Higher temperatures in cities, often called “urban heat islands,” can be especially difficult for older adults. As people age, their bodies don’t handle heat as well, and older individuals often don’t accurately feel when they are too hot due to age-related physiological changes or existing health problems. This means their feelings about heat can differ from those of other people.

Traditional ways of measuring city heat, like satellite data, often don’t show how hot it really is on the streets where people live and walk. This can lead to the creation of “Hidden Thermal Discomfort Zones” — places where older adults feel significant heat-related discomfort, even though these areas aren’t included on broader heat maps. Although methods like surveys or sensors exist, they have not always been combined to better understand the heat challenges faced specifically by older people.

The goal of this study is to better identify these Hidden Thermal Discomfort Zones by combining different methods. The study will look at general patterns of felt discomfort across parts of the city, and then take a closer look at specific locations, linking people’s subjective feelings with data from body sensors and local temperature measurements. This will make it possible to accurately understand how older adults experience urban heat.

As part of the study:

- About 300 older residents (aged 60 and over) will be asked to mark on digital maps places they find too hot or pleasantly cool, and areas where trees could provide needed shade.
- About 60 older adults will participate in guided thermal walks. During these walks, they will wear small sensors that monitor how their bodies respond to heat. Additionally, a special phone app will record their comfort levels in real time and measure the temperature and humidity of the surrounding air.

Data from these thermal walks will help confirm the results of the broader study. Combining this information with satellite data will allow for a full understanding of the Hidden Thermal Discomfort Zones.

The results will help create detailed maps showing where these often overlooked very hot areas are located. This will be possible by combining satellite data with direct reports of discomfort, bodily reactions, actual exposure to high temperatures, and cooling needs. The study will also help determine the best ways to measure the real heat experiences of older adults, improving future research. Ultimately, the results will help cities develop more effective strategies to deal with extreme heat and improve the safety and quality of life for older residents.