ARM Climate Research Facility Quarterly Value-Added Product Report

C Sivaraman

January 2013

ARM

CLIMATE RESEARCH FACILITY

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First Quarter:
October 01–December 31, 2012

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Abstract

The purpose of this report is to provide a concise status update for value-added products (VAP) implemented by the Atmospheric Radiation Measurement 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

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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 Shortwave Array Spectroradiometer Hemispheric Aerosol Optical Depth (AOD)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Brian Ermold, Pacific Northwest National Laboratory

Status: In Development

Tier: Evaluation

Engineering Change Order-00959 has been approved to initiate and complete development of additional input to the existing Aerosol Optical Depth (AOD) VAP, using Shortwave Array Spectroradiometer–Hemispheric (SASHE) data to calculate AOD.

1.2 Shortwave Array Spectroradiometer Hemispheric Langley (LANGLEY)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Brian Ermold, Pacific Northwest National Laboratory

Status: In Development

Tier: Evaluation

Engineering Change Order-00958 has been approved to initiate and coordinate the development of additional input to the existing LANGLEY VAP, implementing the Langley regression on SASHE instrument data.

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

Translator: Scott Collis, Argonne National Laboratory

Developer: Edwin Campos, Argonne National Laboratory

Status: In Development

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.

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   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 Continuous Baseline Microphysical Retrieval (MICROBASE) VAP cloud retrieval data set. Work has been completed for the 1-minute resolution of ACRED that is consistent with Radiatively Important Parameters Best Estimate (RIPBE) VAP data from the Southern Great Plains (SGP).

Next Milestone: The development of an ensemble MICROBASE cloud retrieval data set has been pushed back to June 30, 2013.

2.2   Atmospherically Emitted Radiance Interferometer Noise Filter (AERINF)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Tim Shippert, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.3   AERI Profiles of Water Vapor and Temperature (AERIPROF)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Tim Shippert, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

The VAP is waiting for Rapid Update Cycle (RUC) input data.

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

There are no 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.

Files from the CALNEX field campaign have been ported to the AMT format, and the merged files have been ported to existing Carbonaceous Aerosol and Radiative Effects Study (CARES) field campaign files.

Next Milestone: The completion of the processed final testbed is scheduled for April 1, 2013.

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: In Development

Tier: Evaluation

Engineering Change Order-00898 was approved to initiate and coordinate the development of an AOSCCNAVG VAP to 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) Ganges Valley deployment (PGH) and SGP. Users have provided input.

Next Milestone: Review feedback provided by users and release for routine processing at the Data Management Facility (DMF).

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 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.

Next Milestone: Hold a teleconference and provide a path forward to deal with NOAA AOS and BNL AOS data.

2.10 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 super saturation (%ss) value.

Next Milestone: Review comments from users by March 2013.

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

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.

Forty-five percent progress has been made to develop a land data set to support land modeling studies.

Eight-five percent progress has been made to develop ARMBE for the AMF China deployment.

Next Milestone: Develop ARMBECLDRAD for the AMF China deployment.

2.12 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.

Forty-five percent progress has been made to develop a land data set to support land modeling studies.

Eighty-five percent progress has been made to develop ARMBE for the AMF China deployment.

Next Milestone: Develop ARMBEATM for the AMF China deployment.

2.13 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.

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

Next Milestone: Complete historical processing of data has been moved to July 31, 2013.

2.14 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.

2.15 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 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.

This task has been completed and the data have been sent to the archive. The ACRED one-year testbed was created and provided to the modelers.

2.16 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.

2.17 Cloud Concentration Nuclei Profile (CCNPROF)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

This VAP has been released to production. It is the first official VAP released using the ARM Data Integrator (ADI), formerly known as the Integrated Software Development Environment (ISDE).

2.18 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.

2.19 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: The date to release data to evaluation has been extended to July 31, 2013, since there are challenges with clutter in the lowest tilt of the X-band scanning ARM precipitation radar (X-SAPR).

2.20 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 an CONVV VAP to assist in implementing a convective Vertical Velocity VAP for MC3E.

Released one month of data to evaluation.

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

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

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.

The comments from users have been addressed. The technical report has been completed.

Next Milestone: Release the product to DMF for automated processing by March 30, 2013.

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

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

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.

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

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) 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, 80% of the TWP sites, and 50% of the Azores deployment.

Next Milestone: Completion of processing and analyzing of historical data has been pushed back to January 15, 2013.

2.29 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.

Next Milestone: Complete processing of data for the AMF Gan Island deployment as soon as MWRRET data are available.

2.30 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 January 31, 2013.

2.31 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-SAPR and produce attenuation correction for the Midlatitude Continental Convective Clouds Experiment (MC3E) has been pushed back to February 1, 2013.

2.32 Micropulse Lidar Cloud Optical Depth (MPLCOD)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Chaomei Lo, Pacific Northwest National Laboratory

Status: No development

Tier: Evaluation

There are no open ECOs for this VAP.

2.33 Micropulse Lidar Polarized Average (MPLAVG)

Translator: Connor Flynn, Pacific Northwest National Laboratory

Developer: Annette Koontz, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

2.34 MPL Cloud Mask (MPLCMASK)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Chitra Sivaraman, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

There are no open ECOs for this VAP.

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 Droplet Number Concentration (NDROP)

Translator: Laura Riihimaki, 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.

The implementation of the algorithm has been completed. The plots have been created, and the technical report is being worked on.

Next Milestone: Process five years of SGP data and Azores data for evaluation by January 31, 2013.

2.37 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).

The last revision of the algorithm has been implemented. The final coding of the output is being implemented.

Next Milestone: The deadline for producing evaluation data has been pushed back to March 31, 2013.

2.38 Planetary Boundary Layer Height (PBLHT)

Translator: Laura Riihimaki, 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 a VAP to implement methods for planetary boundary layer (PBL) height detection using radiosondes, ceilometer and Micro Pulse Lidar.

Waiting on comments from beta users.

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

2.39 Python ARM Radar Toolkit (PYART)

Translator: Scott Collis, Argonne National Laboratory

Developer: Scott Collis, Argonne National Laboratory

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 meeting CF-Radial standards.

2.40 Quality Checked Eddy Correlation (QCECOR)

Translator: Shaocheng Xie, Lawrence Livermore National Laboratory

Developer: Yunyan Zhang, Argonne National Laboratory

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.

2.41 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.

2.42 Quantitative Precipitation Estimate (QPE)

Translator: Scott Collis, Argonne National Laboratory

Developer: Scott Collis, Argonne National Laboratory

Status: In development

Tier: Evaluation

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

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

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

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

No progress has been made due to other higher priorities.

Next Milestone: Run RIPBE with ACRED data set as input by February 2013.

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

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

The work to extend the maximum height has been completed. The cloud mask detection algorithm has been completed.

Next Milestone: Release VAP and run the historical data at TWP before March 31, 2013.

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 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

There are no open ECOs for this VAP.

2.52 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.

Progress has been made after receiving comments from beta users.

Next Milestone: The deadline for migrating data to the ARM Data Archive and releasing the VAP for routine processing has been pushed back to March 31, 2013.

2.53 Surface Spectral Albedo (SURFSPECALB)

Translator: Laura Riihimaki, Pacific Northwest National Laboratory

Developer: Krista Gaustad, Pacific Northwest National Laboratory

Status: Operational

Tier: Production

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

Ninety percent progress has been made to adapt the VAP to run at NSA, but the script is not yet processing data at the DMF.

Next Milestone: Release the VAP and run the historical data at NSA before January 31, 2013.

2.54 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.

2.55 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.

2.56 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. This task is waiting for uncertainties in precipitation data.

Next Milestone: The development of ensemble large-scale forcing data for MC3E and large-scale forcing data for the Small Particles in Cirrus (SPARTICUS) field campaign has been pushed back to March 31, 2013.

2.57 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.

Significant progress has been made on the implementation of the algorithm.

Next Milestone: The deadline for submitting data as an evaluation product has been pushed back to February 2013.

2.58 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 ARM Data Archive by February 01, 2013.

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 VAPs related to the Marine ARM GPCI Investigation of Clouds (MAGIC) field campaign and the next version of MWRRET.

4.0 VAP Metrics

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

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

	N files requested	N unique requests	N unique users
ARMBE	904	104	70
SWFLUXANAL	14650	87	65
QCRAD	74067	85	70
MWRRET	71912	73	53
AOD	6163	40	33

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

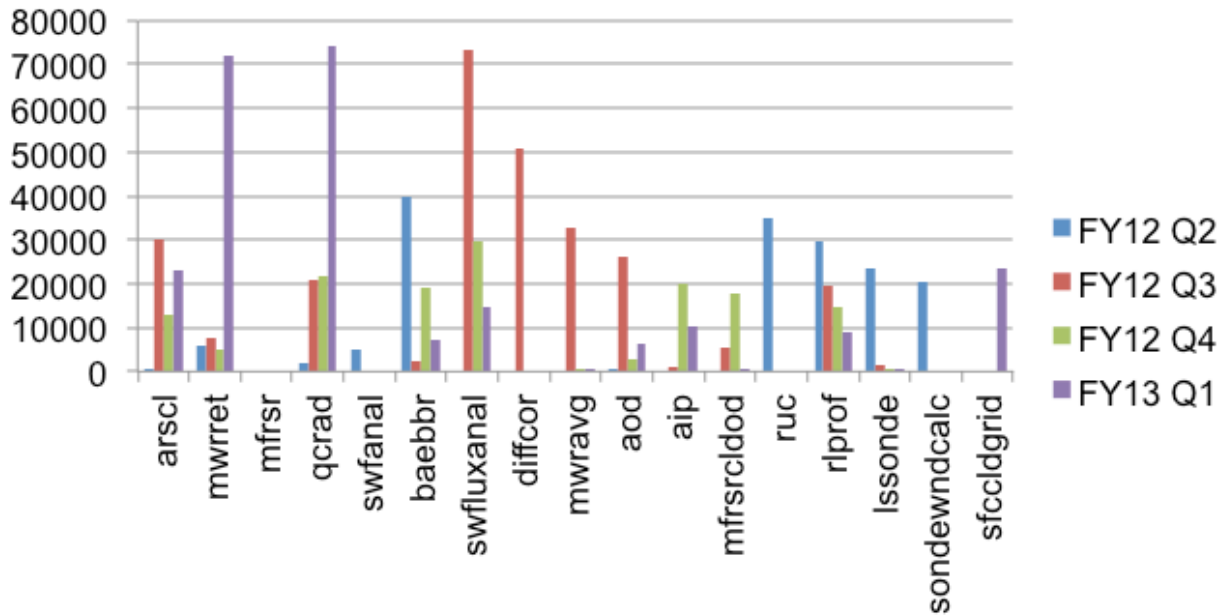|	N files requested
SONDEADJUST	20103
MICROBASE	4235
WACR-ARSCL	2138
CLDCLASS	2136
MPLCOD	1637

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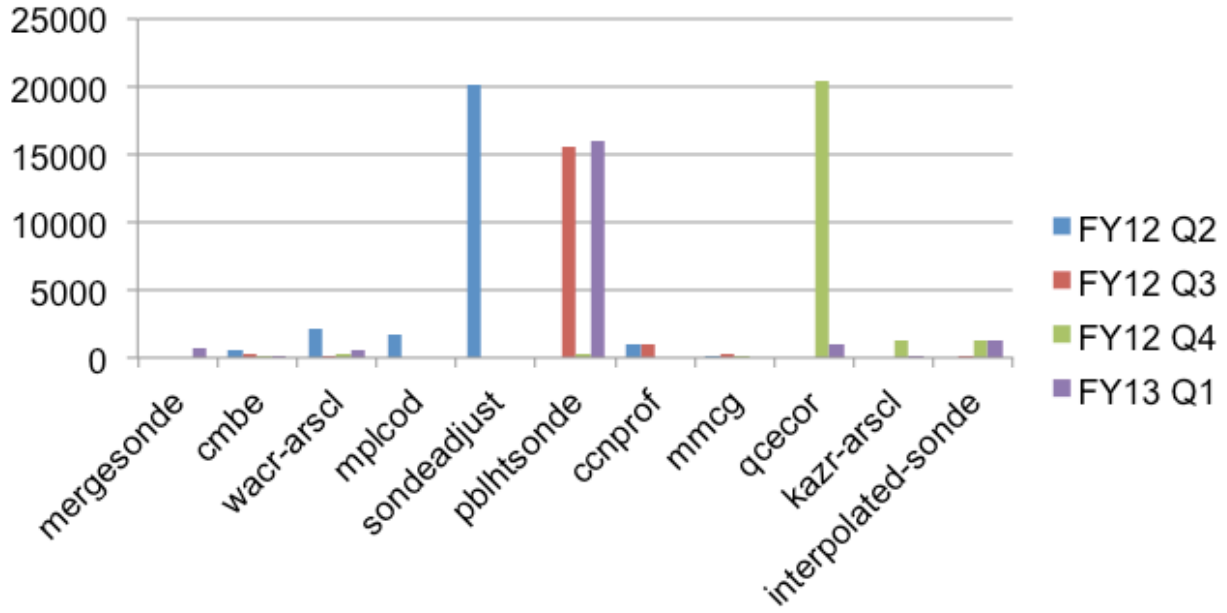
Figure 2.   The chart shows the top five VAPs downloaded from the evaluation area for the last four quarters.

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