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An insight to heatwave hazard mapping over the Indian subcontinent

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Temperature extremes and heat stress are some of the major impacts of changing climate, with adverse effects on human life and property. Literatures shows that the frequency and intensity of heatwave related hazards are increasing over the last few decades. In global scenario, heatwaves are arguably more hazardous to human lives compared to any other natural disasters. However, heatwave hazard mapping studies are not so profuse over the Indian region. Many regions of the Indian subcontinent have become highly sensitive to heatwaves as a result of the recent rise in temperature extremes. As the heatwave has an impact over an extended spatial region, efficient response and mitigation plan is not possible compared with other natural disasters. India, being the second largest in human population; leading to urbanization, growing intensity of vulnerable community and the anthropogenic influences indicates an urgent need for a well-developed heatwave hazard map to aid the mitigation and response measures. Anthropogenic factors influencing the climate change are one among the main causative parameter for heatwave hazards. The repercussion of these factors will be evidently reflected in the atmospheric patterns and hence the involvement of atmospheric parameters is considered. In this study, we develop a novel index-based heatwave hazard map for India. Along with the conventional method of using temperature, the atmospheric influencing factors is also considered to quantify the changes in heatwave hazard for the historical period and the near future heatwave conditions. The vulnerable community including the farmers, who are attempting to combat with the extreme temperature issues will be benefited with the developed heatwave hazard map.

Keywords: Heatwave hazard map, Climate change, Frequency and intensity, India