Continuous Monitoring of Individual Exposure in Extreme Thermal Environments
A Participatory Geo-Sensing Study

**Background.** Climate-related increases in the frequency and intensity of heat event will continue to impact worker health and safety. Emerging technologies such as “wearable” sensors offer a feasible strategy to physiologically monitor the individual response to heat in the workplace in context of environmental conditions.

**Objective.** This study evaluates the spatial-temporal variation of temperature exposure among outdoor workers as well as the occupational, environmental, and behavioral factors that contribute to individual-level heat exposure.

**Methodology.** We evaluate how individual-level variability, which is characterized by data from wearable sensors, relates to large-scale in-situ weather observations. Outdoor workers from three different geographic regions in the southeast were recruited to wear the sensors during a 5-day work period in the summer of 2016 (July-August).

**Results.** There were substantial differences depending on the geographic location, time of day, and ambient temperature of the environment where the work was performed.

**Conclusions.** As wearable technology progresses, real-time temperature health and environmental monitoring at the individual-level across multiple occupational settings will become more feasible and inform targeted heat prevention strategies.