Cloud Properties Value-Added Products

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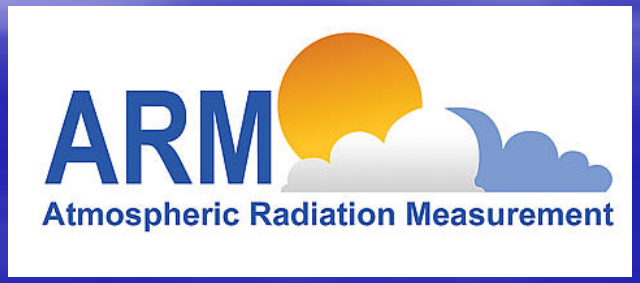
Cloud Properties WG Breakout

2008 ARM Science Team Meeting

Norfolk, VA



Active Remote Sensing of CLouds (ARSCL)

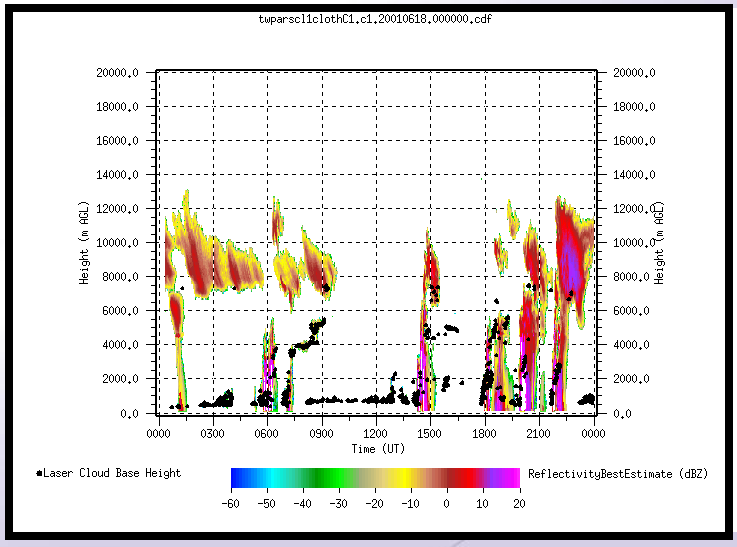
• cloud boundaries, hydrometeor height distributions and estimates of their radar reflectivities, vertical velocities, and Doppler spectral widths

• "Old" ARSCL – Availability via ARM archive
SGP – 11/1996 thru 9/2007
NSA – 3/1998 thru 9/2007
TWP-C1 – 7/99 - 2/05, 5/06 - 8/07
TWP–C2 – 11/98 - 11/05, 10/06 – 5/07
TWP-C3 – 11/2005 thru 9/2007

• WACR – ARSCL
Evaluation Product
NIM – 3/2006 thru 12/2006
FKB – 3/2007 thru 12/2007 [upcoming]
SGP – 4/2006 thru 7/2006 [upcoming]

• MicroARSCL

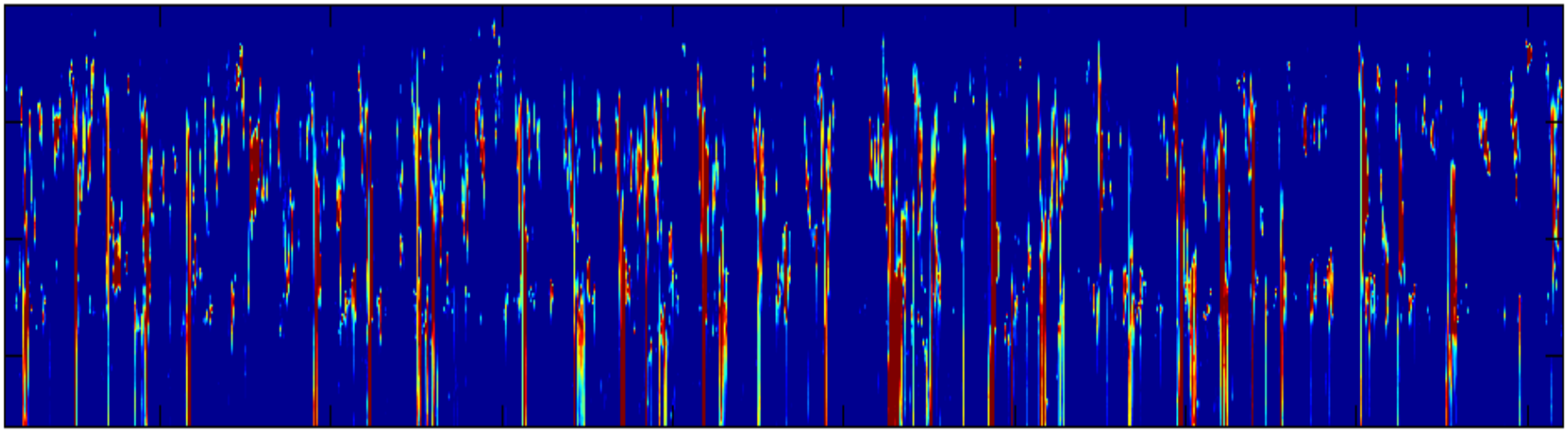
Nearly ready to release several months



WACR-ARSCL was used as part of the:

ARM 2008 First Quarter Metric –"To describe algorithms for climate data products….."

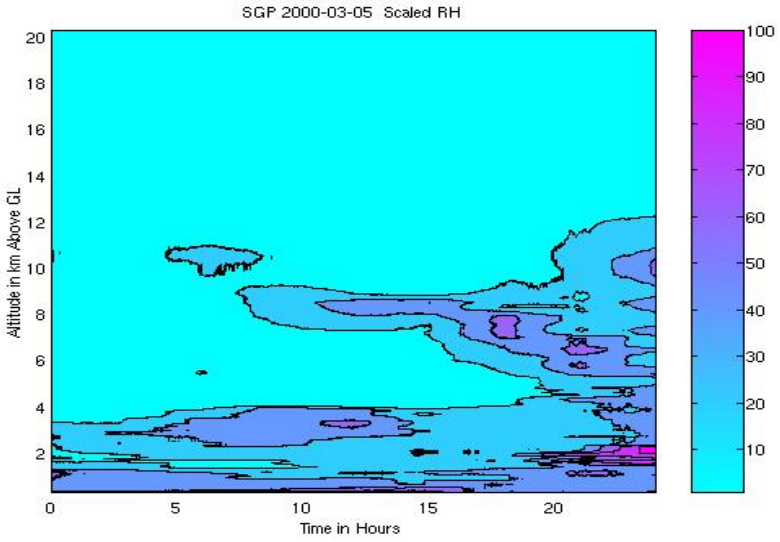
ARM 2008 Second Quarter Metric – "Report Niamey cloud frequency observations….."



July August September

Merged Sounding (MS)

Uses a combination of radiosonde profiles, MWR integrated water vapor, surface meteorology and ECMWF model output to provide a thermodynamic profile of the atmosphere at one minute intervals



- 1 minute time intervals
- 266 altitude levels (greater resolution at surface) to 20 km
- temperature
- humidity
- pressure
- horizontal winds

Availability

SGP – 2000 thru 2005
NSA – 2004 thru 2007
TWP C3 – 2002 thru 2006
TWP C1 – 2006
TWP C2 – 2004 thru 2006

Include for version 2:

- Milosevich humidity corrections
- Increase height of MS
- ECMWF RH corrections

Availability:

PYE – 2005 (Ver. 2)

NIM – 2006 (Ver. 2)

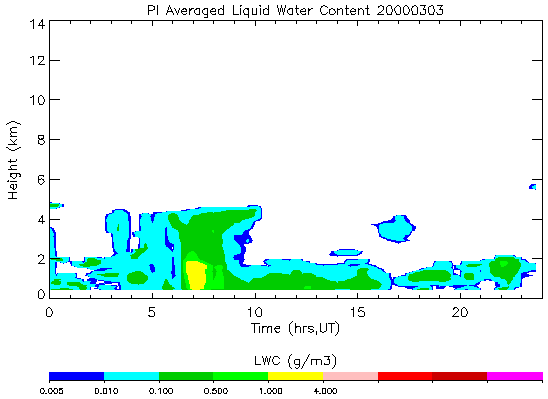
Continuous Baseline Microphysical Retrieval (MICROBASE)

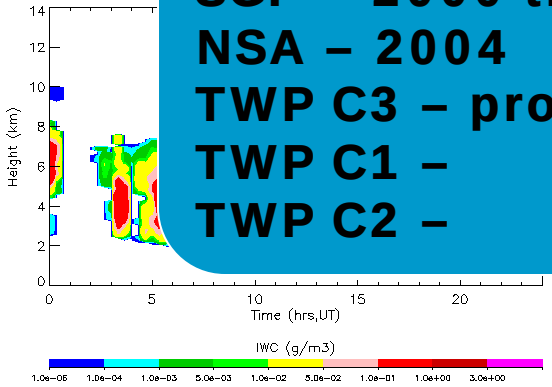
Provides time-continuous information on cloud location, liquid and ice water contents, and effective droplet sizes as a function of height

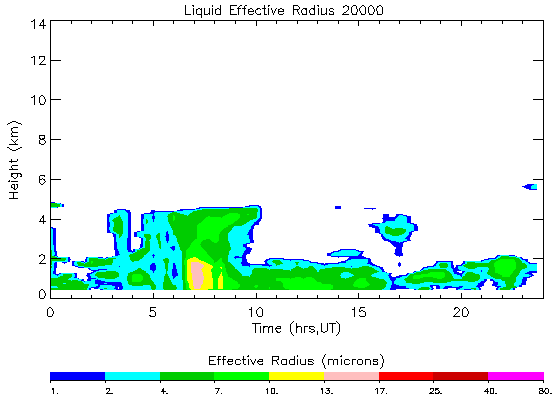
- **Uses ARSCL, Merged Sounding, MWRRET with a combination of previously published microphysical parameterzations**

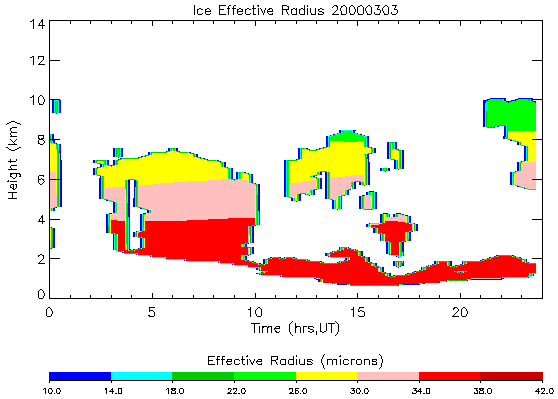
Availability

SGP – 2000 thru 2003
NSA – 2004
TWP C3 – processing
TWP C1 –
TWP C2 –









CLOWD - Supported VAPs
Comstock, Turner, Lo, Sivaraman, Gaustad

- **Raman Lidar VAPS – (RLPROF)** supported by CLOWD and AWG

RLPROF MERGE merges the analog and photon counting channels measured by the Raman lidar. These “merged” profiles are then input to all other RLPROF VAPs. This VAP has been finalized and released for SGP.

RLPROF ASR (Aerosol scattering ratio) have been finalized and released for SGP.

Cloud Classification – (cloudclass1wang)

- provides cloud phase and type (i.e. Cu, Ac, DC etc.) classification for individual cloud layers
- Submission of SGP results for 1999-4/2004

  is expected soon

MPL Cloud Optical Depth

- Processed for May 1999 – April 2004
- Optical Depth algorithm is working fine but found problem with MPLNOR cloud boundaries (which the OD VAP uses). Waiting for MPLNOR files, then will reprocess and submit as evaluation product.

New PI products

http://www.arm.gov/data/pi_products.stm

- **SGP-MMCR-WSR88D-**Merged MMCR and WSR-88D Radar Reflectivites (PI: X. Dong)
- **SGP-Disdrometer** – Dead-Time Corrected Disdrometer Data (PI: M. J. Bartholomew)
- **TWP-Disdrometer** – Dead-Time Corrected Disdrometer Data (PI: M. J. Bartholomew)

Have datasets to share with ARM community?

Contact Mike Jensen mjensen@bnl.gov