

THE ARM WIND PROFILER NETWORK – EVALUATION OF PAST PERFORMANCE, THE NEW SAMPLING STRATEGY AND FUTURE APPLICATION IN CLIMATE RESEARCH

Pavlos Kollias, Scott Giangrande, Charles David Mathieu-Poulin, *McGill University*
Michael Jensen, *Brookhaven National Laboratory*
Brad Orr, Richard Coulter, *Argonne National Laboratory*

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P.O. Box, Upton, NY
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ABSTRACT

The ARM Program operates several wind profilers at the ARM Climate Research Facility (ACRF) Southern Great Plains (SGP) site. So far, the long-term record of wind profiler observations has been greatly underutilized by the ARM science community; and the ARM sunset committee considers the option to terminate their operation. The underutilization of the wind profiler observations can be attributed to the stringent data format and variables that make the data difficult for use by the scientific community, but also on the fact that the measured winds are also available from sounding and large-scale model output. In the attempt to revitalize the interest of the ARM science community to use the wind profiler data, we reprocessed all the available data, and we will present examples of use of wind profiler observations for model evaluation. Our initial findings lead us to recommend the change of the sampling strategy of the wind profilers in order to convert them to low-cost profiling precipitation radars. Thus, with support from the ACRF infrastructure, we began a one-year redeployment of two ACRF 915-MHz radar wind profilers with a co-located disdrometer to locations within the Collaborative Adaptive Sensing of the Atmosphere (CASA) IP-1 scanning radar array and within the area covered by the National Weather Service S-band polarimetric testbed radar (KOUN) in the southwestern quadrant of the ACRF SGP domain. The primary goal of the intensive operational period (IOP) is to collect a long-term dataset on convective cloud vertical velocities and precipitating cloud microphysics from multiple, independent instruments and thus evaluate the potential of the wind profiler to provide profiles of vertical velocity in convective clouds. Details and some initial results from this IOP also will be presented in the poster.

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