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## Kara Lamb and Pierre Gentine Awarded 3-Year Zegar Family Foundation Grant for “AI Cloud Seeding Project”



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[Dr. Kara Lamb](#), Associate Research Scientist in Columbia University’s Department of Earth and Environmental Engineering, and [Dr. Pierre Gentine](#), Maurice Ewing and J. Lamar Worzel Professor of Geophysics at Columbia University, have been awarded a three-year \$600,000 grant from the Zegar Family Foundation to support their project, “Optimizing the Where’s and How’s of Cloud Seeding Using Artificial Intelligence” (the “AI Cloud Seeding Project” or “the Project”).

The [Zegar Family Foundation](#) aims to make meaningful tangible impacts to improve the world around us, and focuses its charitable giving in the key focus areas of environment and sustainability, and justice and human rights. Pursuant to its mission and giving focus, the Foundation is pleased to support the Project, based at [Columbia Engineering](#).



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The three goals of the Project are:

1. Improving the understanding of precipitation processes in wildfire-prone regions in the western United States, using machine learning;
2. Evaluating strategies to optimize cloud seeding in atmospheric models that simulate the atmospheric conditions present in the western U.S.; and
3. Improving the understanding of aerosol-cloud-precipitation pathways in realistic atmospheric conditions using the atmospheric models.

Accordingly, the Project seeks to more efficiently predict where convection and cloud formation occurs, and understand how cloud seeding can maximize cumulative surface rainfall using AI.

Lamb, a PI co-leading a project on ice microphysics at the NSF-funded Science & Technology Center, [Learning the Earth with Artificial Intelligence and Physics \(LEAP\)](#), is personally interested in the wildfire mitigation question. “[There are] several previous studies on the severity of wildfires and their air quality impacts. Understanding this problem requires a pretty sophisticated understanding of aerosol-cloud interactions, which is a very important question in the context of climate change.” The Foundation’s grant “provides an opportunity to explore fundamental science questions related to aerosol-cloud interactions ... [and] the methods we develop [in this Project] could also be used in the context of other similar problems in the geosciences [and help design] climate adaptation and mitigation strategies.”

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