Heatwave Prediction Report

Abstract  
  
This study utilizes global surface temperature anomaly data spanning from 1970 to 2023 to identify potential heatwave conditions across various countries. The dataset, which includes annual temperature deviations from long-term averages, provides a foundation for evaluating regional warming trends. To predict possible heatwave events, we flagged instances where annual temperature anomalies exceeded 2.0°C—commonly associated with extreme weather events.  
  
Our analysis reveals that in 2023, several countries, particularly in Europe and North America, experienced significant temperature anomalies surpassing this threshold. Notably, countries such as Bulgaria (4.4°C), Finland (3.9°C), and Canada (3.5°C) recorded some of the highest deviations, indicating likely exposure to heatwave conditions. These findings underscore the accelerating impact of climate change on regional temperature extremes and emphasize the need for climate resilience planning and further meteorological research.  
  
The processed dataset and prediction model can support climate monitoring efforts and help inform policy decisions regarding public health, infrastructure, and environmental management in response to rising global temperatures.