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ARM Climate Research Facility Quarterly Value-Added Product Report

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**Third Quarter:
April 1- June 30, 2014**

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Abstract

The purpose of this report is to provide a concise status update for Value-Added Products (VAPs) implemented by the Atmospheric Radiation Measurement (ARM) Climate Research Facility. The report is divided into the following sections: (1) new VAPs for which development has begun; (2) progress on existing VAPs; (3) future VAPs that have been recently approved; (4) other work that leads to a VAP; (5) top requested VAPs from the ARM Data Archive; and (6) a summary of VAP and data releases to production and evaluation. New information is highlighted in **blue text**. New information about processed data by the developer is highlighted in **red text**. The upcoming milestones and dates are highlighted in **green**.

Acknowledgements

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1.0 New Value-Added Products (VAPs)

This section describes new activities that have begun in the last quarter after being approved by the ARM Infrastructure and Science Team.

1.1 Corrected Moments in Antenna Coordinates v2.0

Translator: Scott Collis, Argonne National Laboratory

Developer: Jonathan Helums, Argonne National Laboratory

The Engineering Change Order 01077 was approved to establish a pre-processing echo identification, improve upon: linear phase processing, allowing for larger areas of differential phase on backscatter previously not considered, and correction of correlation coefficient for low signal-to-noise.

1.2 Ship Motion Correction for Ceil, HSRL and MPL

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: David Troyan, Brookhaven National Laboratory

The Engineering Change Order 00996 was approved to create a VAP that will post-process data from the unstabilized Vaisala Celiometer, High Spectral Resolution Lidar and Micropulse Lidar (VCEIL, HSRL, MPL) for ship deployments

2.0 Existing VAPs

This section describes the status of each VAP and the ongoing activities that were approved to improve the performance of, or maintain, existing VAPs. The information is extracted primarily from the monthly updates provided by the development team in the Engineering Change Orders (ECOs).

2.1 ARM Cloud Retrieval Ensemble Data Set (ACRED)

Translator: Shaocheng Xie, Lawrence Livermore National Laboratory

Developer: Chuanfeng Zhao and Renata McCoy, Lawrence Livermore National Laboratory

Status: In Development

Tier: Evaluation

Engineering Work Order-13590 has been approved to address the uncertainty in cloud retrievals and provide three different retrievals at the five ARM fixed research sites.

[Progress has been made on running MICROBASE for large ensemble perturbation simulations.](#)

Next Milestone: Provide MICROBASE data with error bars for a selected intensive operational period (IOP), Spring Cloud IOP in 2000, for evaluation and discussion by August 30, 2014.

2.2 Atmospherically Emitted Radiance Interferometer Noise Filter (AERINF)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Tim Shippert, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.3 AERI Profiles of Water Vapor and Temperature (AERIPROF)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Tim Shippert, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

The VAP was moved to Red Hat 6.0. A few minor bugs were fixed and released to production.

2.4 Aerosol Best Estimate (AEROSOLBE)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.5 Aerosol Intensive Properties (AIP)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

2.6 Aerosol Modeling Testbed (AMT)

Translator: Jerome Fast, Pacific Northwest National Laboratory

Developer: Chen Song and Manish Shrivastava, Pacific Northwest National Laboratory

Status: Operational

Tier: Evaluation

Engineering Work Order-13683 has been approved to move data from the Brookhaven National Laboratory Aerosol Life Cycle IOP field campaign to the testbed.

No progress has been made last quarter.

Next Milestone: The bundling of the processed final testbed has been pushed back.

2.7 Aerosol Optical Depth (AOD) Derived from Either Multi-filter Rotating Shadowband Radiometer (MFRSR) or Normal Incidence Multi-filter Radiometer (NIMFR)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Connor Flynn, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

The Engineering Work Order 14994 has been opened to move the AOD VAP to the ARM Data Integrator (ADI).

Testing has been completed at the North Slope of Alaska (NSA) since there were issues with the previous release. The Data Quality Office is reviewing the data.

Next Milestone: Release the VAP and reprocess all historical data by September 30, 2014.

2.8 Aerosol Observing System Cloud Condensation Nuclei Average (AOSCCNAVG)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.9 Aerosol Observing System Correction (AOSCORR)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: On Hold

Tier: Evaluation

Engineering Work Order-00934 was approved to apply instrument corrections and calibrations to handle the Brookhaven National Laboratory Aerosol Observing System (AOS) datastream.

The original plan has been put on hold due to the discrepancies with the National Oceanic and Atmospheric Administration (NOAA) AOS data and Brookhaven National Laboratory (BNL) AOS data. A teleconference was held with key stakeholders in April, and this task has been put on hold until the ingest work is completed.

2.10 ARM Best Estimate Atmospheric Measurements (ARMBEATM)

Translator: Shaocheng Xie, Lawrence Livermore National Laboratory

Developer: Renata McCoy, Lawrence Livermore National Laboratory

Status: Operational

Tier: Production

Engineering Change Order-14547 has been approved to make corrections to produce ARMBE.

Next Milestone: Development of ARMBEATM for the ARM Mobile Facility (AMF) China deployment is on hold until land data development has been completed.

2.11 ARM Best Estimate Cloud Radiation Measurements (ARMBECLDRAD)

Translator: Shaocheng Xie, Lawrence Livermore National Laboratory

Developer: Renata McCoy, Lawrence Livermore National Laboratory

Status: Operational

Tier: Production

Developing data for AMF China and Azores IOPs

Next Milestone: Development of ARMBECLDRAD for the AMF China deployment is on hold until land data set development has been completed

2.12 Active Remote Sensing of Clouds (ARSCL)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: Karen Jones, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

2.13 Best Estimate Fluxes from Energy Balance Bowen Ratio (EBBR) Measurements and Bulk Aerodynamics Calculations (BAEBBR)

Translator: Shaocheng Xie, Lawrence Livermore National Laboratory

Developer: Krista Gaustad, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.14 Broadband Heating Rate Profile (BBHRP)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Tim Shippert, Pacific Northwest National Laboratory

Status: In Development

Tier: Evaluation

Engineering Change Order-00219 has been extended to test the scalability of BBHRP.

The BBHRP VAP has been run for a whole year in about four wall clock hours with 22 PIC nodes. With RRTM_G the estimate is more like one wall clock hour per model year. Bundling old runs and moving to aurora mass store system at PNNL.

Waiting on modelers to get ready for test runs.

2.15 Best Estimate Surface Radiative Flux (BEFLUX)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.16 Cloud Concentration Nuclei Profile (CCNPROF)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

2.17 Cloud Classification (CLDCLASS)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Chaomei Lo, Pacific Northwest National Laboratory

Status: No Development

Tier: Evaluation

There are no open ECOs for this VAP.

2.18 Corrected Moments in Antenna Coordinates (CMAC)

Translator: Scott Collis, Argonne National Laboratory

Developer: Scott Collis, Argonne National Laboratory

Status: In Development

Tier: Evaluation

2.19 Convective Vertical Velocity VAP (CONVV)

Translator: Scott Collis, Argonne National Laboratory

Developer: Kirk North, McGill University

Status: In Development

Tier: Evaluation

2.20 Doppler Lidar Profile VAP (DLPROF)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: Operational

Tier: Evaluation

Engineering Work Order-01035 and 01036 have been approved to create two VAPs—the vertical profiles of horizontal wind speed and direction using the velocity-azimuth-display (VAD) algorithm from the doppler lidar data and the cloud and vertical velocity statistics (wstat) from the Doppler lidar data.

Next Milestone: Evaluate user feedback by October 01, 2014.

2.21 G-Band Vapor Radiometer Precipitable Water Vapor (GVRPWW)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.22 Interpolated SONDE (INTERPSONDE)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: David Troyan, Brookhaven National Laboratory

Status: Operational

Tier: Production

The Engineering Change Order-14216 is being tracked to ensure that the beginning and end discontinuities in this VAP have been addressed.

The VAP has been released to production after addressing issues with discontinuity and moving to ADI.

Next Milestone: Run VAP on production and send data to ARM Data Archive and ensure that the test passes..

2.23 Ka-band Zenith-Pointing Radar Active Remote Sensing of Clouds (KAZRARSCL)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: Karen Johnson, Brookhaven National Laboratory

Status: In Development

Tier: Evaluation

Engineering Change Order-00899 was approved to initiate and coordinate the development of an ARSCL-like VAP to enhance the scientific value of data collected by the Ka-band ARM zenith radar (KAZR), the follow-on to the now-retired millimeter-wavelength cloud radar.

Progress has been made to test the VAP with ADI.

Next Milestone: Release the VAP to production by August 01, 2014.

2.24 Langley Regression (LANGLEY)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.25 Microwave Radiometer-Scaled SONDE Profiles (LSSONDE)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.26 Merged Sounding (MERGESONDE)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: David Troyan, Brookhaven National Laboratory

Status: Operational

Tier: Production

Engineering Change Order-00889 was approved to move the data to production.

The Data Quality Office found some issues with the latest release. These issues have been addressed and the VAP have been released to production.

Next Milestone: Compare production runs to development runs and release data to production.

2.27 MFRSR Column Intensive Properties (MFRSRCIP)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: In Development

Tier: Evaluation

Engineering Change Order-00823 has been approved to develop a VAP to retrieve aerosol column intensive properties from the MFRSR, including single scattering albedo, asymmetry parameter, and bi-modal log-normal size distributions.

A few minor bugs were fixed. Additional quality checks have been added.

Next Milestone: Release the VAP to run at the Data Management Facility (DMF) has been pushed back to August 31, 2014.

2.28 Cloud Optical Depth from MFRSR (MFRSRCLDOD)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

Engineering Change Order-00287 has been approved to update the VAP to run with the Microwave Radiometer Retrievals VAP (MWRRET) to input, run, and evaluate data from the AMF Azores deployment, then release the product.

The VAP has been moved to ADI and released to production. The data has been generated at Southern Great Plains (SGP) and released to ARM Data Archive.

Next Milestone: Run and release of the data for all AMFs has been moved to August 01, 2014.

2.29 MICRO-ARSCL (MICROARSCL)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: Ed Luke, Brookhaven National Laboratory

Status: In Development

Tier: Evaluation

Engineering Change Order-00847 has been approved to solve the spectral imaging problem and moving MICROARSCL to the ARM computer cluster at Oak Ridge National Laboratory.

Five years of data has been released to evaluation. A README and release notice has been sent to the users.

Next Milestone: Release the VAP to production by March 30, 2015.

2.30 Continuous Baseline Microphysical Retrieval (MICROBASE)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: Meng Wang, Brookhaven National Laboratory

Status: On Hold

2.31 Tier: Evaluation Mapped Moments to Cartesian Grid (MMCG)

Translator: Scott Collis, Argonne National Laboratory

Developer: Scott Collis, Argonne National Laboratory

Status: Operational

Tier: Evaluation

2.32 Micropulse Lidar Cloud Optical Depth (MPLCOD)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Chaomei Lo, Pacific Northwest National Laboratory

Status: No Development

Tier: Evaluation

There are no open ECOs for this VAP.

2.33 Micropulse Lidar Polarized Average (MPLAVG)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.34 MPL Cloud Mask (MPLCMASK)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

The Engineering Work Order 14994 has been opened to move MPLCMASK VAP to ADI.

[The VAP has been ported to ADI and released to production.](#)

[Next Milestone: Reprocess all historical data and send it to the ARM Data Archive.](#)

2.35 Microwave Radiometer Retrievals (MWRRET)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Krista Gaustad, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

Engineering Change Order-00526 has been approved to transition the product from evaluation to production, release the product, and process historical data.

GRW and HFE runs are complete and the data has been archived. MAG and SBS data has been released to evaluation.

Next Milestone: Process NIM and FKB data and send it to the ARM Data Archive.

2.36 Microwave Radiometer Retrieval Version 2 (MWRRET2)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Krista Gaustad, Pacific Northwest National Laboratory

Status: In Development

Tier: Evaluation

Engineering Change Order-00985 has been approved to update the current retrieval algorithm to be more flexible, so it can work with any set of n microwave frequencies to retrieve precipitable water vapor (PWV) and liquid water path (LWP).

No progress made during the last quarter. Waiting on guidance to move forward on the development of the VAP.

Next Milestone: Process SGP, Tropical Western Pacific, and GAN data with the latest code by September 30, 2014.

2.37 Marine ARM GPCI Investigation of Clouds Navigation (NAVBE)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: Tami Toto, Brookhaven National Laboratory

The Engineering Change Order 01071 was approved to create the Marine ARM GPCI Investigation of Clouds (MAGIC) Navigation Best Estimate (magnavbe) VAP to consolidate many different sources of instruments on the ship that collected Global Positioning System (GPS) and Inertial Navigation System (INS) measurements during the MAGIC campaign. This consolidation will result in a single, continuous datastream (rather than approximately a dozen different datastreams).

Significant progress has been made to the development of this VAP to read input data and indicate the source of the input using ADI.

Next Milestone: Release data to the evaluation area

2.38 Droplet Number Concentration (NDROP)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: Operational

Tier: Evaluation

Engineering Change Order-00955 has been approved to initiate and coordinate the development of a VAP to implement a method for determining droplet number concentration.

[The VAP has been released to production.](#)

[Next Milestone: Waiting on MERGESONDE data to process historical data.](#)

2.39 Organic Aerosol Component Analysis (OACOMP)

Translator: Jerome Fast, Pacific Northwest National Laboratory

Developer: Tim Shippert, Pacific Northwest National Laboratory

Status: In Development

Tier: Evaluation

Engineering Change Order-00838 has been approved to develop a VAP to estimate organic aerosol components from Aerosol Mass Spectrometers (AMS) and Aerosol Chemical and Speciation Monitors (ACSM) to be deployed at ARM's sites and as part of the Mobile Aerosol Observing System (MAOS).

Progress has been made to make this VAP operational. Data analysis is being conducted.

[Next Milestone: Review user feedback and make the VAP operational by August 01, 2014.](#)

2.40 Planetary Boundary Layer Height (PBLHT)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

Engineering Change Order-00893 has been approved to initiate and coordinate the development of a VAP to implement methods for Planetary Boundary Height (PBL) height detection using radiosondes, ceilometer, and micropulse lidar.

No progress has been made to this VAP due to other higher priorities.

Next Milestone: Release the PBLHT VAP to production using the MPL method by December 31, 2014.

2.41 Quality Checked Eddy Correlation (QCECOR)

Translator: Shaocheng Xie, Lawrence Livermore National Laboratory

Developer: Yunyan Zhang, Argonne National Laboratory

Status: Operational

Tier: Production

2.42 Data Quality Assessment for ARM Radiation Data (QCRAD)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

Engineering Change Order-15035 has been approved to run the second level (c2) of the VAP.

All QCRAD c2 data has been processed and sent to the ARM Data Archive. Still need to process QCRAD BEFLUX and QCRAD BRS data.

Next Milestone: Waiting on BRS data to be reprocessed to complete this task.

2.43 Quantitative Precipitation Estimate (QPE)

Translator: Scott Collis, Argonne National Laboratory

Developer: Scott Collis, Argonne National Laboratory

Status: On Hold

Tier: Evaluation

Engineering Work Order-00936 was approved to produce the QPE VAP for the Manus C-band scanning ARM precipitation radar for ARM MJO Investigation Experiment (AMIE) campaign data.

Next Milestone: To integrate the VAP code with ADI.

2.44 Radiation Flux VAP

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Krista Gaustad, Pacific Northwest National Laboratory

Engineering Change Order-00675 has been removed from hold to develop the VAP. This VAP will use surface broadband radiation measurements to detect periods of clear skies and produce continuous clear-sky estimates. To run the c2 level of the VAP.

[The VAP has been evaluated for SGP C1 and SGP E13. Quicklooks have been added.](#)

[Next Milestone: Waiting on minor issues to be resolved.](#)

2.45 Radiatively Important Parameters Best Estimate (RIPBE)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Tim Shippert, Pacific Northwest National Laboratory

Status: Operational

Tier: Evaluation

2.46 Raman Lidar Profiles—Aerosol Scattering Ratio (RLPROFASR)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.47 Raman Lidar Profiles—Best Estimate (RLPROFBE)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.48 Raman Lidar Profiles—Depolarization Ratio (RLPROFDEP)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

2.49 Raman Lidar Profiles—Extinction (RLPROFEXT)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.50 Raman Lidar Profiles—MERGE (RLPROFMERGE)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.51 Raman Lidar Profiles—Mixing Ratio (RLPROFMR)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.52 Raman Lidar Profiles—Temperature (RLPROFTEMP)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.53 Scanning ARM Cloud Radar Correction VAP (SACRCORR)

Translator: Michael Jensen, Brookhaven National Laboratory

Developer: Karen Johnson, Brookhaven National Laboratory

Engineering Work Order-01038 has been approved to develop a SACR corrections VAP to enhance the scientific value of data collected by the Ka-, W- and X-band Scanning ARM Cloud Radars.

[Incorporating recommendations developed at the April meeting that included adding MERGESONDE VAP data as the preferred input.](#)

2.54 Shortwave Array Spectroradiometer Hemispheric Aerosol Optical Depth (SASHE AOD)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Brian Ermold, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

Engineering Work Order-16154 has been approved to add scattering light correction.

2.55 Shortwave Array Spectroradiometer Hemispheric Column Intensive Properties (SASHECIP)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: In Development

Tier: Evaluation

Engineering Change Order-01014 has been approved to develop a VAP to retrieve aerosol column intensive properties from the shortwave array spectrometer hemispheric column, including single scattering albedo, asymmetry parameter, and bi-modal log-normal size distributions. The proposal is to extend this MFRSRCIP product to use measurements from the SASHE, including wavelengths in the near-infrared, which will improve the retrieval sensitivity to coarse-mode particles.

No progress has been made to this VAP. On hold until MFRSRCIP is completed.

2.56 Shortwave Array Spectroradiometer Hemispheric Langley (SASHE LANGLEY)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Brian Ermold, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

2.57 SGP Area Surface Cloud and SW Radiation Grid (SFCCLDGRID)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Krista Gaustad, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

2.58 SONDE Adjust (SONDEADJUST)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: David Troyan, Brookhaven National Laboratory

Status: Operational

Tier: Production

The VAP has been disabled in production. The SGP data has been reprocessed and sent to the ARM Data Archive.

Next Milestone: Reprocess all historical data for all sites and send to the ARM Data Archive.

2.59 Sea-Surface Temperature (SST)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: In Development

Tier: Evaluation

Engineering Change Order-00970 has been approved to develop to derive SST from the infrared thermometer measurements for the MAGIC deployment.

Next Milestone: [Waiting on ASSIST data to continue development.](#)

2.60 Ship Correction (SHIPCORR)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: David Troyan, Brookhaven National Laboratory

Status: Operational

Tier: Evaluation

2.61 Surface Spectral Albedo (SURFSPECALB)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Krista Gaustad, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.62 Shortwave Flux Analysis (SWFLUXANAL)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Krista Gaustad, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.63 Tower Water Vapor Mixing Ratio (TWRMR)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Krista Gaustad, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.64 UHF ARM Profiling Radar Actively Remotely Sensed Atmospheric Layers (UAPARSAL)

Translator: Scott Collis, Argonne National Laboratory

Developer: Edwin Campos, Argonne National Laboratory

Status: On Hold

Tier: Evaluation

Engineering Change Order-00967 has been approved to initiate and complete a product that uses the UHF ARM Zenith Radars (UAZR) and a variety of supporting instruments to retrieve information about precipitating cloud systems and planetary boundary layer heights and information.

[The data has been released to the Principal Investigator \(PI\) area since the data will never become operational.](#)

2.65 Variational Analysis (VARANAL)

Translator: Shaocheng Xie, Lawrence Livermore National Laboratory

Developer: Renata McCoy, Lawrence Livermore National Laboratory

Status: Operational

Tier: Evaluation

Engineering Work Order-14198 has been approved to develop continuous large-scale forcing data.

[Updated and extended the VAP for AIME GAN. New variational analysis data \(v3\) for MC3E released to evaluation area. Both ensemble forcing and multi-domain forcing were revised.](#)

Next Milestone: Extend the current AMIE GAN forcing to the entire period by August 01, 2014.

2.66 Vertical Velocity in Stratiform Rain (VVSF)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: Karen Johnson, Brookhaven National Laboratory

Status: Operational

Tier: Evaluation

Engineering Change Order-00865 was approved to initiate and coordinate the development of the VAP to generate profiles of vertical air motion during large-scale stratiform liquid precipitation. It will include information on the horizontal and vertical shear of the velocity.

Next Milestone: No new milestone has been set.

2.67 W-Band ARM Cloud Radar Active Remote Sensing of Clouds (WACRARSCL)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: David Troyan, Brookhaven National Laboratory

Status: Operational

Tier: Production.

3.0 Future VAPs

This section describes new activities that may begin in the next quarter.

White papers are being written for VAPs related to the Areal Averaged Spectral Surface Albedo implementation plan.

4.0 VAP Metrics

This section lists the top five VAPs that were requested by users from the ARM Data Archive during the third quarter.

Downloaded ARM Data Files – Production Data/ Unique Requests

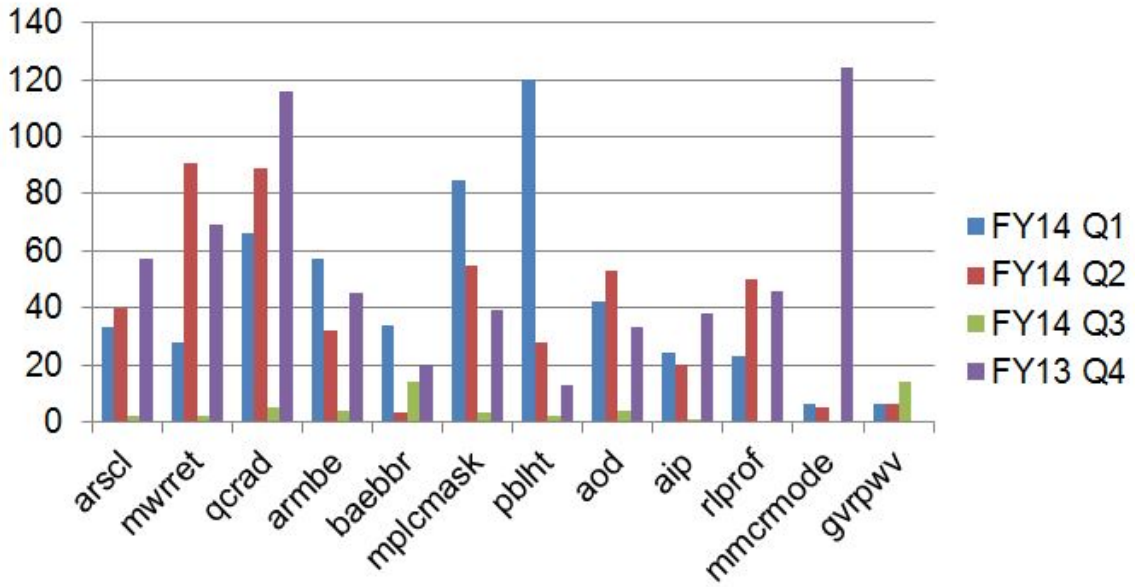


Figure 1. This chart shows the top five VAPs requested by users from the ARM Data Archive during the last four quarters ordered by number of unique requests.

Downloaded ARM Data Files – Production Data/ Unique Users

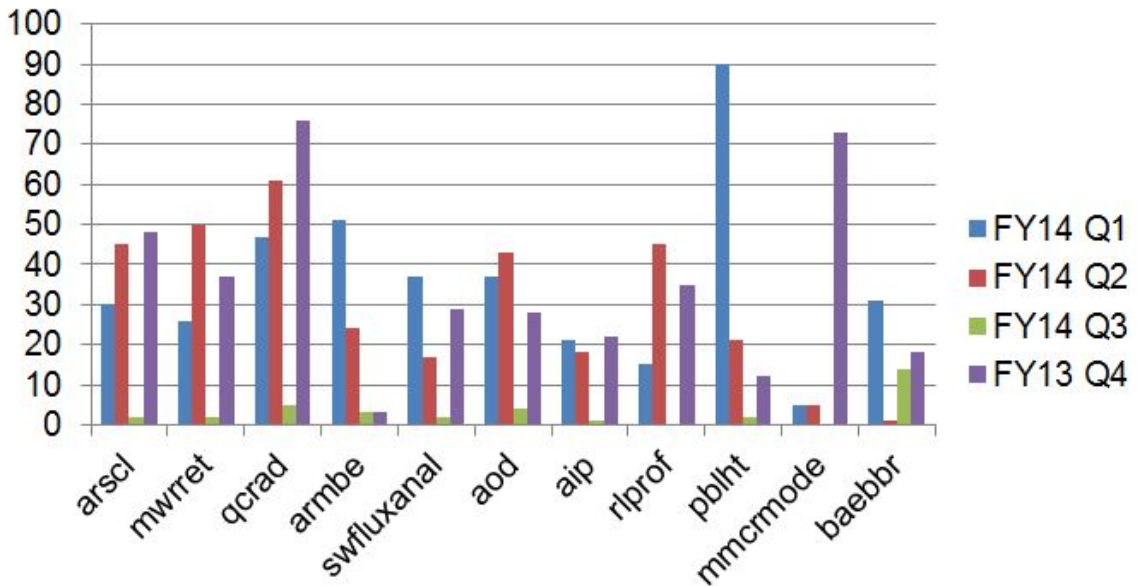


Figure 2. This chart shows the top five VAPs that were requested by users from the ARM Data Archive during the last four quarters ordered by unique users.

Downloaded ARM Data Files – Evaluation Data

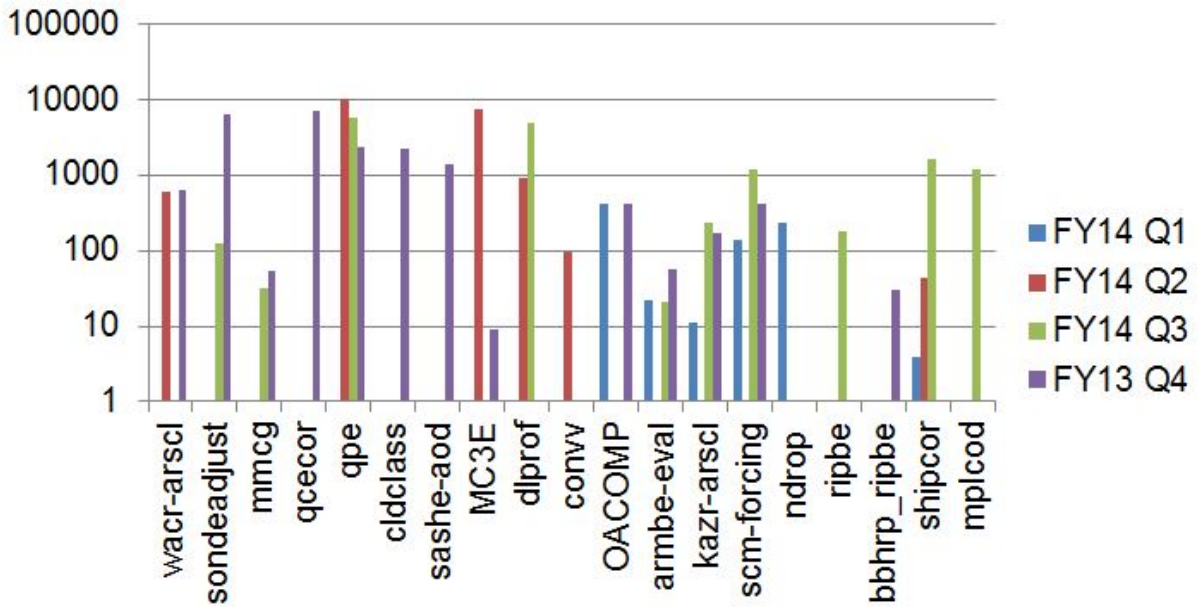


Figure 3. The chart shows the top five VAPs downloaded from the evaluation area for the last four quarters.

**Number of Datastreams Stored at the Archive
by Data Level, by Quarter**

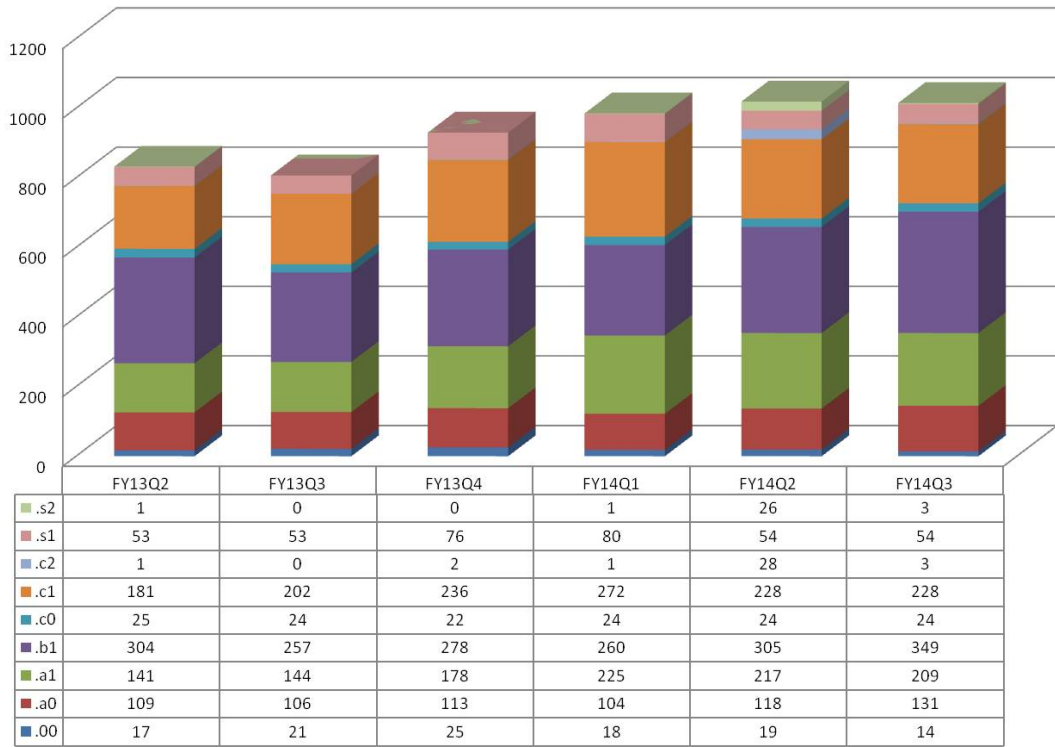


Figure 4. The chart shows the number of datastreams stored in the ARM Data Archive for the last four quarters.

5.0 Summary

This section describes the summary of VAP and data releases to production and evaluation.

5.1 Products Released to Production

This section includes VAPs that are released to production for automated operations by the ARM DMF.

Table 1.

VAP	Action
MERGESONDE	Released to production and reprocessing of historical data has begun.
NDROP	Released to production. Waiting on MERGESONDE data to process historical data.

5.2 Products Released to Evaluation

This section includes VAPs that are being released to the evaluation area for user feedback for the first time.

No new products were released to evaluation in the third quarter.

5.3 Data Released to the ARM Data Archive

This section includes data that are being released to the ARM Data Archive by the developer through a manual process.

Table 2.

VAP	Action
MWRREET	GRW and HFE data processed and sent to the ARM Data Archive.
MFRSRCLDOD	SGP data was released to the ARM Data Archive.
QCRAD	All QCRAD c2 data has been processed and sent to the ARM Data Archive.
WACRARSCL	Azores (GRW) data released to the ARM Data Archive.

5.4 Data Release to Evaluation

This section includes data that are being released to the evaluation area after getting feedback from the users.

Table 3.

VAP	Action
MICROARSCL	Five years of data released to evaluation.
WACRARSCL	PVC data released to evaluation.
MWRRET	MAG and SBS data released to production.

5.5 Significant Development

This section provides a summary of significant improvements.

Table 4.

VAP	Action
ACRED	Progress has been made on running MICROBASE for large ensemble perturbation simulations.
AOD	The Data Quality Office is reviewing the data.
BBHRP	The BBHRP VAP has been run for a whole year in about four wall clock hours with 22 PIC nodes.
INTERPSONDE	The VAP has been released to production.
MERGESONDE	The VAP has been released to production after addressing issues identified by the Data Quality Office.
MFRSRCLDOD	The VAP has been moved to ADI and released to production.
MICROARSCL	Five years of data released to evaluation.
MICROBASE	Significant progress has been made to move this VAP to ADI and move code developed in MATLAB to C.
MPLCMASK	The VAP has been released to production. Historical data is being reprocessed.
MWRRET	GRW and HFE runs are complete and the data has been archived. MAG and SBS data has been released to evaluation.
NDROP	The VAP has been released to production. Waiting on MERGESONDE reprocessed data to run historical data.
RADFLUX	The VAP has been evaluated for SGP C1 and SGP E13. Quicklooks have also been added.
SACRCORR	Developers have received MATLAB and Fortran codes to be used in the VAP.
SONDEADJUST	The VAP has been released to production. SGP data has been reprocessed and sent to the ARM Data Archive.
UAPARSAL	The data has been released to the PI area.



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