CAVE Homepage

NASA

CAVE Data Info & Validation Results

Overview and Site Map

Plot CAVE Data On Line

Validation Plots & Statistics

Publications

Cloud Fraction In CAVE

Aerosols In CAVE

Updates Aug 01, 2004

The Group

Global Coverage

Collocated CERES Observations

Continuous Surface Data Record

Atmospheric Profiles

Radiation Transfer & Related Links

COART Ocean RT Model

Ocean Albedo Look-up Table

Point & Click Fu & Liou

CRS Advice

CLAMS

ULDB Balloon Observations

Site Map

Referencing CAVE data

http://www-cave.larc.nasa.gov/cave
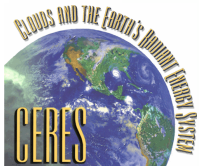
CAVE Data Base Updates
Changes to Surface Aerosol Meteorology (SAM) Files

New SAM file Parameter List

¬Time resolution is now 15 minute average (was 30 min) Variables re-ordered/eliminated.

¬Terra Ed2b, 'unraveled' CRS available Mar 2000 through Dec 2002.

¬Validation Plots/Statistics are Online.

¬AERONET AOD updated to 2.0 for all months available.

¬15 minute averages now coincide with SWFA cloud fraction.

Plotted Parameters			MONTHLY	
Parm#	#obs/month	Parameter_label (units) avail.	Min	Max
1	2976	Cos(Sol Zen Ang) (-----) (yes)	-0.873	0.841
2	2912	LW Flux DN (W/m*m) (yes)	210.8	406.4
3	2719	LW Flux UP (W/m*m) (yes)	324.5	388.8
4	2202	SW Global DN (W/m*m) (yes)	0.000	920.5
5	2039	SW Global UP (W/m*m) (yes)	0.000	568.9
6	1819	SW Direct Normal (W/m*m) (yes)	0.000	986.5
7	1819	SW Dif DN Adj (W/m*m) (yes)	0.000	563.1
8	1819	Total SW Dn,Dir+Dif(W/m*m) (yes)	0.000	866.8
9	2907	Temp 35m (Deg C) (yes)	-1.183	20.8
10	2912	Pressure 35m (mb) (yes)	996.3	1025.0
11	2907	Wind Speed 35m (m/s) (yes)	0.283	19.8
12	2907	Wind Dir 35m (+degN) (yes)	0.933	350.0
13	1721	Rel Humidity 35m (%) (yes)	36.5	99.8
14	1097	Cloud Fract (SWFA) (0-1) (yes)	0.000	1.000
15	118	Aeronet AOD Lev 2.0 340nm (yes)	0.082	0.653
16	118	Aeronet AOD Lev 2.0 380nm (yes)	0.076	0.553
17	118	Aeronet AOD Lev 2.0 440nm (yes)	0.056	0.456
18	118	Aeronet AOD Lev 2.0 500nm (yes)	0.041	0.405
19	118	Aeronet AOD Lev 2.0 670nm (yes)	0.014	0.301
20	118	Aeronet AOD Lev 2.0 870nm (yes)	0.010	0.288
21	118	Aeronet AOD Lev 2.0 1020nm (yes)	0.012	0.273
22	118	Aeronet Precip Wat (cm) (yes)	0.450	3.182
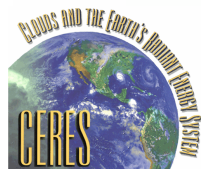
CAVE Data Base Updates
Sites/Sources & Availability*

ARM	**22**	**Jan 1998 – Dec 2004**
CMDL	**7**	**Jan 1998 – Aug 2003**
BSRN	**12**	**Jan 1998 – Dec 2003**
SURFRAD	**7**	**Jan 1998 – Dec 2004**
LaRC (COVE)	**1**	**Sep 2000 – Dec 2004**
WHOI Buoys:	**(7)**	
NTAS I & II	**2**	**Mar 2001 – Feb 2003**
Stratus I & II & III	**3**	**Oct 2000 – Nov 2003**
PACS N & S	**2**	**Jan 1998 – Aug 1998**
NREL (SSV)	**1**	**Jan 1998 – Dec 2002**

***Not all sites within a group are available over entire noted time span**

"Synoptic" SAM Files

Created using 15 Minute record

Contain temporal averages of all variables:

    1 Hour, 3 Hour, Daily, Monthly Mean

    - Includes standard deviation and N for all
        averages.

    - Monthly mean average of monthly hourly
        diurnal cycle.

    - Missing data filled up to 4 hours.

    - Created in both local time and GMT.

    - ftp: snowdog.larc.nasa.gov; pub/cave/SYN
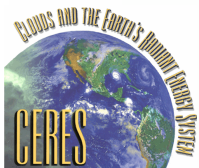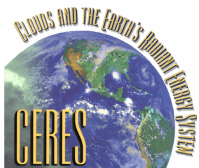
A Few Thoughts on Data Quality

"Quality" defined w.r.t surface observations of irradiance:

Well maintained:
- calibrated (BSRN – annually)
- cleaned   (BSRN – daily)
- regular maintenance (aligned, wiring, desiccants)

Post collection:
- proper conversion from mV to W/m2
- visual inspection
- quality assessment algorithm

How are we doing?

Sites in CAVE data base:

ARM - E13, MAN, NAU (C01, E01-E24)

        Central Facility checked daily. Extended facilities checked bi-weekly.

        Contract with NREL for annual calibration of all instruments.

        Data assessment algorithm (SERI-QC) results supplied with observations.

        Little or no visual inspection by ARM.

        MAN & NAU: instrumentation is stressed.

BSRN – ASP, DAA, FLO, GVN, LAU, LIN, NYA, PAY, SYO, SSV,TAM, TAT

        (SIR, SBO: no data in CAVE yet.)

        Assume site scientists maintain according to BSRN suggestions to

        best of their ability. Don't really know.
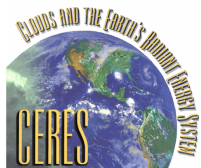
CMDL – BAR, BER, BOU, KWA, SPL (MLO, SAM)

        Sites are in remote locations.

        Cleaned 'quasi-daily' (Dutton et al. 2004.)

        Calibrated annually.

        Visually checked by Ells.

How are we doing?

Sites in CAVE data base:

SURFRAD – BON, DRA, FPK, GWN, PSU, TBL, SXF
  Calibrated annually.
  Cleaned: DRA – daily
        FPK – quasi-daily
        BON, PSU, GWN, TBL – weekly
  Released daily! (So need to check back for problems.)
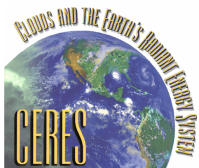LaRC – COV
  Calibrated annually,
  Cleaned (daily & bi-weekly)
WHOI – Buoys (PACS, Stratus, NTAS)
  Stratus & NTAS are replaced annually allowing for
  annual pre/post calibration of instruments.
  Cleaned – whenever it rains.

Bottom Line: Trust but Verify

For CAVE:

ARM: Check Q/A value
        (SERI-QC).
CMDL & COVE: Data
        checked visually.

All data passes threshold tests.

SW flux at surface. Use the
total (dir+diff) if available. Check
it against global SW down.

Satellite algorithm validation!
Many times, outliers have been
traced to bad surface observations.

Validation Plots for COV, 2002