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ARM Climate Research Facility Quarterly Value-Added Product Report

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January 2014



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**First Quarter:
October 1–December 31, 2013**

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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, and (5) top requested VAPs from the ARM data archive. 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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Contents

Abstract	iii
Acknowledgements	iv
1.0 New Value-Added Products (VAPs)	1
1.1 Doppler Lidar Velocity-Azimuth-Display VAP	1
1.2 Scanning ARM Cloud Radar Correction VAP	1
1.3 Radiation Flux VAP	1
2.0 Existing VAPs	1
2.1 ARM Cloud Retrieval Ensemble Data Set (ACRED)	1
2.2 Atmospherically Emitted Radiance Interferometer Noise Filter (AERINF)	2
2.3 AERI Profiles of Water Vapor and Temperature (AERIPROF)	2
2.4 Aerosol Best Estimate (AEROSOLBE)	2
2.5 Aerosol Intensive Properties (AIP)	3
2.6 Aerosol Modeling Testbed (AMT)	3
2.7 Aerosol Optical Depth Derived from Either MFRSR or NIMFR (AOD)	3
2.8 Aerosol Observing System Cloud Condensation Nuclei Average (AOSCCNAV)	4
2.9 Aerosol Observing System Correction (AOSCORR)	4
2.10 ARM Best Estimate Atmospheric Measurements (ARMBEATM)	4
2.11 ARM Best Estimate Cloud Radiation Measurements (ARMBECLDRAD)	5
2.12 Active Remote Sensing of Clouds (ARSCL)	5
2.13 Best Estimate Fluxes from EBBR Measurements and Bulk Aerodynamics Calculations (BAEBBR)	5
2.14 Broadband Heating Rate Profile (BBHRP)	6
2.15 Best Estimate Surface Radiative Flux (BEFLUX)	6
2.16 Cloud Concentration Nuclei Profile (CCNPROF)	6
2.17 Cloud Classification (CLDCLASS)	6
2.18 Corrected Moments in Antenna Coordinates (CMAC)	7
2.19 Convective Vertical Velocity VAP (CONVV)	7
2.20 G-Band Vapor Radiometer Precipitable Water Vapor (GVRPWV)	7
2.21 Interpolated Sonde (INTERPSONDE)	7
2.22 Ka-band Zenith-Pointing Radar Active Remote Sensing of Clouds (KAZRARSCL)	8
2.23 Langley Regression (LANGLEY)	8
2.24 Microwave Radiometer-Scaled Sonde Profiles (LSSONDE)	8
2.25 Merged Sounding (MERGESONDE)	9
2.26 Cloud Optical Depth from MFRSR (MFRSRCLDOD)	9
2.27 MFRSR Column Intensive Properties (MFRSRCIP)	9

2.28 MICRO-ARSCL (MICROARSCL)	10
2.29 Continuous Baseline Microphysical Retrieval (MICROBASE)	10
2.30 MAGIC KAZR and MAGIC WACR (MKAZR and MWACR)	10
2.31 Mapped Moments to Cartesian Grid (MMCG)	11
2.32 Micropulse Lidar Polarized Average (MPLAVG)	11
2.33 Micropulse Lidar Cloud Optical Depth (MPLCOD)	11
2.34 MPL Cloud Mask (MPLCMASK)	11
2.35 Microwave Radiometer Retrievals (MWRRET)	12
2.36 Microwave Radiometer Retrieval Version 2 (MWRRET2)	12
2.37 Droplet Number Concentration (NDROP)	12
2.38 Organic Aerosol Component Analysis (OACOMP)	13
2.39 Planetary Boundary Layer Height (PBLHT)	13
2.40 Quality Checked Eddy Correlation (QCECOR)	13
2.41 Data Quality Assessment for ARM Radiation Data (QCRAD)	14
2.42 Quantitative Precipitation Estimate (QPE)	14
2.43 Radiatively Important Parameters Best Estimate (RIPBE)	14
2.44 Raman Lidar Profiles—Aerosol Scattering Ratio (RLPROFASR)	15
2.45 Raman Lidar Profiles—Best Estimate (RLPROFBEST)	15
2.46 Raman Lidar Profiles—Depolarization Ratio (RLPROFDEP)	15
2.47 Raman Lidar Profiles—Extinction (RLPROFEXT)	15
2.48 Raman Lidar Profiles—MERGE (RLPROFMERGE)	16
2.49 Raman Lidar Profiles—Mixing Ratio (RLPROFMIX)	16
2.50 Raman Lidar Profiles—Temperature (RLPROFTEMP)	16
2.51 Shortwave Array Spectroradiometer Hemispheric Aerosol Optical Depth (SASHE AOD)	16
2.52 Shortwave Array Spectroradiometer Hemispheric Column Intensive Properties (SASHECIP)	17
2.53 Shortwave Array Spectroradiometer Hemispheric Langley (SASHE LANGLEY)	17
2.54 SGP Area Surface Cloud and SW Radiation Grid (SFCCLDGRID)	17
2.55 SONDE Adjust (SONDEADJUST)	17
2.56 Sea-Surface Temperature (SST)	18
2.57 Surface Spectral Albedo (SURFSPECALB)	18
2.58 Shortwave Flux Analysis (SWFLUXANAL)	18
2.59 Tower Water Vapor Mixing Ratio (TWRMR)	19
2.60 UHF ARM Profiling Radar Actively Remotely Sensed Atmospheric Layers (UAPARSAL)	19
2.61 Variational Analysis (VARANAL)	19
2.62 Vertical Velocity in Stratiform Rain (VVSR)	20
2.63 W-Band ARM Cloud Radar Active Remote Sensing of Clouds (WACR-ARSCL)	20

3.0 Future VAPs 20
4.0 VAP Metrics 21

Figures

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. 21
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. 21
3. This chart shows the top five VAPs downloaded from the evaluation area for the last four quarters. 22

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 Doppler Lidar Velocity-Azimuth-Display VAP

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Engineering Work Orders -01035 and -01036 have been approved to create vertical profiles of horizontal wind speed and direction using the velocity-azimuth-display (VAD) algorithm from the Doppler lidar data.

1.2 Scanning ARM Cloud Radar Correction VAP

Translator: Michael Jensen, Brookhaven National Laboratory

Developer: Karen Johnson, Brookhaven National Laboratory

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

1.3 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 second order .c2 level of the VAP.

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.

Next Milestone: Provide MICROBASE data with error bars for a selected Spring Cloud Intensive Operational Period (IOP) in 2000 for evaluation and discussion.

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

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

Engineering Change Order-14990 has been approved to run the AIP VAP using ARM Data Integrator (ADI). [Great progress has been made to move this VAP to ADI. The work is 90% complete.](#)

[Next Milestone: Release the VAP to 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 intensive operational period field campaign to the testbed.

[No progress was made last quarter.](#)

[Next Milestone: The bundling of the processed final testbed has been pushed back.](#)

2.7 Aerosol Optical Depth Derived from Either MFRSR or NIMFR (AOD)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Connor Flynn, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

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 AOS data. A teleconference was held with key stakeholders, 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.

The ARMBE data set has been corrected for sounding a data problem for all sites. Ninety-five percent of the work has been completed to run this product for the ARM Mobile Facility (AMF) China deployment.

Next Milestone: Development of ARMBEATM for the AMF China deployment and land data has been pushed back to 2014.

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

Next Milestone: Development of ARMBECLDRAD for the AMF China deployment has been pushed back to March 01, 2014.

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

Engineering Change Order-00086 has been approved to catch up on processing of ARSCL data and development of a new ARSCL product for the upgraded Ka-band ARM zenith radar (KAZR) system.

[Completed the historical processing of data for all sites.](#)

2.13 Best Estimate Fluxes from 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.

Significant progress has been made on examining the differences between runs of RRTM_G (Rapid Radiative Transfer Model for General Circulation Model) and RRTM (Rapid Radiative Transfer Model). The testing is in progress using RRTM_G on the Pacific Northwest National Laboratory Institutional Computing (PIC).

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: Not started

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 G-Band Vapor Radiometer Precipitable Water Vapor (GVRPWV)

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.

2.21 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 in this VAP have been addressed.

Significant progress has been made to address the discontinuity issue.

Next Milestone: Release the VAP to production.

2.22 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 KAZR, the follow-on to the now-retired millimeter-wavelength cloud radar.

No progress has been made due to other priorities.

Next Milestone: Release the VAP to production.

2.23 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.

2.24 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.

2.25 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 VAP had issues when it was running at the Data Management Facility (DMF). The VAP is being tested to analyze the segmentation faults and differences in the data between development and production runs.

Next Milestone: Release the VAP to production.

2.26 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 North Slope of Alaska data have been released to production. Waiting for WACR-ARSCL data to run for the Azores data set.

Next Milestone: Run and release the data for all AMFs before March 01, 2014.

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 multifilter rotating shadowband radiometer (MFRSR), including single scattering albedo, asymmetry parameter, and bi-modal log-normal size distributions.

The data and data object design (DOD) review are under progress

Next Milestone: Release the VAP to run at the DMF.

2.28 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 more MICROARSCL to the ARM computing cluster at Oak Ridge National Laboratory.

The VAP was run successfully with the Azores data set with total processing of two hours.

Next Milestone: Reprocess historical data at Oak Ridge National Laboratory. This milestone has been pushed back to March 01, 2014.

2.29 Continuous Baseline Microphysical Retrieval (MICROBASE)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: Meng Wang, Brookhaven National Laboratory

Status: On Hold

Tier: Evaluation

2.30 MAGIC KAZR and MAGIC WACR (MKAZR and MWACR)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: David Troyan, Brookhaven National Laboratory

Status: Operational

Tier: Evaluation

Engineering Change Order-00948 has been approved to correct ship motion for the cloud radar data for the MAGIC deployment.

[Progress has been made to get the corrected versions of the radiation and met data that will go into the bulk fluxes and best estimate radiation.](#)

2.31 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 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.

2.33 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.

2.34 MPL Cloud Mask (MPLCMASK)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

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.

[This product is waiting for the WACR-ARSCL VAP to be available at the ARM Data Archive.](#)

[Next Milestone: Process AMF data when WACR-ARSCL is reprocessed.](#)

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 that it can work with any set of n microwave frequencies to retrieve precipitable water vapor (PWV) and liquid water path (LWP).

[Fifty percent progress has been made in analyzing the data and examining the performance of the algorithm.](#)

[Next Milestone: Process Southern Great Plains, Tropical Western Pacific, and AMF Gan Island, Maldives deployment data with the latest code by March 31, 2014.](#)

2.37 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.

Next Milestone: Waiting on WACR-ARSCL data to process Azores data. Review user feedback by February 01, 2014. The goal is to make this VAP operational by March 31, 2014.

2.38 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).

Next Milestone: Review user feedback and make the VAP operational by May 30, 2014.

2.39 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 layer (PBL) height detection using radiosondes, ceilometer, and micropulse lidar.

Next Milestone: Release the PBLHT VAP to production using the MPL method by June 30, 2014.

2.40 Quality Checked Eddy Correlation (QCECOR)

Translator: Shaocheng Xie, Lawrence Livermore National Laboratory

Developer: Yunyan Zhang, Argonne National Laboratory

Status: Operational

Tier: Production

2.41 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 .c2 level of the VAP.

[Significant progress has been made to run the c2 level data.](#)

[Next Milestone: Complete processing by March 01, 2014.](#)

2.42 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: Integrate the VAP code with ADI.](#)

2.43 Radiatively Important Parameters Best Estimate (RIPBE)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Tim Shippert, Pacific Northwest National Laboratory

Status: Operational

Tier: Evaluation

2.44 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.

2.45 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.

2.46 Raman Lidar Profiles—Depolarization Ratio (RLPROFDEP)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

2.47 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.

2.48 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.

2.49 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.

2.50 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.

2.51 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

2.52 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 radiation, which will improve the retrieval sensitivity to coarse-mode particles.

No progress has been made on this VAP.

2.53 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

2.54 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

2.55 SONDE Adjust (SONDEADJUST)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: David Troyan, Brookhaven National Laboratory

Status: In Development

Tier: Production

2.56 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 derive SST from the IRT measurements for the MAGIC deployment.

Two data sets have been calculated for the full MAGIC campaign: the first assumes a constant view angle of 45 degrees and the second includes a correction for the roll of the ship. There are biases, and these are being analyzed between the two runs.

Next Milestone: Release the data to evaluation.

2.57 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.

2.58 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.

2.59 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.

2.60 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.

[No progress has been made on this VAP.](#)

[Next Milestone: No milestone has been set.](#)

2.61 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.

[The development of initial ensemble forcing for the Midlatitude Continental Convective Clouds Experiment period has been completed. A new task has been added to reprocess continuous forcing at SGP for 2002–2010.](#)

Next Milestone: Extend the current Gan Island deployment data forcing to the entire period by March 01, 2014.

2.62 Vertical Velocity in Stratiform Rain (VVSR)

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. The VAP will include information on the horizontal and vertical shear of the velocity.

Next Milestone: No new milestone has been set.

2.63 W-Band ARM Cloud Radar Active Remote Sensing of Clouds (WACR-ARSCL)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: David Troyan, Brookhaven National Laboratory

Status: Operational

Tier: Evaluation

Engineering Change Request-00826 has been approved to run WACR-ARSCL at all AMF deployments and continue development at SGP.

The Azores data are being reviewed.

Next Milestone: Release the data to the ARM Data Archive by March 01, 2014.

3.0 Future VAPs

This section describes new activities that have been approved in the last quarter by the ARM Science and Infrastructure Steering Committee. Work on these activities will begin in the next quarter.

White papers are being written for VAPs related to the Liquid Water Content VAP and the MAGIC Navigation Best Estimate VAP.

4.0 VAP Metrics

This section lists the top five VAPs that were requested by users from the ARM Data Archive during the last four quarters.

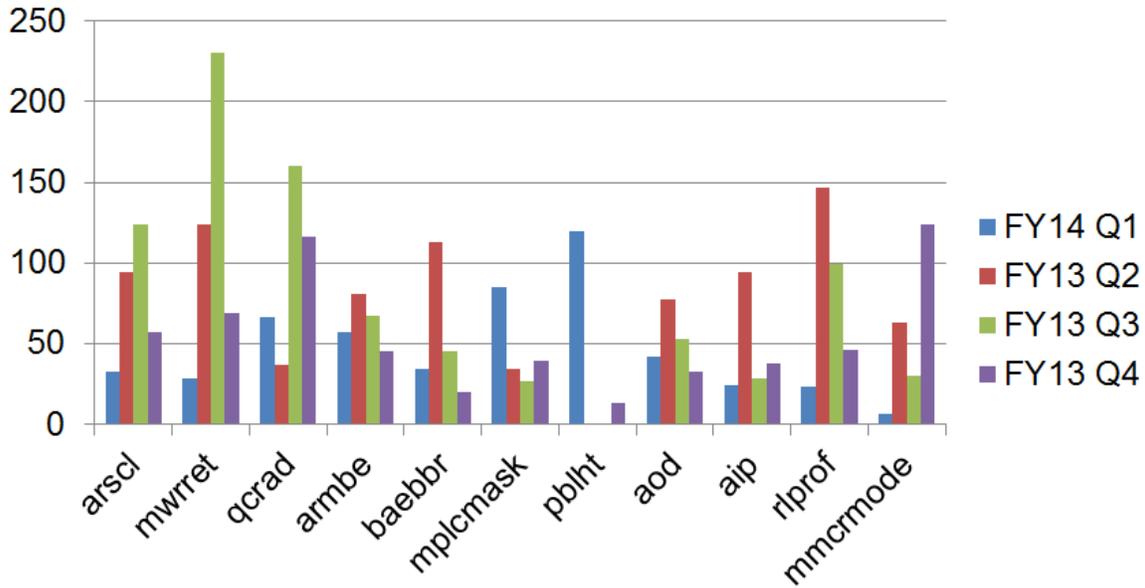


Figure 1. This chart shows the top five VAPs requested by users from the ARM Data Archive during the last four quarters, ordered by number of unique requests.

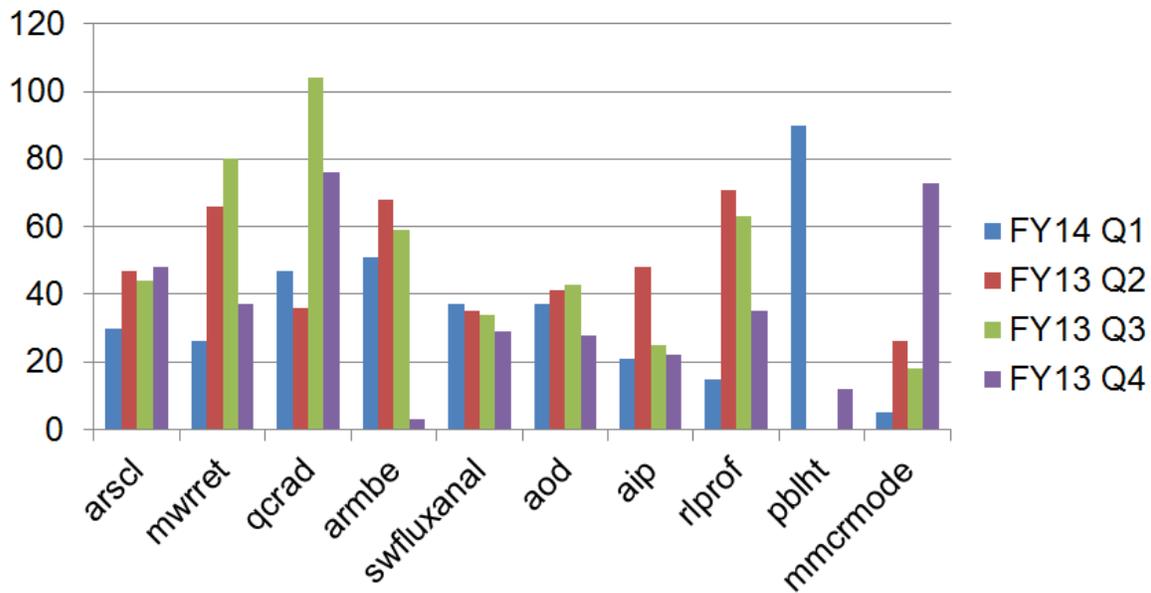


Figure 2. This chart shows the top five VAPs that were requested by users from the ARM Data Archive during the last four quarters, ordered by unique users.

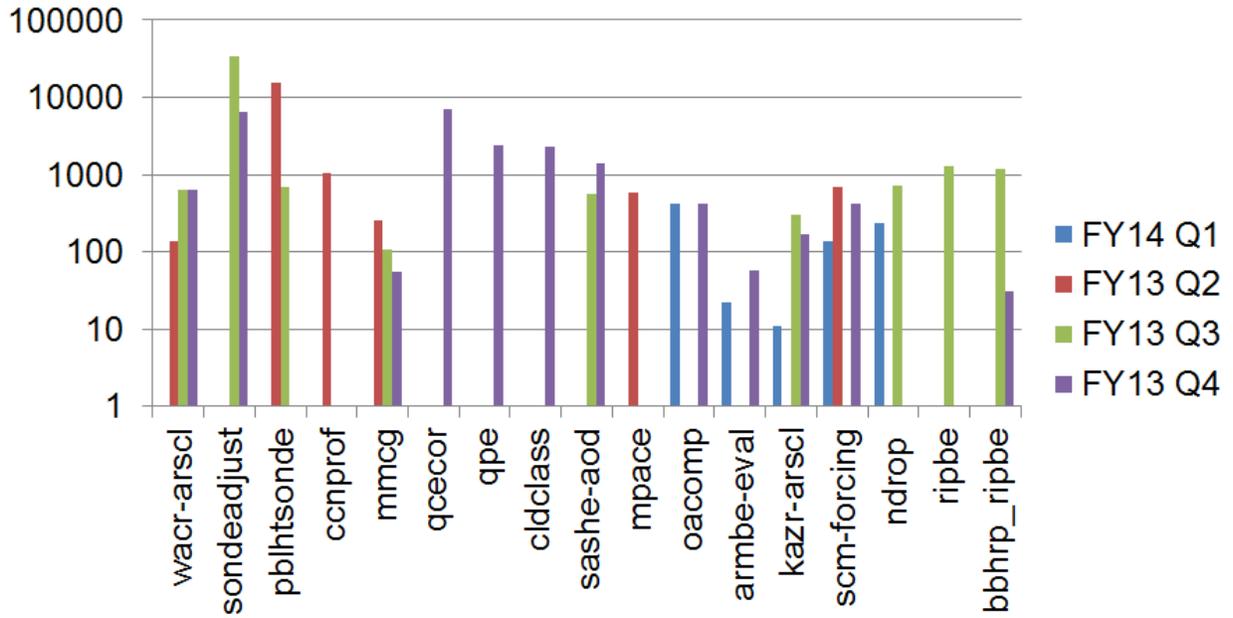


Figure 3. This chart shows the top five VAPs downloaded from the evaluation area for the last four quarters.



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