UC Berkeley team tests portable water harvester device to pull water out of air

By Dan Ashley and Timothy Didion

Tuesday, August 8, 2023 12:43PM
BERKELEY, Calif. (KGO) -- If you ever find yourself searching for water in the middle of Death Valley, you're probably in a lot of trouble. But for Zach Zheng and his colleagues Ali Alawadhi, and Woochul Song from U.C. Berkeley, it was just part of the challenge.

"We decided to take the biggest challenge, which is go to the center of the park, the Furnace Creek, you know, the, the most challenging part and then so, we were very lucky," says Zheng.

Lucky, in part, because they didn't arrive empty handed. The team set up an experimental device on the valley floor that is best described as a portable water harvester. It looks something like a small telescope tilted at an angle. But its purpose is to pull water out of the air. In this case, the hottest and driest air they could find for their test.

"I was very excited. So I just stay there, even though it's super hot. So I just wanted to watch it, he adds.

**MORE:** [These are challenges the Bay Area faces in eliminating 'forever chemicals' in water, experts say](https://abc7news.com/portable-water-harvester-uc-berkeley-clean-technology-pull-from-air/13613990/)
These are challenges the Bay Area faces in eliminating 'forever chemicals' in our water, according to local experts.

To understand his excitement, it helps to take a quick detour from the desert to the lab.

That's where U.C. Berkeley Professor Omar Yaghi, Ph.D., pioneered the water capturing ingredient at the heart of the device. A synthetic material known as a MOF, for metal-organic frame work. While it looks like a powder to the naked eye, put it under the right microscope and you'll see a chain of molecules.

Prof. Yaghi explains that the specialized molecules are extremely porous, with a surface area roughly the size of a football field in just a small amount.

**MORE:** [Research teams gather data on storm pollution impact on San Francisco Bay](https://abc7news.com/portable-water-harvester-uc-berkeley-clean-technology-pull-from-air/13613990/)
"So, that's the space into which one can bind gases like hydrogen for hydrogen storage, carbon dioxide, carbon from the air, or in this case, water," he says.

"The amazing thing is that we can even go into these on a molecular level and surgically add chemical groups or take away chemical groups to fashion the interior of the pores, so that they can selectively seek out water from the air and trap it and concentrated into the into the pores."
But the question for Zach and his colleagues was whether the portable device would be efficient enough to condense water molecules from the hyper-dry desert air. So in the baking sun, they watched and waited for the first tiny drops to appear.

"Until it finally just dropped out, he says. "And it took about 60 seconds or so, I saw the drop is out and said, Oh, it works!"

The Berkeley team says the MOF-based system is different than other clean water technologies because it can be completely powered by ambient sunlight, and produces no emissions.
With the latest results, they hope the water harvester can impact populations in the most drought-stricken corners or the planet. Providing clean, safe and potentially lifesaving drinking water pulled from thin air.
UC Berkeley team tests portable water harvester device to pull water out of air - ABC7 San Francisco

Get ABC7’s top stories delivered to your inbox every morning

Sign up for our daily newsletter

Email Address*

Name@emaildotcom

Yes! I would like to receive the Daily News Headlines Newsletter. By creating an account, you agree to our Terms of Use and acknowledge that you have read our Privacy Policy and US State Privacy Rights Notice.

Sign Up

Report A Correction Or Typo

Copyright © 2023 KGO-TV. All Rights Reserved.

Related Topics

TECHNOLOGY  UC BERKELEY  WATER  HEAT  AIR QUALITY  SCIENCE

DRINKING WATER  HARVEST

FROM THE WEB

How Much Does It Cost To Replace Old Windows With New, Energy Efficient Ones?
rbafibrexwindows.com

PUMA RS-X Unexpected Mixes Women's Sneakers in Pastel Parchment/Bridal Rose/Sulphur, Size 5.5
Puma
Kidman: Forget Retinol, This ‘Vitamin’ Erases Wrinkles & Age Spots (And It’s Selling Out Fast)

New York City doctor accused of drugging, filming rape victims at home, hospital

Zoom, key player in remote work revolution, orders some employees back to office

Body of hiker missing for 37 years discovered in melting glacier

Start Sustainable Weight Loss with Semaglutide Today!

Henry Meds

The 2022 Blood Pressure Monitor Accuracy Test – DocReviews

Doc Reviews

Government to pay Camp Lejeune victims $21 billion

Camp Lejeune Claims
UC Berkeley team tests portable water harvester device to pull water out of air - ABC7 San Francisco