

# Value Added Products (VAP) Status and Recommendations

Jim Mather  
ACRF Technical Director  
November 2008



# An Advertisement

The ARM News center:

<http://www.arm.gov/news>

now has an RSS (Really Simple Syndication) feed. With an RSS reader, you can subscribe to keep up to date on the latest ARM news.

Questions: Contact Jim Mather

[jim.mather@pnl.gov](mailto:jim.mather@pnl.gov)

or Rolanda Jundt

[rolanda.jundt@pnl.gov](mailto:rolanda.jundt@pnl.gov)

## News Center

[Program News](#)



[Events](#)



[Employment](#)



[Feature Stories](#)



[Research Highlights](#)



[Facility Updates](#)



[Data Announcements](#)



[All Categories](#)



## Archives

[News and Events](#)

[Feature Stories](#)

[Research Highlights](#)

[Facility Updates](#)

[Data Announcements](#)

 [What's this?](#)

# Evaluation of VAP Status

Review of the current VAP status

- Same conclusion as Sunset C. – spend more on VAPs or trim effort
- Updated and expanded analysis of VAP effort to reflect different states of VAPs: development, operations, and reprocessing and to account for additional effort due to the AMF.

Breakdown in effort expected for FY09 (given status quo and projection of possible AMF needs) expressed in FTEs:

Development	2.9
Operations	5.0
AMF	1.9
<u>Reprocessing</u>	<u>0.2 (Low estimate)</u>
Total	10.0

# Current VAPs

QC'd Broadband Fluxes  
Broadband Flux Analysis  
Shortwave Flux Analysis  
Shortwave Diffuse Correction  
Global Shortwave Correction  
Surface Spectral Albedo

Radiation

Misc.  
Multi-input

Radiative Heating Profile  
Variational Analysis  
Cloud Modeling Best Estimate

35 GHz Radar/lidar cloud mask  
94 GHz Radar Cloud Mask  
Cloud prop. from radar spectra  
Cloud Classification  
Baseline Microphysical retrievals  
MPL, Cloud Optical Depth  
MFRSR Cloud Optical Depth  
Shortwave Cloud Grid

Clouds

**31 VAPs**

T/RH

Raman Lidar Profiles  
AERI T/RH Profiles  
MWR Retrievals  
Merged Sounding  
Leibe-Scaled Sondes  
Tower mixing ratios

Misc.  
Instrument

Microwave Radiometer Average  
Lidar, Polarization Average  
Infrared Spectrometer Noise Filter  
Lidar, Corrected/normalized Profiles  
Best Estimate Bulk Fluxes

Aerosol

MFRSR Langley  
MFRSR Optical Depth  
Aerosol Best Estimate  
Aerosol Intensive Properties

# Additional Needs

- Scanning WACR products
- Support for AMF/AMF2
- MPL products (TBD by lidar group)
- QA/QC (For VAPs and with VAPs)

# Status

Do we need to change?

- We are currently saturated
- There are Specific needs on the horizon

Is there more we should be doing?

*It seems clear that we need to reduce or eliminate effort on some VAPs.*

# Challenges to Reducing Effort

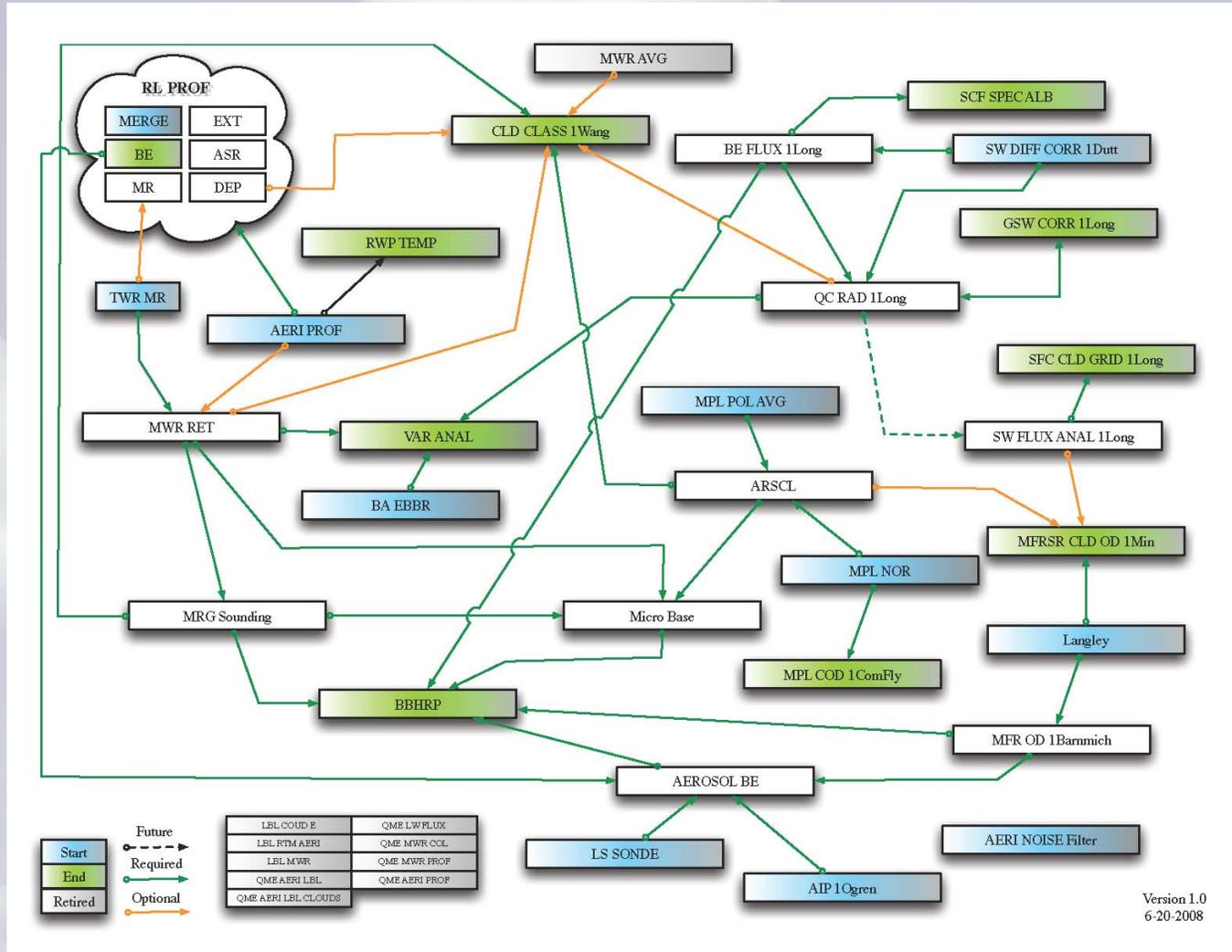
Could we eliminate low priority VAPs?

Effort is concentrated in a few complex, high-priority VAPs: ARSCL, Aerosol Best Estimate, Merge Sounding, MicroARSCL, Microbase, MPLNor, Variational Anal.

→ ~6 FTE

The Complex VAPs have MANY dependencies

# VAP Dependencies



Which do we cut?

# VAP Classes and an Alternative

VAPs can be thought of as falling in three classes:

- First order (critical for instrument use)
- Second order (higher order products)
- Synthesis (combines best estimate parameters)

An alternate proposal: Reduce effort within the infrastructure being expended on second order VAPs.

# VAP-Related Activities

There are a range of activities associated with the production of a VAP:

- Development
- Implementation
- Production
- Refining
- Reprocessing

# VAP-Related Activities

There are a range of activities associated with the production of a VAP:

- Development
- Implementation
- Production
- Refining
- Reprocessing

# Use of VAP Resources

How do we make ACRF data most useful to the science community?

Are there other things we should be doing?

Possibilities include:

- A community radiative transfer model (could be merged with BBHRP)
- Community framework for applying variational analysis to Single Column Models
- Environment for code-sharing
- Products/tools to facilitate use of ARM data (like CMBE)

# Recommendations

- Reduce effort of selected second order VAPs (possible candidates: Surface spectral albedo, Aerosol Best Estimate, Microbase, BBHRP, VarAnal)
- Work to improve efficiencies of complex first order VAPs (particularly ARSCL), could include outsourcing of some VAP development
- Adopt process like instrument rankings within working groups to provide recommendations for use of limited VAP resources
- Develop framework/tools to facilitate sharing of VAP-like codes within science community.

# Challenges

- Improving efficiency requires an investment, won't save right away.
- Need to do better at balancing loads among working groups/labs
- Proposing to push complex VAP work to science community just as the emphasis there is shifting to models
- Outsourcing VAPs may provide some relief but need to bring core capability to infrastructure

# Next Steps

- Working with translators/developers to reduce effort for the most complex VAPs.
- Support new products for scanning radar and lidar
- Enable broad access to BBHRP and CAM Single Column Model
- Develop mechanisms for code sharing – pending community interest
- Breakout session @7:30 tonight: How do we make the best use of VAP resources to add value to ARM data?