

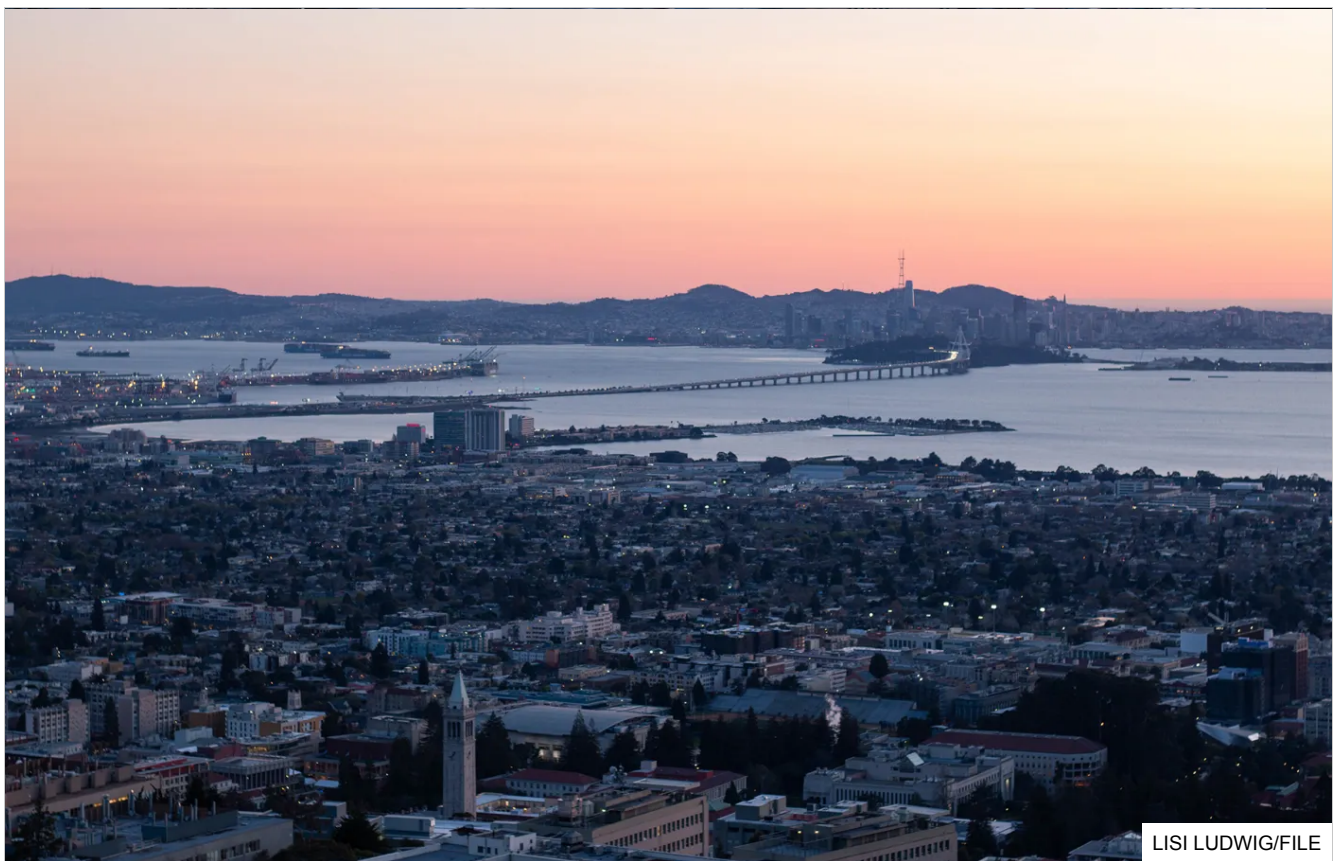
[News](#) [Sports](#) [Arts](#) [Opinion](#) [Blogs](#) [Multimedia](#) [Weekender](#) [Featured](#)

[CAMPUS](#) [CITY](#) [COUNTY](#) [UC](#) [STATE](#) [NATIONAL](#) [ASUC](#) [OBITUARIES](#) [RESEARCH & IDEAS](#) [ELECTIONS 2020](#) [COVID-19](#) [NOTES](#)

RESEARCH & IDEAS

TUESDAY, AUGUST 16, 2022

UC Berkeley researchers find heat index greatly underestimates its values



LISI LUDWIG/FILE

UC Berkeley researchers seek to remedy the inaccuracies of Steadman’s heat index model in hopes that people may be better informed during future heat waves.

BY AYAH ALI-AHMAD | STAFF

LAST UPDATED 18 HOURS AGO

An analysis paper by two UC Berkeley researchers found the heat index used by the National Weather Service, or NWS, as an approximate “feels-like” temperature can be extremely inaccurate for severe heat waves.

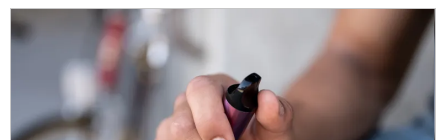
Campus professor of earth and planetary science David Romps and doctoral student Yi-Chuan Lu set out to understand how humans regulate their core temperature using sweat and blood

[Tweet](#)

0

[Comment](#)

RELATED POSTS



flow when they came upon physicist Robert Steadman's 1979 heat index model, according to Romps.

"We quickly realized that the heat index is a pretty fantastic tool for understanding how humans experience extremely hot and humid weather," Romps said. "Human bodies respond not to temperature alone, but to temperature and humidity, and the heat index embodies how the human body reacts to that combination."

According to Romps, Steadman's model is flawed, as it can only calculate the heat index for a certain range of temperatures and humidities, leaving gaps in his charts. Lu worked to accommodate for the equations' errors and revised them to give a more accurate index value for higher temperatures.

The researchers found that the NWS, which uses Steadman's model and an approximation for the undefined regions, has underestimated the heat index baseline extrapolations by as much as 20 degrees Fahrenheit. In the paper, Romps picked two of the most extreme heat waves that occurred since 1984 to correct the discrepancies reported by NWS.

"Given a heat index, it not only tells us how hot the environment feels like, but it can also tell us: in order to keep ourselves cool, the skin blood flow has to bump to some certain value, which imposes high cardiovascular demands," Lu said in an email.

Romps said an accurate heat index is the difference between implying that it feels hot or that people are approaching their physiological limit, stressing their cardiovascular system and organs.

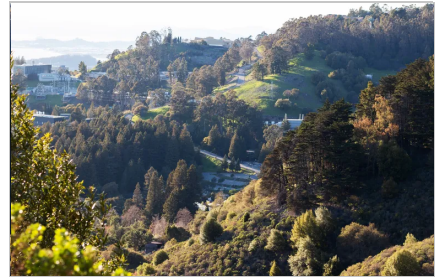
Romps plans to continue research with their refined equations by using experimental data to test the accuracy of the heat index in practice. He hopes it can be used to reveal more information about a person's conditions in future heat waves.

"(We) are trying to understand not just how to think about heat waves today and how they affect people, but also we want to think about heat waves of tomorrow and how they will affect people," Romps said.

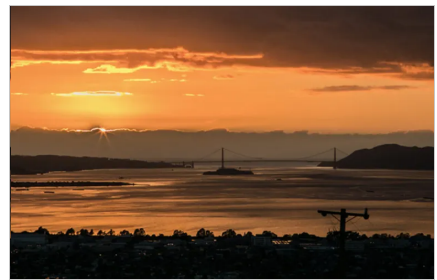
Contact Ayah Ali-Ahmad at [\[email protected\]](#), and follow them on Twitter at [@ayahaliahmad](#).



UC Berkeley researchers find high nicotine doses activate aversive dopamine network



Berkeley Fire Department cautions residents amid fire weather



National Weather Service issues excessive heat watch for East Bay Hills