

Lighting the way to harvest water from air

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Worth their salt: Three common salts—(L-R) magnesium sulfate, copper chloride and copper sulfate—were effective in capturing water from air with relative humidity as low as 15 percent. Credit: KAUST

A low-cost method for collecting water from the atmosphere could be used to provide potable water to dry, inland regions.

Commonly available salts and sunlight can harvest [water](#) vapor from the air to provide potable water to arid and land-locked regions of the world.

Many parts of the world, such as the sub-Saharan countries of Africa, have little or no access to surface water or ground-water supplies and often have to rely on the transportation of fresh water over long distances, which is costly and inefficient.

Yet even in the driest desert regions there is an abundance of water in the atmosphere, consisting of water vapor and [water droplets](#). The atmosphere has been estimated to contain as much as six times more water as all the rivers on Earth and around 10 percent of all the [fresh water](#) in lakes.

Now, Ph.D. student Renyuan Li and his supervisor Peng Wang from KAUST have investigated the effectiveness of commonly available salts that capture [water vapor](#) from the air at night, and when placed under sunlight, release drinking water.

"Although techniques like engineered-cold surface-induced condensation or fog harvesting are used around the world, low year-round relative humidity levels and a lack of power to run condensers often prevent the harvesting of atmospheric water for many regions," says Li.

More information: Renyuan Li et al. Harvesting Water from Air: Using Anhydrous Salt with Sunlight, *Environmental Science & Technology* (2018). [DOI: 10.1021/acs.est.7b06373](https://doi.org/10.1021/acs.est.7b06373)

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