

# **ARM Climate Modeling Best Estimate (CMBE) Dataset**

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# Motivations

**Assembling those fields that are often used in climate model evaluations from the highest quality of data ARM has available for many years into one single data file.**

- Reduce the headache of finding those fields from different data streams and different analysis products in the ARM archive**
- Encourage greater use of ARM data by the modeling community**

## Current Status – Version 2 released in July 2008



Atmospheric Radiation Measurement

- Cloud fraction, total cloud cover, LWP, PWV, and surface radiative fluxes
- Hourly data with qc flags for questionable data points

### Data Availability

SGP-C1	Lamont, OK	1996 -- 2007
NSA-C1	Barrow, AK	1998 -- 2007
TWP-C1	Manus Island, PNG	1996 -- 2007
TWP.C2	Nauru, PNG	1998 -- 2007
TWP.C3	Darwin, AU	2002 -- 2007

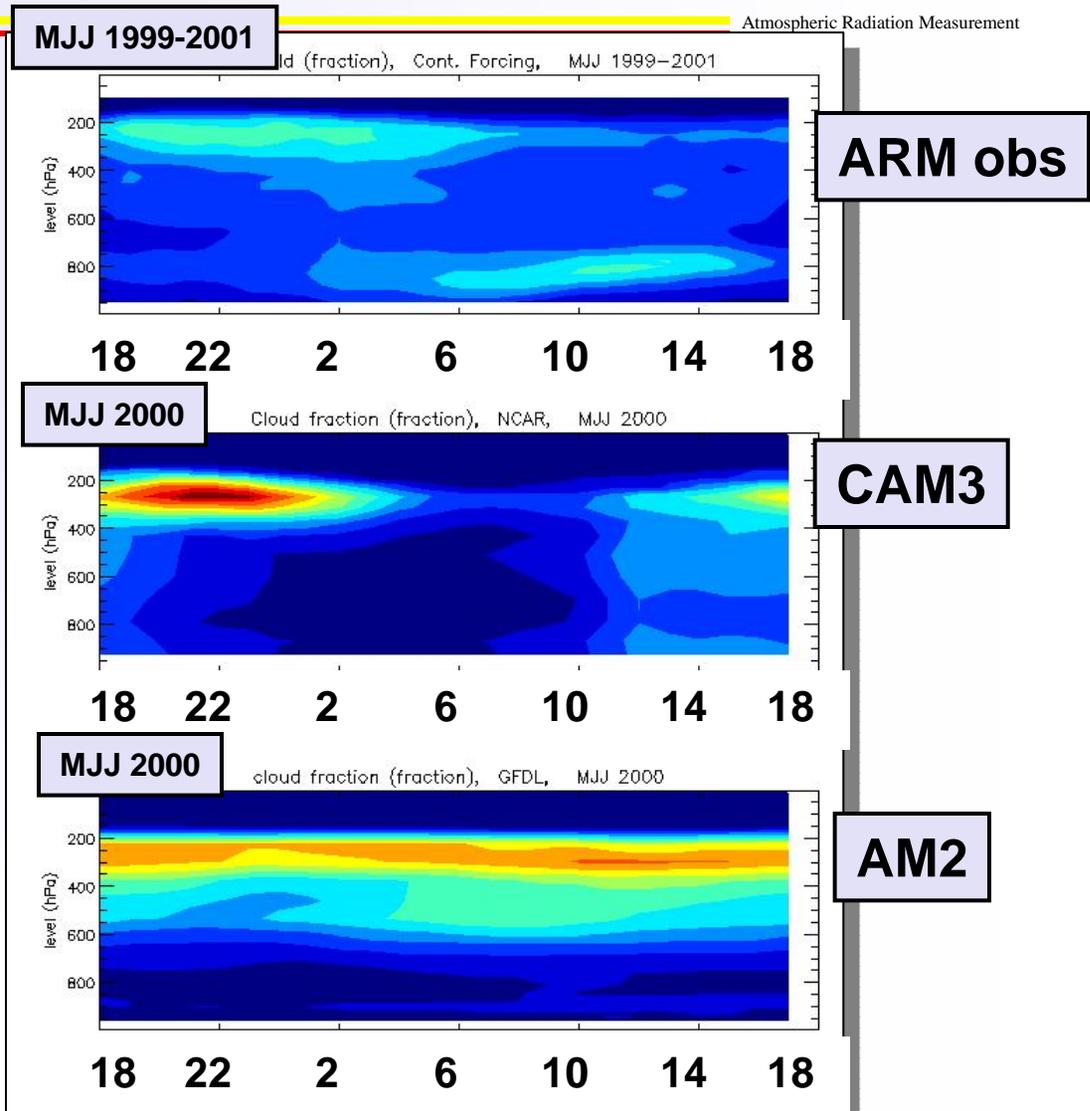
<http://iop.archive.arm.gov/arm-iop/0showcase-data/cmbe/>

# Potential applications



Statistically evaluate climate models

Diurnal, seasonal, and inter-annual variability, Histograms

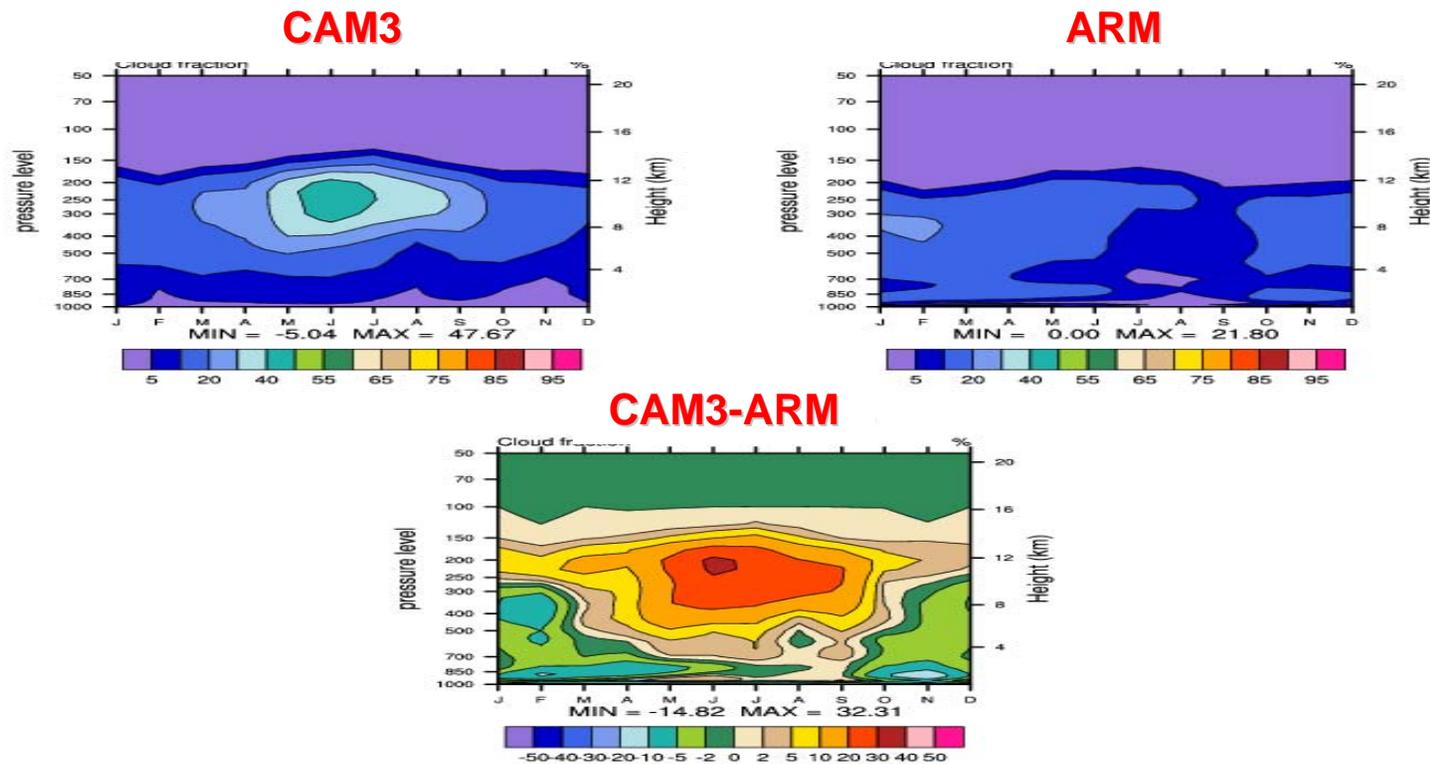


**Cloud Fraction diurnal cycle at SGP**

# ARM data used in the NCAR Diagnostic Package



## Clouds at SGP: CAM3 vs. ARM



**CAM3 produces too much high cloud in warm season (May-Sept) and less mid- or low-level cloud in cold season (Oct. – April) at SGP**

# Future Plan on CMBE Data

- **More important fields to be added to the CMBE data set**
  - **Soundings**
  - **Surface rainfall, turbulence fluxes, and other surface meteorology variables**
  - **TOA radiative fluxes**
  - **Cloud microphysical properties**
- **Variables will be classified into different classes to reflect the quality of each field contained in the CMBE data**

**We plan to release the new version of CMBE before next year's ARM science team meeting**

**<http://iop.archive.arm.gov/arm-iop/0showcase-data/cmbe/>**

**THE END**