

Thresholds

Thresholds are determined by past records or experience of previous events that defined the edge of the coping range and the limit of a tolerable climate. For example, the point at which, during a period of hot weather, the increased number of summer deaths becomes apparent.

Heavy rainfall: Due to the urban nature of the city's infrastructure and surfacing, the city is more susceptible to surface-water flooding and flash flooding events, as experienced in the 2000 floods. The city is at a greater risk of sewerage flooding from over-flowing drains due to the limited capacity of the sewerage network and the Victorian drainage system. It would therefore be useful to know at what point heavy rainfall in a short period of time leads to a flash flooding event; what the capacity of the sewage network is, and the amount of heavy rain that would need to fall before it had an impact on the drains.

Although we currently have the flood risk maps of the city, it would also be useful to know which areas of the city are already susceptible to flash flooding/surface water flooding, so adaptation planning can take place.

Although it is difficult to interpret what the threshold for flash flooding is in Portsmouth, the Flood Forecasting Centre (Met Office & Environment Agency) has trigger thresholds that they use when determining such an event, which are: 30mm per hour; 40mm in three hours or 50mm in six hours. If the likelihood of these thresholds being exceeded is 20% or higher, then local authorities and other agencies are advised to consider activating their emergency procedures for flooding.

Increased variability: Many services feel that severe weather events are currently not experienced regularly enough to look at changing service delivery. However it is unclear what the trigger threshold is for changing service design and delivery. It could be the number of events per year, or the amount of resource used to react to an extreme weather event, but it is important to note that there currently isn't a system to monitor either of these.

Heat related thresholds and heat waves: Traffic signals in the city and the Traffic Management System are susceptible to heatwaves, which means the networks cannot be managed. At present, the temperature threshold is unknown, but this would be useful to know, to ensure the city does not experience greater traffic congestion as a result of traffic signal failure.

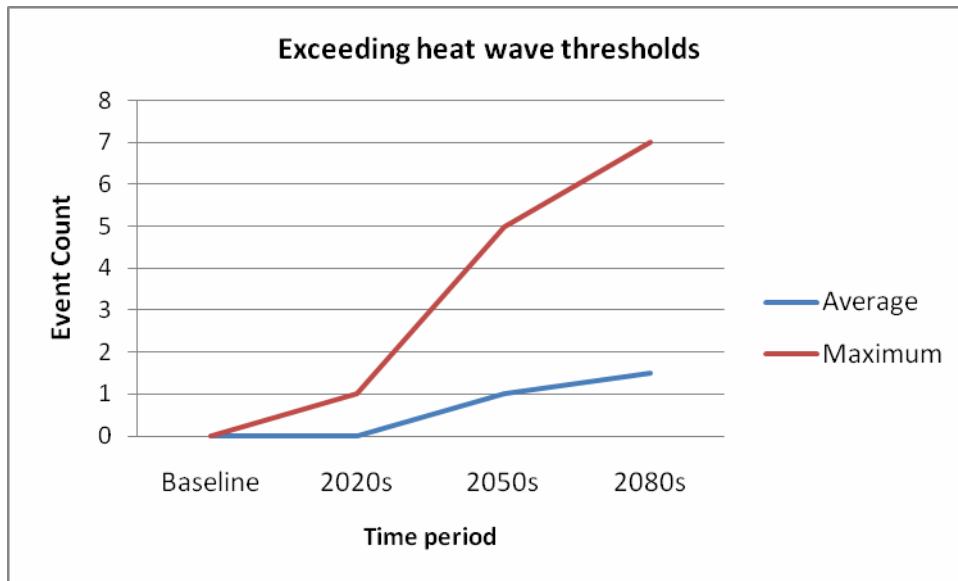
Services have highlighted that there have been problems associated with high temperatures in care homes, and in the heatwave of 2003, a number of schools around the city had to close because of the uncomfortable high temperatures. It would be useful to know at what point it becomes too uncomfortable and people need to be moved to a cooler area.

Although the threshold for high temperatures varies, the Met Office has a Heat-Health Watch system in place which comprises four levels of response based upon threshold maximum daytime and minimum night-time temperatures. These thresholds vary by region, but an average threshold temperature is 30 °C by day and 15 °C overnight. If these thresholds are exceeded, then the national Heatwave Plan is activated, resulting in a national – regional – local level of response.

Worked example: heatwaves

Appendix 1 shows the likelihood of heatwaves in the coming years. The representations suggest that in the next 20-40 years, Portsmouth could be up to 5 times more likely to experience a heat wave than now, which could potentially put more pressure on health and social care services, particularly in light of the growing ageing population, who are more likely to be vulnerable and susceptible to the effects of heatwaves.

Appendix 1



Source: UKCP09 Climate Projections (2009)

- The data is only an approximation, but has been based on the data and tools available from the latest UK Climate Programme projections (2009)
- The above diagram shows the change in heat wave frequency that could occur as a result of the projected changing climate
- A heat wave here uses the same definition as the Met Office, which once exceeded, activates the National Heat Wave Plan. (When the maximum daily temperature is greater than 30°C and the minimum daily temperature is greater than 15°C, for more than 3 consecutive days).
- For the baseline period (1960 – 1991) there were no events of this nature.
- In the 2020s (2010 – 2029) the average shows that Portsmouth is unlikely to get a heat wave, but at a maximum, the city could still experience a heat wave per year (across the months June – August).
- In the 2050s, Portsmouth is anywhere from one to 5 times more likely to experience a heat wave across June – August compared to now
- By the 2080s, the city could experience a heat wave anywhere from 1.5 to 7 times more so than for the baseline period