ARM Climate Research Facility
Quarterly Value-Added Product Report

C Sivaraman

November 2012

DISCLAIMER

This report was prepared as an account of work sponsored by the U.S. Government. Neither the United States nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the U.S. Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the U.S. Government or any agency thereof.

ARM Climate Research Facility Quarterly Value-Added Product Report

Fourth Quarter:
July 1–September 30, 2012

C Sivaraman

November 2012

Abstract

The purpose of this report is to provide a concise status update for value-added products (VAP) 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 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

Contents

Figures

Tables

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 Droplet Number Concentration (NDROP)

Translator: Sally McFarlane, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: In Development

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.

1.2 AOS Cloud Condensation Nuclei Average (AOSCCNAVG)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: In Development

Tier: Evaluation

Engineering Change Order-00898 has been approved to initiate and consolidate the relevant cloud condensation nuclei (CCN) parameters into a single file and average the data over the 5-minute integration time of each percent supersaturation (%ss) value.

Data have been released to the evaluation area for the ARM Mobile Facility (AMF) India deployment (PGH) and the Southern Great Plains (SGP) site.

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 abstracted primarily from the monthly updates provided by the development team to the Engineering Change Orders (ECOs).

2.1 Atmospherically Emitted Radiance Interferometer Noise Filter (AERINF)

Translator: Sally McFarlane, Pacific Northwest National Laboratory

Developer: Tim Shippert, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.2 AERI Profiles of Water Vapor and Temperature (AERIPROF)

Translator: Sally McFarlane, 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 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.

2.4 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 permanent research sites.

Seventy-five percent progress has been made with uncertainty studies on the Continuous Baseline Microphysical Retrieval (MICROBASE) VAP cloud retrieval data set. Ninety percent progress has been made on the 1-minute resolution of ACRED that is consistent with Radiatively Important Parameters Best Estimate (RIPBE) VAP data from SGP.

Next Milestone: The deadline for reviewing feedback provided by users and completing the development of an ensemble MICROBASE cloud retrieval data set has been pushed back to December 31, 2012.

2.5   Aerosol Intensive Properties (AIP)

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.

2.6   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 port data from the Brookhaven National Laboratory Aerosol Life Cycle intensive operational period field campaign to the testbed.

No progress has been made on this task.

2.7   Aerosol Optical Depth from MFRSR and 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: In Development

Tier: Evaluation

Engineering Change Order-00898 was approved to initiate and coordinate the development of an AOSCCNAVG VAP to consolidate the relevant CCN parameters into a single file and average the data over the 5-minute integration time of each percent supersaturation (%ss) value.

Data for SGP and PGH were released to the evaluation area of the ARM Data Archive.

Next Milestone: Review comments from users by March 2013.

2.9   Aerosol Observing System Correction (AOSCORR)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Tier: Evaluation

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

The original plan was to process a year's worth of data from the AMF Steamboat Springs (SBS) deployment, but because the nephelometer was not working, the plan has been changed to process SGP data. Forty percent progress has been made on analyzing the data, and the work is now dependent on the translator.

Next Milestone: Process SGP data instead of SBS data by March 2013.

2.10 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

Engineering Change Order-00620 has been approved to make updates to run SGP, North Slope of Alaska (NSA) and Tropical Western Pacific (TWP) sites, publish the Cloud Modeling Best Estimate (CMBE) VAP to the Earth System Federated Grid (ESFG), and adhere CMBE to ARM data object design (DOD) standards to produce ARMBE.

Progress is being made to develop a land data set to support land modeling studies.

Next Milestone: Develop ARMBECLDRAD for the AMF China deployment.

2.11 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-00620 has been approved to make updates to run SGP, NSA, and TWP sites, publish CMBE to the ESFG, and adhere CMBE to ARM DOD standards to produce ARMBE.

Progress is being made to develop a land data set to support land modeling studies.

Next Milestone: Develop ARMBEATM for the AMF China deployment.

2.12 Active Remote Sensing of Clouds (ARSCL)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: Karen Johnson, Brookhaven 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.

No progress has been made in the last quarter due to other priorities.

Next Milestone: Complete historical processing of data has been moved to December 31, 2012.

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: Sally McFarlane, Pacific Northwest National Laboratory

Developer: Tim Shippert, Pacific Northwest National Laboratory

Status: In Development

Tier: Evaluation

Engineering Change Order-00219 has been approved to make updates to the BBHRP/RIPBE interface, run the alpha version, analyze data, prepare a technical report, and deliver data to the evaluation area.

Next Milestone: Complete BBHRP processing on data from the Midlatitude Continental Convective Clouds Experiment (MC3E) data before December 31, 2012.

2.15 Best-Estimate Surface Radiative Flux (BEFLUX)

Translator: Sally McFarlane, 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 Classification (CLDCLASS)

Translator: Sally McFarlane, Pacific Northwest National Laboratory

Developer: Chaomei Lo, Pacific Northwest National Laboratory

Status: No Development

Tier: Evaluation

There are no open ECOs for this VAP.

2.17 Cloud Concentration Nuclei Profile (CCNPROF)

Translator: Sally McFarlane, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: Operational

Tier: Evaluation

Engineering Change Order-00813 has been approved to begin implementation of the Ghan CCN Retrieval algorithm, develop a version of the code, provide 1 month of data for review, and add quality checks.

Released software to the Data Management Facility (DMF) for automated processing.

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

Engineering Work Order-13977 was approved to initiate and coordinate the development of CMAC in evaluation at the SGP.

Significant progress has been made to correct moments and write generic conversion code.

Next Milestone: Release data to evaluation by December 2012.

2.19 Convective Vertical Velocity VAP (CONVV)

Translator: Scott Collis, Argonne National Laboratory

Developer: Kirk North, McGill University

Status: In Development

Tier: Evaluation

Engineering Work Order-13978 was approved to initiate and coordinate the development of a CONVV VAP to assist in implementing a convective Vertical Velocity VAP for MC3E data.

Released 1 month of data to evaluation.

Next Milestone: Review comments from beta users by February 2013.

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: In Development

Engineering Work Order-14216 has been approved to create a thermodynamic profile in the same manner as the Merged Sounding (MERGESONDE) VAP. The difference is that INTERPSONDE does not include the European Centre for Medium-Range Weather Forecasts model data.

An evaluation product was released for ARM Madden-Julian Oscillation Experiment (AMIE) and MC3E data.

Next Milestone: Address comments from users and release the product to the DMF for automated processing by November 30, 2012.

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.

Released an evaluation data set for AMIE and SGP.

Next Milestone: Review comments from the beta users by February 2012.

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-00092 has been approved to add quality check fields and release the second version of the code to the DMF.

Completed the review of comments from beta users. Significant progress has been made to release the product for automated processing.

Next Milestone: The release of version 2 for routine processing at the DMF is almost complete.

2.26 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.

Released one year of data for evaluation.

Next Milestone: Review comments from beta users by March 2013.

2.27 Cloud Optical Depth from MFRSR (MFRSRCLDOD)

Translator: Sally McFarlane, 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) as input, run and evaluate data from the AMF Azores deployment, and release the product.

Data have been created for 90% of the SGP extended facilities, 60% of the TWP sites, and 40% of the Azores deployment.

Next Milestone: Completion of processing and analyzing of historical data has been pushed back to December 31, 2012.

2.28 Continuous Baseline Microphysical Retrieval (MICROBASE)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: Maureen Dunn, Brookhaven National Laboratory

Status: In Development

Tier: Evaluation

Engineering Change Order-00804 has been approved to update the VAP with quality checks and release to production.

Released evaluation data set with input from KAZR-based radar for MC3E and the AMF Gan Island deployment.

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 porting MICROARSCL to the ARM computer cluster at Oak Ridge National Laboratory.

No progress has been made for this VAP.

Next Milestone: Reprocess historical data at Oak Ridge. This milestone has been pushed back to December 31, 2012.

2.30 Mapped Moments to Cartesian Grid (MMCG)

Translator: Scott Collis, Argonne National Laboratory

Developer: Scott Collis, Argonne National Laboratory

Status: In Development

Tier: Evaluation

Engineering Change Order-00887 was approved to develop a VAP to map the radar moments to Cartesian grid.

No progress has been made for this VAP.

Next Milestone: The deadline for releasing data for the TWP Manus and SGP X-band scanning ARM precipitation radar and producing attenuation correction for MC3E has been pushed back to February 1, 2012.

2.31 Micropulse Lidar Cloud Optical Depth (MPLCOD)

Translator: Sally McFarlane, Pacific Northwest National Laboratory

Developer: Chaomei Lo, Pacific Northwest National Laboratory

Status: No development

Tier: Evaluation

There are no open ECOs for this VAP.

2.32 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 MPL Cloud Mask (MPLCMASK)

Translator: Sally McFarlane, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

2.34 Microwave Radiometer Retrievals (MWRRET)

Translator: Sally McFarlane, 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 Data Archive.

Next Milestone: Process AMF data when WACR-ARSCL is reprocessed.

2.35 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 and Aerosol Chemical and Speciation Monitors to be deployed at ARM's sites and as part of the Mobile Aerosol Observing System.

Some progress has been made to determine the optimal number of factors.

Next Milestone: The deadline for producing evaluation data has been pushed back to December 31, 2012.

2.36 Planetary Boundary Layer Height (PBLHT)

Translator: Sally McFarlane, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: In Development

Tier: Evaluation

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

Waiting on comments from beta users.

Next Milestone: Implement Haefflin method and provide data for the next set of evaluation data by March 2013.

2.37 Python ARM Radar Toolkit (PYART)

Translator: Scott Collis, Argonne National Laboratory

Developer: Scott Collis, Argonne National Laboratory

Status: In Development

Engineering Change Order-00920 was approved to initiate and coordinate the development of a toolkit that is usable by the ARM community for working with all the radar data formats produced by the scanning ARM precipitation radars (SAPRs).

Significant progress has been made with regards to licensing issues and install scripts.

2.38 Quality Checked Edy Correlation (QCECOR)

Translator: Shaocheng Xie, Lawrence Livermore National Laboratory

Developer: Yunyan Zhang, Argonne National Laboratory

Status: In Development

Engineering Work Order-00941 was approved to apply quality checks and correct the latent and sensible heat fluxes for historical eddy correlation (ECOR) data.

Data for all sites (surface flux using old ECOR data) have been released to the evaluation area.

Next Milestone: Review DOD comments and determine path forward.

2.39 Data Quality Assessment for ARM Radiation Data (QCRAD)

Translator: Sally McFarlane, Pacific Northwest National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.40 Quantitative Precipitation Estimate (QPE)

Translator: Scott Collis, Argonne National Laboratory

Developer: Scott Collis, Argonne National Laboratory

Status: In Development

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

Fifty percent progress has been made in using simple radar reflectivity rates (Z) and rainfall rates (R) to retrieve QPE for AMIE data from Manus.

2.41 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.

2.42 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.

2.43 Raman Lidar Profiles—Depolarization Ratio (RLPROFDEP)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

Engineering Work Order-14311 has been approved to extend the maximum height at TWP and adjust the cloud mask detection algorithm.

2.44 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.

2.45 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.

2.46 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.

2.47 Raman Lidar Profiles—Temperature (RLPROFTEMP)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Engineering Change Order-00911was approved to initiate and coordinate the development of an RLPORFTEMP VAP to determine temperature profiles from the Raman Lidar data.

The VAP has been released to production for automated processing.

2.48 Radiatively Important Parameters Best Estimate (RIPBE)

Translator: Sally McFarlane, Pacific Northwest National Laboratory

Developer: Tim Shippert, Pacific Northwest National Laboratory

Status: Operational

Tier: Evaluation

The Engineering Change Order-00767 has been approved to fix bugs and enhance the product based on feedback from beta users.

The 1-minute and 30-minute averaged RIPBE data have been released to evaluation.

Next Milestone: Run with ACRED as input.

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

Translator: Sally McFarlane, Pacific Northwest National Laboratory

Developer: Krista Gaustad, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.50 SONDE Adjust (SONDEADJUST)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: David Troyan, Brookhaven National Laboratory

Status: In Development

Tier: Evaluation

Engineering Change Order-00824 has been approved to correct the documented biases in radiosonde humidity measurements.

No progress has been made.

Next Milestone: The deadline for migrating data to the Data Archive and releasing the VAP for routine processing has been pushed back to October 30, 2012.

2.51 Surface Spectral Albedo (SURFSPECALB)

Translator: Sally McFarlane, Pacific Northwest National Laboratory

Developer: Krista Gaustad, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

Engineering Change Order-13943 and ECO-14346 have been opened to manage processing of the data at the DMF.

Some progress has been made, but the script is not yet processing data at the DMF.

2.52 Shortwave Flux Analysis (SWFLUXANAL)

Translator: Sally McFarlane, Pacific Northwest National Laboratory

Developer: Krista Gaustad, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.53 Tower Water-Vapor Mixing Ratio (TWRMR)

Translator: Sally McFarlane, Pacific Northwest National Laboratory

Developer: Krista Gaustad, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.54 Variational Analysis (VARANAL)

Translator: Shaocheng Xie, Lawrence Livermore National Laboratory

Developer: Renata McCoy, Lawrence Livermore National Laboratory

Status: Operational

Tier: Evaluation

Engineering Change Request-0096 (ECR-0096) has been approved to develop continuous large-scale forcing data.

Forty percent progress has been made to develop the large-scale forcing data for the MC3E campaign.

Next Milestone: Comply with DOD standards and migrate the data to the Data Archive. The development of ensemble large-scale forcing data for MC3E and large-scale forcing data for AMIE has been pushed back to December 31, 2012.

2.55 Vertical Velocity in Stratiform Rain (VVSR)

Translator: Mike Jensen, Brookhaven National Laboratory

Developer: Maureen Dunn, Brookhaven National Laboratory

Status: Development

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.

Mapping of input data variables and initial DOD review has been completed.

Next Milestone: Submission of data as an evaluation product has been pushed back to February 2012 due to other priorities.

2.56 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.

Next Milestone: Re-run the VAP and move data to the Data Archive by November 30, 2012.

3.0 Future VAPs

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

White papers are being written for the SASHE LANGLEY and SASHE AOD VAPs, which are related to the Marine ARM GPCI Investigation of Clouds (MAGIC) field campaign, and the UHF ARM Profiling Radar Actively Remotely Sensed Atmospheric Layers VAP.

4.0 Other VAP-Related Work

4.1 SASHE b1

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Yan Shi, Pacific Northwest National Laboratory

Engineering Work Order-14146 has been approved to create a b1 product that parallels the processing applied to the MFRSR.

The ingest has been released to production.

4.2 SASZE c0

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Brian Ermold, Pacific Northwest National Laboratory

Engineering Work Order-14147 has been approved to create a c0 product that parses the a0 files into irradiance components by subtracting dark signal, aggregating according to band position, applying a principal components analysis noise filter, and computing the direct horizontal and diffuse hemispheric components. This is a necessary first step before computing Langley retrievals that will yield the SASHE calibration time series.

The ingest is waiting for DOD review.

5.0 VAP Metrics

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

Table 1.   Top five VAPs requested by users from the Data Archive during the fourth quarter.

	N files requested	N unique requests	N unique users
SWFLUXANAL	29710	87	54
QCRAD	21775	56	41
AIP	20172	55	44
BAEBBR	19019	64	41
MFRSRCLDOD	17936	22	15

Table 2. Top five VAPs requested by users from the evaluation area of the Data Archive during the fourth quarter.

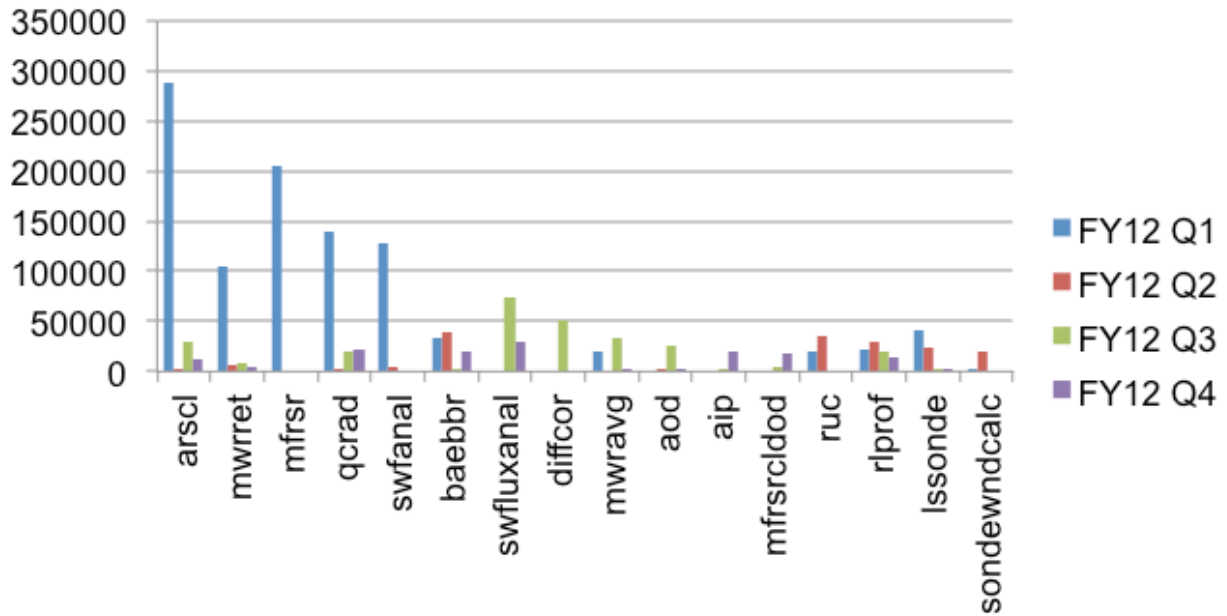|	**N files requested**
QCECOR	20450
KAZRARSCL	1332
INTERPSONDE	1233
WACR-ARSCL	286
PBL	284

Figure 1. This chart shows the top five VAPs that were requested by users from the Data Archive during the last four quarters.
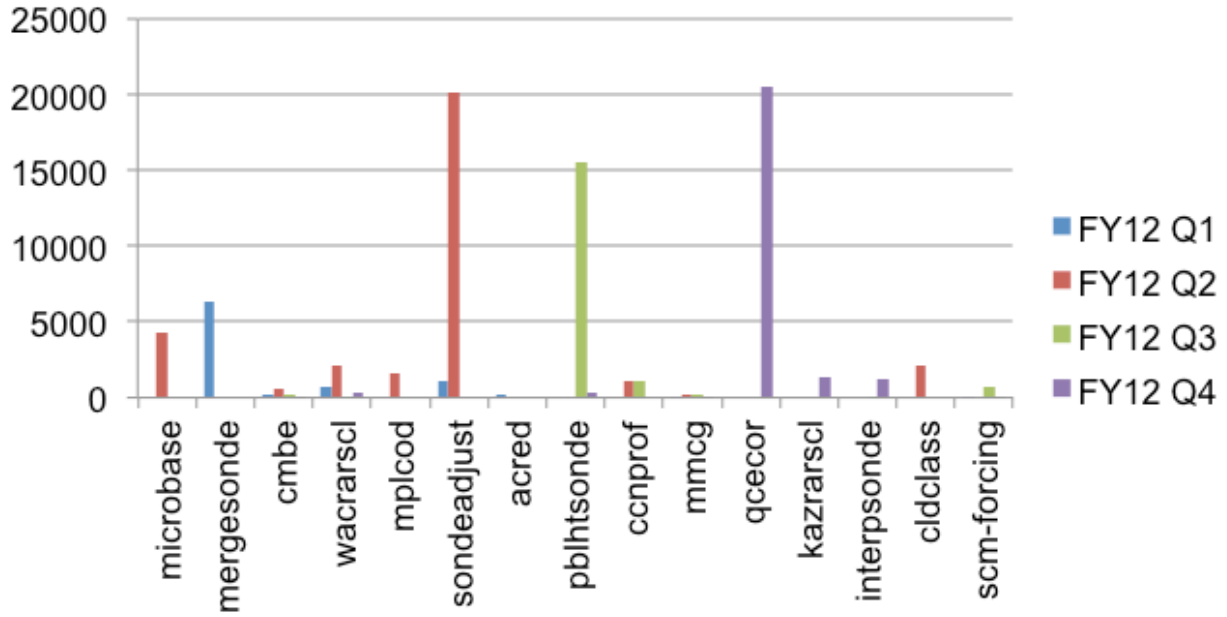
Figure 2.   This chart shows the top five VAPs downloaded from the evaluation area for the last four quarters.