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Beyond Ambient Temperature: A Comparative Analysis of Heat Metrics for Detecting Heatwaves on a Country Level

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Ambient temperature is the standard metric for the detection of heatwaves. However, when considering the impacts on humans the severity in terms of our wellbeing may be underestimated. The field of detecting human-perceived heatwaves is new and fast growing. It is important to recognise the difference in measuring heatwaves using heat metrics in comparison to the standard of ambient temperature. For this approach we develop an algorithm to track heatwaves on a country level through time for the last 30 years. Maximum daily temperature data is used in comparison to the heat metrics of WBGT and UTCI. Through all this, a substantiated knowledge basis should be established of how well the stated heat metrics are detecting heatwave impacts. The findings contribute to the development of standardized and robust approaches for utilizing reanalysis data in conjunction with heat indices, ultimately improving heatwave detection, forecasting and policy development.