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ARM Climate Research Facility Quarterly Value-Added Product Report

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April 2014

ARM CLIMATE RESEARCH FACILITY

DISCLAIMER

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First Quarter:
January 1- March 31, 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 Marine ARM GPCI Investigation of Clouds Navigation (MAGNAVBE)

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).

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.

Working on code refactoring of MICROBASE to run with Problem Solving environment for Uncertainty Analysis and Design Exploration (PSUADE) statistical software and in parallel to run faster.

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

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

The Engineering Change Order-01041 has been approved to move the AIP VAP using ARM Data Integrator (ADI).

The VAP has been moved to ADI and released 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 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 Derived from Either Multi-filter Rotating Shadowband Radiometer (MFRSR) or Normal Incidence Multi-filter Radiometer (NIMFR) (AOD)

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 AOD VAP to ADI.

The VAP is being moved to ADI.

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, 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.

Progress has been made to run this product at ARM Mobile Facility (AMF) China deployment.

Next Milestone: Develop ARMBEATM for the AMF China deployment and land data has been pushed back to May 15, 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

Developing data for AMF China and Azores IOPs

Next Milestone: Develop ARMBECLDRAD for the AMF China deployment has been pushed back to May 15, 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

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.

Progress has been made to compile the BBHRP code 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: 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: Operatioanl

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.

The two DLPROF VAPs have been released to evaluation.

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

2.21 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.

2.22 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.

Significant progress has been made to address the discontinuity issue. It is in the process of being released to production.

Next Milestone: Release the VAP to production.

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.

Development has begun on merging KAZR operational modes into best estimate modes. Implementation of the micropluse lidar and celiometer cloud best estimate portion has been completed.

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

Next Milestone: Release the VAP to production.

2.27 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.

There were issues with the AOD VAP. As a result, this VAP has been put on hold.

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

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 is being moved using ADI.

Next Milestone: Run and release of the data for all AMFs has been moved to July 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.

No progress has been made.

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

2.30 Continuous Baseline Microphysical Retrieval (MICROBASE)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: Meng Wang, Brookhaven National Laboratory

Status: On Hold

Tier: Evaluation

2.31 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 from the MAGIC deployment.

Related to this ECO, a new VAP is being developed to provide best estimate VAPs (10 Hz and 1 minute) of GPS and INS Measurements for MAGIC.

Next Milestone: Provide preliminary data by May 05, 2014, before the MAGIC workshop begins.

2.32 Mapped Moments to Cartesian Grid (MMCG)

Translator: Scott Collis, Argonne National Laboratory

Developer: Scott Collis, Argonne National Laboratory

Status: Operational

Tier: Evaluation

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 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.

2.35 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 is being moved to ADI.

2.36 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.

2.37 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 Southern Great Plains (SGP), Tropical Western Pacific, and GAN data with the latest code by March 31, 2014.

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 Data Object Design (DOD) has been approved by the metadata reviewers. The VAP meets the standards. Data from the VAP was being compared with the runs at SGP C1 and SGP E13.

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 September 30, 2014.

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).

Next Milestone: Review user feedback and make the VAP operational by May 30. 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 June 30, 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 ARM Data Archive. Still need to process QCRAD BEFLUX and QCRAD BRS data.

Next Milestone: Complete processing by June 30, 2014.

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 Fortran algorithms have been implemented. Completed initial implementation of the VAP. The VAP was evaluated by comparing test data provided by the translator to test data created by new VAP. Discrepancies between the two data sets are being examined.

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.

Developers have received MATLAB and Fortran codes to be used in the VAP.

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

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.

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

Due to issues with production binary, the VAP was re-released and all the historical data is being reprocessed.

Next Milestone: Disable SONDEADJUST VAP in production.

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.

Work is being continued to do additional data analysis to see if other diurnal changes in humidity or temperature impacts the data.

Next Milestone: Release the data to evaluation.

2.60 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.

2.61 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.

2.62 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.

2.63 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.

All code moved to Python and tested. The code is being cleaned.

Next Milestone: No milestone has been set.

2.64 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 (EWO-14198) has been approved to develop continuous large-scale forcing data.

A new task has been added to reprocess using the SONDE data.

Next Milestone: Extend the current AMIE GAN forcing to the entire period by June 30, 2014. Reprocess the MC3E period with reprocessed SONDE data by April 30

2.65 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. It will include information on the horizontal and vertical sheer of the velocity.

Next Milestone: No new milestone has been set.

2.66 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 GRW data have been sent to the ARM Data Archive. The PVC data have been sent to the evaluation area.

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 ARMBE 2D gridded and stations-based surface data products and the Corrected Moments in Antenna Coordinates v2.0 VAP.

4.0 VAP Metrics

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

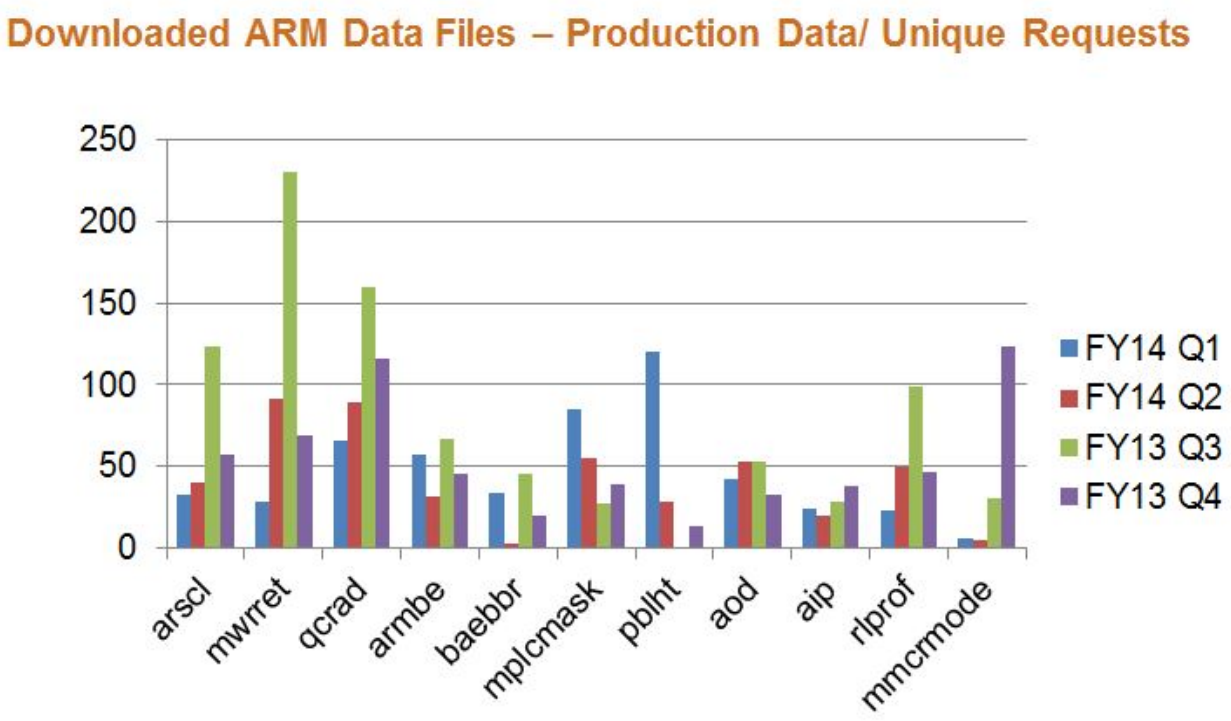


Figure 1. This chart shows the top five VAPs requested by users from the ARM Data Archive during the last four quarters ordered by number of unique requests.

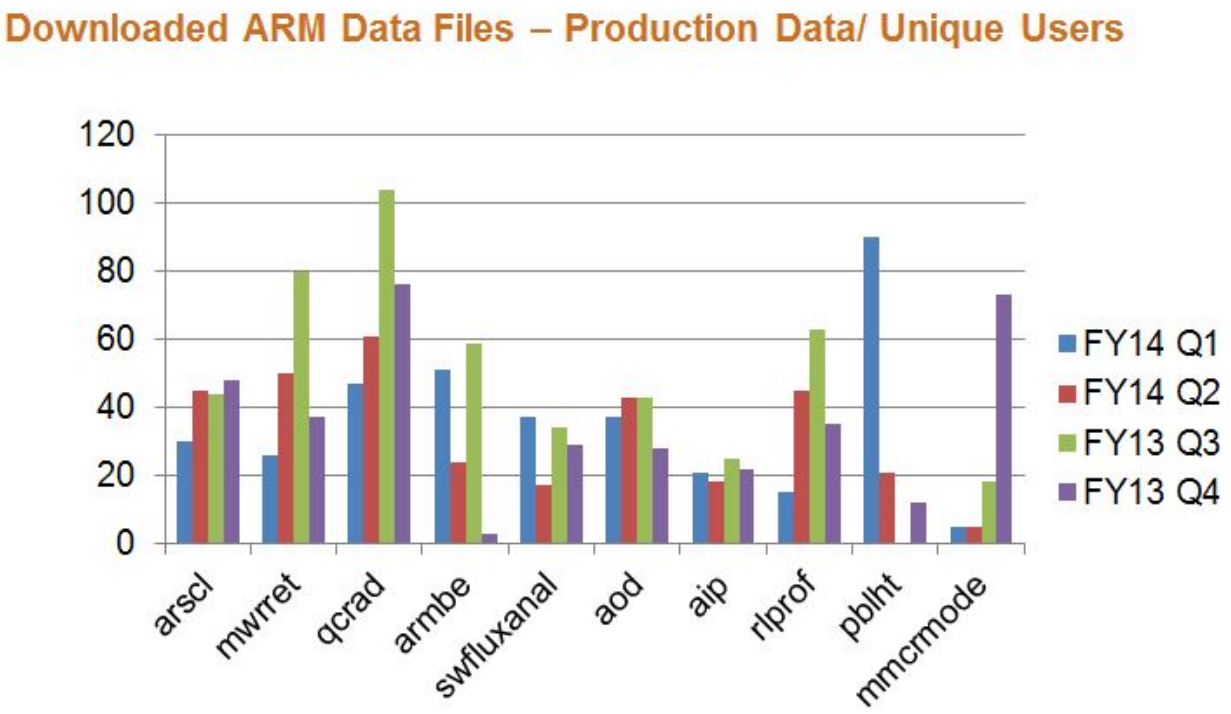


Figure 2. This chart shows the top five VAPs that were requested by users from the ARM Data Archive during the last four quarters ordered by unique users.

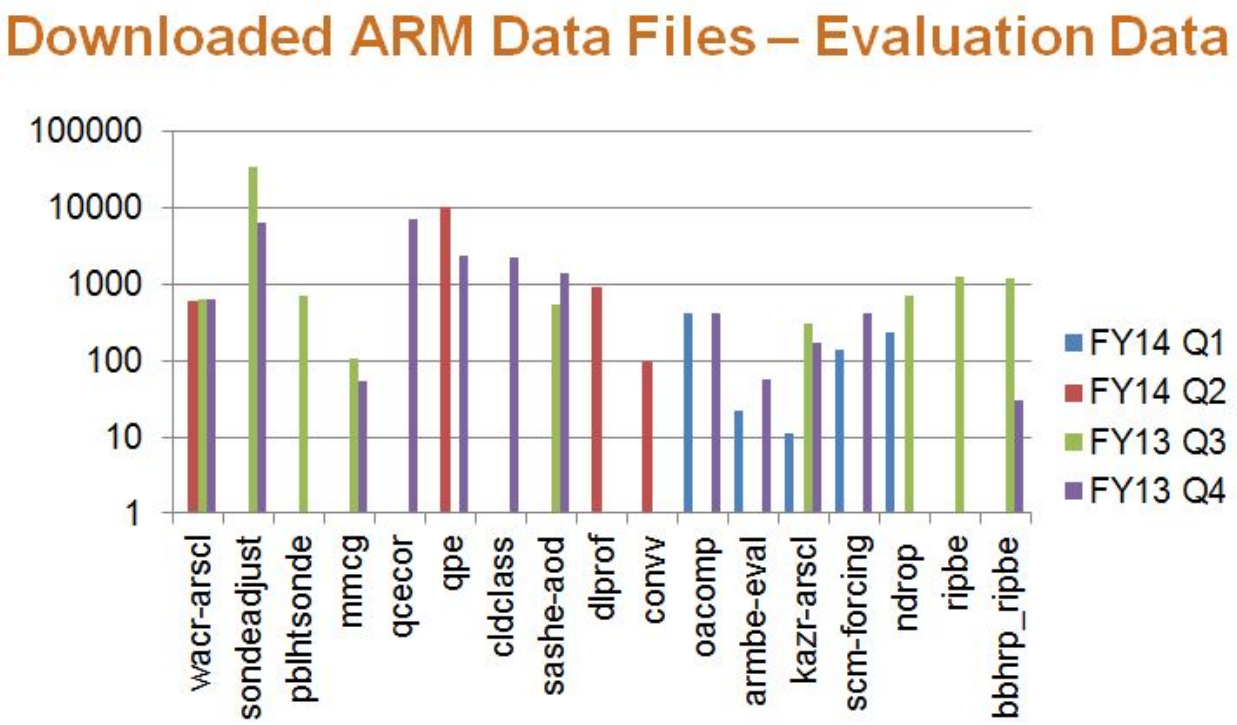
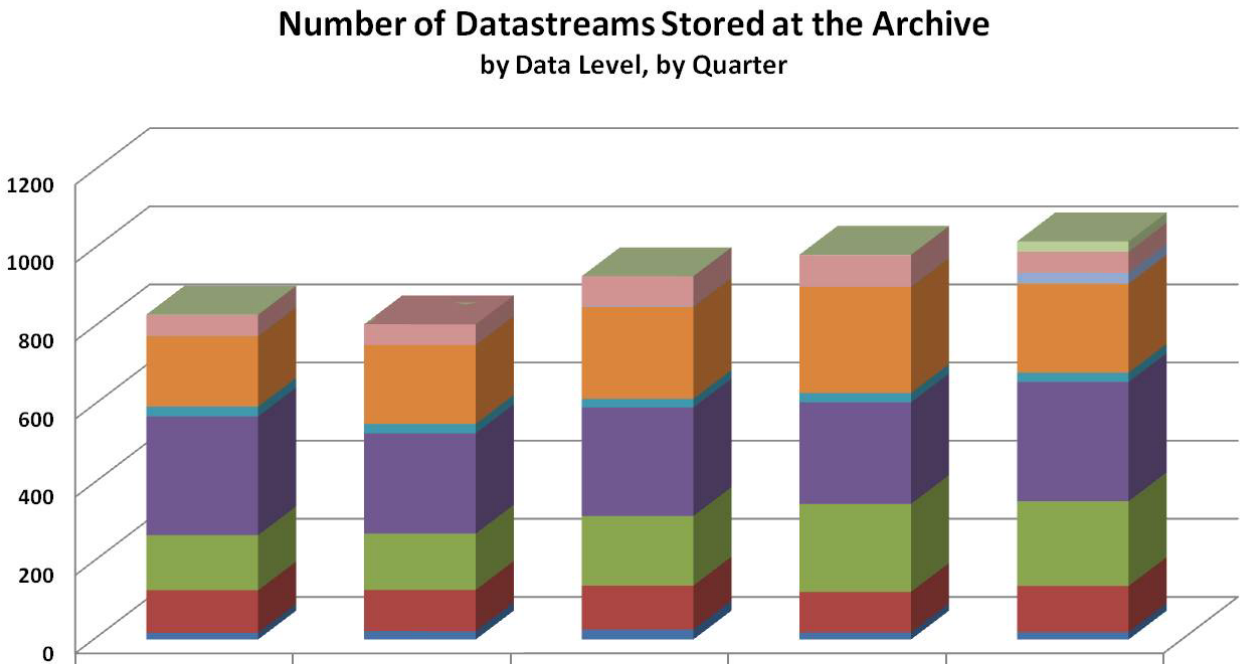


Figure 3. The chart shows the top five VAPs downloaded from the evaluation area for the last four quarters.



	FY13Q2	FY13Q3	FY13Q4	FY14Q1	FY14Q2
.s2	1	0	0	1	26
.s1	53	53	76	80	54
.c2	1	0	2	1	28
.c1	181	202	236	272	228
.c0	25	24	22	24	24
.b1	304	257	278	260	305
.a1	141	144	178	225	217
.a0	109	106	113	104	118
.00	17	21	25	18	19

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
AIP	Moved to ADI and released to production.
SONDEADJUST	Re-released to production and all historical data are being reprocessed.

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.

Table 2.

VAP	Action
DLPROF VAP	Two VAPs (DLPROFWSTAT and DLPROFWIND) have been released to evaluation.

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 3.

VAP	Action
QCRAD	All QCRAD c2 data has been processed and sent to the ARM Data Archive.
WACR-ARSCL	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 4.

VAP	Action
WACR-ARSCL	PVC data released to evaluation.

5.5 Significant Development

This section provides a summary of significant improvements.

Table 5.

VAP	Action
AIP	The VAP has been moved to ADI and released to production.
AOD	The VAP is being moved to ADI.
ARMBECLDRAD	Developing data for AMF China and Azores IOPs.
ARMBEATM	Progress has been made to run this product at AMF China deployment.
BBHRP	Progress has been made to compile the BBHRP code on the PIC.
DLPROF	The two DLPROF VAPs have been released to evaluation.
INTERPSONDE	Significant progress has been made to address the discontinuity issue. It is in the process of being released to production.
MERGESONDE	The VAP had issues when it was running at the DMF. The VAP is still being tested to analyze the segmentation faults and differences in the data between development and production runs.
MFRSRCLDOD	The VAP is being moved using ADI.
MKAZR and MWACR	Related to this ECO, a new VAP is being developed to provide best estimate VAPs (10 Hz and 1 minute) of GPS and INS Measurements for MAGIC.

Table 5. (contd)

VAP	Action
MPLCMASK	The VAP is being moved to ADI.
MWRRET	This product is waiting for the WACR-ARSCL VAP to be available at the ARM Data Archive.
NDROP	The DOD has been approved by the metadata reviewers. The VAP meets the standards. Data from the VAP was being compared with the runs at SGP C1 and SGP E13.
QCRAD	All QCRAD c2 data has been processed and sent to ARM Data Archive. Still need to process QCRAD BEFLUX and QCRAD BRS data.
Radiation Flux VAP	The Fortran algorithms have been implemented. Completed initial implementation of the VAP. The VAP was evaluated by comparing test data provided by the translator to test data created by new VAP. Discrepancies between the two data sets are being examined.
SACRCORR	Developers have received MATLAB and Fortran codes to be used in the VAP.
SONDEADJUST	Due to issues with production binary, the VAP was re-released and all the historical data is being reprocessed.
SST	Work is being continued to do additional data analysis to see if other diurnal changes in humidity or temperature impacts the data.
UAPARSAL	All code moved to Python and tested. The code is being cleaned.
VARANAL	A new task has been added to reprocess using the SONDE data forcing.
WACR-ARSCL	The GRW data has been sent to the ARM Data Archive. The PVC data has been sent to the evaluation area.

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