



Engaging with the ARM Facility

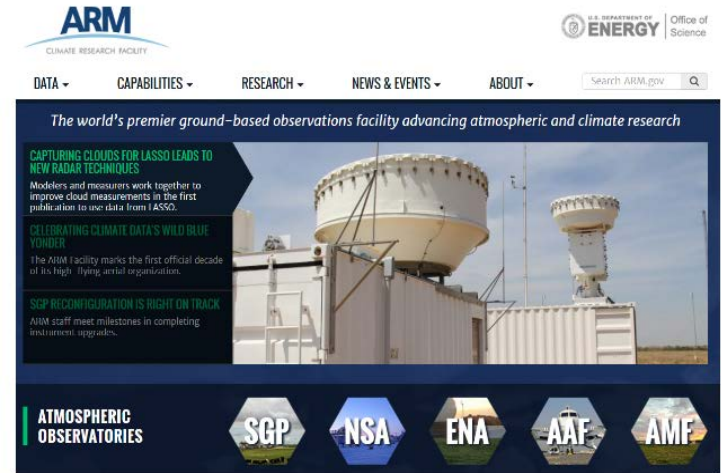
JIM MATHER
ARM TECHNICAL DIRECTOR

Engaging with Users Through Facility Processes, Meetings, and Web Tools

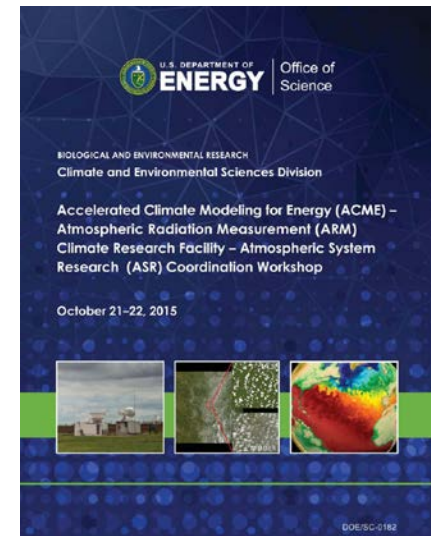


ARM engages with science users through multiple avenues including:

- The ARM Website (www.arm.gov)
- Constituent Groups such as the User Executive Committee, the radar and aerosol measurement and science groups and the ASR working groups
- Targeted Workshops
- Science meetings such as the annual ASR/ARM meeting through breakout sessions and working group chairs



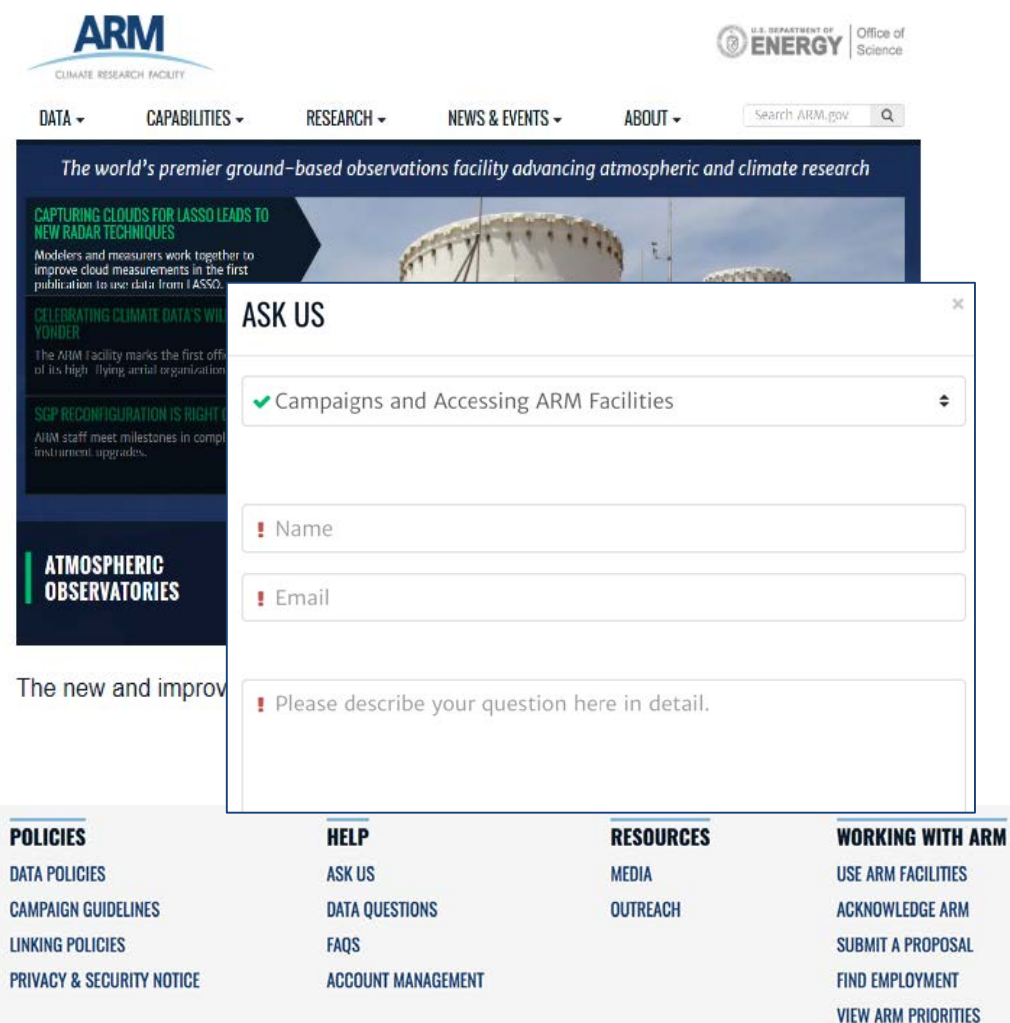
The new and improved ARM home page was designed based on user feedback.



Next-Generation Website

In response to user feedback, the website was redesigned to make:

- ▶ Navigation easier - 10 tabs reduced to 5
- ▶ Accessing data more direct
- ▶ Searches more efficient
- ▶ Expanded “About” Tab
- ▶ Finding key information easier
 - New Footer Navigation
 - Help Features



The screenshot displays the ARM Climate Research Facility website. At the top, the ARM logo and U.S. Department of Energy Office of Science are visible. The navigation menu includes DATA, CAPABILITIES, RESEARCH, NEWS & EVENTS, and ABOUT. A search bar is located on the right. The main content area features a banner with the text "The world's premier ground-based observations facility advancing atmospheric and climate research" and several news items. A contact form titled "ASK US" is overlaid on the right side, containing a dropdown menu with "Campaigns and Accessing ARM Facilities", input fields for Name and Email, and a text area for the question. The footer contains five columns of links: CONNECT WITH ARM (CREATE ACCOUNT ORGANIZATION, social media icons), POLICIES (DATA POLICIES, CAMPAIGN GUIDELINES, LINKING POLICIES, PRIVACY & SECURITY NOTICE), HELP (ASK US, DATA QUESTIONS, FAQs, ACCOUNT MANAGEMENT), RESOURCES (MEDIA, OUTREACH), and WORKING WITH ARM (USE ARM FACILITIES, ACKNOWLEDGE ARM, SUBMIT A PROPOSAL, FIND EMPLOYMENT, VIEW ARM PRIORITIES). The footer also includes the U.S. Department of Energy logo and the text "Reviewed December 2016".

ABOUT > MANAGEMENT STRUCTURE

ARM PRIORITIES

The ARM Climate Research Facility is continuously improving to meet its goals and user needs, whether that means adding instruments or developing new data products. Priorities are determined by reviewing input from the science community through workshops, principal investigator meetings, instrument focus groups, and constituent groups.

This input is cross-referenced to U.S. Department of Energy (DOE) mission-critical goals for the ARM Facility, such as the Decadal Vision, next-generation ARM, the LES ARM Symbiotic Simulation and Observation (LASSO) workflow, development of megasites, field campaigns, and maintaining the long-term ARM data record.

An integrated plan is created each year to help focus ARM high-priority activities to have maximum benefit and impact to the science community.

Users can view current and completed high-priority ARM activities.

AERIAL FACILITY

TASK ID	TITLE	STATE
ENG0001159	Implement PNNL portions of new ARM UAS Program	In Progress

DATA SERVICES & SYSTEM ENGINEERING

TASK ID	TITLE	STATE
ENG0003030	Data Discovery Interface – Phase II upgrade	Closed Complete
ENG0003208	ADC processing and visualization cluster	In Progress
ENG0003231	ARM LASSO Cluster deployment	In Progress

FACILITIES & INFRASTRUCTURE

TASK ID	TITLE	STATE	TARGET COMPLETION
ENG0000916	Design, test, and install a new ARM Climate Research facility at Oliktok Point	Closed Complete	2016 August

Data Discovery Interface – Phase II upgrade

ARM Archive received many recommendations and feedback to improve the data discovery tool. The scope of this ECR is to address the following high level changes:

- Fix the display and search issues, and corresponding metadata
- Improve the data discovery home page (revise current highlights, include new ones such as special campaigns, radar data etc..)
- Improve the search & display capabilities
- Provide additional functionalities (radar data – default measurements for every order)
- Integrate NCVWeb for interactive visualizations and also improve the current plot viewer and DQR reports
- Update recommended measurements to include radar and other new data streams by gathering input from the PIs
- Develop a design to consolidate the FC data delivery using the data discovery model

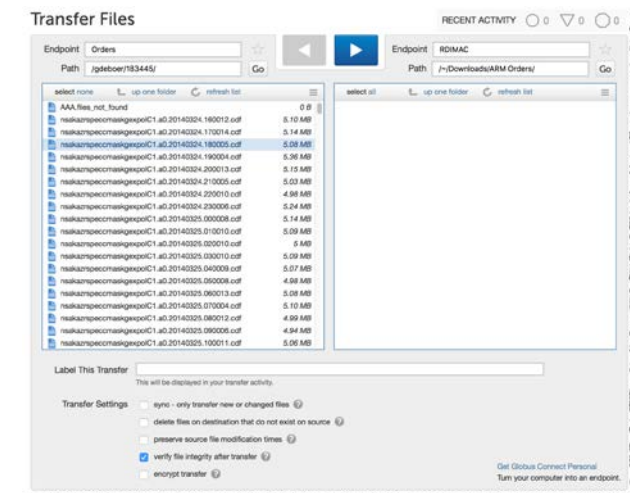
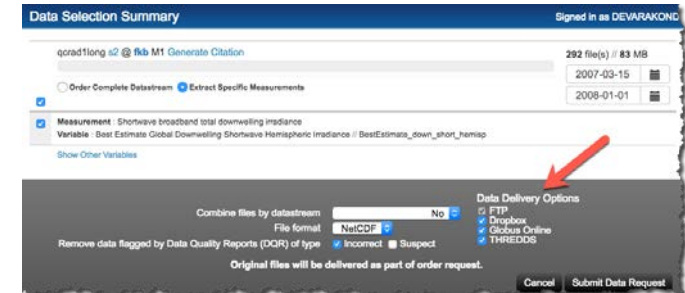
The overall look-and-feel framework will not be changed, we will include that as part of the planned ARM website refresh.

Detailed tasks list will be developed using the above groupings and tracked using the ServiceNow project tasks. Separate design reviews will be carried out for the major features using the Agile – sprint plan & reviews.

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New Data Delivery Options via Data Discovery Tool

- New ways of downloading data
 - ▶ Globus Online
 - ▶ THREDDS/OPeNDAP
 - ▶ DropBox
- Transfer files fast with Globus Online:
 - ▶ Click the Globus link in the Order notification email
 - ▶ Login to Globus with your Institutional credentials
 - ▶ Pick a “Destination” and “Start Transfer”
- ✓ THREDDS provides coherent access to large datasets, using OPeNDAP (subsetting) and other data access protocols
- ✓ DropBox option, lets the user order and sync with their workstations ‘remotely’ using dropbox



**See: Ranjeet Devarakonda
(Poster# 150)**

New Datastream Search



DATA DISCOVERY
DATASTREAM BROWSER - ADVANCED DATASTREAM ORDERING

Login

HOME DATA SEARCH DATASTREAM SEARCH

ARM DATA ARCHIVE // HELP // FEEDBACK

Getting Started

Start Date: (Optional)

End Date: (Optional)

Datastream Search
 (Multiple Selections Allowed)

Enter Datastream (% Wildcard)

- ena1290rwpprecipmomenthighC1
- ena1290rwpprecipmomentflowC1.
- ena1290rwpprecipspechighC1.a0
- ena1290rwpprecipspeclowC1.a0
- ena1290rwpwindmeanlowC1.a1
- ena1290rwpwindmomentflowC1.a1
- ena1290rwpwindspeclowC1.a0
- ena30ecorC1.b1**
- ena30smplcmask1zwangC1.c1
- enaerich1C1.b1

2 Selected

Clear Submit

Home / Datastream Search

Datastream File Listing

Button Legend

Advanced datastream ordering integrated from Data Browser.
 Please press **Review Order** to review your cart. To order your selected files please press **Quick Order**.

Show 10 entries

Filter:

Datastream	Description	Start Date	End Date	Files	File Select
ena30ecorC1.b1	ECOR: surface vertical fluxes of momentum, sensible heat, and latent heat, 30-min avg	2014-07-03	2017-03-11	984	
enaskyrad60sC1.b1	Sky radiation sensor: 60-second downwelling irradiances	2013-09-28	2017-03-11	1262	

Datastream	Description	Start Date	End Date	Files	File Select
Showing 1 to 2 of 2 entries					
					Previous <input type="text" value="1"/> Next

0 File(s) Selected
 Clear Files Review Order Quick Order

Send comments.



User Executive Committee



- Primary interface between ARM and the science user community
- Provides feedback to facility regarding what's working, what is not
- Topics covered over the past two years have included:
 - ▶ Data Quality including defining data epochs
 - ▶ Optimizing the field campaign start-up process
 - ▶ Data Discovery tool and the ARM Website
 - ▶ Communication
- Looking for mechanisms to develop communications from the community to the UEC



Links to the ARM User Community



Larry Berg
PNNL



Sebastian Biraud
LBNL



Christine Chiu
Reading



Jiwen Fan
PNNL



Graham Feingold
ESRL



Andrew Gettelman
NCAR



Gannet Hallar
DRI



Jim Haywood
UK Met Office



Pavlos Kollias
Stony Brook



Erika Roesler
Sandia



Courtney Schumacher
Texas A&M



Matt Shupe
ESRL



Additional Constituent Groups



- ASR/ARM Science and Infrastructure Steering Committee (SISC; working group chairs, SFA leads, and site scientists)
- Aerosol Measurements and Science Group (Allison McComiskey, Doug Sisterson)
- Radar Science and Operations Group (Pavlos Kollias, Nitin Bharadwaj)
- Modeling Group (Bill Gustafson, Andy Vogelmann)
- Unmanned Aerial Systems (Beat Schmid, Mark Ivey)

AMSG Strategic Planning Workshop February 14-16; Argonne National Lab

Goal

Identify impediments to applying ARM measurements to ASR science objectives toward the development of an aerosol measurement strategy



Process

Evaluate the status of ARM's existing aerosol *instrumentation, measurement strategies, and data products* in the context of ARM and ASR science directions and the current and future needs of ARM data users

Constraints

- Budget and existing resources
- Siting (logistics versus ideal location for science)
- Prioritization: we can't do everything everywhere

AMSG Workshop Outcomes (subset, preliminary)



- **Particle Size Distribution:** Measure the complete distribution
- **Absorption:** Comprehensive characterization of filter-based measurements and adoption of new Aethelometer
- **Composition:** Improved characterization of ACSM, rely on PIs for complex chemistry measurements, collaborate with other networks
- **Hygroscopic Activity:** Improve characterization of HTDMA, simplify operation of humidigraph, and add size-resolved CCN measurements
- **System Configuration:** Sample air at consistent low RH through drying (not heating!)
- **Documentation:** Provide better description of AOS datastreams

Radar Science and Operations Meeting

Nov 14-15, 2016



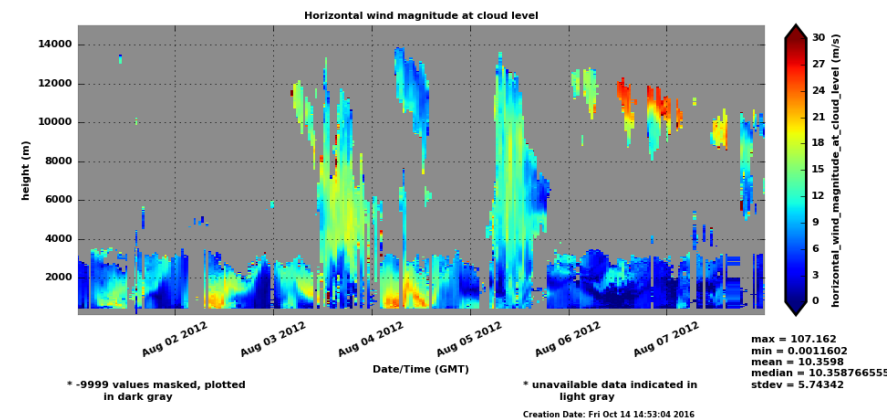
Contacts: Pavlos Kollias and Nitin Bharadwaj

Topics from the November workshop

- Radar plan: Emphasis on completing the move to unified b1-level products
- Radar Wind Profilers
 - ▶ Map out a path to implement set of nearly complete algorithms as VAPs
 - ▶ Evaluate clear-air performance and benefits of collecting spectra
- Review spectra compression methods and move forward with MicroARSCL
- Emphasis on b1/calibrated data and timely processing of ARSCL
- Implement idea of Epochs as a new data qualifier

Code Sprints: Teaming PIs with ARM developers to fast-track Data Products

- Bring together a team from the science community and ARM staff for an intensive period with a focused goal to implement a mature algorithm as a
- A successful code sprint was held at BNL in May 2016 to develop three radar-related VAPs
- Today at lunch there will be a working lunch on this topic of community product development using ARM tools.



Two Sessions Related to Improving Data Characterization



Machine Learning (Wednesday @1:30)

- Review of activities from ARM and ASR investigators to automate data quality assessment and parameter uncertainties

Virtual Field Campaigns (Thursday @10:45)

- Identifying data epochs – periods of particular interest, data quality and completeness – working on how to implement this to shine a light on these periods
- Presented from a radar perspective – but this idea also came up at the 2015 ARM-ASR-ACME workshop as a mechanism to draw together the modeling community

Activities at this meeting

- Participate in the breakouts – we read the reports! Looking for needs and priorities
- Poster sessions
- UEC contacts this evening and at poster session
- Data Services Helpdesk



ARM
CLIMATE RESEARCH FACILITY

ARM Data Services Helpdesk

- Navigate Data Discovery
- Obtain Data from the ARM Data Center Archive
- Understand the Structure of ARM Data
- Use ADI, PyART, OME and Other Visualization Tools
- Acquire Computing Resources

Ask us how!

ATMOSPHERIC RADIATION MEASUREMENT CLIMATE RESEARCH FACILITY

www.arm.gov

The Latest ARM Virtual Tour: The Eastern North Atlantic

