# Cloud radar simulator bridges gap between climate models and field data

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A new ground-based simulator is bridging the gap between cloud radar observations and the clouds simulated by climate models. Credit: US Department of Energy

Researchers looking to compare climate model-simulated clouds and cloud observations from the ARM Climate Research Facility can access

a helpful new tool.

In a paper published by the *Bulletin of the American Meteorological Society* (*BAMS*), researchers described the development of an ARM radar simulator that converts model data to what a cloud radar can directly observe.

"The creation of the ground-based cloud radar simulator represents an important step that ARM has taken to address the gap between field data and models, and make the data-model comparison more meaningful," says principal investigator Shaocheng Xie of Lawrence Livermore National Laboratory (LLNL).

The simulator bridges differences between climate model-simulated clouds and ARM radar observations in how they address spatial scale and properties of liquid and solid water in the atmosphere. The new tool has been incorporated into the Cloud Feedback Model Intercomparison Project Observation Simulator Package (COSP), a community satellite simulator package. Users can find the simulator and COSP on GitHub.

"We are currently working with major modeling centers around the world to implement the ARM radar simulator in their weather and/or climate models, and expect a great use of ARM data in their routine model evaluation through this effort," says LLNL researcher Yuying Zhang, the paper's lead author.

**More information:** Yuying Zhang et al. The ARM Cloud Radar Simulator for Global Climate Models: A New Tool for Bridging Field Data and Climate Models, *Bulletin of the American Meteorological Society* (2017). DOI: 10.1175/BAMS-D-16-0258.1

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