

ARM CAPI VAP update

Laura Riihimaki, CAPI Translator

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Krista Gaustad

Tim Shippert

Yan Shi

Ask not what your translator can do for you,

- VAP development and maintenance—implement established algorithms into operational data products
- Help find and interpret data products
- Select and review PI products

...but what you can do for your translator.

- Share code for the development of operational products
- Review and give feedback on data products—especially evaluation level products

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MAGIC VAPS

Highlights from FY14 Progress

For more details see poster in Warm Low Clouds session

MWRRETv2—3 Channel MWR retrievals

Krista Gaustad, Dave Turner

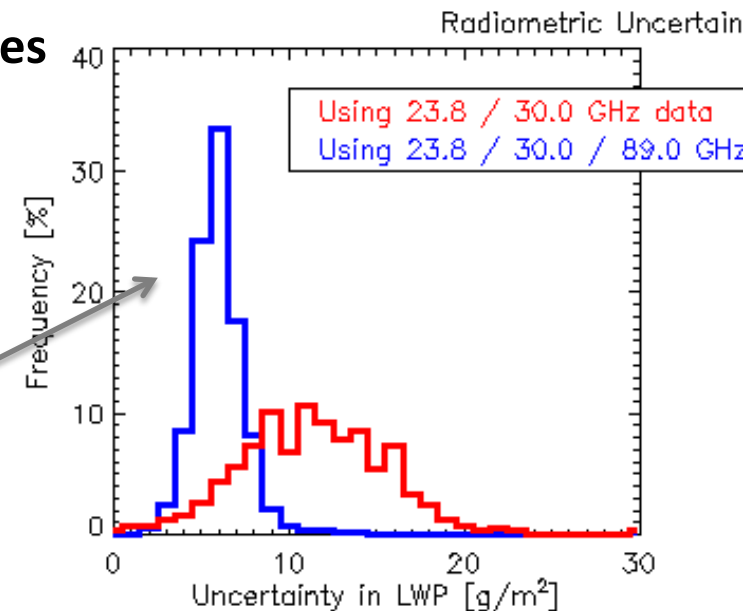
Description: Calculates liquid water path and precipitable water vapor from new 3-channel microwave radiometers which are more sensitive to low liquid water paths than 2 channel MWRs.

Progress: Sample data calculated at SGP, currently quality testing the implementation of bias correction, evaluation product available at SGP soon.

Next Steps: Create evaluation data sets at other sites with 3-channel MWRs



Reduced uncertainty in lwp from addition of 89 GHz channel



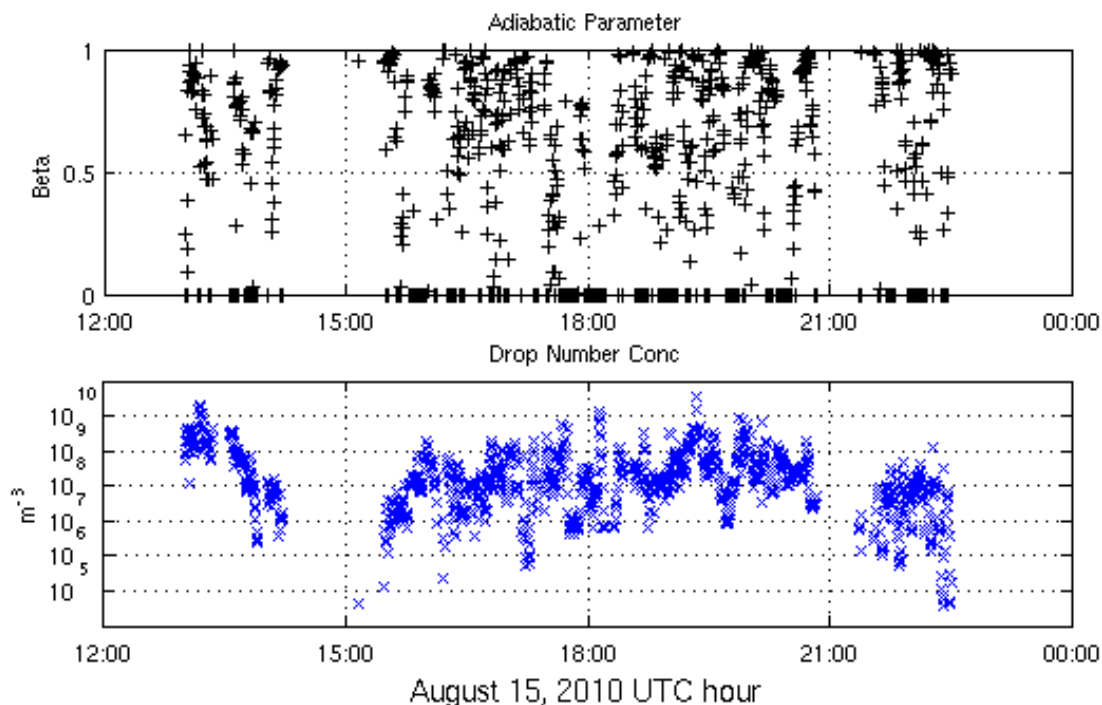
Droplet Number Concentration

Chitra Sivaraman, Alison McComiskey, Graham Feingold

Description: Calculate **droplet number concentration** from cloud optical depth (mfrsrcldod) and liquid water path (mwrret). Also calculates **adiabaticity** parameter using cloud thickness (ARSCL).

Progress: Updating evaluation product at SGP site, going operational in the next few weeks.

Next steps: Create evaluation product at Azores (waiting for WACR ARSCL)



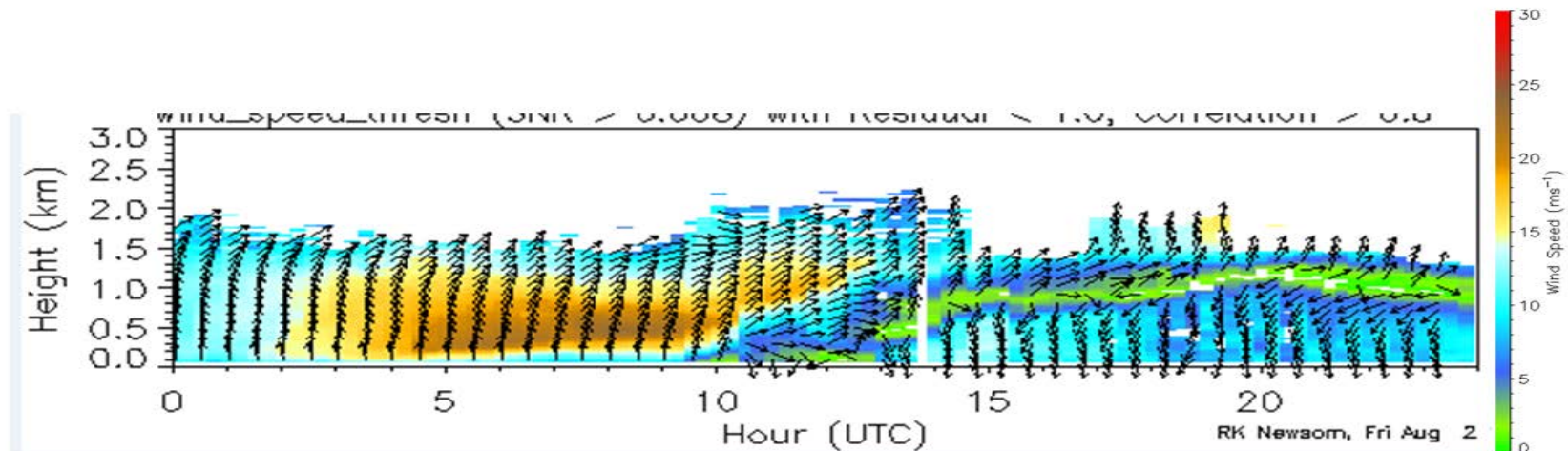
Doppler Lidar Wind Profile

Rob Newsom

Description: Calculate wind profiles and vertical velocity profiles in clear air below clouds

Progress: Data in evaluation area for horizontal winds. **Feedback wanted!**

Next Steps: Submit vertical velocity VAP to evaluation area, & make operational.



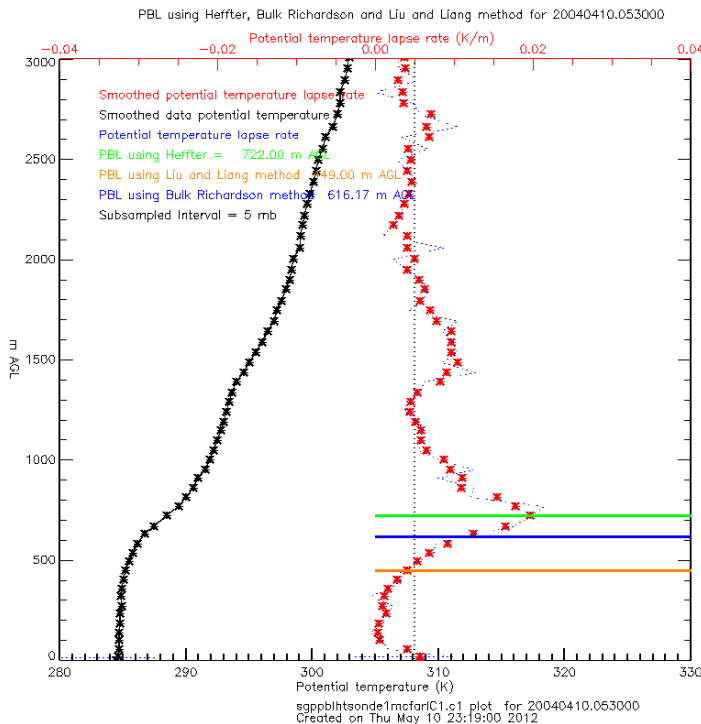
Planetary Boundary Layer Height

Elaine Chapman, Chitra Sivaraman, Virginia Sawyer, Zhanqing Li

Description: Calculate planetary boundary layer height from multiple instruments and methods.

Progress: Sonde-based product operational at all sites!

Next steps: Implement MPL based product.



*Example of three PBLHT calculations:
Heffter, Liu-Liang, & Bulk-Richardson*

Radiative Flux Analysis

Krista Gaustad, Chuck Long

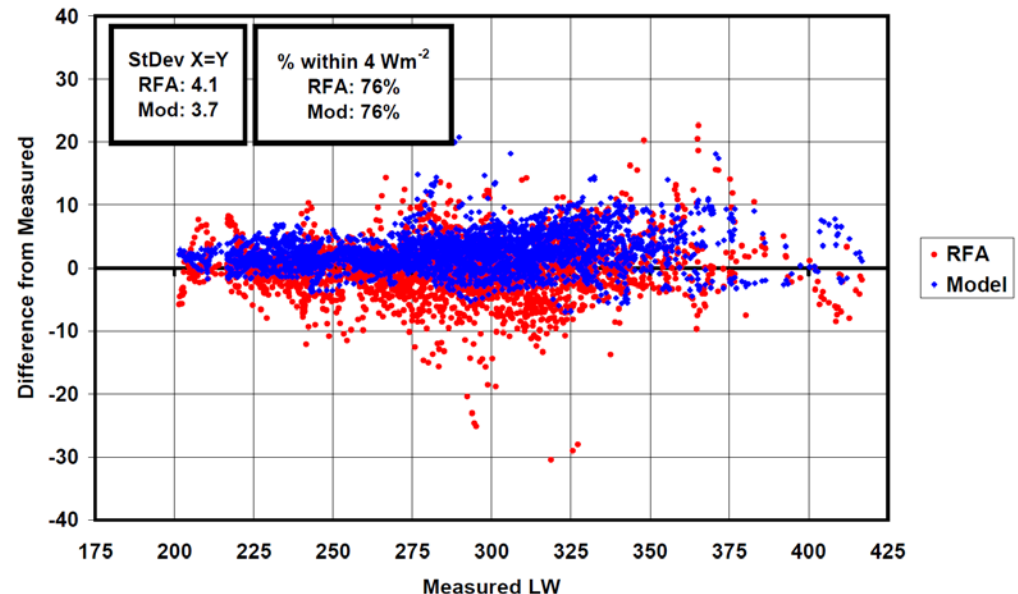
Description: Update of the Shortwave Flux Analysis VAP to improve quality of inputs and estimate LW clear sky irradiance. Allows calculation of **SW and LW cloud radiative effects**.

Progress: SGP data being checked, will be in the evaluation area soon.

Next Steps: Implement at all sites.

Difference between measured & calculated clear sky LW irradiance calculated from (blue) radiative transfer model and (red) RFA empirically-estimated values (Long & Turner, 2008).

Difference from Detected Clear-sky Measured LW of RFA and RT Model Clear-Sky LW



What priorities would you like to see next?

Criteria:

- 1. Mature algorithms, feasible to implement*
- 2. Coordinated strategically--come from the CAPI steering committee*
- 3. Useful to a broad number of people/studies*

Examples of possible priorities:

1. More microphysics retrievals at Azores
2. VAPs for specific field campaigns
3. Drizzle products
4. CCN profile retrievals (IN profile retrievals?)
5. PBL Height best estimate