ARM
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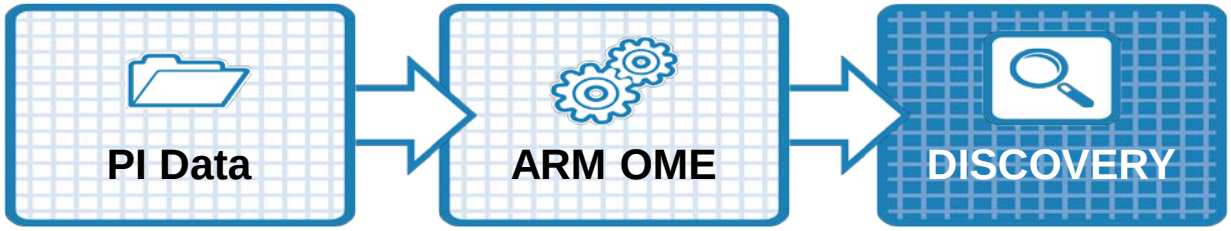
How to Archive, Discover and Acknowledge ARM Data

Giri Palanisamy
Raymond McCord

ARM Data Archive



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Data Product Registration and Submission

http://www.arm.gov/data/pi

About | Science | Campaigns | Sites | Instruments | Measurements | Data | News | Publications | Education

ARM.gov » Data » Data Documentation » Data Product Registration and Submission

Data Product Registration and Submission

The procedure for principal investigators to submit ARM science research products, field campaign data, or DOE-supported research data to the ARM Data Archive is the following:

1. To begin, use the **Data Product Registration and Submission** form.
2. Identify yourself—either from the pick list or by manual entry.
3. Select a **Data Type**. This choice determines the level of review and the procedure for handling and approving your documentation and accompanying data submissions within the ARM Climate Research Facility. Currently, three **Data Type** options are available.
   - **ARM Principal Investigator (PI) Data Product** – reviewed by ARM Translators and Infrastructure Representative.
   - **ARM Field Campaign Data** – reviewed by ARM External Data Center (XDC) staff responsible for handling field campaign data submissions.
   - **Research Data for the ARM Data Archive** – sent directly to metadata reviewers for the ARM Data Archive.
4. Fill out the Data Product Registration and Submission form as completely and accurately as possible. Nobody is better equipped or suited to describe a data submission than the scientist who created it. The Data Product Registration and Submission form allows PIs to attach files, including data files, additional documentation files (e.g., readme files), technical reports, and pertinent science articles. Scientists are encouraged to provide these additional materials.
5. Submit the Data Product Registration and Submission form. Once you have completed and submitted the form, and all mandatory fields are verified, you will receive notification to confirm successful submission.

For assistance with your Data Product Registration and Submission, please contact Giri Palanisamy.

Policies, Plans, Descriptions

Data Documentation Home

- Data Sharing and Distribution Policy
- Data Management and Documentation Plan
- Data Product Registration and Submission
- Reading netCDF and HDF Data Files
- Time in ARM netCDF Data Files

Data Archive Documentation

- ARM Archive's Catalog of Data Streams (Updated monthly)
- Access to Historical ARM Data
- More on Understanding and Finding ARM Data
- Data Quality Problem Reporting

Your Metadata is Critical:

- Improves data discovery and understanding
- Prepare the data package for efficient distribution
- Properly categorize your data
- Facilitate proper credits to all the authors

Title:	**Atmospheric State, Cloud Microphysics & Radiative Flux**
Data Type:	research data - ASR funded
Metadata Contact Info:	Organization Name/Individual Name: Gerald Mace Email: mace@met.utah.edu Phone: (801) 585-9489 Street: William Browning135 S 1460 East Rm 819 City: Salt Lake City State: UT Postal: 84112
Investigator(s):	Gerald Mace
Publication Info:	Publication Date: 20080601 Publication Place: Journal of Climate Publisher: AMS
Geoform:	Value Added Products
Status:	ongoing
Data Update Frequency:	as needed
Data Volume:	1 TB
File Naming Convention:	site.Integrate_Column_AveragingInterval-Mace.yyyymmdd.000000.v2.cdf
Directory Organization:	each site directory has subdirectories for the file type and then subdirectories for the years
Abstract:	Atmospheric thermodynamics, cloud properties, radiative fluxes and radiative heating rates for the ARM Southern Great Plains (SGP) site. The data represent a characterization of the physical state of the atmospheric column compiled on a five-minute temporal and 90m vertical grid. Sources for this information include raw measurements, cloud property and radiative retrievals, retrievals and derived variables from other third-party sources, and radiative calculations using the derived quantities.
Purpose:	Data were collected in order to help and improve the climate and earth system models.
Site Information:	**Sites**: sgp,nsa,twpc1,twpc2,twpc3
Content Time Range:	Begin: 19970101 End: 20091231
Scientific Measurements(s):	**Measurement name** / **Variables** averaged cloud radar: column_cfrac_mpl averaged atmospheric state: skin_temp, sndg_flag, pressure, sfc_temp, precip_rate, sfc_pressure, mxrat, temp, sfc_mxrat averaged cloud layers: top_height_layer_1, base_temp_layer_1, top_temp_layer_2, top_height_layer_3, number_of_layers, base_height_layer_3, first_cbh, base_height_layer_1

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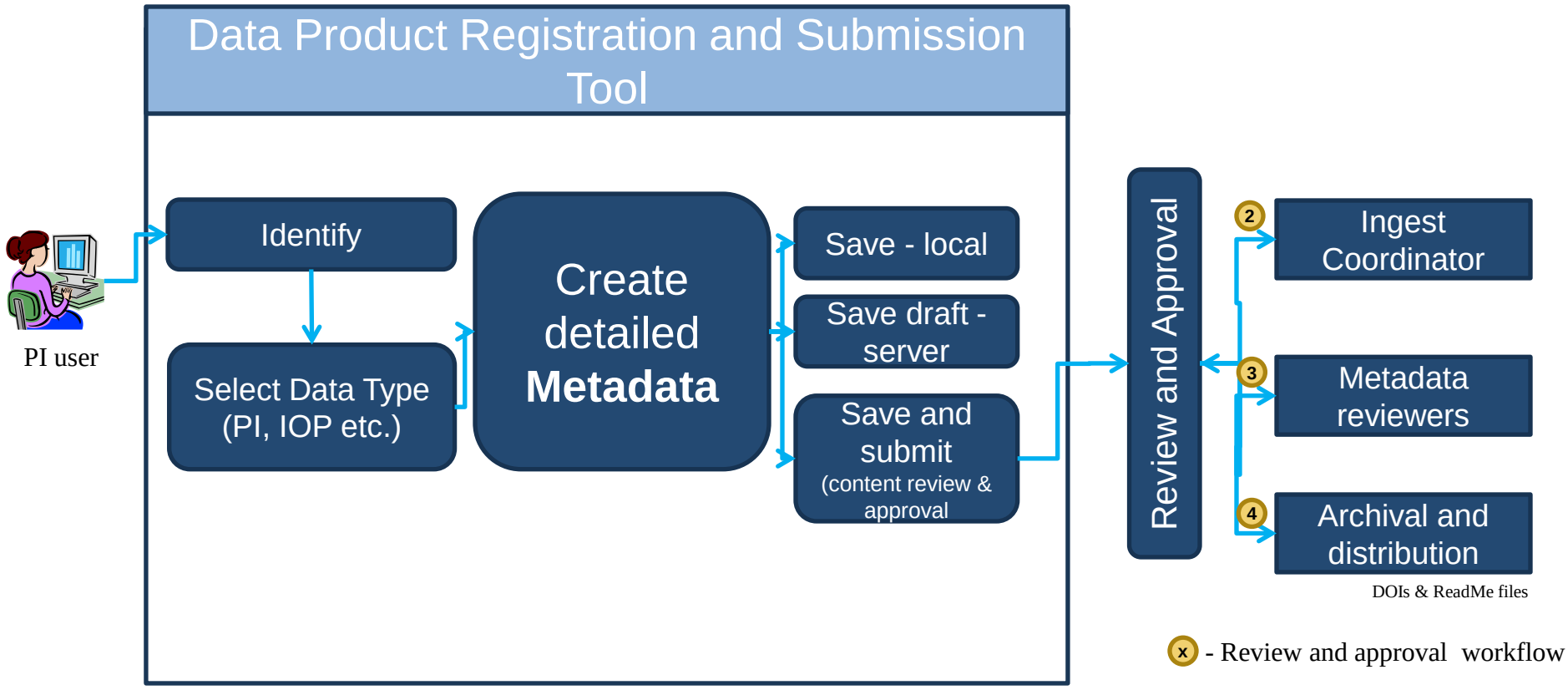
PI and IOP Data Registration Steps



http://www.arm.gov/data/pi

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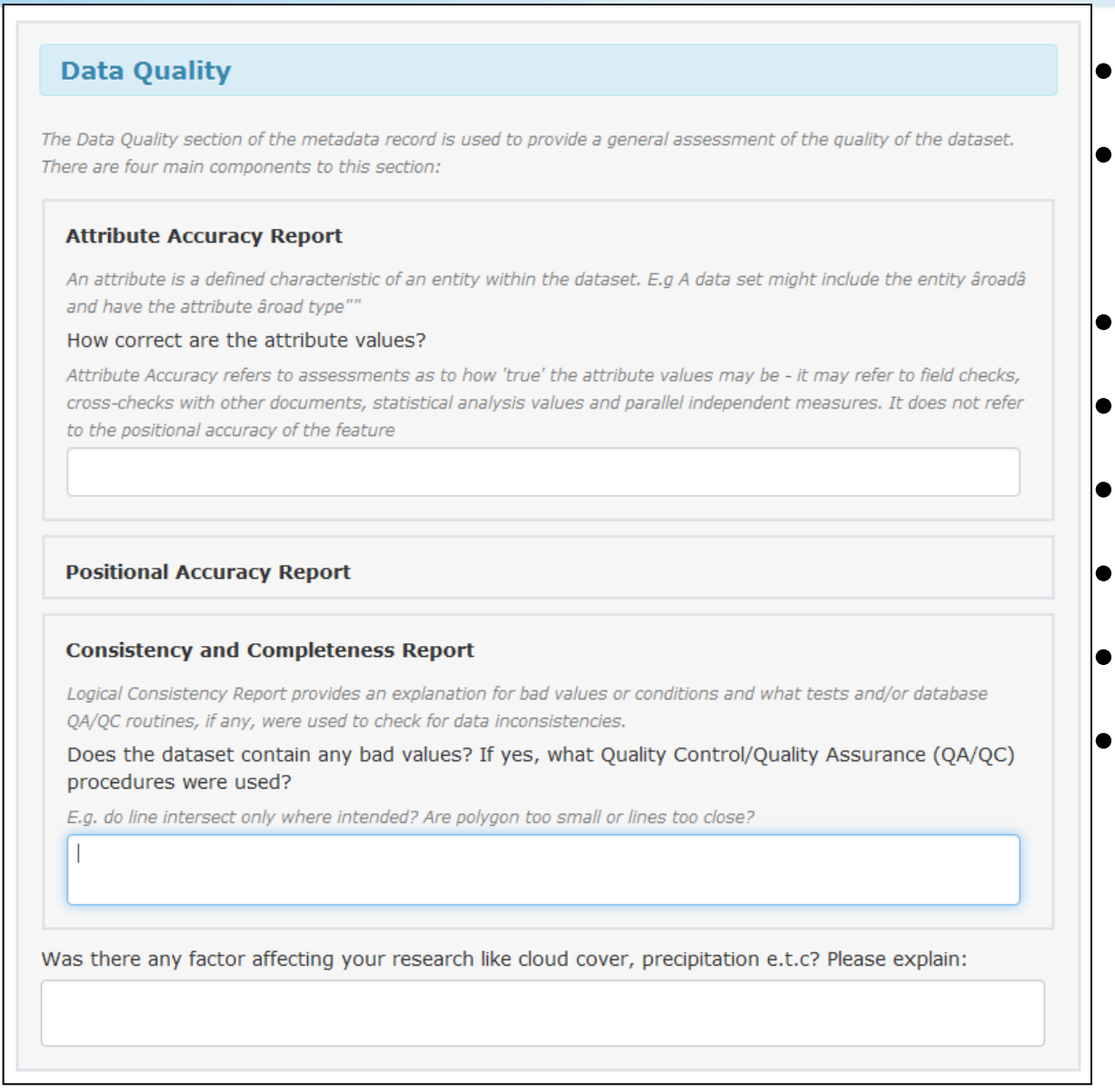
ARM Data Product Registration and Submission Form (OME)



Data Quality

The Data Quality section of the metadata record is used to provide a general assessment of the quality of the dataset. There are four main components to this section:

Attribute Accuracy Report

An attribute is a defined characteristic of an entity within the dataset. E.g A data set might include the entity âroadâ and have the attribute âroad type""

How correct are the attribute values?

Attribute Accuracy refers to assessments as to how 'true' the attribute values may be - it may refer to field checks, cross-checks with other documents, statistical analysis values and parallel independent measures. It does not refer to the positional accuracy of the feature

Positional Accuracy Report

Consistency and Completeness Report

Logical Consistency Report provides an explanation for bad values or conditions and what tests and/or database QA/QC routines, if any, were used to check for data inconsistencies.

Does the dataset contain any bad values? If yes, what Quality Control/Quality Assurance (QA/QC) procedures were used?

E.g. do line intersect only where intended? Are polygon too small or lines too close?

Was there any factor affecting your research like cloud cover, precipitation e.t.c? Please explain:

- **Data Type**
- **Description and keywords**
- **Contact information**
- **Data Quality**
- **When and Where**
- **Related Citations**
- **Analytical Tools**
- **Save, revisit and Submit**

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Improving Data Discovery

After

PI Product : Derived Cloud Boundary Heights for Graciosa Island, Azores

[**RESEARCH DATA - ASR FUNDED**]

The motivation for developing the WACRARSCL is to use the Dong et al. 1998 method to retrieve cloud microphysical properties, such as cloud droplet effective radius, cloud droplets number concentration, and optical thickness. These retrieved properties have been used to validate the satellite retrieval, and evaluate the climate simulations and reanalyses. We had been using this method to retrieve cloud microphysical properties over ARM SGP, NSA sites. We also modified the method for the AMF at Shouxian China and some IOPs, e.g. ARM IOP at SGP at March, 2000. The ARSCL data from ARM data archive over SGP and NSA have been used to determine the cloud boundary and cloud phase. For these ARM permanent sites, the ARSCL data developed based on MMCR measurements, however, there are no WACRARSCL data available at Azores field champion, we followed the steps to generate WACRARSCL and also include the MPLCMASK cloud retrievals to determine the most accurate cloud boundaries and including the thin cirrus clouds that WACR may be under-detected. We use these WACRARSCL as input to retrieve the cloud microphysical properties. Due to the different temporal resolution of the WACRARSCL and cloud properties, we submit WACRARSCL and cloud properties as two separate netcdf files.

Purpose

Date were collected in order to validate satellite retrievals and evaluate climate models.

Data Details

DEVELOPED BY	Xiquan Dong
CONTACT	Baike Xi baike@aero.und.edu (701) 777-2767 4149 University Ave Grand Forks, ND 58202
RESOURCE(S)	Data Directory
DATA FORMAT	netcdf
DATA USAGE	The data are in netcdf format. Every parameter is averaged within 5 minute intervals.
DATA VOLUME	less than 50 GB
SITE INFORMATION	GRW Graciosa Island, Azores, Portugal; Mobile Facility
CONTENT TIME RANGE	2009.06.05 — 2010.12.31
SCIENTIFIC MEASUREMENTS	Measurement: CLOUD TOP HEIGHT; Variables: [expand] CloudTopBestEstimate (Combined WACR RefelectivityBestEstimate and MPLCMASK highest cloud height, 30 sec resolution) CLOUD BASE HEIGHT
INSTRUMENTS	Micropulse Lidar W-Band (95 GHz) ARM Cloud Radar Vaisala Ceilometer Microwave Radiometer
ATTRIBUTE ACCURACY	No formal attribute accuracy tests were conducted.
POSITIONAL ACCURACY	No formal positional accuracy tests were conducted.
DATA CONSISTENCY AND COMPLETENESS	Data set is considered complete for the information presented, as described in the abstract. Users are advised to read the rest of the metadata record carefully for addtional details.
ACCESS RESTRICTION	No access constraints are associated with this data.

POSITIONAL ACCURACY	No formal positional accuracy tests were conducted.
DATA CONSISTENCY AND COMPLETENESS	Data set is considered complete for the information presented, as described in the abstract. Users are advised to read the rest of the metadata record carefully for addtional details.
ACCESS RESTRICTION	No access constraints are associated with this data.
USE RESTRICTION	No use constraints are associated with this data.
FILE NAMING CONVENTION	wacrarscl1dongM1.b1.yyyymmdd.hhmmss.cdf
CITATIONS	Dong X., T.P. Ackerman, and E.E. Clothiaux, 1998: Parameterizations of Microphysical and Radiative Properties of Boundary Layer Stratus from Ground-based measurements . J. Geophys. Res . 102, 31,681-31,393. Dong X. , and G.G. Mace, 2003: Profiles of Low-level Stratus Cloud Microphysics Deduced from Ground-based Measurements . J. Atmos and Oceanic Tech . 20 ,42-53. Dong, X., B. Xi, A. Kennedy, P. Minnis and R. Wood, 2013: A 19-month of Marine Aerosol-Cloud-Radiation Properties derived from DOE ARM AMF deployment at the Azores: Part I: Cloud Fraction and Single-layered MBL cloud Properties. Journal of Climate, in press.

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ARM Data Discovery and Access

http://www.archive.arm.gov

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Data Citation using Digital Object Identifiers (DOIs)

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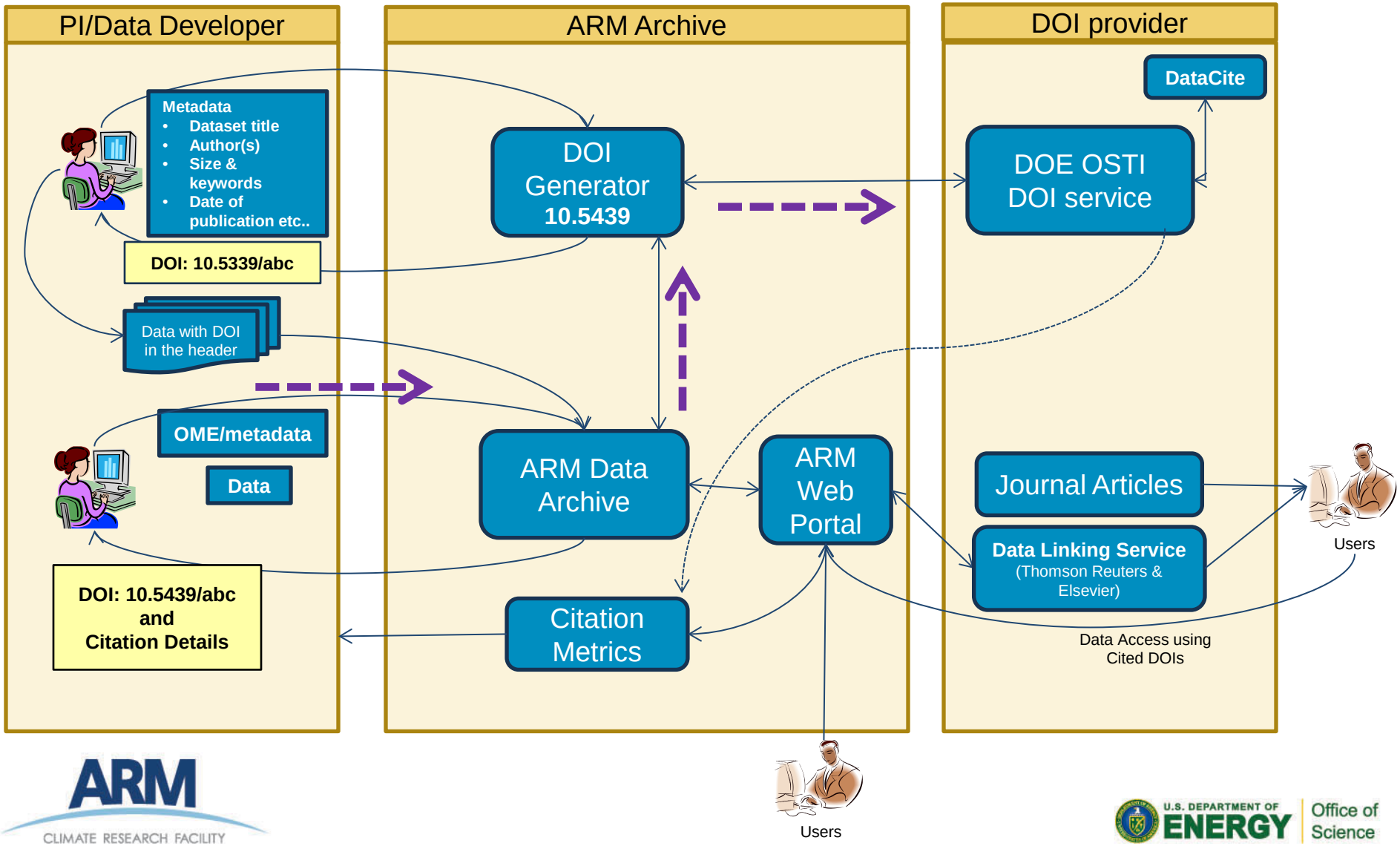
Digital Object Identifiers (DOIs) For Your Data

Benefits of assigning DOIs to your data:

10.5439/1021460

- Provide proper credit to all authors
  - DOIs will be registered with all authors involved in creating data products
- Create persistent, globally unique, fully resolvable ids for ARM/ASR datasets
- DOIs allow the users to more directly cite the exact ARM data that they used in their research.
- DOIs also allow the future data users and the ARM program to easily track the data cited in various publications, and can answer questions such as:
  - Show me the exact data (and the data creator) that this journal article is referring
  - List of papers using my data (citation index)
  - List of articles citing ARM data

Assigning DOIs to your Data



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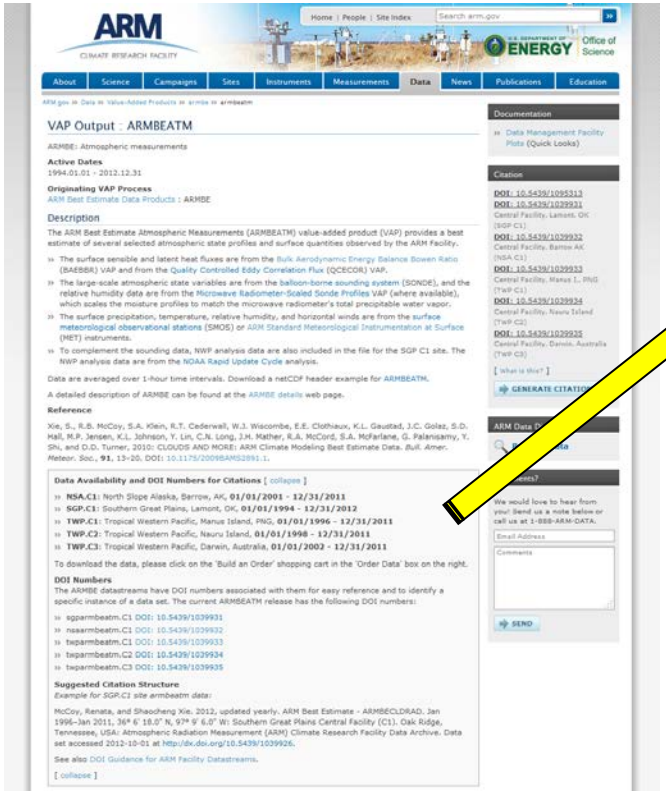
DOIs – Current Example

Product: ARMBE



Data Availability and DOI Numbers for Citations [collapse]

DOI Numbers

The ARMBE datastreams have DOI numbers associated with them for easy reference and to identify a specific instance of a data set. The current ARMBEATM release has the following DOI numbers:

- sgparmbeatm.C1 DOI: 10.5439/1039931
- nsaarmbeatm.C1 DOI: 10.5439/1039932
- twparmbeatm.C1 DOI: 10.5439/1039933
- twparmbeatm.C2 DOI: 10.5439/1039934
- twparmbeatm.C3 DOI: 10.5439/1039935

Suggested Citation Structure

Example for SGP.C1 site armbeatm data:

McCoy, Renata, and Shaocheng Xie. 2012, updated yearly. ARM Best Estimate - ARMBECLDRAD. Jan 1996–Jan 2011, 36° 6' 18.0" N, 97° 9' 6.0" W: Southern Great Plains Central Facility (C1). Oak Ridge, Tennessee, USA: Atmospheric Radiation Measurement (ARM) Climate Research Facility Data Archive. Data set accessed 2012-10-01 at http:/dx.doi.org/10.5439/1039926.

See also DOI Guidance for ARM Facility Datastreams.

[collapse]

http://www.arm.gov/data/vaps/armbe/armbeatm

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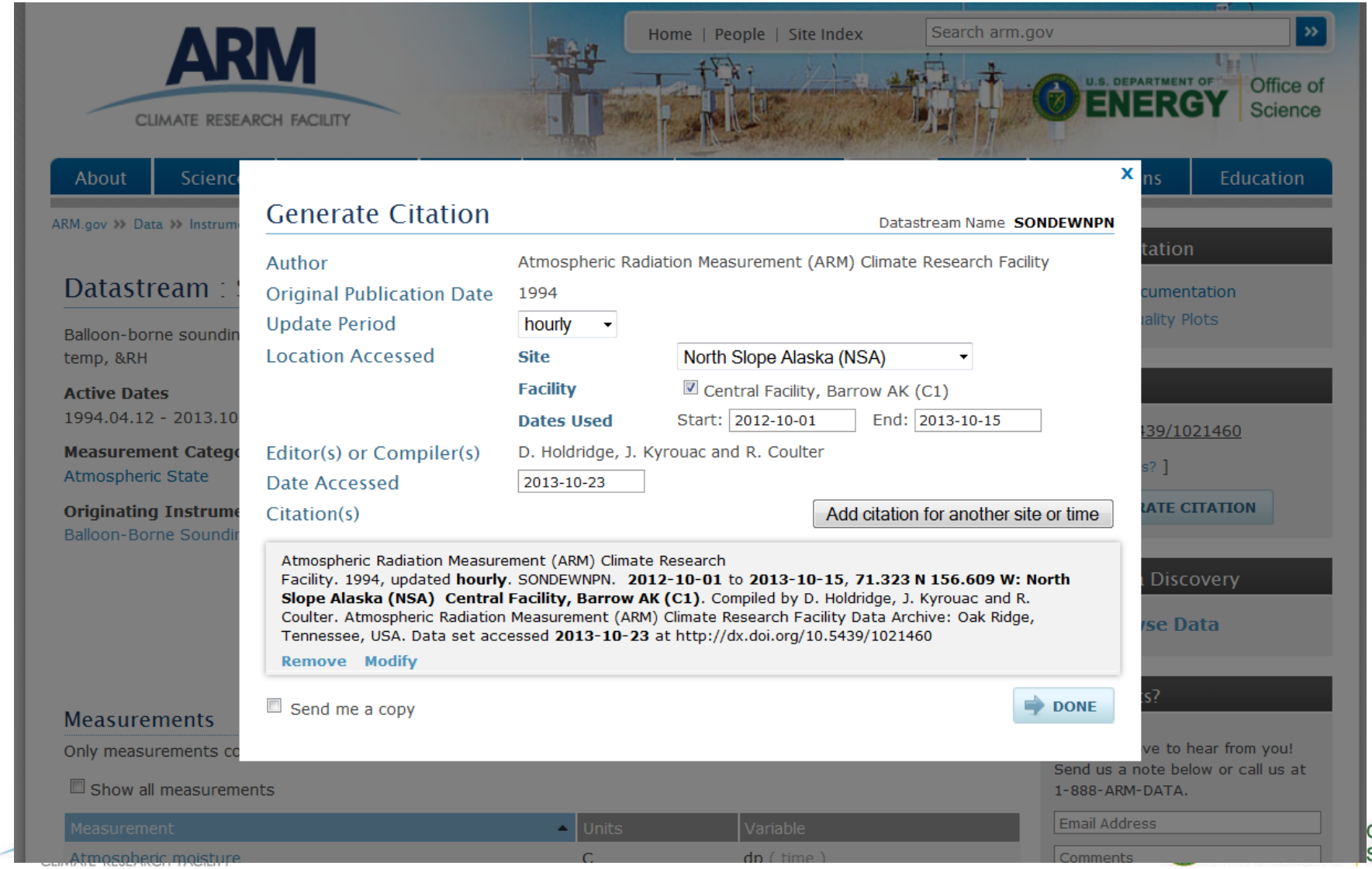
Citing ARM Datastreams

Use of ARM DOIs

Generating Citations



ARM - Recommended Citation Format

- *Author*
- *Original publication date*
- *Update period, if applicable (daily, monthly, quarterly, yearly, etc.)*
- *Dataset name*
- ***Dates used****
- ***Locations**** *(latitude/longitude, site name, and facility identifier)*
- *Editor(s) or compiler(s) or collaborator(s)*
- *Place of publication*
- *Publisher*
- ***Date accessed****
- ***DOI****

**** Needed for future replication of data requests***

http://www.arm.gov/data/docs/doi-guidance

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Sample Citations

Citation Examples

1. **Single datastream, single site, single data range:**

Atmospheric Radiation Measurement (ARM) Climate Research Facility. 1994, updated daily. Balloon-borne sounding system (SONDEWNPN). Oct. 2010–March 2011, 36° 36' 18.0" N, 97° 29' 6.0" W: Southern Great Plains Central Facility (C1). Compiled by R Coulter, J Prell, M Ritsche, and D Holdridge. ARM Data Archive: Oak Ridge, Tennessee, USA. Data set accessed 2011-04-13 at http://dx.doi.org/10.5439/1021460.

2. **Single datastream, single site, multiple date ranges:**

Atmospheric Radiation Measurement (ARM) Climate Research Facility. 1994, updated daily. Balloon-borne sounding system (SONDEWNPN). Oct. 2008–March 2008, Oct. 2009–March 2009, Oct. 2010–March 2011, 36° 36' 18.0" N, 97° 29' 6.0" W:

Atmospheric Radiation Measurement (ARM) Climate Research Facility. 1996, updated **yearly**. ARMBECLDRAD. **2011-01-01** to **2011-01-01, 71.323 N 156.609 W: North Slope Alaska (NSA) Central Facility, Barrow AK (C1)**. Compiled by R. McCoy and S. Xie. Atmospheric Radiation Measurement (ARM) Climate Research Facility Data Archive: Oak Ridge, Tennessee, USA. Data set accessed **2013-10-30** at http://dx.doi.org/10.5439/1039927

4. **Single datastream, single site, single data range, specific measurement extracted:**

Atmospheric Radiation Measurement (ARM) Climate Research Facility. 1994, updated daily. Balloon-borne sounding system (SONDEWNPN). Oct. 2010–March 2011, 36° 36' 18.0" N, 97° 29' 6.0" W: Southern Great Plains Central Facility (C1), relative humidity. Compiled by R Coulter, J Prell, M Ritsche, and D Holdridge. ARM Data Archive: Oak Ridge, Tennessee, USA. Data set accessed 2011-04-13 at http://dx.doi.org/10.5439/1021460.

Alternate Format

If, for some reason, it is necessary to cite the datastream editors/compilers as the author, the following format is recommended:

Coulter, Richard, Jenni Prell, Michael Ritsche, and Donna Holdridge. 1994, updated daily. Balloon-borne sounding system (SONDEWNPN). Oct 2010–March 2011, 36° 36' 18.0" N, 97° 29' 6.0" W: Southern Great Plains Central Facility (C1). Atmospheric Radiation Measurement (ARM) Climate Research Facility Data Archive: Oak Ridge, Tennessee, USA. Data set accessed 2011-04-13 at http://dx.doi.org/10.5439/1021460.

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How Do I Submit a Research Highlight?

Research Highlights are an efficient way to exchange results with your colleagues. They're used in annual reports and other high-level documents, as well as in program reviews and outreach materials.

http://asr.science.energy.gov

To access the Research Highlights Submittal Form:

1. On the ASR website, click **Science**.
2. Click **Research Highlights**.
3. Click **Submit a Highlight**.

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How Do I Submit a Research Highlight?

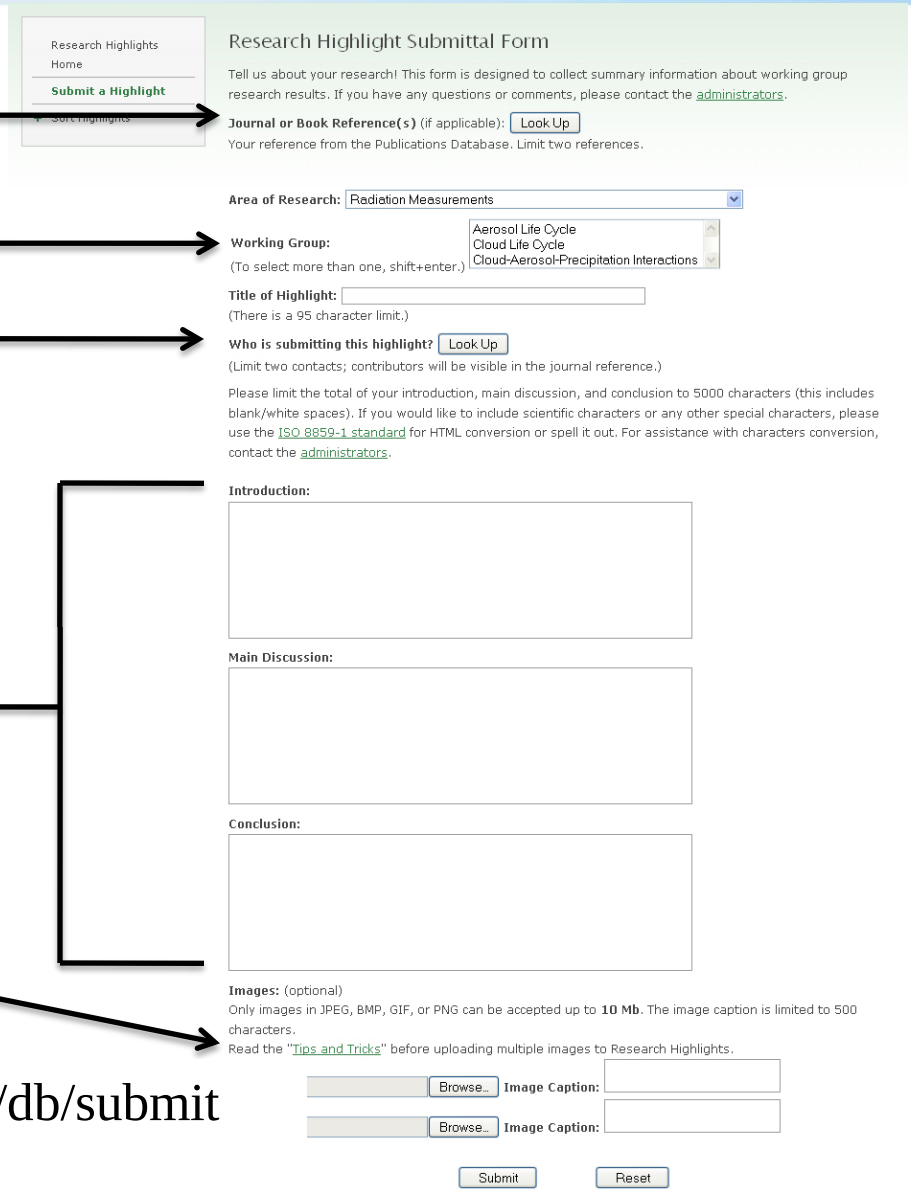
Select or submit up to two associated publications.

Select your area of research and ASR working group.

Enter the title and use the Look Up button to select up to two contacts.

Enter the Introduction, Main Discussion, and Conclusion.

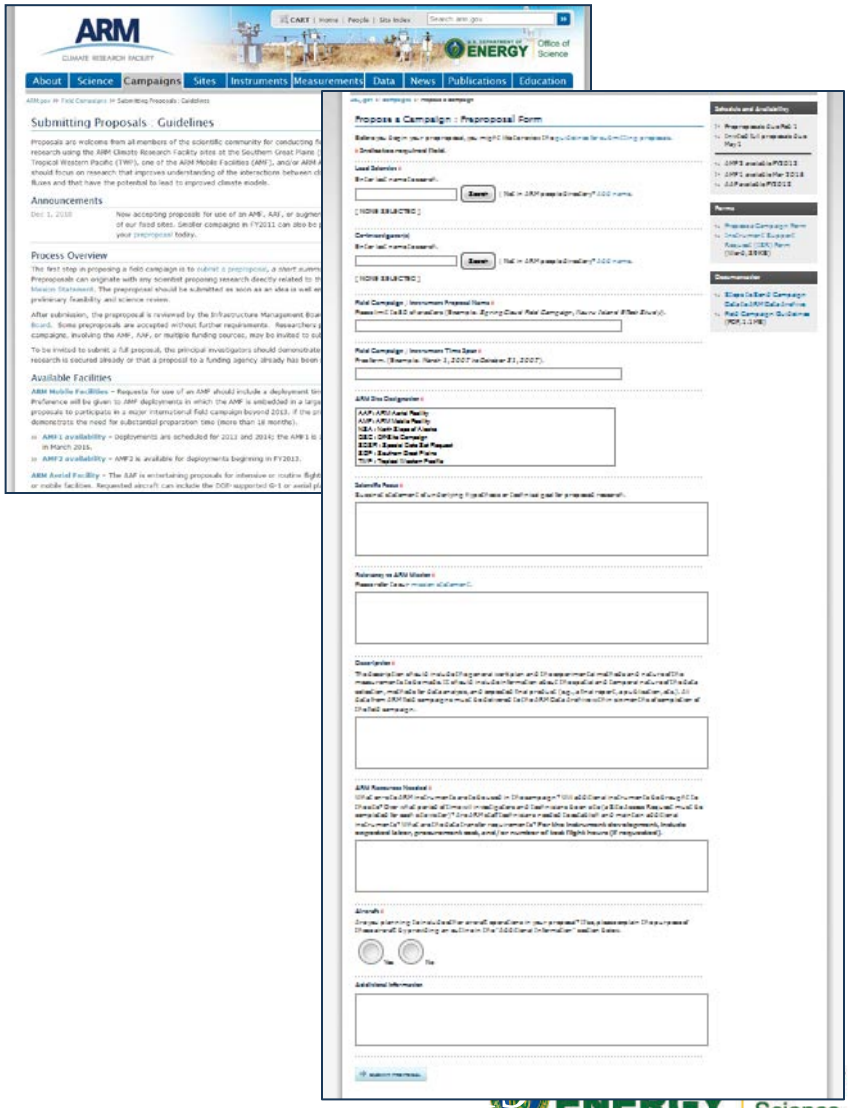
You can enter up to two images with captions, but they are not required.



http://asr.science.energy.gov/publications/db/submit

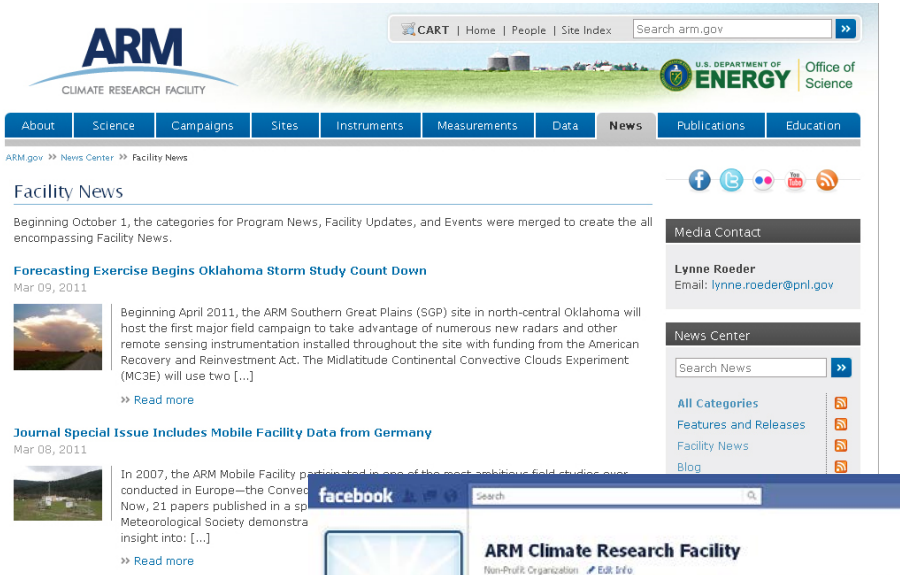
How Do I Submit a Field Campaign Request?

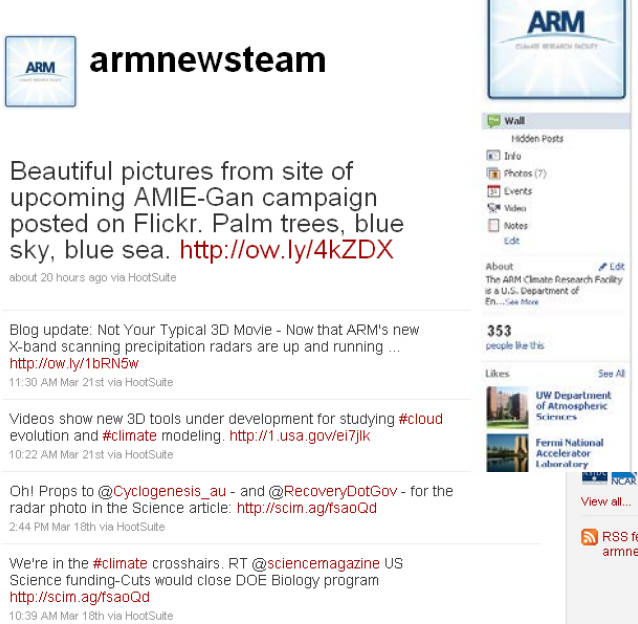
- First, review the guidelines for submitting proposals.
- Next, submit a preproposal; a short summary of the proposed campaign.
- Wait for a response from the Infrastructure Management Board (IMB) and/or ARM Science Board.
- A full proposal or science plan may be requested.



How Do I Stay Connected?

- ARM News Center
  http://www.arm.gov/news/
- Facebook
  http://www.facebook.com/arm.gov
- Twitter
  http://twitter.com/armnewsteam





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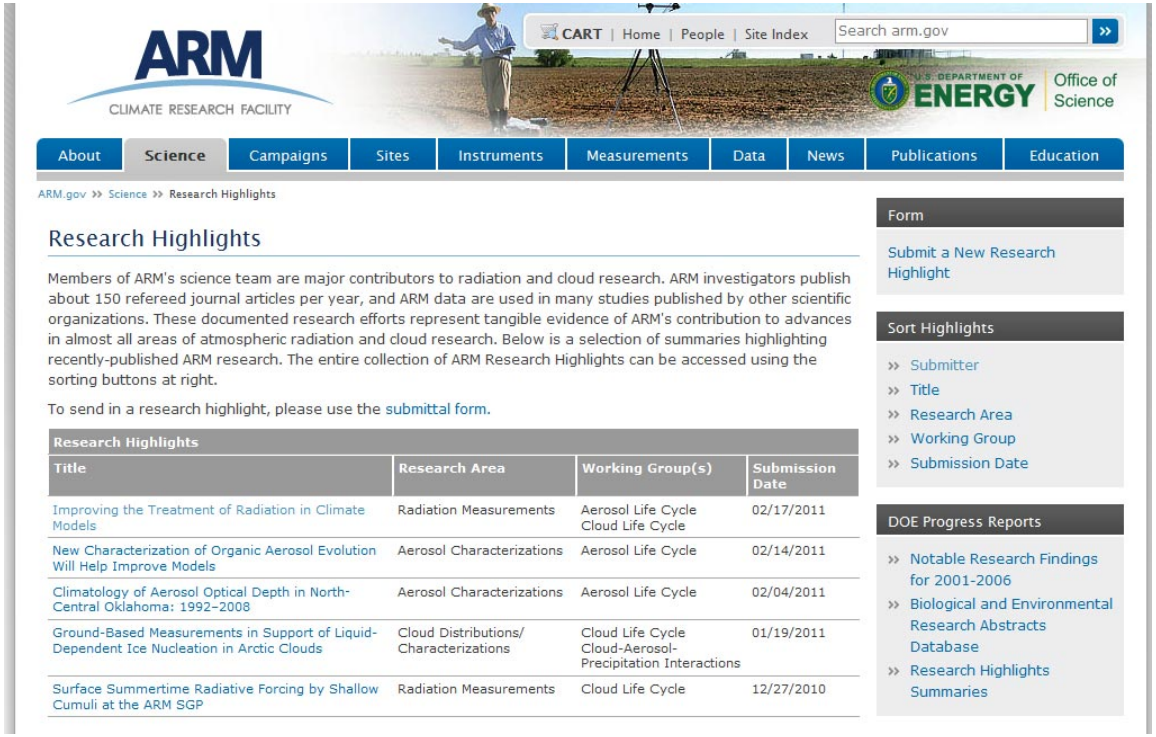
How Do I Stay Connected?

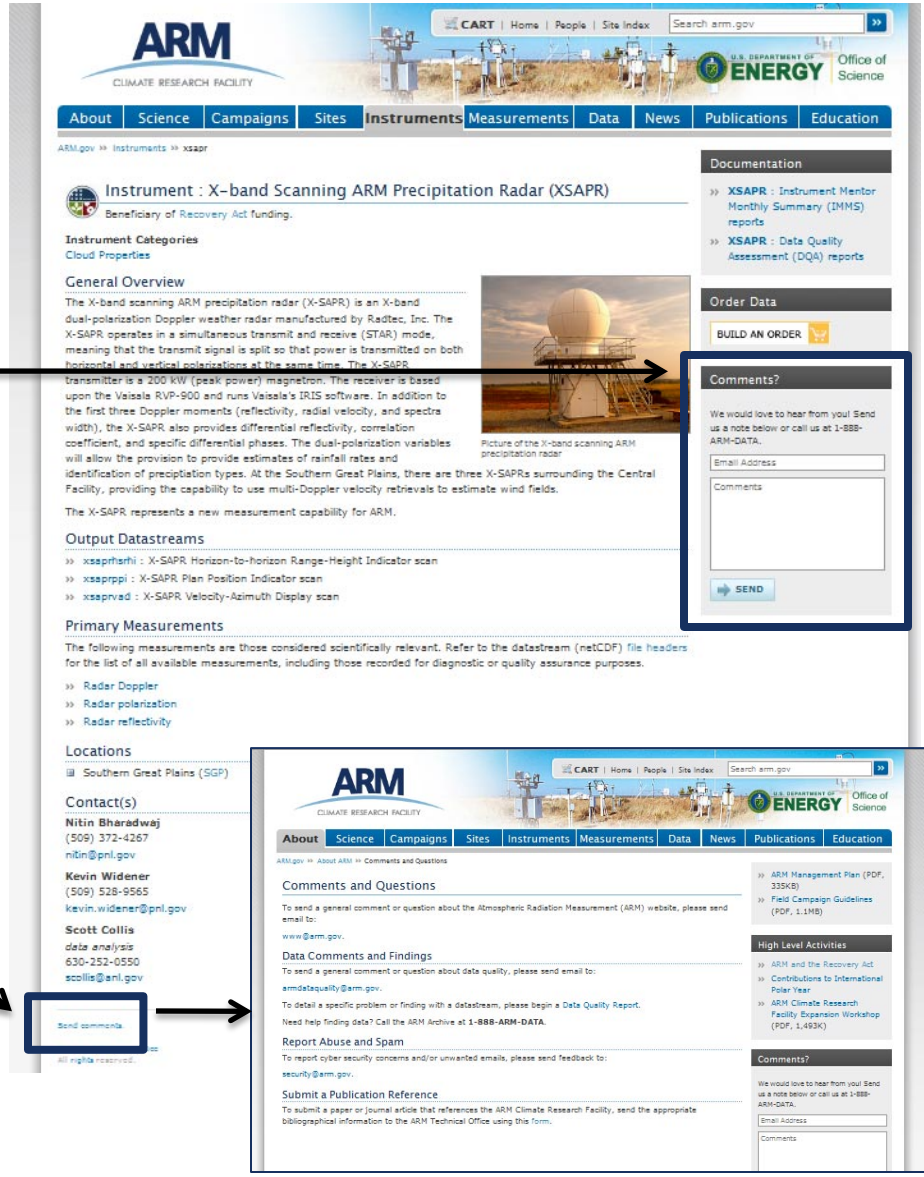
- Research Highlights
  http://www.arm.gov/news/research or
  http://www.arm.gov/science/highlights



How Do I Submit a Question?

http://www.arm.gov/

- Data/instrument issue
  - Use comment box on their web pages
- General questions
  - Go to Contacts page, linked off of every web page



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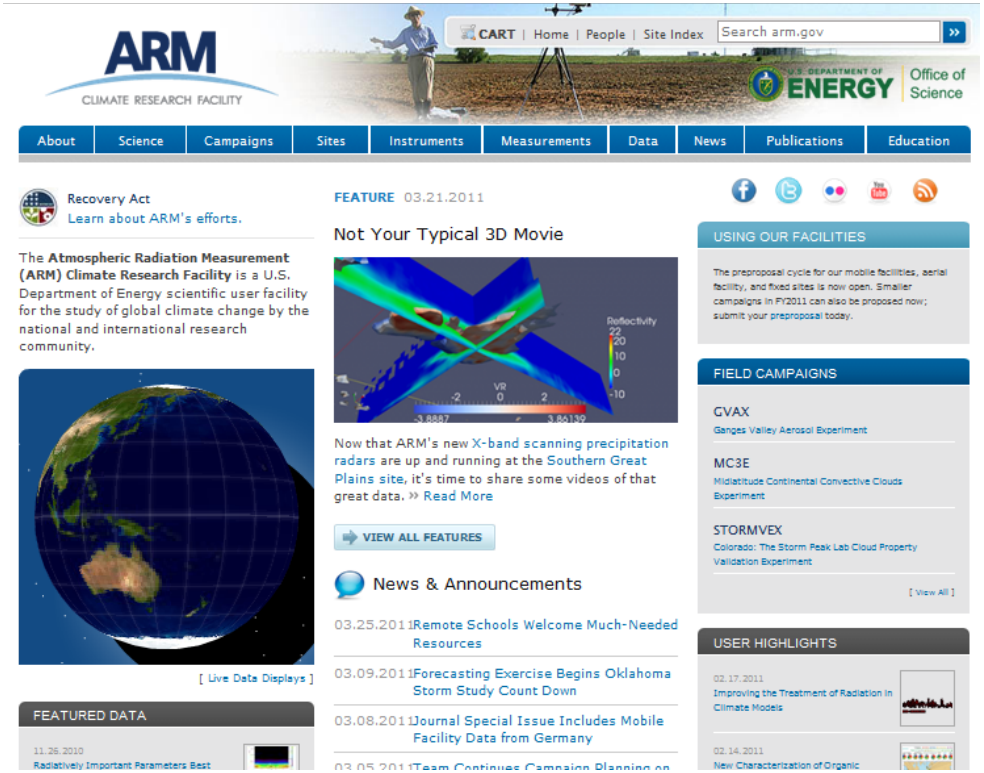
For More Information on ARM

- Description of sites, instruments, data
- Upcoming campaigns
- Science highlights
- ARM News (subscribe to RSS feed)
- Wiki pages
- Provide Feedback
- Contacts



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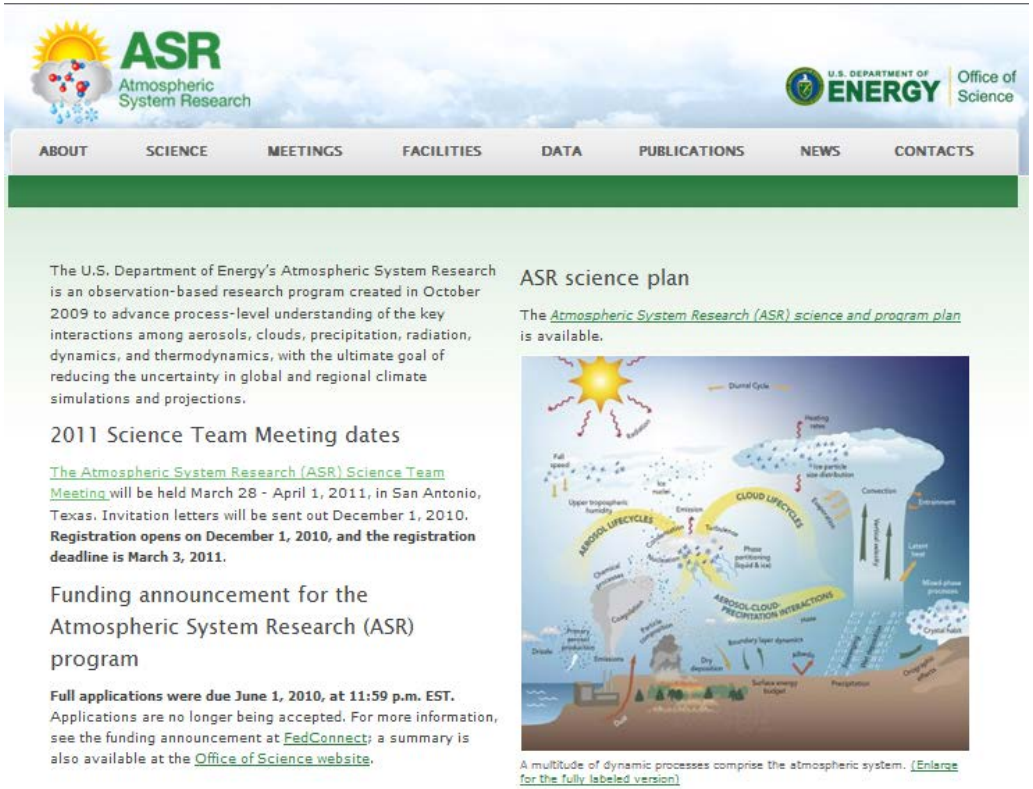
For More Information on ASR

- Description of program goals
- Description of working groups
- Science highlights
- Meeting information
- Links to ARM resources
- Contacts



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