Continuous Improvement

While every effort is made to ensure the quality and accuracy of the data, the occasional problem does arise. If quality issues are discovered while using ARM data, please contact the Data Quality Office at ***armdataquality@arm.gov*** or see ***dq.arm.gov*** for online reporting options. Be sure to include the datastream names and a description of the problem or error received.

One-Stop Shopping: Getting the Data You Need

From the ARM Data Archive, ***www.archive.arm.gov***, users can select routine data by browsing in the new ARM Data Discovery Tool—the first interface listed on the page. This tool features pre-selected sorts and search logic to help you find atmospheric and climate data faster. As each selection is made, only ARM data meeting the criteria remain visible, leading to the datastream that best suits your needs. When data are ordered, the Data Archive will process and deliver the selected data to a file transfer site for downloading.

To assist the ARM Data Archive in reporting user statistics, users are requested to create accounts. Accounts are free and available to anyone. A limited amount of information about users, including names and affiliation, will be made available through the U.S. Department of Energy Office of Science. Account holders will also receive important alerts about the data previously delivered to them.

What You Need To Do

Go to the Data Discovery Tool, which features filtered and faceted search results, multi-pass data selection, graphical views of data quality and availability, direct access to data quality reports, and data plots.

www.archive.arm.gov/discovery

To search for data, choose a measurement category or enter a keyword in the search box at the top of the screen. Additional options based on your search allow you to further refine your results. When you have created and placed your data order, you will receive email notification that your data are available for pickup on the Data Archive ftp site.

Any questions? Refer to the ARM website for technical contacts and specific information about the data.

www.arm.gov

Contact Information

Data Archive
www.archive.arm.gov
armarchive@arm.gov
1-888-ARM-DATA

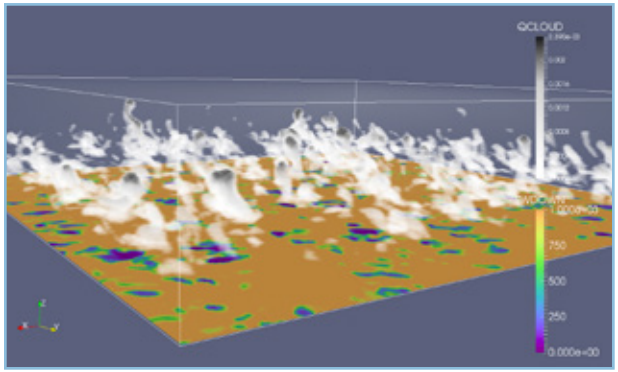
Data Quality Office
www.dq.arm.gov
armdataquality@arm.gov
405-325-6667

Technical Director's Office
www.arm.gov
www@arm.gov
509-375-4533

U.S. DEPARTMENT OF ENERGY | Office of Science

ARM
CLIMATE RESEARCH FACILITY

Ordering ARM Data



A U.S. Department of Energy Scientific User Facility

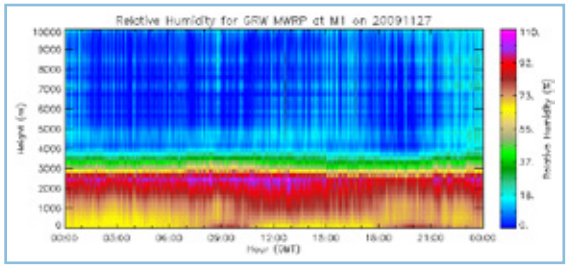
DOE/SC-ARM-15-087

Atmospheric Data From Sites Around the World

The Atmospheric Radiation Measurement (ARM) Climate Research Facility operates several highly instrumented ground stations, three mobile facilities, and an aerial facility to study the effects of clouds, aerosols, and radiative feedback processes on global climate change. This U.S. Department of Energy scientific user facility strives to deliver atmospheric data reliably, quickly, and in a useful format to the scientific community.

Three fixed ARM locales represent a broad range of climatic conditions: the **Southern Great Plains** in Oklahoma, the **North Slope of Alaska**, and the **Eastern North Atlantic**, off the coast of Portugal. The portable ARM Mobile Facilities enable data collection in different climate regions, and the ARM Aerial Facility provides airborne measurements to enhance ground-based measurements. Numerous instrument platforms are available at each site, including:

- radiometer suites measuring solar and terrestrial radiation
- tower-mounted instrument to measure wind, temperature, and humidity
- sensors that measure soil moisture and thermal properties
- a host of cloud-observing instruments that measure cloud extent and microphysical properties, and
- instruments that observe atmospheric aerosols.



Data collection began at the Southern Great Plains in late 1992 and at the North Slope of Alaska in 1997. Data were also collected in the Tropical Western Pacific from 1996 to 2014. In late 2013, data collection began on Gracisoa Island in the Azores in the Eastern North Atlantic.

Data generated by ARM instruments are transmitted to the ARM Data Archive for distribution. A sophisticated infrastructure process the data from all sites on an hourly basis and make daily updates available for general users through satellite networking, specialized data movement processes, and a tight configuration management process.

Keep the Data Flowing

Because data are the primary resource for the research community, our goals in managing the volume of ARM data are to:

- transfer measurement data from the sites to the central Data Management Facility
- "ingest" data into a common, standardized format (e.g., NetCDF, a self-describing binary format) and process into a series of daily files with a similar structure, which is referred to as the datastream
- create documentation describing the datastream
- perform quality analysis of the data
- perform supplemental processing, which results in derived data (aka "value-added products")
- reprocess measurements as necessary to correct errors or otherwise ensure a complete, representative data set
- acquire and process non-ARM data products of interest to the scientific community through the External Data Center
- transfer raw and processed measurement data to the Data Archive
- make data files freely and publicly available to a globally distributed user community.

Quality Data—And Lots of It!

Serving nearly 1300 registered scientific users from approximately 15 federal and state agencies, over 200 foreign and domestic universities, across 30 countries, the ARM Data Archive collects and delivers about 17 terabytes of data per month.

As part of the data collection effort, ARM scientists and infrastructure staff developed an extensive data quality program. ARM's Data Quality Office is responsible for ensuring that quality assurance results are communicated to (1) data users, so that they may make informed decisions when using the data, and (2) ARM's site operators and engineers, to facilitate optimal instrument performance and minimize the amount of unacceptable data collected. Through the use of tools like the Data Quality Explorer (DQ Explorer) and NCVweb, an interactive data plotting tool, data quality staff inspect and assess ARM data on a near real-time basis. Supplemental processing of the data files also occurs to create new file levels that include quality flags and thumbnail views of the data plots.