

Heat Wave Summary – Israel :August 8-14, 2025

Date: August 21, 2025

Executive Summary

An extreme and prolonged heat wave affected our region from August 8-14, 2025. Temperatures during the heat wave reached over 45°C in the Jordan Valley and Arava, and over 40°C in the mountains. Temperature records were broken at various stations - both maximum temperatures such as 49.7°C in Gilgal (Central Jordan Valley) and minimum temperatures, including a new national record of 37.1°C in Sedom (in the Dead Sea 388 meters below the sea level). During most daytime hours, heat stress ranged from heavy to extreme, and the national heat stress record was also broken.

In addition to breaking temperature records, the heat wave was exceptional for its prolonged duration, with new records established in some regions for both duration and intensity.

Synoptic Situation

From August 7-8 through August 14, a strong and extensive upper-level ridge dominated our region. The ridge caused subsidence of air and consequently its warming for an extended period. At the surface, the seasonal Persian trough, which typically induces a moderating maritime flow during summer days, became shallower, leading to a significant reduction in this flow. The combined influence of surface and upper-level systems triggered the heat wave, with the synoptic pattern persisting almost unchanged throughout the heat wave.

Temperatures and Relative Humidity

Beginning on Friday, August 8, 2025, and continuing through August 14, the heat wave was characterized by high temperatures and extreme heat stress during most daytime hours across almost all parts of the country.

At the peak of the heat wave on August 13, 2025, temperatures reached 45-48°C in the Jordan Valley and Arava, with 49.7°C recorded in Gilgal (a station record) and 48.8°C in Eilat. Extreme heat stress, defined as discomfort index [DI] above 30, prevailed across most of the country from early afternoon through the evening hours, with a peak value of 39.5 DI in the Jordan Valley. The nights were also exceptionally warm during the event. At the onset of the heat wave, the coastal plain recorded minimum temperatures of 27-29°C. At the peak of the heat wave, minimum temperatures values reached 33-36°C in the Jordan Valley and the Arava, and in Sedom (in the Dead Sea) a minimum temperature of 37.1°C was observed, representing a new absolute recorded.

Heat Stress

The heat wave was characterized by high heat stress, with values classified as heavy or higher during most daytime hours across many areas of the country. On most days, extreme heat stress ($DI > 30$) prevailed from early afternoon through the evening in most parts of the country. At the peak of the heat wave (August 12-14), extreme heat stress prevailed in the coastal plain, mountains, Negev, and northern valleys for about one-third of the time (average of about 8 hours per day), and in eastern valleys for more than 50% of the day. In Sedom, extreme heat stress prevailed continuously from midday August 9 until nighttime August 14.

Record-Breaking Aspects

1. Extreme Temperature Values

Temperature records were broken in several areas, mainly on August 13-14. The main areas where temperature records were broken are the Jordan Valley, southern Arava, Judean Mountains, and Galilee Mountains. Notable records include:

Maximum Temperature Records:

- Gilgal: 49.7°C (previous record: 49.3°C from 2015¹)
- Zefat: 41.4°C (previous record: 40.6°C from September 2020)
- Arad: 43.8°C (previous record: 43.2°C from September 2020)

Minimum Temperature Records:

- Sedom: 37.1°C - new national record (previous: 36.5°C from September 2015)
- Eilat: 36.0°C (previous: 34.4°C from September 2015)
- Gilgal: New heat stress record of 39.5 DI

2. Consecutive Hot Days

The heat wave lasted 7 days and was characterized by a prolonged sequence of hot days and warm nights. In the mountains and the valleys, the persistence of hot days was very unusual and, in some cases, unprecedented. Examples include 6 consecutive days with maximum temperatures exceeding 36°C in Zefat and 5 consecutive days above 42°C in Kfar Blum, among others.

3. Comparison to Past Heat Waves

Since summer 2010, heat waves have intensified with respect to their duration, peak daily heat stress intensity, and average heat stress throughout the heat wave. The August 2025 heat wave ranks among the top three most extreme heat waves on record, exhibiting the highest average maximum heat stress (33.9 DI) relative to

¹ The highest value for Israel since 1948 is 49.9°C in Sedom in July 2019

previous extreme events. Referring to the peak day of the event, it can be seen in Figure 1, which presents the distribution of average heat stress at 75 stations in different regions of the country during the peak days of extreme heat waves since 2010, that the heat wave of August 2025 is positioned higher than previous heat waves. In Figure 2, the maximum heat stress map on 13.8.25 is presented compared to 20.8.10 (the peak day of the heat wave at that time), and it can be seen that the heat stress was higher in the recent heat wave, particularly in the Arava and Negev regions.

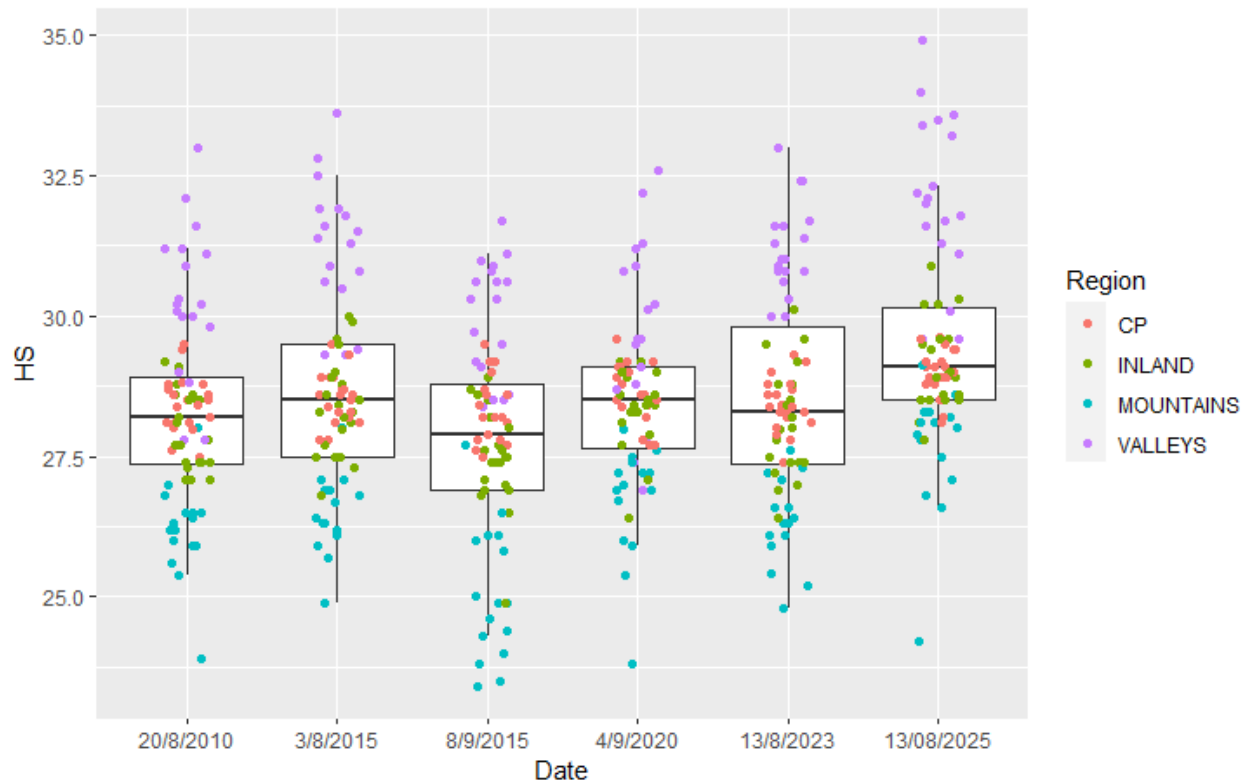


Figure 1: Distribution of average heat stress (HS variable on the Y-axis) at 75 stations during six peak days of extreme heat waves: August 2010, August 2015, September 2015, September 2020, August 2023, and August 2025. The different colored points allow visualization of heat stress value distribution by regional division: Coastal Plain (CP), Inland (INLAND), Mountains (MOUNTAINS), Eastern Valleys (VALLEYS). The boxes in each graph bound the 25th and 75th percentiles, and the thick black line represents the median (50th percentile). See the following page for a map of the extreme heat stress (HS) on the hottest day.

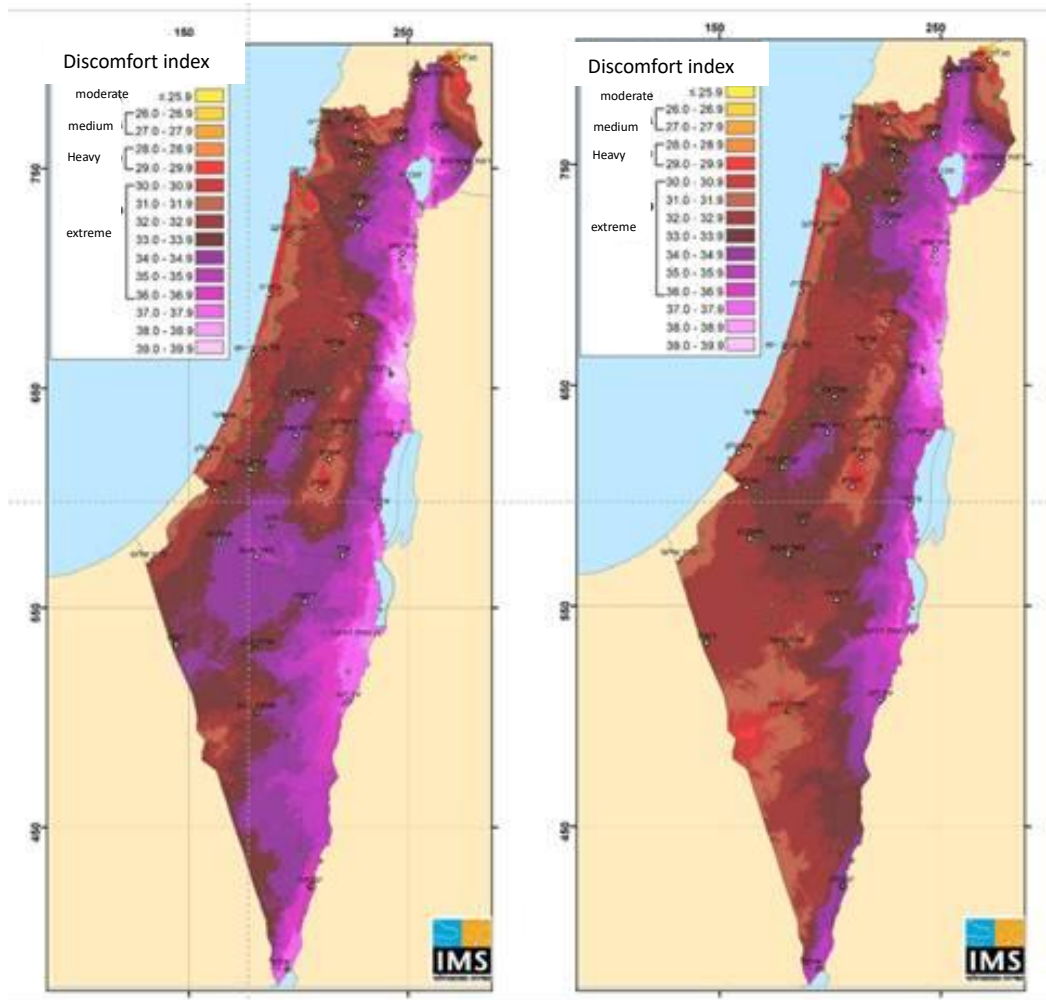


Figure 2: Maximum heat stress maps of 13.8.25 (left) and of 20.8.10 (right)

Conclusion

An extreme heat wave affected the region between August 8-14, 2025, lasting one week. It was marked by record-breaking temperatures and heat stresses, alongside an exceptional persistence of hot days. While in several aspects it was the most severe heat wave on record, the September 2020 event was more severe in terms of duration. In any case, the August 2025 heat wave ranks among the three most extreme events ever recorded in the region.

Key Statistics for WMO Reporting:

- **Duration:** 7 days (August 8-14, 2025)
- **Highest Temperature:** 49.7°C (Gilgal, Jordan Valley)
- **New National Minimum Temperature Record:** 37.1°C (Sedom)
- **New National Heat Stress record:** 39.5 DI (Gilgal, Jordan Valley)

- **Geographic Impact:** Nationwide, with most severe conditions in Jordan Valley, Arava, and mountain regions
- **Notable Features:** Unprecedented consecutive hot day sequences in mountain regions, extreme nighttime temperatures, continuous extreme heat stress conditions lasting over 100 hours in Sedom (Dead Sea area – 388 meters below sea level)