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# Research brief: Impact-relevant climate hazard durations



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## MYRIAD-EU Pilots: Impact-relevant climate hazard durations

### Highlights

- We have developed a methodology to determine impact-relevant durations for the analysis of climate extremes based upon local context of impacts.
- Duration was determined to be an important factor to consider, alongside temperature, when investigating impacts from extreme heat events.
- A successful case study was carried out where we determined heatwave durations of 2 weeks to 2 months as the time periods in which the greatest societal impacts occur in Germany.

### Recommendations

The results of this analysis support the recommendation that those planning hazard and impact analyses should be informed about the time period over which the metrics should be averaged. Averaging metrics over the most impact-relevant durations will lead to a more informed understanding of hazard and impact relationships. The methods developed in this study can be extended to other impact metrics, regions and hazard types to provide more meaningful definitions of climate extremes, guiding future research and a more localised understanding of these events.

### Context

In impact analyses, it is common to see differences in how hazards are defined or quantified. This issue is particularly pronounced in the study of heat waves due to unclear and varying definitions, which hinders the comparability of studies. These differences mainly relate to the time scale used to measure the metrics. Heat waves are typically described as periods of consecutive days with above-normal air temperatures.

In our study, we developed and applied a method to create a more relevant, localised means of quantifying heatwaves through impact-relevant durations. As a case study, we focused on Germany and examined the impact of extreme heat on two key sectors: public health and societal attention. We used modelled meteorological data and observed impact datasets, and applied statistical analysis to derive our findings.

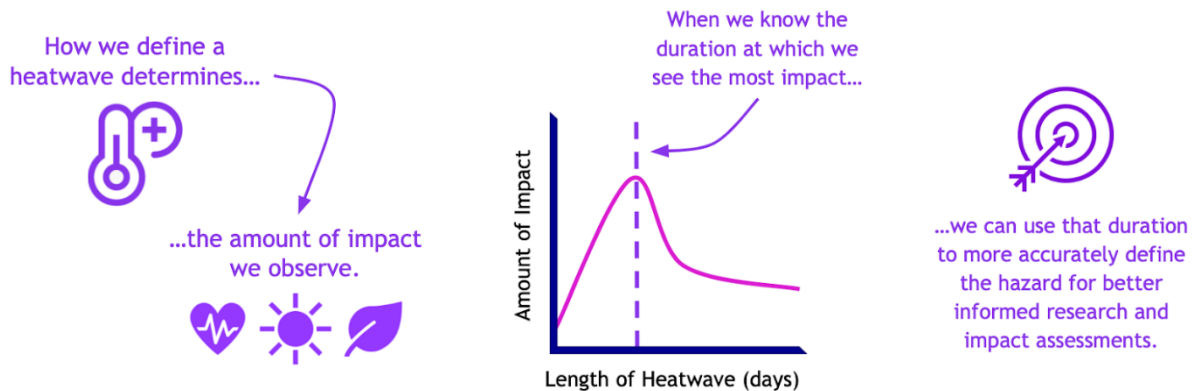


Figure: Schematic overview of the approach used to identify impact-relevant heatwave durations

### Want to know more?

- **Full reference:** De Polt, Ward, de Ruiter, Bogdanovich, Reichstein, Frank, and Orth (2023) *Quantifying impact-relevant heat wave durations*. *Environ. Res. Lett.*
- **Link to paper:** <https://doi.org/10.1088/1748-9326/acf05e>
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