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Started: 4/23/2014

Last Update: 6/15/2015

Data Acknowledgement:

See www.arm.gov/publications/procedures

All instruments and the platform were provided with funds from the American Recovery and Reinvestment Act.

Program: GoAmazon IOP which for MAOS was conducted at the T3 site near Manacapuru, Amazonia, Brazil beginning ~2/1/2014.

Platform: The Mobile Aerosol Observing System Aerosol (MAOS-A)

Instrument: These files contain the measurements made with a 3-wavelength Radiance Research Particle Soot Absoption Photometer (ROM V2.03). Sample air is taken from the aerosol inlet at ~10-m AGL The three raw reference and three raw sample signals are recorded at 1-Hz with as 32-bit signed integers. The absorbance is calculated directly from the first time derivative of transmittances (postprocessing) so a high degree of noise reduction is achieved. The undiluted absorbances and the absorbances corrected for dilution are reported. Only values with when the transmittance on the blue channel were above 0.7 are reported. Values are corrected for the magnification of absorption by filter media and response nonlinearities as described by Bond. No scattering corrections have been made. A measured value of spot size and calibrated dilution and instrument flows are used. Final data are reported at 1-Hz but represent a 60-s moving average of the transmittances. The absorbance is an absolute measurement. The uncertainty is due to uncertainties in spot-size and the two flows.

In GoAmazon, line condensation was a concern. The aerosol inlet plumbing was reconfigured accordingly. These changes are described here. Incoming air goes through a Brechtel Manufacturing Impactor with either a 1 or 10-um cutoff (switched automatically) with a flow of 12.5 LPM. The total airstream goes through the ‘Ambient’ nephelometer. It is then dried with 5 large (~40-cm x 1/2” i.d.) Nafion driers in series. The sample air is then split to the ‘Dry’ nephelometer, aethalometer and PSAP. (This configuration supplants the normal process as described in the AOS Operating Procedure. To prevent overly frequent filter changes, a dilution system was implemented with filtered, dried air added just upstream of the inlet.

Data are filtered, but reported at 1-s resolution but the intensities have been averaged to 60-s. All zero, calibration and non-operational periods have been removed (empty field or NAN).

File Structure:

As follows convention, data are reported as tab-delimited ASCII files. Files are formatted such that they are self documenting. For each data row:

Row 1: Filename

Row 4 (col 1 only): ARM Climate Research Facility

Row 5: SitePlatform

Row 7: Last revised date

Row 9: Instrument

Row 13: Instrument Mentor/Affiliation

Rows 14-19: Comments (operational conditions, calibrations, etc.)

Rows 21-24: Constants (usually defined in Comments)

Row 35: Column title

Row 36: Column units line 1

Row 37: Column units line 2

Row 40: First row of data

Time - Time is reported in UTC (yyyy-mm-dd hh:mm:ss[.00] as set by an NTP server. Following convention, the time is the beginning of the period. The parameter reported at this time is the average of all points >= the time and < the next time. Data in the output files is rigidly uniform and monotonic.

Accuracy and Precision

Absorbance - Units: Mm-1 reported at 1 atm, 0oC,Precision: better than 0.1 Mm-1 @ 60s. For a 0.5 dilution, the estimated precision is 0.5 Mm-1.

Posting History:

4/23/2014 Posting to: c1.xdc.arm.gov /incoming/AOS\_QC/GoAmazon/psap3w

mao\_ReadMe\_PSAP.txt (This file in ASCII)

mao\_ReadMe\_PSAP.docx (This file in Word)

Files of 1-Hz data (60-s averaged) as a tab-delimited text file (60-s averaged) and associated processing log files.

maomaosas1.psap.01s.00.20140116.000000.m02.tsv

maomaosas1.psap.01s.00.20140116.000000.m02.tsv.log.txt

maomaosas1.psap.01s.00.20140116.000000.m02.tsv.plots.pdf

maomaosas1.psap.01s.00.20140201.000000.m02.tsv

maomaosas1.psap.01s.00.20140201.000000.m02.tsv.log.txt

maomaosas1.psap.01s.00.20140201.000000.m02.tsv.plots.pdf

maomaosas1.psap.01s.00.20140216.000000.m02.tsv

maomaosas1.psap.01s.00.20140216.000000.m02.tsv.plots.pdf

maomaosas1.psap.01s.00.20140301.000000.m02.tsv

maomaosas1.psap.01s.00.20140301.000000.m02.tsv.log.txt

maomaosas1.psap.01s.00.20140301.000000.m02.tsv.plots.pdf

maomaosas1.psap.01s.00.20140316.000000.m02.tsv

maomaosas1.psap.01s.00.20140316.000000.m02.tsv.log.txt

maomaosas1.psap.01s.00.20140316.000000.m02.tsv.plots.pdf

maomaosas1.psap.01s.00.20140401.000000.m02.tsv

maomaosas1.psap.01s.00.20140401.000000.m02.tsv.log.txt

maomaosas1.psap.01s.00.20140401.000000.m02.tsv.plots.pdf

Note that the impactor state recorded and saved in the ‘raw’ data files was inverted due to a wiring error. The correct impactor state is given in the mentor QA/QC’d data files and described in the meta data contained in the column header.

12/17/2014 Posting to: c1.xdc.arm.gov /incoming/AOS\_QC/mao/psap3w

mao\_ReadMe\_PSAP\_20141217.txt (This file in ASCII)

mao\_ReadMe\_PSAP\_20141217.docx (This file in Word)

Files of 1-Hz data (60-s averaged) as a tab-delimited text file (60-s averaged) and associated time series plots and processing log files.

All data have the corrected Impactor state

maomaosas1.psap.01s.00.20140416.000000.m02.tsv

maomaosas1.psap.01s.00.20140416.000000.m02.tsv.log.txt

maomaosas1.psap.01s.00.20140416.000000.m02.tsv.plots.pdf

maomaosas1.psap.01s.00.20140501.000000.m02.tsv

maomaosas1.psap.01s.00.20140501.000000.m02.tsv.log.txt

maomaosas1.psap.01s.00.20140501.000000.m02.tsv.plots.pdf

maomaosas1.psap.01s.00.20140601.000000.m02.tsv

maomaosas1.psap.01s.00.20140601.000000.m02.tsv.log.txt

maomaosas1.psap.01s.00.20140601.000000.m02.tsv.plots.pdf

maomaosas1.psap.01s.00.20140701.000000.m02.tsv

maomaosas1.psap.01s.00.20140701.000000.m02.tsv.log.txt

maomaosas1.psap.01s.00.20140701.000000.m02.tsv.plots.pdf

maomaosas1.psap.01s.00.20140801.000000.m02.tsv

maomaosas1.psap.01s.00.20140801.000000.m02.tsv.log.txt

maomaosas1.psap.01s.00.20140801.000000.m02.tsv.plots.pdf

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maomaosas1.psap.01s.00.20140901.000000.m02.tsv.log.txt

maomaosas1.psap.01s.00.20140901.000000.m02.tsv.plots.pdf

maomaosas1.psap.01s.00.20141001.000000.m02.tsv

maomaosas1.psap.01s.00.20141001.000000.m02.tsv.log.txt

maomaosas1.psap.01s.00.20141001.000000.m02.tsv.plots.pdf

1/18/2015 Posting to: c1.xdc.arm.gov /incoming/AOS\_QC/mao/psap3w

mao\_ReadMe\_PSAP\_20150118.docx (This file in Word)

mao\_ReadMe\_PSAP\_20150118.txt (This file in ASCII)

Monthly files of 1-Hz data (60-s averaged) as a tab-delimited text file (60-s averaged) and associated time series plots and processing log files.

maomaosas1.psap.01s.00.20141101.000000.m02.tsv

maomaosas1.psap.01s.00.20141101.000000.m02.tsv.log.txt

maomaosas1.psap.01s.00.20141101.000000.m02.tsv.plots.pdf

maomaosas1.psap.01s.00.20141201.000000.m02.tsv

maomaosas1.psap.01s.00.20141201.000000.m02.tsv.log.txt

maomaosas1.psap.01s.00.20141201.000000.m02.tsv.plots.pdf

4/21/2015 Posting to: c1.xdc.arm.gov /incoming/AOS\_QC/mao/psap3w

mao\_ReadMe\_PSAP\_20150421.docx (This file in Word)

mao\_ReadMe\_PSAP\_20150421.txt (This file in ASCII)

Monthly files of 1-Hz data (60-s averaged) as a tab-delimited text file (60-s averaged) and associated time series plots and processing log files.

maomaosas1.psap.01s.00.20150101.000000.m02.tsv

maomaosas1.psap.01s.00.20150101.000000.m02.tsv.log.txt

maomaosas1.psap.01s.00.20150101.000000.m02.tsv.plots.pdf

maomaosas1.psap.01s.00.20150201.000000.m02.tsv

maomaosas1.psap.01s.00.20150201.000000.m02.tsv.log.txt

maomaosas1.psap.01s.00.20150201.000000.m02.tsv.plots.pdf

maomaosas1.psap.01s.00.20150301.000000.m02.tsv

maomaosas1.psap.01s.00.20150301.000000.m02.tsv.log.txt

maomaosas1.psap.01s.00.20150301.000000.m02.tsv.plots.pdf

5/29/2015 Posting to: c1.xdc.arm.gov /incoming/AOS\_QC/mao/psap3w

mao\_ReadMe\_PSAP\_20150421.docx (This file in Word)

mao\_ReadMe\_PSAP\_20150421.txt (This file in ASCII)

Monthly files of 1-Hz data (60-s averaged) as a tab-delimited text file (60-s averaged) and associated time series plots and processing log files.

maomaosas1.psap.01s.00.20150401.000000.m02.tsv

maomaosas1.psap.01s.00.20150401.000000.m02.tsv.log.txt

maomaosas1.psap.01s.00.20150401.000000.m02.tsv.plots.pdf

6/15/2015 Posting to: c1.xdc.arm.gov /incoming/AOS\_QC/mao/psap3w

mao\_ReadMe\_PSAP\_20150615.docx (This file in Word)

mao\_ReadMe\_PSAP\_20150615.txt (This file in ASCII)

Monthly files of 1-Hz data (60-s averaged) as a tab-delimited text file (60-s averaged) and associated time series plots and processing log files.

maomaosas1.psap.01s.00.20150501.000000.m02.tsv

maomaosas1.psap.01s.00.20150501.000000.m02.tsv.log.txt

maomaosas1.psap.01s.00.20150501.000000.m02.tsv.plots.pdf