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More deaths during heat waves

Highest number of deaths in summer 2023 in calendar week 34

Vienna, 2023-09-28 – For the summer 2023, Statistics Austria has for the first time compared preliminary results of weekly deaths with temperature data from GeoSphere Austria. The results show that the number of deaths tends to reach higher levels during heat waves.

“The heat wave in the second half of August with several tropical nights is also reflected in the statistics of deaths. In calendar week 34, in which the heat wave of the second half of August ended, most deaths were recorded. Although the results do not confirm a causal link, the simultaneity is remarkable,” says Statistics Austria Director General Tobias Thomas.

Number of deaths fluctuates with temperature

Preliminary results for summer 2023 show that since the end of May approximately 1 400 to 1 600 people have died per calendar week. The numbers of weekly deaths between calendar week 22 (from 29 May 2023) and calendar week 36 (until 10 September 2023) did not follow a linear trend, but fluctuated. This pattern is comparable to previous years: in 2019 and 2020, numbers of deaths fluctuated in a similar range during the same calendar weeks, and in 2021 and 2022 they were slightly higher than 2023. However, overall, fewer people die in summer than in winter, which is influenced by various waves of infection. During winter there are hardly fewer than 1 700 deaths per week, and in individual weeks even more than 2 300 (e.g. calendar week 1 of 2023: 2 365 deceased).

Although the available data neither offer information about causes of death nor allow for identifying causal relationships, a tendency for weeks with comparatively high numbers of deaths and high temperatures to occur at the same time is noteworthy. The figure shows Austria-wide deaths per calendar week and daily maximum temperatures measured by Geo-Sphere Austria for stations in Vienna (Inner City), Klagenfurt (HTL) and Innsbruck (University) during the observation period. This selection is intended to ensure that possible large temperature differences between the west, east and south of Austria are taken into account.

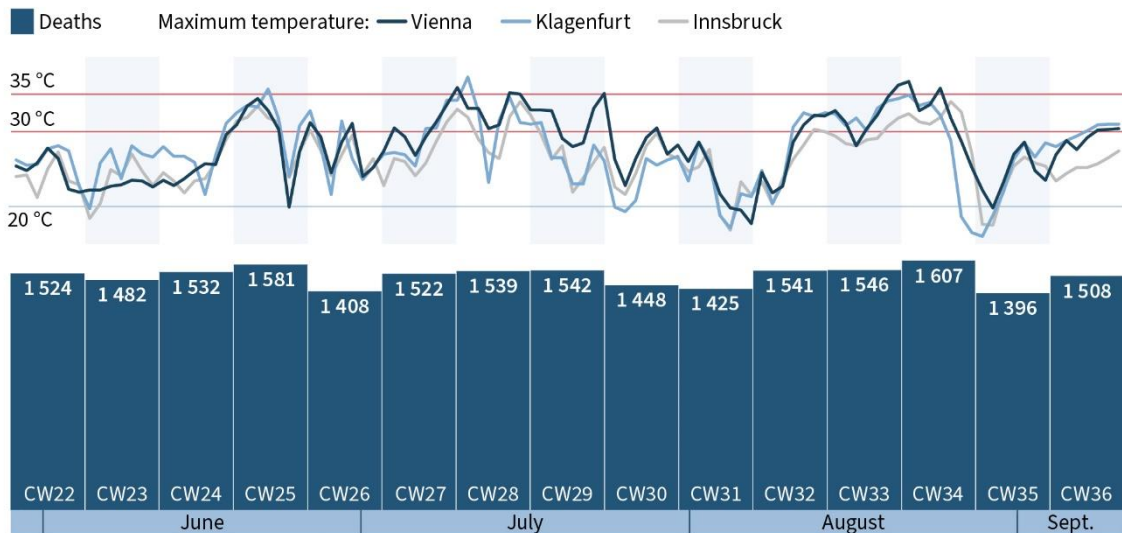
The first heat wave of the summer occurred in calendar week 25 (19 to 25 June 2023). In Vienna, Klagenfurt and Innsbruck, the daily temperature highs rose well above 30°C at times. The same week saw the first peak in deaths during the reference period, with 1 581 deaths. From then on, temperatures as well as numbers of weekly deaths fluctuated several times over the summer weeks. High temperatures often coincided with increased numbers of deaths, but this trend was not consistent nor clear, especially in July.

During August, this pattern becomes more distinct: The week with the most deaths (1 607 people) was calendar week 34 (21 to 27 August 2023). At the end of that week, people living in Vienna and Klagenfurt had experienced two and a half continuously hot weeks: Between 11 and 27 August 2023, the maximum temperature in both cities fell below 30°C on only two and three days, respectively, and exceeded 34°C several times. The nights also brought little cooling, as there were 13 tropical nights in Vienna in the same period, during which the temperature did not fall below 20°C. Innsbruck, geographically located at a higher level, recorded maximum temperatures of at least 31°C throughout calendar week 34. In the following week (calendar week 35, 28 August to 3 September 2023) temperatures cooled down, in Vienna, Klagenfurt and Innsbruck the maximum temperatures remained below 28°C on almost all days. During that week, the number of deaths also fell to 1 396, which is the lowest number of the entire summer 2023. Towards the end of calendar week 36 (4 to 10 September 2023) daily maximum temperatures in Vienna and Klagenfurt climbed

again above 30°C and also the number of deaths increased to 1 508 in calendar week 36, which was the last week of the reference period.

Further information on [deaths](#) can be found on our website, including an interactive web application – [the Atlas of Deaths](#) – which graphically illustrates trends and regional distribution. Detailed results can be found in Statistics Austria’s [open data repository](#).

Number of deaths and maximum temperatures during summer 2023



S: STATISTICS AUSTRIA, Vital Statistics; GeoSphere Austria, daily data. Compiled on 28 September 2023.

Information on methodology, definitions: Vital statistics, including the **number of deaths**, are based on entries in the Central Civil Status Register (ZPR). Statistics Austria processes all reports on deaths provided by the civil status authorities. The analyses presented here are based on preliminary results and do not include deaths of members of the Austrian resident population that occurred abroad. Further, deaths of persons living abroad are not included.

The **temperature** data used here were taken from the data hub of GeoSphere Austria, the Federal Institute for Geology, Geophysics, Climatology and Meteorology, and come from the measuring stations Innsbruck University, Klagenfurt HTL and Vienna Inner City.

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