

A proposal to use electric charges to encourage raindrops to form in clouds

February 9 2022, by Bob Yirka



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A quartet of researchers, three with the University of Reading, the other with the University of Oxford, reports evidence that sending an electric charge into a rain-free cloud could result in the formation of raindrops.

In their paper published in *Proceedings of the Royal Society*, A, M. H. P. Ambaum, T. Auerswald, R. Eaves and R. G. Harrison describe their calculations showing that altering the electrostatic charge in moisture-laden clouds could lead to greater variation in charge, resulting in the formation of raindrops.

As the [climate change](#) progresses, scientists have predicted that some regions will become drier. Officials in the United Arab Emirates have taken such predictions seriously and are investing in technology to increase the amount of rainfall in their country. To that end, they have paid for the research involved in this new effort.

The work involved calculations of the electrostatic forces between two conducting spheres—in this case, water spheres that have not yet grown large enough to be described as raindrops. They found that the greater the variation in charges between droplets, the stronger the attraction between them. And that led them to suggest that if the variation was increased via an electric charge, the droplets would merge, leading to the formation of [rain](#) drops. As droplets merge and grow in size, additional electric charge should result in mergers between droplets until they become large enough for gravity to take over and they fall.

The researchers suggest that an [electric charge](#) could be administered to overhead clouds via drones, planes or even high towers. They further suggest that doing so could not only produce rain where it is desired, but could prevent rain falling where it is not by forcing thunderclouds to drop their rain before they move into such areas—preventing the formation of tornadoes, for example. And they further suggest the technique might work in areas that experience fog but not much rain.

More information: M. H. P. Ambaum et al, Enhanced attraction between drops carrying fluctuating charge distributions, *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*

(2022). [DOI: 10.1098/rspa.2021.0714](https://doi.org/10.1098/rspa.2021.0714)

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