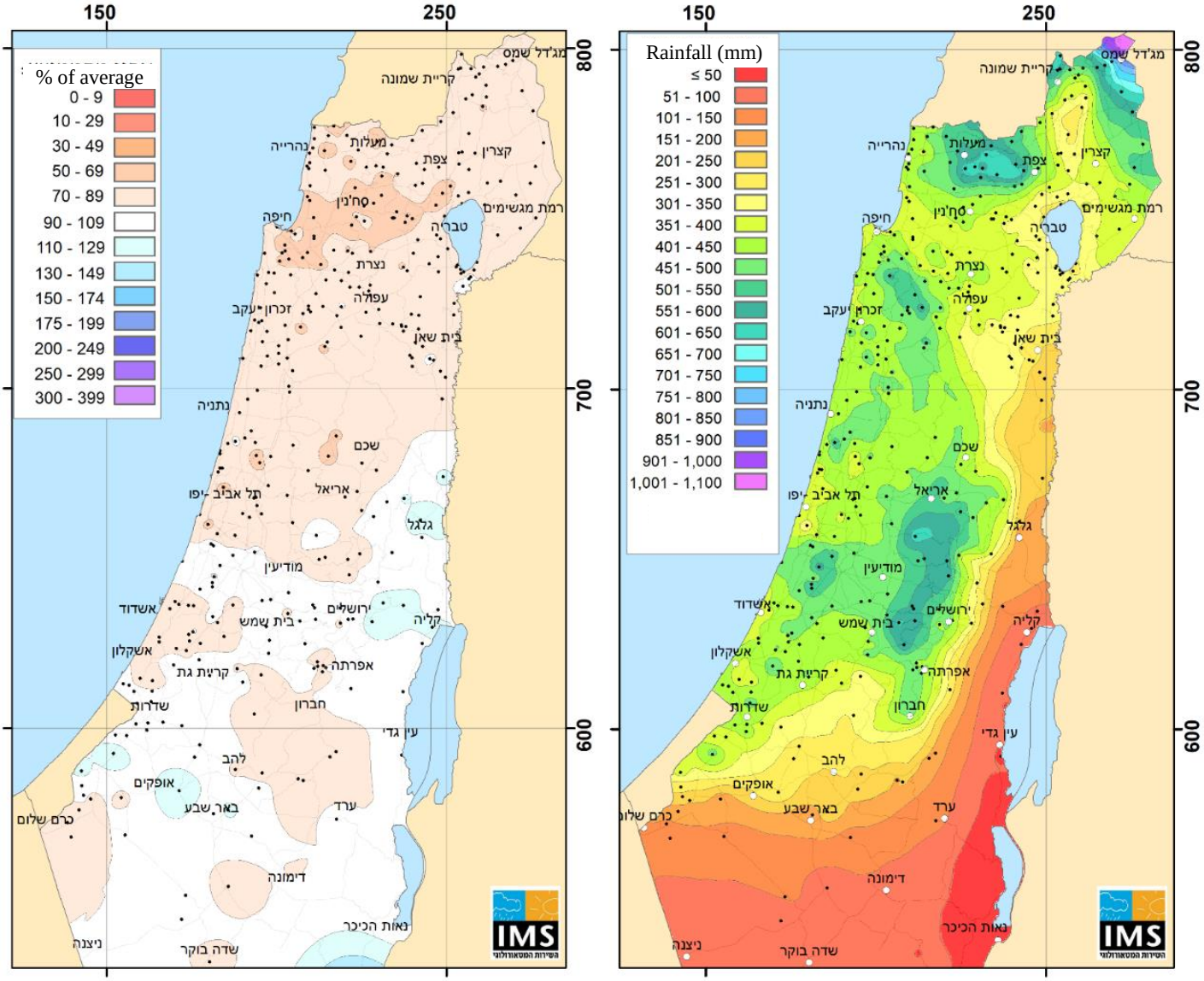


Figure 2: Rainfall amounts from the beginning of the season (right - mm) and comparison to the seasonal multi-annual average (left - %)

Table 3: The amounts of rainfall from the beginning of the season to date compared to the average*

Station	Cumulative amount from the beginning of the season to the end of January (mm)	Multi-year average* from September to January (mm)	% of average for the corresponding period	Multi-year average* for the entire season (mm)	% of average for the entire season
Rosh Haniqra	418	573	73%	613	68%
Nahariyya	413	578	71%	615	67%
Evron	418	587	71%	626	67%
Haifa Technion	436	638	68%	671	65%
Haifa (Port)	384	532	72%	565	68%
Yagur	463	676	68%	709	65%
En Hashofet	464	629	74%	661	70%
Zichron Yaakov	430	578	74%	574	75%
Amikam	414	607	68%	635	65%
Gilad	405	623	65%	654	62%
En HaHoresh	409	553	74%	576	71%
Bene Dror	482	559	86%	578	83%
Kefar Hess	431	594	73%	614	70%
Nir Eliyyahu	375	599	63%	623	60%
Nahshonim	421	531	79%	552	76%
Hakfar Hayarok	386	538	72%	557	69%
Tel Aviv Coast	370	430	86%	443	84%
Mikve Yisrael	320	506	63%	522	61%
Bet Dagan	395	521	76%	540	73%
Ben Gurion Airport	419	548	76%	541	77%
Rishon Lezion	465	490	95%	511	91%
Palmahim	481	456	105%	474	101%
Nezer Sereni	567	560	101%	581	98%
Gan Shlomo	529	518	102%	535	99%
Nir Galim	424	488	87%	504	84%
Qevuzat Yavne	427	509	84%	526	81%
Be'er Tuveya	436	250	174%	538	81%
Nizanim	459	491	93%	505	91%
En Zurim	444	508	87%	524	85%
Negba	478	485	99%	500	96%
Zikim	450	435	103%	447	101%
Erez	418	429	97%	443	94%
Dorot	366	381	96%	394	93%
Yakhini	432	439	98%	451	96%
Nahal Oz	387	408	95%	420	92%
Beeri	452	348	130%	359	126%
Besor	194	207	94%	216	90%
Nimrod Fortress	626	752	83%	816	77%
Merom Golan Picman	563	759	74%	811	69%
Gamla	390	542	72%	578	67%
Elon	528	749	70%	805	66%
Kabri	394	626	63%	666	59%

Table 3 (cont.): The amounts of rainfall from the beginning of the season to date compared to the average*

Station	Cumulative amount from the beginning of the season to the end of January (mm)	Multi-year average* from September to late January (mm)	% of average for the corresponding period	Multi-year average* for the entire season (mm)	% Off average for the entire season
Metula	517	765	68%	825	63%
Kefar Giladi	569	709	80%	757	75%
Meron	578	829	70%	881	66%
Zefat Har Kenaan	446	643	69%	688	65%
Harashim	587	921	64%	988	59%
Deir Hana	372	574	65%	616	60%
Neve Ya'ar	392	554	71%	584	67%
Afula Nir HaEmek	352	426	83%	460	77%
Banias	562	640	88%	690	81%
Dafna	445	573	78%	615	72%
Kefar Blum	369	474	78%	507	73%
Ayyelet Hashahar	328	444	74%	472	69%
Ginnosar	295	418	71%	447	66%
Zemah	308	360	86%	383	80%
Sede Eliyyahu	215	260	83%	278	77%
Kedumim	414	615	67%	642	64%
Elkana	476	575	83%	600	79%
Eli	538	606	89%	522	103%
Shiloh	476	493	97%	522	91%
Har Harsha	553	631	88%	668	83%
Talmon	510	614	83%	648	79%
Pesagot	572	662	86%	694	82%
Zova	555	629	88%	656	85%
Jerusalem Center	486	493	99%	522	93%
Ma'ale Adumim	333	262	127%	276	121%
Beit Jimal	451	484	93%	506	89%
Zur Hadasa	597	606	99%	636	94%
Rosh Zurim	439	530	83%	564	78%
Arad	114	125	91%	134	85%
Beer Sheva	179	183	98%	192	93%
Revivim	100	93	108%	98	102%
Sede Boqer	67	81	83%	87	77%
Mizpe Ramon	47	66	71%	70	67%
Neot Smadar	39	27	144%	30	130%
Gilgal	178	162	110%	171	104%
Sedom	38	35	109%	39	97%
Hazeva	53	35	151%	40	133%
Paran	38	29	131%	33	115%
Timna (Ramon Airport)	49	22	223%	25	196%
Elat	44	20	220%	22	200%

* The multi-year average refers to the years 1991 to 2020. For stations that did not operate during this entire period, the averages are adjusted for these years

Temperatures and weather during March 2023

March was generally warmer than the average, due to its warm first half. Daytime temperatures were higher than the average (1991 to 2020) in most parts of the country by 1 to 1.5°C and in the coastal plain by 1.5 to 2 °C. At night, temperatures were 1 to 1.5°C higher than the average in the mountains and the Negev, about 1°C higher in the coastal plain and the northern valleys, and around 0.5°C in the Arava (Table 4).

March recorded noticeable changes in temperature, as can be expected in this month of late winter and early spring, with Sharav days alongside cold and wintery days. At the same time, its conduct was unusual for a spring month, when the first half was actually warmer than its second half. By the 13th of the month it was considerably warmer than average (by 4 to 6 degrees Celsius), while from the 14th to the end of the month, it was cooler with temperatures close to or below average (Figures 3, 4) with the lowest temperatures of the month measured in its last two days.

March began with high temperatures, following the warm period that prevailed at the end of February. On March 1st and 2nd, temperatures were around 30°C in the coastal plain, the Judean Foothills, the northern Negev and the northern valleys, and 33 to 34°C in the southern Arava. The next two days were cooler, but still warmer than usual, and on the 5th it became warmer once again . A Sharav prevailed with the highest temperature of the month measured on that day. In the coastal plain, the Judean Foothills, the Negev and the Arava, 33 to 35°C were measured, and in the mountains 27 to 29°C.

On the 6th of the month there was a considerable cooling, and for several days temperatures were slightly lower than the average. Another warm episode prevailed from the 10th to the 13th, but the temperatures were not as high as at the beginning of the month.

From March 14th episodes of warmer than usual weather prevailed alongside cooler episodes. On the 24th, 28 to 29°C were measured in the coastal plain, the Judean Foothills, the Negev, and the northern and eastern valleys, and 30 to 32°C in the Arava. However, on the 19th to 20th of the month it was colder than usual (5 to 6°C below the average for the inland areas), and an even cooler episode prevailed at the end of the month, on March 30th to 31st. In the mountains, nighttime temperatures were 3 to 4°C and at daytime 9 to 10°C, temperatures that are lower than the average for the end of March during daytime by 7 to 8°C and at night by 5 to 6°C, and even lower than the average for the peak of winter.

Comparison of March and the first quarter of 2023 to the past

March 2023 was moderately warmer than average, and in the nationwide series of temperature measurements since 1950, it ranks 14th. It was the warmest March since 2018 (Figure 5).

The situation is similar with regard to the first quarter of 2023, which was slightly warmer than the average of 1991 to 2020 (by 0.6 degrees Celsius), and much like March, it ranks 14th in the series of measurements (Figure 6).

Table 1: Temperatures in March 2023 (°C) compared to the average

	Station	March 2023		Difference from average 1991-2020	
		Maximum	Minimum	Maximum	Minimum
Coastal plain and the Judean Foothills	Haifa (Technion)	21.2	13.0	+2.1	+1.2
	En HaHoresh	22.3	9.4	+1.4	+0.9
	Bet Dagan	23.4	11.4	+2.1	+1.0
	Negba	22.6	10.9	+1.8	+1.1
Northern Mountains	Elon	21.2	11.9	+1.2	+1.2
	Merom Golan Picman	16.0	4.8	+0.7	+0.3
	Avne Eitan	20.1	9.5	+0.7	+1.3
	Zefat Har Kena'an	16.1	8.2	+1.2	+0.7
	Deir Hanna	21.2	13.0	+1.2	+1.6
Northern Valleys	Afula, Nir HaEmek	23.2	8.7	+1.6	+1.1
	Kefar Blum	23.6	9.3	+0.3	+0.6
	Zemah	24.2	11.5	+1.5	+1.2
	Eden Farm	24.3	11.2	+0.8	+0.9
Central Mountains	Qarne Shomron	21.7	11.8	+1.9	+1.8
	Jerusalem	18.4	10.2	+1.0	+0.7
	Beit Jamal	21.9	12.6	+0.9	+1.5
	Rosh Zurim	16.6	9.0	+1.5	+1.3
Negev	Besor	23.1	11.9	+1.3	+1.6
	Arad	20.7	10.8	+1.2	+1.6
	Be'er Sheva	23.3	11.6	+1.2	+1.8
	Sede Boker	21.9	9.2	+1.4	+1.1
The Arava	Sedom	27.4	18.4	+1.4	+0.3
	Hazeva	26.4	14.1	+1.2	+0.6
	Elat	28.1	15.6	+1.1	+0.5

Table 5: The extremes temperatures in March 2023 2022 (°C) Compared to the past

	March 2023				Extreme values from the beginning of measurements				Years of activity of the station
	Extreme maximum		Extreme minimum		Extreme maximum		Extreme minimum		
	Temp	Date	Temp	Date	Temp	Date	Temp	Date	
Bet Dagan	34.4	5/3/23	6.1	10/3/23	38.2	23/3/2008	-0.9	3/3/1976	1962-2023
Negba	33.3	5/3/23	6.8	10/3/23	37.7	11/3/2010	0.0	3/3/1976	1950-2023
Zefat Har Kenaan	24.3	5/3/23	2.4	31/3/23	30.9	24/3/2008	-3.4	1/3/1976	1939-2023
Jerusalem*	28.8	5/3/23	4.5	31/3/23	32.7	24/3/2008	-2.4	6/3/1943	1867-2023
Sheva**	34.7	5/3/23	6.5	310/3/23	38.4	24/3/2008	-1.0	23/3/1945	1952-2023
Eilat	34.4	1/3/23	11.8	16/3/23	38.7	31/3/1958	3.0	1/3/1976	1949-2023

* Jerusalem: Center 1950-2023, Talbieh 1948-1949, Palace Hotel 1935-1947, American Colony 1927-1935, Mount of Olives 1918-1926, German Colony 1895-1915, English Hospital on HaNeviim Street 1898-1913, English Hospital in the Old City 1867-1915.

** Beer Sheva University 2023, Beer Sheva Negev Institute 1957-2022, Beersheba 1922-1957

Figure 3: Daily minimum and maximum temperatures in Jerusalem in March 2023 compared to the multi-year average

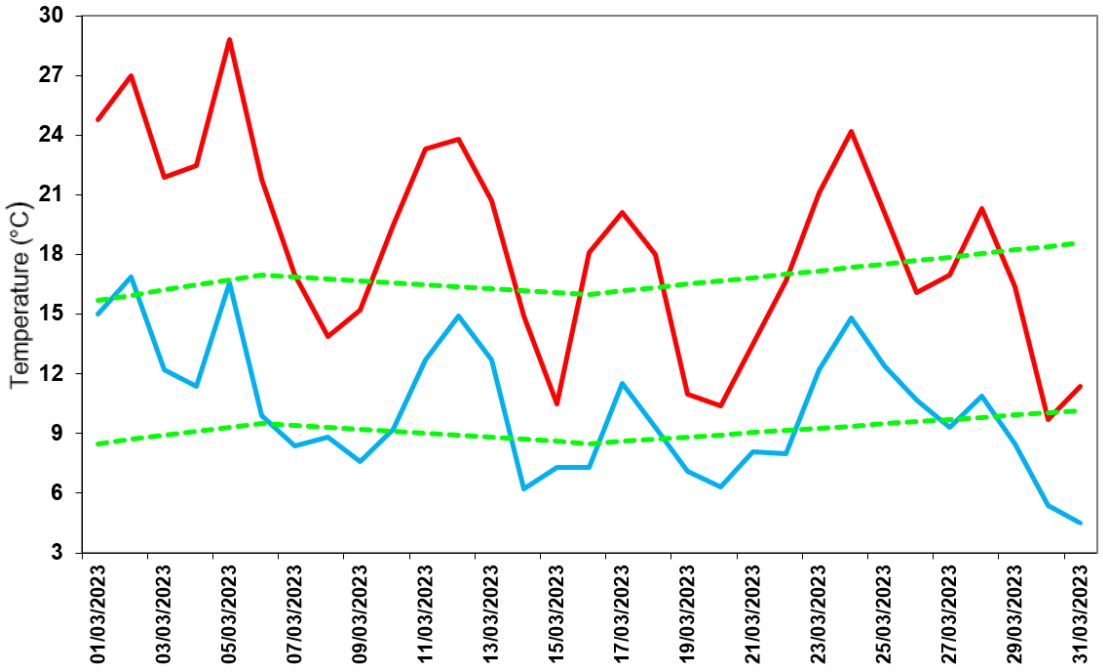


Figure 4: Daily minimum and maximum temperatures in Bet Dagan in March 2023 compared to the multi-year average

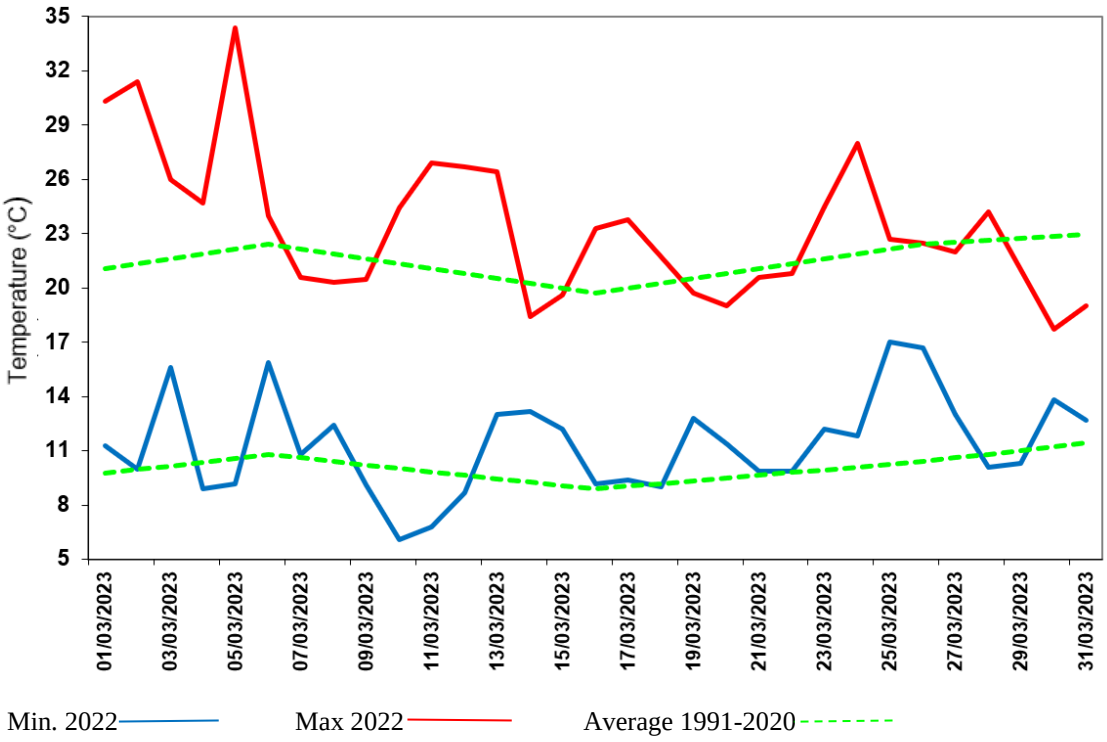


Figure 5: The average temperature in Israel* in January 1950-2023

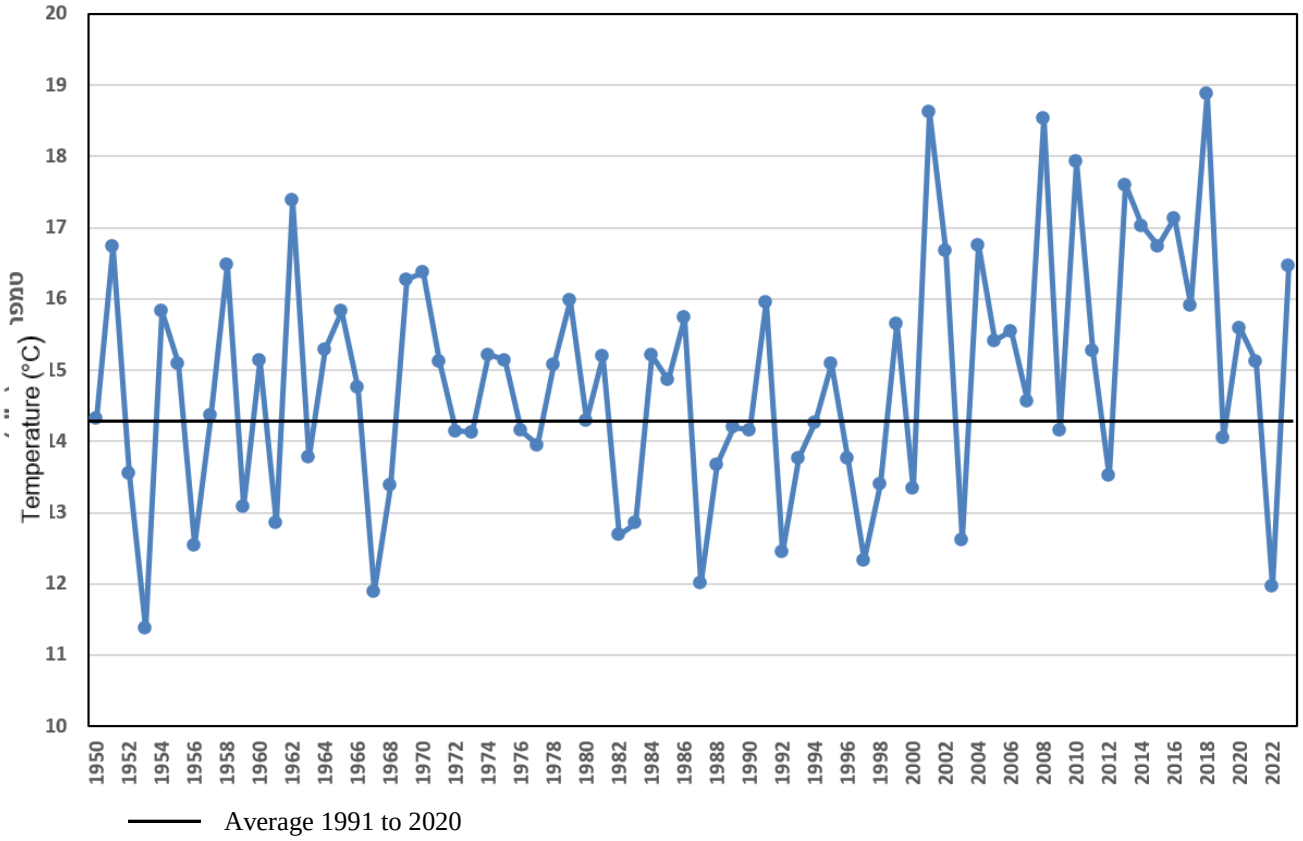
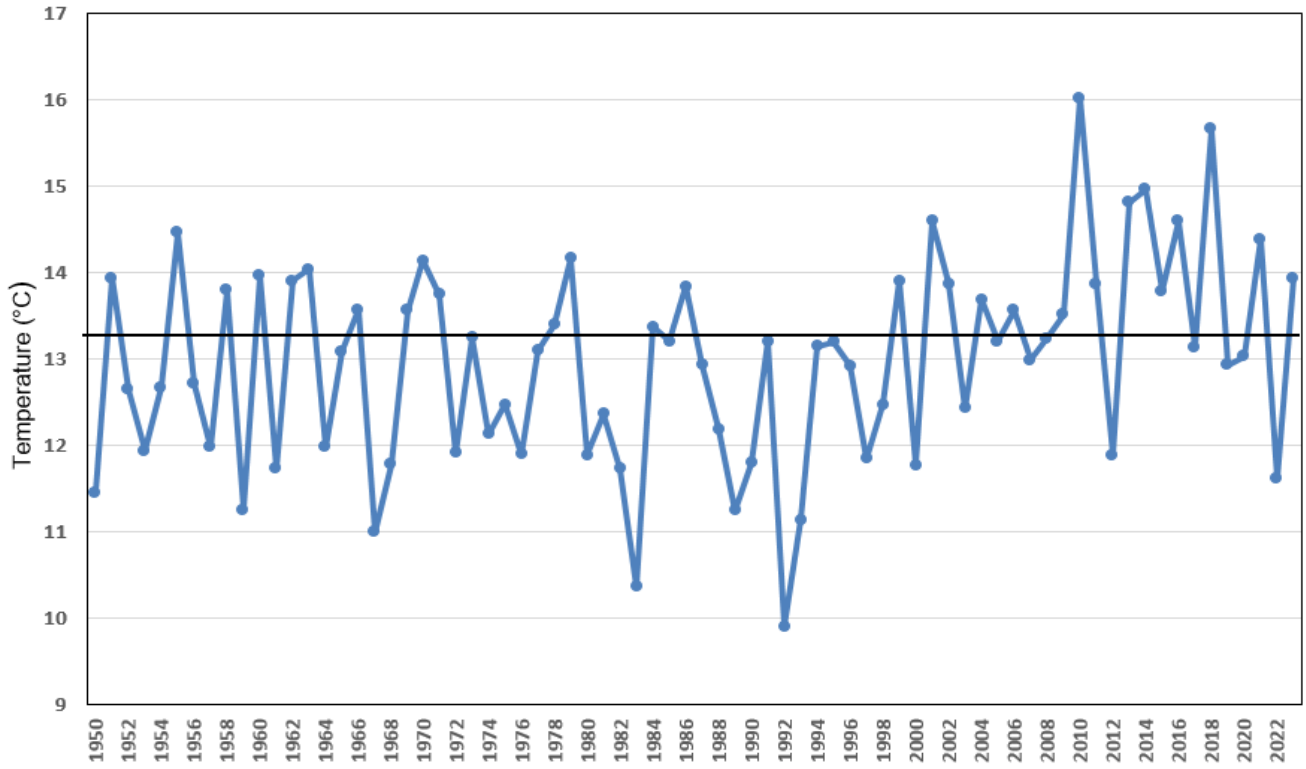


Figure 6: The average temperature in Israel* in January-March 1950-2023



* In order to represent the territory of Israel, five characteristic stations were selected, which have data from the year 1950. The trend of averages at these stations is similar to the trend of averages at a larger and more diverse sample of stations.