KEEPING OUR COOL:
METROPOLITAN COUNCIL EXTREME HEAT UPDATE

RESILIENT COMMUNITIES PROJECT | RCP 35

About the Partner

The Metropolitan Council is the regional policy-making body, planning agency, and provider of essential services in the seven-county Twin Cities metro area, which is home to over 3 million Minnesotans. The agency's mission is to foster efficient and sustainable economic growth for a prosperous and equitable region.

Project Description

The Metropolitan Council created the region's first land surface extreme heat dataset in 2016. The Extreme Heat Map Tool shows the land surface temperature during a historic July 2016 heat wave and was created using remote-sensing data. Communities can use this snapshot of temperature to determine which areas within their community are most susceptible to extreme heat, and prioritize policies to mitigate risks associated with extreme heat.

Given the increasing prevalence of extreme heat events, updating and expanding the existing tool is a key priority for the Council. The existing extreme heat tool uses a single snapshot of temperature observed during a historic heat wave. With 50 years of Landsat satellite data available including land surface temperature data, the next iteration of the Extreme Heat Tool will build the story of extreme heat has changed spatially and temporally across our growing and changing region.

The Council is also drawing explicit linkages between demographic data and land temperatures to demonstrate the equity and human health considerations with extreme heat. Exploring equity and human health considerations related to extreme heat can underscore the importance of taking action to reduce extreme heat. More strongly linking heat island effects to land use, site design, and land cover can help inform mitigation strategies.

Finally, the Council wants to upgrade the tool to provide a more interactive experience and allow for better decision-making attributes, the potential for scenario planning, and the inclusion of qualitative data to enhance the user experience.

Key Issues, Questions, and Ideas for Students to Explore

1. What are the anticipated impacts of extreme heat on public health and natural systems that can be documented in existing literature on the topic?
2. What qualitative data can be included in the Extreme Heat Map tool to tell the stories of extreme heat from personal perspectives, and demonstrate how human vulnerability to heat manifests itself differently across our diverse Twin Cities region?
3. Conduct a series of recorded and transcribed interviews capturing the experience of extreme heat. Interviews should include the following perspectives: academic, government, advocates, residents, Indigenous people, immigrants, and workers. Questions to explore in these interviews should include the following: How do residents perceive and experience extreme heat in our region? What actions do they take to reduce the effect of extreme heat in their work, running errands, leisure activities, and in their homes? What policy or other changes do they think are critical to addressing the issue of extreme heat?
4. What is the best way to convey qualitative information captured through this project using an interactive web resource? How can the Council create an upgraded tool that better aids in decision-making for key stakeholders?

How Student Work Will Be Used

Giving stakeholders improved tools to act on mitigating the risk of extreme heat by changing built and natural environments through policies, implementation, and sensible site design, we can mitigate the effects of extreme heat and thereby improve public health and livability.

Potential Partners or Stakeholders

The Metropolitan Council may create a technical advisory group of potential tool users that can inform and shape the upgrade of the tool to better serve community needs and aid in decision making.

Existing Plans and Reports

- The Extreme Heat Map Tool https://z.umn.edu/mc-heatmap

RCP–UMN Contact

Mike Greco, RCP Director
University of Minnesota
mgreco@umn.edu | 612.625.7501

Metropolitan Council Project Lead

Ellen Esch, Senior Data Scientist
Metropolitan Council Community Development
ellen.esch@metc.state.mn.us | 651-602-1385