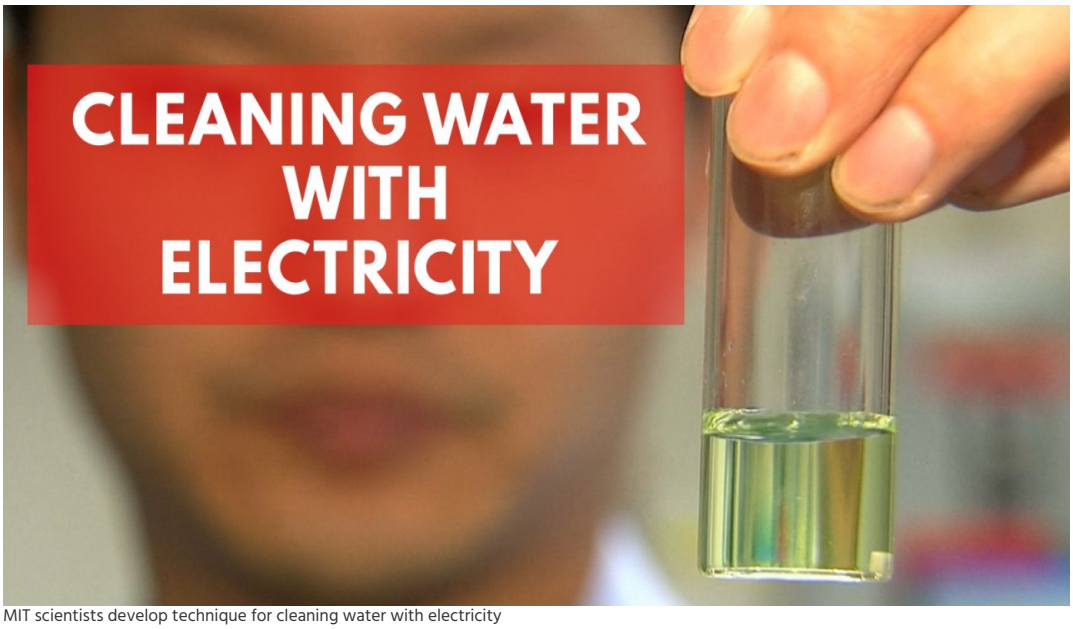
Tiny Pollution Particles Have Strong Influence On Storms And Rains

29 January 2018, 6:19 am EST By Samriddhi Dastidar Tech Times



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Ultrafine particles linked to pollution can have a powerful impact on the intensity of storms and precipitation. Even the tiniest of particles can have a significant effect on the strength of a storm. (Pixabay)

Tiny particles in the air might have a greater influence on how powerful storms can be than previously believed by scientists, new research suggests.

The study describes the role of pollutant particles from industrial and urban pollution, aerosols, wildfire, and others sources.

Tiny But Powerful Particles

Scientists know that aerosols play a significant role in influencing climate and weather. The new findings from the study show that the even the tiniest of particles can have a significant impact on weather conditions. Even particles one-thousandth the width of human hair can make storms more intense. It can also increase cloud size resulting in more rainfall.

"This result adds to our knowledge of the interactions between aerosols, clouds and precipitation. In areas where aerosols are otherwise limited, such as remote regions of the Amazon rainforest, ultrafine aerosol particles can have a surprisingly strong effect," said Zhanqing Li, a professor at the University of Maryland and a co-author of the study.

Li added that the study would enable the researchers to know more about the physical mechanisms of intense storm formation and cloud development, which can help in developing better methods for predicting storms.

The Impact Of Ultrafine Particles

The research team analyzed how ultrafine particles affect storm cloud formation. The said particles were less than 50 nanometers in width.

The scientists found out that in specific conditions, smaller particles are more powerful in invigorating clouds compared to larger ones. Water vapor can escalate to extreme levels when there are no large particles that are capable of attracting airborne moisture. In this kind of environment, the relative humidity can increase by more than 100 percent.

Though ultrafine particles are tiny, their number can increase quickly. These particles form a lot of small droplets that efficiently and rapidly suck in the atmosphere's excess water vapor. The process of enhanced condensation generates more heat which increases the strength of updrafts. As clouds pull more warm air, more droplets form, creating a runaway greenhouse effect which, in turn, leads to stronger storms.

GoAmazon Research Campaign

The study used the data made available by the Atmospheric Radiation Measurement Climate Research Facility's Green Ocean Amazon research campaign for the study.

The research used the data collected from the Amazon, which is largely pristine except for the area around Manaus, the region's largest city and home to approximately two million people. The data utilized airborne and ground-based measurements linked to the Amazon climate from January 2014 to December 2015.

Scientists got the rare chance to observe how pollution affects atmospheric processes in a primarily pre-industrial environment, enabling them to pinpoint the impact of the particles while isolating other than factors such as humidity and temperature.

The study has been published in the journal *Science* on Jan. 26.

TAG Pollution , storms , Precipitation

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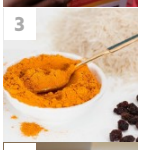

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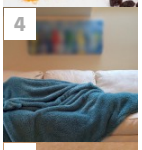

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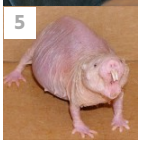

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