One-Stop Shopping: Getting the Data You Need

From the ARM Data Archive, *www.archive.arm.gov*, users can select various methods for ordering routine data or data collected from field campaigns. Data can also be selected by browsing the Instruments, Measurements, and Data web pages on *www.arm.gov.* These pages provide a series of selection criteria that leads to the datastream that best suits the user's need.

When data are ordered, the Data Archive will process and deliver the selected data to an ftp site for downloading. Data quality information and visualizations (i.e., data plots of the selected data) are also available.

To assist the ARM Data Archive in reporting user statistics, users are requested to create accounts. Accounts are free and available to anyone. Information obtained from these accounts is never shared and is used only for the purpose of characterizing the user community as a group. Account holders will also receive important alerts about the data previously delivered to them.

ARM Data Archive

Data collected through the routine operations and scientific field experiments of the ARM Climate Research Facility are stored at and distributed through the Archive. These data are available to the public free of charge. Data can be acquired via the methods described below or by browsing the "instruments", "measurements", and other tabs above and looking for pages that have "Build an Order" in their right-side navigation.

Get routine ARM data

Data Browser [?]
Select datastreams, view quality information about the data and order data files with the Data Browser. The "Novice Interface" guides new users through the process, while the "Datastream Interface" is designed for users experienced with ARM data.

Data Cart [?]
Browse ARM website pages to find datastreams of interest to place in the Archive data cart. This can be done by clicking "Build an Order" from any instrument, measurement, datastream, or VAP page.

Catalog Browser [?]
The catalog based user interface presents, in an interactive sequence of tables, a hierarchical summary of available data files organized in a way that will be useful to the inexperienced, as well as the expert Archive user.

Thumbnail Browser [?]
View prepared plots of data to quickly find data of interest to you. The thumbnail browser uses location, measurement type and date range selections to retrieve data plot thumbnails that the user can browse. You can also download high-resolution images of the data plots, or download the data files.

Statistical Browser [?]
Users select a location and measurement and then drill down through time scales ranging from the full period of record to individual months. In addition to viewing graphs displayed by this interface, access to extractions of data behind the statistical graphs, obtain the measurements that were used for the statistics, or place the order for related ARM data files.

What You Need To Do

1. Go to the Data Archive website, *www.archive.arm.gov*.
2. Select an interface to browse for data.
3. Enter your Data Archive user name, or sign up for a free account. To preview available data, browse the Instruments, Measurements, or Data web pages at *www.arm.gov*.
4. Answer selection criteria of time, location, and measurement type to build your order.
5. Receive email notification of the data delivery.
6. Go to ftp site and pick up the data.

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

Contact Information

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

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

Technical Coordination Office
www.arm.gov
www@arm.gov
509-375-2111

ARM
CLIMATE RESEARCH FACILITY

Ordering ARM Data


U.S. DEPARTMENT OF ENERGY | Office of Science

A U.S. Department of Energy Scientific User Facility

Atmospheric Data from Sites Around the World

The Atmospheric Radiation Measurement (ARM) Climate Research Facility operates several highly instrumented ground stations, two mobile facilities, and an aerial facility to study the effects of clouds 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 permanent ARM locales represent a broad range of climatic conditions: the **Southern Great Plains** in Oklahoma, the **Tropical Western Pacific**, and the **North Slope of Alaska**. 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 from each site, including radiometer suites that measure solar and terrestrial radiation; tower-mounted instruments that measure wind, temperature, and humidity; subterranean sensors that measure soil moisture and thermal properties; a host of cloud-observing instruments that measure cloud extent and microphysical properties; and instruments for observing atmospheric aerosols. Data collection began at the Southern Great Plains in late 1992, at the Tropical Western Pacific in 1996, and at the North Slope of Alaska in 1997.

Relative Humidity for GRW MWRP at M1 on 20091127
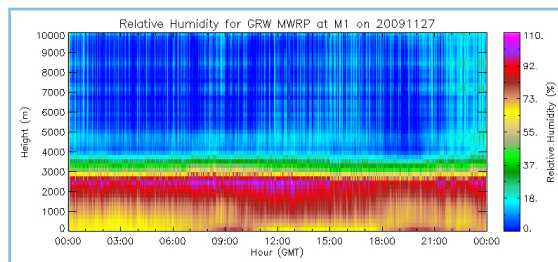
Data generated by ARM instruments in the field are transmitted to the ARM Data Archive for distribution. Sophisticated networking and computing infrastructure process the data from all sites on an hourly basis and make daily updates available for general users through satellite networking, specialized 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 ARM 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 5000 registered users from over 15 U.S. agencies, 375 universities, and 67 countries, the Data Archive collects and delivers about 5 terabytes of data per month. Web-based interfaces enable both new and experienced users to navigate over **180 terabytes** of available data and select sets from nearly **9.8 million data files** collected as of October 2009.

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 Healthy and Status (DQ HandS) tool and the 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.

Reporting Problems Equals 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.