Integrated Social and Behavior Solutions of Extreme Heat to Decrease Impacts on HUSVCs

Terri Adams (tadams-fuller@howard.edu), and ***Sen Chiao*** (sen.chiao@howard.edu), and Ricardo Sakai (ricardo.k.sakai@howard.edu) (Howard University)

Climate change is one of the major drivers for the increased frequency, duration, and intensity of extreme weather and climate-related events. In the past decade, the frequency of weather and climate-related extreme events with losses exceeding $1 billion has skyrocketed (Fact Sheet: Biden Administration, 2021). From 2010 to 2020, the number of weather-related disasters increased to an average of 13 events per year, causing more than $975 billion in damage over the decade. Environmental Protection Agency (EPA) 2021 analysis indicates that racial and ethnic minority communities are particularly vulnerable to the most significant impacts of climate change. One of the deadliest forms of extreme weather is excessive heat and specifically heatwaves. Between 2004 and 2018, there were 10,527 deaths related to extreme heat exposure.

The overarching goal of this research is to expand the weather community's realistic understanding and ability to provide solutions to decrease the impact of extreme heat events on historically underserved and socially vulnerable communities (HUSVCs) and provide actionable data to community stakeholders for short- and long-term extreme heat preparation and mitigation planning. More specifically, the research will use historical and probable future heatwave events to inform the development of innovative methods to disseminate risk communication messages and track decision-making practices among members of HUSVCs such as in Baltimore, Maryland or the District of Columbia.

This study will provide insights on the differential impacts of extreme heat on HUSVCs and non-HUSVCs, effective heat risk messaging techniques, and understanding of behavioral responses to heat alerts. The project's goals will be facilitated through innovative data collection and risk communication dissemination methods as well as an inventive method for assessing human response to weather forecasts and events in urban environment. Realtime indoor weather data will be collected to monitor heat exposure and assessments will be made of the health risks of excessive heat exposure to study participants so that tailored risk communication messages can be developed for dissemination. An app will be developed that merges the weather data, risk communication messages, and behavioral health information to push messages to study participants.