

Navigating the ARM Archive Data Discovery Interface

Using Welcome Page Categories

The screenshot shows the top navigation bar of the ARM Data Discovery interface. On the left is the ARM logo (Climate Research Facility). In the center is the text 'DATA DISCOVERY'. On the right is the U.S. Department of Energy logo and 'Office of Science'. Below the logo is a search bar with the text 'Search for...'. To the right of the search bar are two date selection boxes labeled '(Start date)' and '(End date)', each with a calendar icon, and a 'GO' button. Below the search bar are three icons: a home icon, a menu icon, and a shopping cart icon. A yellow circle highlights a speech bubble icon in the top right corner. Below the navigation bar is a 'Welcome' section with two columns of text. A blue callout box on the right contains the text: 'Send comments and feedback. This icon is accessible on all pages.'

Showcase Data »

Modeling Best Estimates

The ARM Best Estimate data products are ARM datastreams specifically tailored to climate modelers for use in the evaluation of global climate models. They contain a best

Search by Category »

Aerosols

The effect of aerosols is measured by instrument systems and lidars that provide data on the size distribution, optical properties, scattering, and extinction of

Atmospheric State

Surface-based and airborne instruments measure the thermal, moisture, and kinetic properties of the atmospheric (horizontal and vertical distributions) and the atmospheric concentrations of certain radiatively active trace gases (e.g. CO₂ and O₃).

Radiometric

Radiometric measurements provide data on the propagation of electromagnetic energy through the atmosphere. These types of measurements represent the majority of ARM data, and are obtained using various types of active (such as radar and lidar) and passive (such as broadband radiometers and spectral sensors) sensors.

LONGWAVE BROADBAND

Measurements of diffuse, direct, or net upward/downward radiant energy within broadband, infrared wavelengths longer

The **Welcome** page of the ARM Data Discovery Interface gives a high-level categorial overview of ARM data. Hovering over a category shows subcategories that can be selected to start data discovery. Here, **Longwave Broadband** will be selected.

Navigating the ARM Archive Data Discovery Interface

Using Welcome Page Categories

The screenshot displays the ARM Archive Data Discovery Interface. The top navigation bar includes the ARM logo, the text 'DATA DISCOVERY', and the U.S. Department of Energy Office of Science logo. A search bar is present with a 'GO' button and a 'RESET' link. Below the search bar, there are icons for home, a menu (circled in blue), and a shopping cart. The left sidebar is divided into three main sections: 'CATEGORIES' (3 items), 'SUBCATEGORIES' (12 items), and 'MEASUREMENTS' (19 items). The 'SUBCATEGORIES' section is expanded, and 'Radiometric >> longwave broadband' is selected (circled in blue), showing 1,273 hits (circled in red). The main content area shows 'Search Results' with a 'DATA CART' button. Below this, there are filters for data quality: 'DATA GENERALLY AVAILABLE', 'DATA NOTE', 'DATA QUESTIONABLE', 'DATA UNRELIABLE', and 'DATA MISSING'. A date display range is set from 1989-03-29 to 2012-12-13 (circled in green), with a note that it applies to this timeline. The results show 'Showing 1-20 of 1,273 measurements' and a page size of 20. The results list includes various measurement types such as 'gan qcrad1long M1 .s2 // SURFACE RAD', 'twp qcrad1long C1 .s2 // SURFACE RAD', and 'sgp qcrad1long E9 .s2 // SURFACE RADIATION MEASUREMENT QUALITY CONTROL TESTING, INCLUDING CLIMATOLOGICALLY CONFIGURABLE LIMITS'.

Selection of **Longwave Broadband** displays the **Search Results** page, which shows the number of measurement hits (**1273**) for that subcategory. The user can begin to explore and narrow the results by using the **date display range** (only controls timeline) and/or using the search filters on the left.

Navigating the ARM Archive Data Discovery Interface

Keyword Search

The screenshot displays the ARM Archive Data Discovery Interface. At the top left is the ARM logo (Climate Research Facility). The main header reads "DATA DISCOVERY". On the right, it says "U.S. DEPARTMENT OF ENERGY | Office of Science". A search bar contains the text "brightness temperature". To its right, a date range "2012-12-01" to "2012-12-13" is shown with calendar icons. A blue callout box with rounded corners contains the text: "The search bar allows users to search using a keyword as well as a date range, if known." Below the search bar is a navigation bar with icons for home, menu, and shopping cart. The main content area has a "Welcome" message and a "Showcase Data" section with several data categories: Modeling Best Estimates, Aerosols, Atmospheric State, Cloud Properties, Radiometric, and Surface Properties. Each category has a brief description of the data it provides.

ARM
CLIMATE RESEARCH FACILITY

DATA DISCOVERY

U.S. DEPARTMENT OF ENERGY | Office of Science

brightness temperature

2012-12-01 2012-12-13

Welcome

ARM's Data Discovery browser features pre-selected sorts and filters to help you find atmospheric and climate data faster. Included is access to data quality reports and data plots, which features displays of data availability and quality.

Showcase Data »

Modeling Best Estimates

The ARM Best Estimate data products are ARM datastreams specifically tailored to climate modelers for use in the evaluation of global climate models. They contain a best estimate of several cloud, radiation, and atmospheric quantities.

Aerosols

The ARM aerosol systems and instruments provide data on the size distribution, optical properties, scattering, and extinction of aerosols.

Atmospheric State

Surface-based and airborne instruments measure the thermal, moisture, and kinetic properties of the atmospheric (horizontal and vertical distributions) and the atmospheric concentrations of certain radiatively active trace gases (e.g. CO₂ and O₃).

Cloud Properties

Active and passive remote sensing instruments are used to measure the macroscopic properties (horizontal and vertical distributions) of clouds, and the microphysical properties (sizes, shapes, and phases [water or ice]) of the particles that comprise the clouds.

Radiometric

Radiometric measurements provide data on the propagation of electromagnetic energy through the atmosphere. These types of measurements represent the majority of ARM data, and are obtained using various types of active (such as radar and lidar) and passive (such as broadband radiometers and spectral sensors) sensors.

Surface Properties

Measurements obtained at, near, or beneath (< 2 m) the earth's surface determine properties including soil temperature and moisture content; surface reflectivity; and fluxes of momentum, sensible/latent heat.

Navigating the ARM Archive Data Discovery Interface

Keyword Search

The screenshot displays the ARM Archive Data Discovery Interface. At the top, the ARM logo and "CLIMATE RESEARCH FACILITY" are on the left, and "U.S. DEPARTMENT OF ENERGY Office of Science" is on the right. The "DATA DISCOVERY" header is centered. A search bar contains the text "brightness temperature". To the right of the search bar are date filters for "2012-12-01" and "2012-12-13", a "GO" button, and a "// RESET //" link. Below the search bar is a navigation bar with icons for home, menu, shopping cart, and a chat bubble. The left sidebar is divided into sections: "CATEGORIES" (1 item), "MEASUREMENTS" (7 items), "SITES" (4 items), and "SOURCES" (9 items). The main content area is titled "Search Results" and contains a data status key with five buttons: "DATA GENERALLY AVAILABLE" (green), "DATA NOTE" (yellow), "DATA QUESTIONABLE" (orange), "DATA UNRELIABLE" (red), and "DATA MISSING" (grey). Below the key is a search bar with a magnifying glass icon, a refresh icon, and date filters. A "Sort by: Priority" dropdown menu is on the right. The results are displayed as a timeline for "December 2012" with a grid of days. Red double-headed arrows indicate zooming in/out on the timeline. A blue callout box on the right contains the following text:

The keyword results are displayed on the **Search Results** page.

- Colors on timelines of individual measurements indicate data status (see **key** at top of results area).
- The **magnify icons** to the left of the start/end date boxes enable zooming in/out on timeline view.
- The calendar timeline at the top of the results display, in addition to any measurement timeline, can be dragged left or right (←→).

Navigating the ARM Archive Data Discovery Interface

Keyword Search

The screenshot displays the ARM Archive Data Discovery Interface. At the top, the ARM logo and 'CLIMATE RESEARCH FACILITY' are on the left, and the U.S. Department of Energy Office of Science logo is on the right. The main header features the text 'DATA DISCOVERY' and a search bar containing 'brightness temperature'. To the right of the search bar are fields for '(Start date)', '(End date)', and a 'GO' button, along with a '// RESET //' link.

Below the header is a navigation bar with icons for home, menu, and shopping cart. On the left side, there are two main sections: 'CATEGORIES' and 'MEASUREMENTS'. The 'CATEGORIES' section includes 'Radiometric' (898) and 'Cloud Properties' (22). The 'MEASUREMENTS' section includes 'Longwave spectral brightness temperature' (333), 'Longwave broadband downwelling irradiance' (142), 'Microwave narrowband brightness temperature' (135), 'Shortwave broadband total downwelling irradiance', and 'Longwave broadband brightness temperature'. Below these are 'SITES' and 'SOURCES' sections.

The main content area is titled 'Search Results' and contains a search instruction: 'To search for and request data, select a category, measurement, site, or source. Use the Start Date and End Date below to limit the data results timeline. Use the checkboxes below to add (or remove) a data product to the Data Cart.' A 'DATA CART >>' button is located in the top right corner.

The search results are displayed in a table format. At the top of the results area, there are filters for data availability: 'DATA GENERALLY AVAILABLE', 'DATA NOTE', 'DATA QUESTIONABLE', 'DATA UNRELIABLE', and 'DATA MISSING'. Below these are search and refresh icons, date range selectors for '2002-05-26' and '2009-05-20', and a 'Sort by: Priority' dropdown. A 'Showing 1-20 of 920 measurements' indicator and a 'Page Size: 20' dropdown are also present.

The results table shows a timeline from 2003 to 2009. A tooltip for 'Datastream >> skyrad60s' is overlaid on the table, providing details: 'INFRARED THERMOMETER: SKY BRIGHTNESS TEMPERATURE, AVERAGED 60-SECOND', 'Tropical Western Pacific // Central Facility, Manus I., PNG', '1996-10-10 = 2012-12-05', 'SOURCE INSTRUMENT: Sky Radiometers on Stand for Downwelling Radiation', and a link to 'Data Plots'. Another tooltip for 'DATA QUESTIONABLE' is overlaid on a specific data point, showing the date '2012-10-16 = 2012-10-23' and links for 'View Report' and 'Data Plots'.

Two callout boxes provide additional information:

- Clicking on the timeline itself includes information about **data availability** and a link to **data plots** and **data quality reports**.
- Clicking an "information" icon also displays data product details plus a link to **plots** and **data quality information**.

Navigating the ARM Archive Data Discovery Interface

Using ARM Terminology for Keyword Search

The screenshot shows the ARM Archive Data Discovery interface. The top navigation bar includes the ARM logo (Climate Research Facility), the text 'DATA DISCOVERY', and the U.S. Department of Energy Office of Science logo. A search bar contains the text 'sgp30ebbr', which is circled in blue. To the right of the search bar, two date range selectors are circled in green, showing '2010-01-01' and '2011-12-31'. Below the search bar are icons for home, menu, and shopping cart. The main content area features a 'Welcome' message, a 'Showcase Data' section with 'Modeling Best Estimates', and three data categories: 'Cloud Properties', 'Radiometric', and 'Surface Properties'. A blue callout box is overlaid on the page, providing instructions on how to use specific text strings and date ranges for searching.

Users familiar with ARM can also search using a **specific text string**, along with constraining the search using a **date range**.

Here, a portion of a datastream name has been entered for the Energy Balance Bowen Ratio (**EBBR**) Station at the Southern Great Plains (**SGP**) site over 2010-2011.

Navigating the ARM Archive Data Discovery Interface

Using Faceted Filtering on Search Results Page

The screenshot displays the ARM Archive Data Discovery Interface. The top navigation bar includes the ARM logo (Climate Research Facility), the text "DATA DISCOVERY", and the U.S. Department of Energy Office of Science logo. A search bar is present with fields for "(Start date)", "(End date)", and a "GO" button. Below the search bar, a left sidebar contains faceted filtering categories: CATEGORIES (6 items), MEASUREMENTS (50+ items), SITES (18 items), and SOURCES (50+ items). The main content area shows "Search Results" with a "DATA CART" button and a filter bar with options: DATA GENERALLY AVAILABLE, DATA NOTE, DATA QUESTIONABLE, DATA UNRELIABLE, and DATA MISSING. A dropdown menu is set to "Priority".

CATEGORIES 6

- Radiometric 6,853
- Atmospheric State 6,357
- Aerosols 3,713
- Cloud Properties 3,290
- Surface Properties 1,296
- Atmospheric Carbon 56

MEASUREMENTS 50+

- Horizontal wind 1,274
- Atmospheric moisture 1,116
- Aerosol optical properties 820
- Shortwave narrowband direct normal irradiance 748
- Shortwave broadband total downwelling irradiance 736
- Shortwave narrowband diffuse downwelling irradiance 704

SITES 18

- Southern Great Plains 10,375
- Tropical Western Pacific 2,474
- North Slope Alaska 1,959
- Shouxian, Anhui, China; Mobile Facility 653
- Black Forest, Germany; Mobile Facility 639
- Point Reyes CA, USA; Mobile Facility 633

SOURCES 50+

Search Results

To search for and request data, select a category, measurement, site, or source. Use the Start Date and End Date below to limit the data results timeline. Use the checkboxes below to add (or remove) a data product to the Data Cart.

DATA CART »

DATA GENERALLY AVAILABLE **DATA NOTE** **DATA QUESTIONABLE** **DATA UNRELIABLE** **DATA MISSING**

Sort by: Priority

The **Search Results page** enables data discovery through filtering along the left bar by:

- Start/End Date
- Measurement Category
- Measurement Type
- Site
- Source (instruments, value-added products, external programs)

The filtering/selection criteria can be applied in any sequence.

As selections are made by checking boxes and clicking on “apply,” the changing values displayed give the number of remaining choices within each criterion.

Navigating the ARM Archive Data Discovery Interface

Faceted Filtering Search Results

The screenshot displays the ARM Archive Data Discovery Interface. At the top, the ARM logo and 'CLIMATE RESEARCH FACILITY' are on the left, and 'U.S. DEPARTMENT OF ENERGY Office of Science' is on the right. The main search bar contains 'skyrad60s' and options for '(Start date)', '(End date)', 'GO', and '// RESET //'. Below the search bar, there are navigation icons for home, menu, and cart. The left sidebar shows a 'CATEGORIES' menu with 'Radiometric' selected, and a 'MEASUREMENTS' list with 'Longwave broadband downwelling irradiance' selected. The main content area shows 'Search Results' with a 'DATA CART' button. A 'DATA STATUS' bar includes 'DATA GENERALLY AVAILABLE', 'DATA NOTE', 'DATA QUESTIONABLE', 'DATA UNRELIABLE', and 'DATA MISSING'. A timeline view shows measurements from 1995 to 2007, with a red double-headed arrow indicating a selected time period from 1995-01-01 to 2007-12-31. A list of search results is shown below the timeline, with a red double-headed arrow indicating a selected measurement.

Checking a measurement's box adds it to the cart.

The selections below control only data *view* below. The calendar in the cart enables date range for data *ordering*.

Filters:

- Left: List SKYRAD measurements of longwave broadband downwelling irradiance from the Central Facility (C1) at Barrow on the North Slope of Alaska (NSA).
- Top: Display time period Jan. 1, 1995 through Dec. 31, 2007.

Results:

- 142 related measurements found.
- Measurement from "b1"(QC checks applied) datastream from the shaded pyrgeometer added to the cart.
- Colors on timeline indicate data status (see **key** at top of results area).
- Magnify icons to the left of the start/end date boxes enable zooming in/out on timeline view, and date and measurement timelines can be dragged left or right (↔).

Navigating the ARM Archive Data Discovery Interface

Viewing Data Cart

ARM CLIMATE RESEARCH FACILITY

DATA DISCOVERY

U.S. DEPARTMENT OF ENERGY | Office of Science

skyrad60s (Start date) (End date) GO // RESET //

Home Menu Cart (1) Chat

Data Cart

To complete your request, you may refine your dates and then select **Continue** >>. Next, you will be asked your ARM Data Archive account or you may set up an account. Your data request will be entered into the pipeline and fulfilled within the next 48 hours. You will receive an e-mail when your data request is complete, notify location of the FTP server for retrieval.

The **calendar** in the cart enables date range for final order (here, 1 year of available data). You can type the year, month, day or choose a date from the calendar icon.

CONTINUE >>

DATA GENERALLY AVAILABLE DATA NOTE DATA QUESTIONABLE DATA UNRELIABLE DATA MISSING

2010-01-01 2011-12-31 applies to this timeline view only. Sort by: Order Added

2010 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec 2011 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

- nsa skyrad60s C1 .b1 // INFRARED THERMOMETER: SKY BRIGHTNESS TEMPERATURE, AVERAGED 60-SECOND
- 3 Shortwave broadband total downwelling irradiance // Irradiance, shortwave, downwelling, hemispheric, pyranometer // down_short_hemisp

BACK TO SEARCH CLEAR CART CONTINUE >>

Click **x** to remove a single measurement from cart

Click **Continue** to place the data order

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Navigating the ARM Archive Data Discovery Interface

Fine-tuning Ordering Options

Measurements:
Option to order entire data product or individual measurements.

Data File Delivery:
Files can be combined by data volume rather than delivered as daily files, which is the default.

Data Filtering: Incorrect and/or suspect data can be removed before data delivery.

File Size(s) and Dates: Time period and data volume summarized. Date fields are modifiable here.

Data Selection Summary Signed in as jundt.

732 file(s) // 232 MB

nsa skyrad60s C1 .b1

INFRARED THERMOMETER: SKY BRIGHTNESS TEMPERATURE, AVERAGED 60-SECOND

Order Complete Datastream Extract Specific Measurements

Measurement : Shortwave broadband total downwelling irradiance • Data Plots

Variable : Irradiance, shortwave, downwelling, hemispheric, pyranometer // down_short_hemisp • Quality Reports (2)

Combine files by datastream:

File format:

Remove data points known to be: Incorrect Suspect

Order Submitted

Your order has been successfully submitted. Your reference ID is **146520**.

You will receive an email when the data are ready for download.

Questions or comments?

Your opinion is important to us.

To send a comment or question,

Email: armarchive@arm.gov or

Call 1-888-ARM-DATA.