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## Can a local weather station be used in place of on-site measurements for heat stress assessment in a sports setting?

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Across the globe, exposure to environmental heat stress may impose increased health and safety hazards to active populations such as athletes and workers. Monitoring heat stress is a key component of a well-designed heat mitigation policy. Yet, the cost of several hand-held heat stress sensors may pose a financial barrier for use in many circumstances. Numerous areas, however, have existing networks of weather stations that could potentially be incorporated into monitoring heat stress. Currently, the Japanese Ministry of the Environment has set up a network of weather stations across the city to monitor environmental conditions in preparation of the 2021 Tokyo Olympic and Paralympic games. Our research question asks how representative are the values recorded at local weather stations (often located over a natural surface) to playing field conditions with various surfaces and microclimate conditions. In the U.S. the WeatherSTEM network has over 600 stations scattered across the country and measures a suite of variables relevant to heat stress including air temperature, humidity, wind speed, solar radiation and models the wet bulb globe temperature (WBGT) values. This study will compare measurements from a local WeatherSTEM station with on-site measurements taken over three different playing surfaces (grass, synthetic turf, and hardcourt tennis) in a humid subtropical climate in Athens, Georgia, U.S. It will also compare WBGT values computed using different models. Our results may provide insight not only for sports but also for the workplace which take place over various surface types and environments.