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Love that fresh soil smell after a nice rain?

Most of us think of that sweet smell after a storm as the aftereffect of rain that has rinsed the air of pollutants and dust. But it turns out that rain also triggers the release of a mist of particles from wet soils into the air, a finding with consequences of its own for how scientists model our planet's climate and future.

The evidence comes in the form of tiny glassy spheres, less than one-hundredth the width of a human hair, discovered at the Great Plains of Oklahoma after a rainstorm and put under scrutiny by scientists at several U.S. Department of Energy facilities. The study appears May 2 in Nature Geoscience.

According to the authors, scientists have largely assumed that organic particles from the soil enter the air through erosion by wind or through agricultural work. The effects of rain splash haven't been part of the discussion.

But the team's field observations indicate that up to 60 percent of particles that are airborne after a rainstorm in certain areas, such as grasslands and tilled fields, come from the soil. These organic particles are carbon-based and come from decaying vegetation and organisms. The tiny bits of organic matter can hold tremendous sway over our climate, playing a role in the fate of sunlight as it hits Earth.

Authors of the study are from two DOE Office of Science user facilities — EMSL, the Environmental Molecular Sciences Laboratory at the [Pacific Northwest National Laboratory](#), and the Advanced Light Source at Lawrence Berkeley National Laboratory — as well as the Berkeley Lab and the University of Massachusetts at Amherst.

Chemist Alexander Laskin led the team at PNNL and chemical scientist Mary Gilles led the group at the Berkeley Lab.

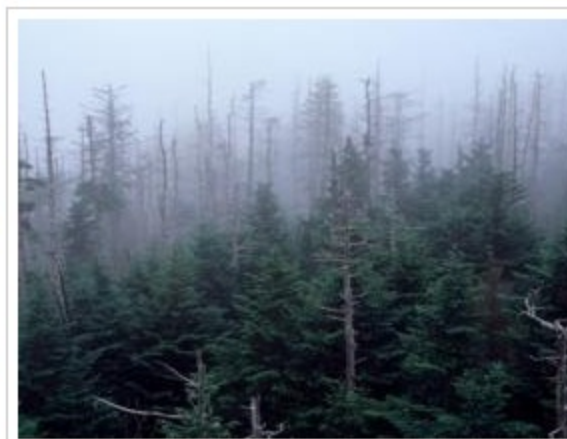
Photo credit: [buildingindustry.org](#).

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