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# ARCTIC RESEARCH

OF THE UNITED STATES



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**Cover Caption:** With permanent observation sites in Barrow and Atkasuk, Alaska, the Atmospheric Radiation Measurement (ARM) Climate Research Facility is providing continuous data about cloud and atmospheric properties for the Arctic research community. In 2004, researchers sponsored by this user facility conducted the Mixed-Phase Arctic Cloud Experiment at the North Slope of Alaska. Evidence has shown that mixed-phase clouds are poorly represented in both regional and global climate models. Using both surface-based and airborne instrumentation, the researchers successfully obtained a comprehensive data set of Arctic boundary-layer and multi-level mixed-phase clouds. Featured on the cover are just a few of the surface instruments and aircraft probes used during the campaign; a sample flight path is visible in the background. Some initial results of the experiment are described in this report. Managed through the US Department of Energy (DOE), Office of Science, the ARM Climate Research Facility, is part of the Arctic Observing Network and is available to scientists worldwide for interdisciplinary studies of earth systems. (Image courtesy of Chris DeGraaf, Pacific Northwest National Laboratory, for the US DOE ARM Program.)

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Toward a U.S. Contribution to  
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