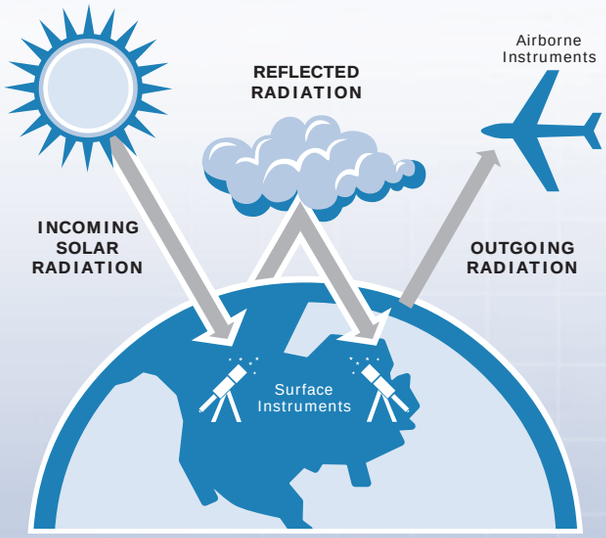
Climate Data for the World

A primary objective of the U.S. Department of Energy's Atmospheric Radiation Measurement (ARM) Program is to improve scientific understanding of the fundamental physics related to interactions between clouds and radiative feedback processes in the atmosphere. To achieve this objective, the ARM Climate Research Facility (ACRF) operates sites around the world to obtain continuous field measurements of cloud and atmospheric properties and provides data products that promote the advancement of climate models.

This includes support to archive and analyze climate change data, including data from the ACRF sites, and data on greenhouse gas emissions and concentrations. As a user facility, the ACRF makes these data freely available to the global climate change research community through the Data Archive.



Join the Data Products Party!

Anyone who uses ARM data—in whole or in part—for their research can share their data products with the global research community via the Data Archive. And it's deceptively easy to do….

Steps

1. PI contacts a Working Group Translator
2. PI provides a description to determine Working Group assignment and translator
3. Translator coordinates with Working Group Steering Committee to decide acceptance
4. Infrastructure Representative works with PI to describe data product specifics
5. Infrastructure Representative coordinates delivery to the Data Archive
6. Working Group announces availability.

Contact Information

Working Group Leaders and Translators

http://www.arm.gov/about/arm_science_team.php#wgl

Infrastructure Representative

Robin Perez, robin.perez@pnl.gov

Data Archive

1-888-ARM-DATA or info@arm.gov

Office of Science
U.S. DEPARTMENT OF ENERGY

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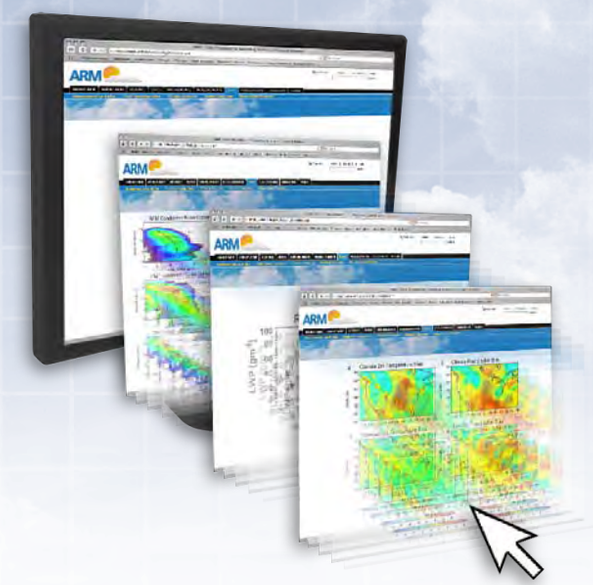


Science and Research Data Products

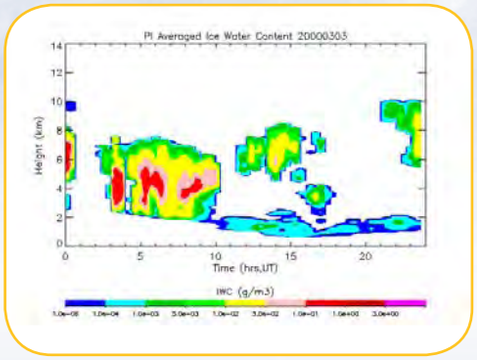
Atmospheric Radiation Measurement
Climate Research Facility
U.S. Department of Energy

Atmospheric Radiation Measurement Program

Data Products: We Want Your Data!

Data products are the result of scientific analysis and processing of existing data collections to provide enhanced information or to improve the quality of existing measurements. These data products are produced by scientists—regardless of funding source—who use ARM data for their research. Historically, these were referred to as Principal Investigator (PI) Data Products.

Unfortunately, many of these useful datasets reside with the individual researcher, making it difficult, if not impossible, for other scientific colleagues to access them. This also presents the risk that the data products could eventually be "lost" for various reasons.



Continuous baseline microphysical retrieval results from M. Jensen contain vertical profiles of the liquid/ice water content and liquid/ice cloud particle effective radius and cloud fraction at 20-minute intervals and over 230 vertical levels for a 1-year period for each ACRF site.

In 2006, the ACRF established procedures for archiving data products in an effort to encourage researchers to share their data products for access by the global scientific community.

Procedure for Submitting Data Products to the Data Archive

The following steps were designed to help guide the process for submitting data products to the Data Archive. Contact information for the bolded text is provided on the back of this document.

1. The Principal Investigator (PI) establishes contact with an **ARM Translator** to describe the data product.
2. The Translator collects enough information to describe the data product within the Translator group. This results in assignment of the data product to a specific Translator and relevant **Science Working Group**.
3. The Translator coordinates with the Working Group Steering Committee to accept or reject the offering based on fit and utility.
4. An **Infrastructure Representative** is identified to work directly with the PI to adequately describe the data product:
   a. A brief informational description of the scientific or research scope of the product
   b. A Read-Me file that describes format and characteristics of the dataset
   c. Pertinent science articles and references.
5. The Translator notifies the PI of the disposition, and if accepted, the Infrastructure Representative will coordinate the submission of the product dataset to the **Data Archive**.
6. The Working Group announces availability of the data products; the Data Archive hosts the data product for general use by the research community.

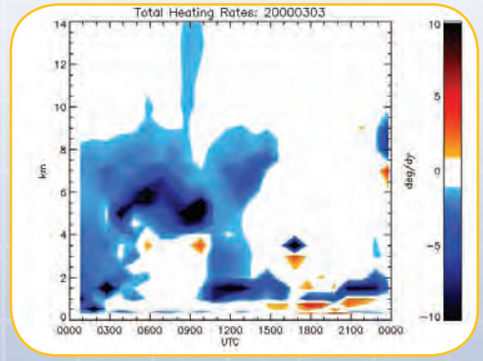
*The **Data Archive** stores and distributes massive amounts of data collected from routine measurements and periodic field campaigns under the auspices of the ARM Climate Research Facility. Access to the data is free, and only requires a one-time account setup by the user via a simple online form.*

http://www.archive.arm.gov

Examples of Science and Research Data Products

Below are just a few examples of the data products available in the Data Archive for use by the scientific community. Add yours to the collection today!
http://www.arm.gov/data/pi_products.stm

- **Miloshevich** – A correction algorithm for inaccuracies in Vaisala radiosonde relative humidity measurements has been applied to ARM radiosonde soundings at the Southern Great Plains site ('sgpsonde') for the time period September 2000 to December 2005.
- **Liu** – Large-scale ice water path and 3-D ice water content in a 10 x 10 degree area centered at the Southern Great Plains site's Central Facility is available for the March 2000 Cloud Intensive Operational Period. This dataset was generated from an algorithm using both ARM ground-based measurements and satellite data.
- **Turner** – Improved retrievals (RET) of precipitable water vapor and liquid water path from the ARM microwave radiometers (MWR) are available through a new algorithm called "MWRRET." Several years of data from the various ARM sites have been processed.
- **Mlawer** – The Broadband Heating Rate Profile (BBHRP) has been implemented for the year 2000 (March 2000 to February 2001) at the ACRF Southern Great Plains site. The BBHRP is intended to provide a structure for the comprehensive assessment of ARM's ability to model atmospheric radiative transfer for all conditions.



A data product from E. Mlawer provides vertical heating rates focused on a narrow column centered at the ACRF Southern Great Plains site's Central Facility.