

Argonne National Laboratory – Environmental Science Division
Argonne, IL

Nancy A Marley - Aerosol Optical Properties

Scattering – Wet (530nm), Dry (530nm), Ambient (450, 550, 700nm)

Absorption – Aethalometer (370, 470, 520, 590, 660, 880, 950nm)

Multi Angle Absorption Photometer (670nm)

Weather – WS, WD, Temp, P, RH, Rain, Hail

UVB Radiation

Ammonia

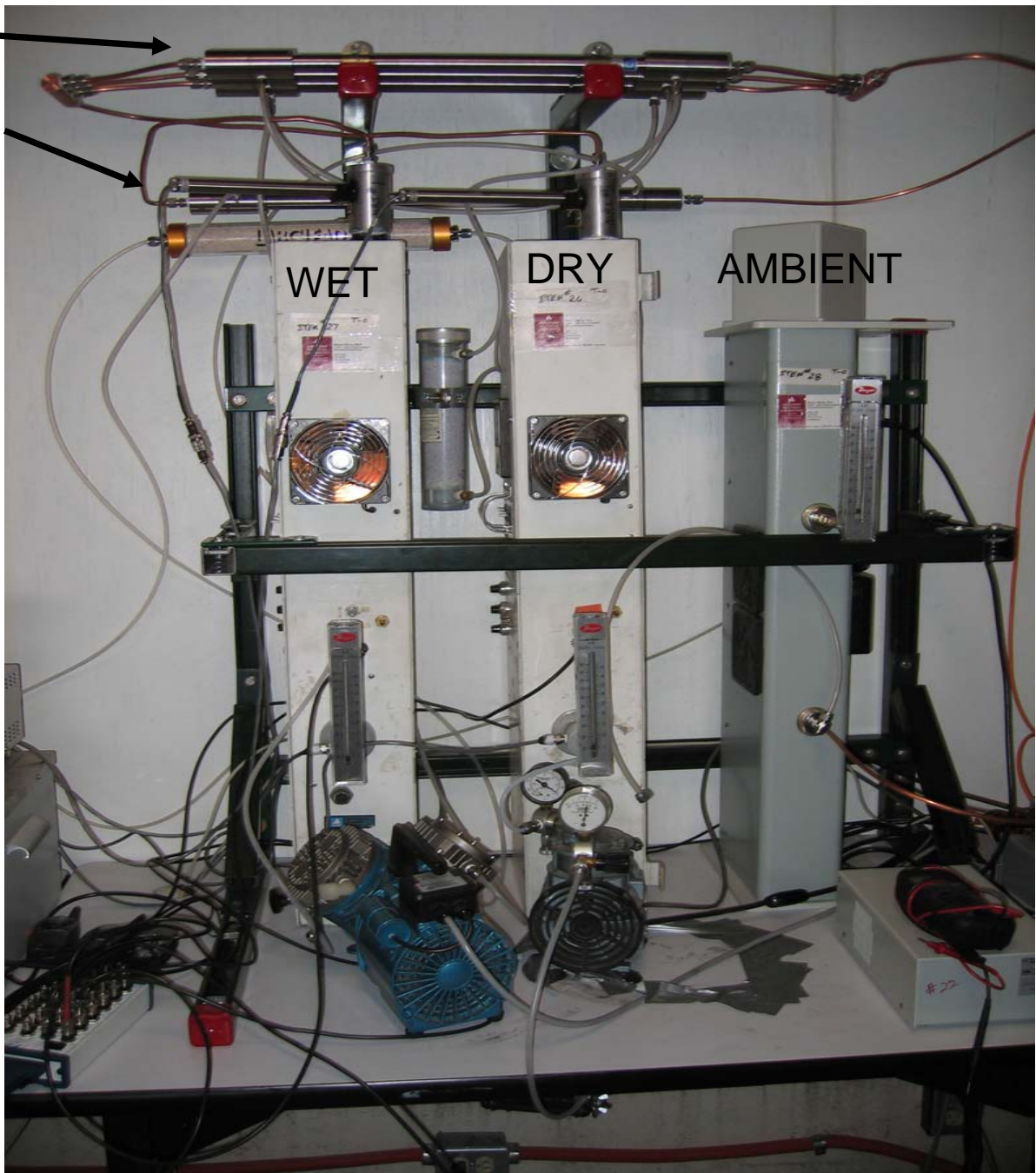
Jeff Gaffney – Aerosol Lifetimes and source tracers

<1.0 micron aerosol samples at T0 and T1, Rain samples

Radioisotopes – Pb210, Po210, Bi210, Be7, K40, C13, C14

Weather – WS, WD, Temp, P, RH, Rain, Hail

UVB Radiation



Nafion Dryers

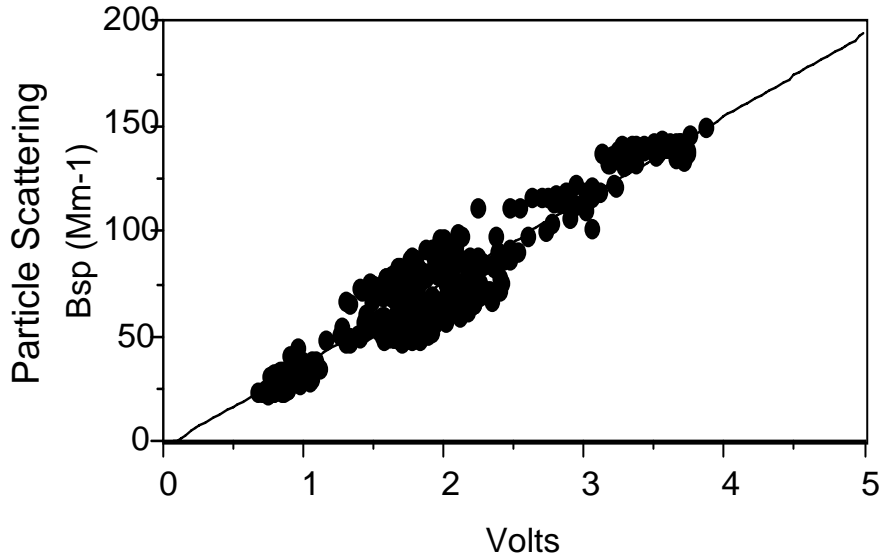
Nafion humidifier

WET

DRY

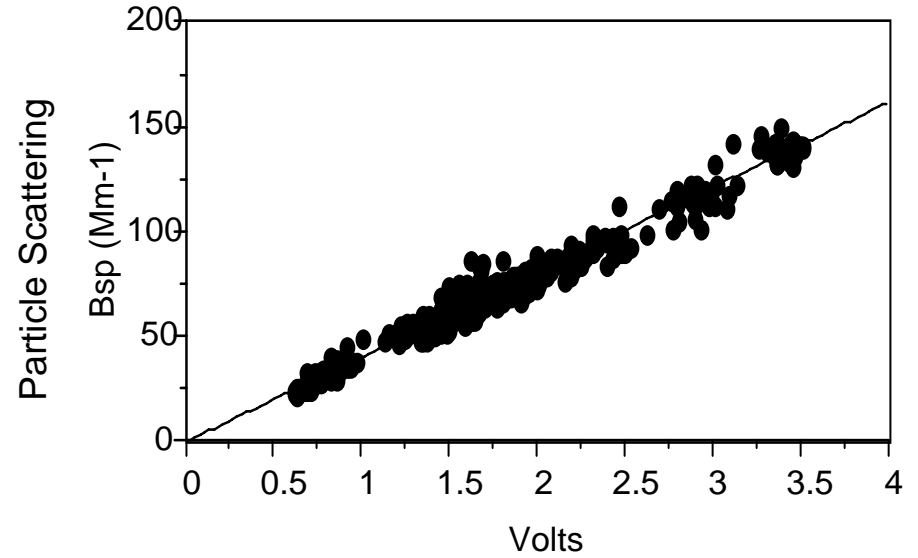
AMBIENT

MRI#1 (Wet)



R-square = 0.896 # pts = 5
 $y = -2.93 + 39.4x$

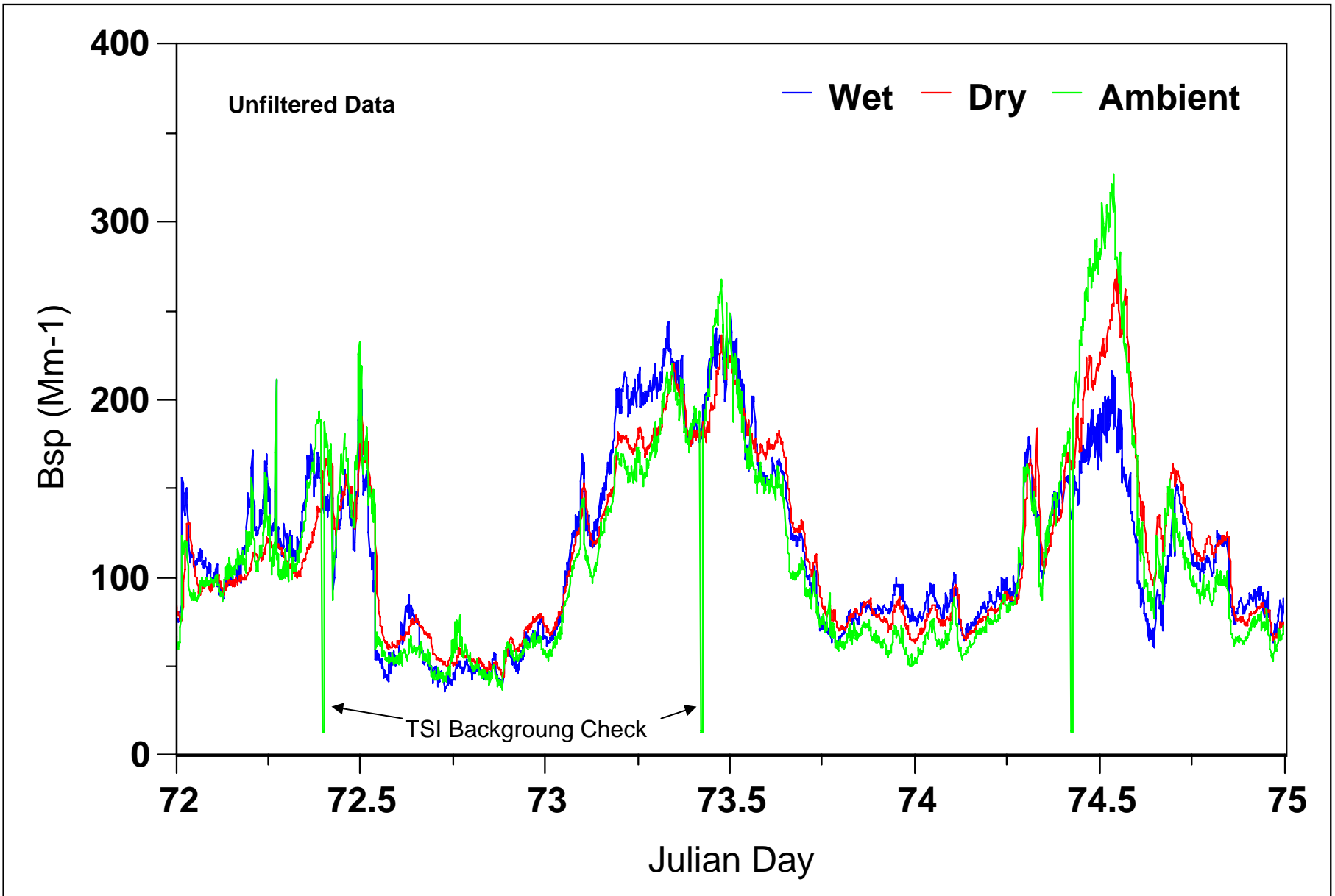
MRI#2 (Dry)



R-square = 0.892 # pts = 5
 $y = -3.42 + 39.8x$

The Wet and Dry nephelometers are calibrated against the TSI at 550 nm.
The TSI is calibrated with CO₂.

Particle Scattering





Andersen Instruments Incorporated

Aethalometer™

STOP	MODE	F1	F2	F3
1	2	3	4	5
6	7	8	9	0
ENTER	ESC	DEL	HOME	END

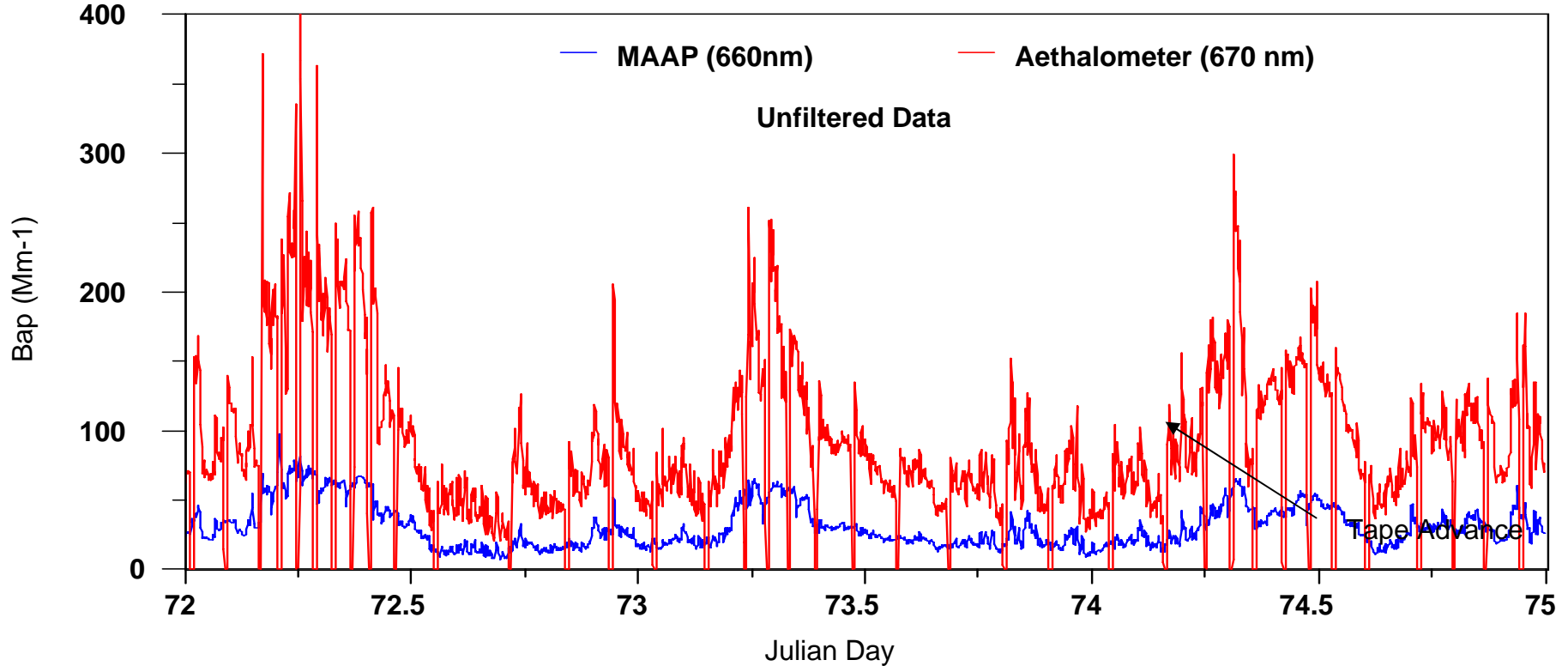
Aethalometer™

Thermo

Carusso / Model 5012 MAAP
Black Carbon Monitor

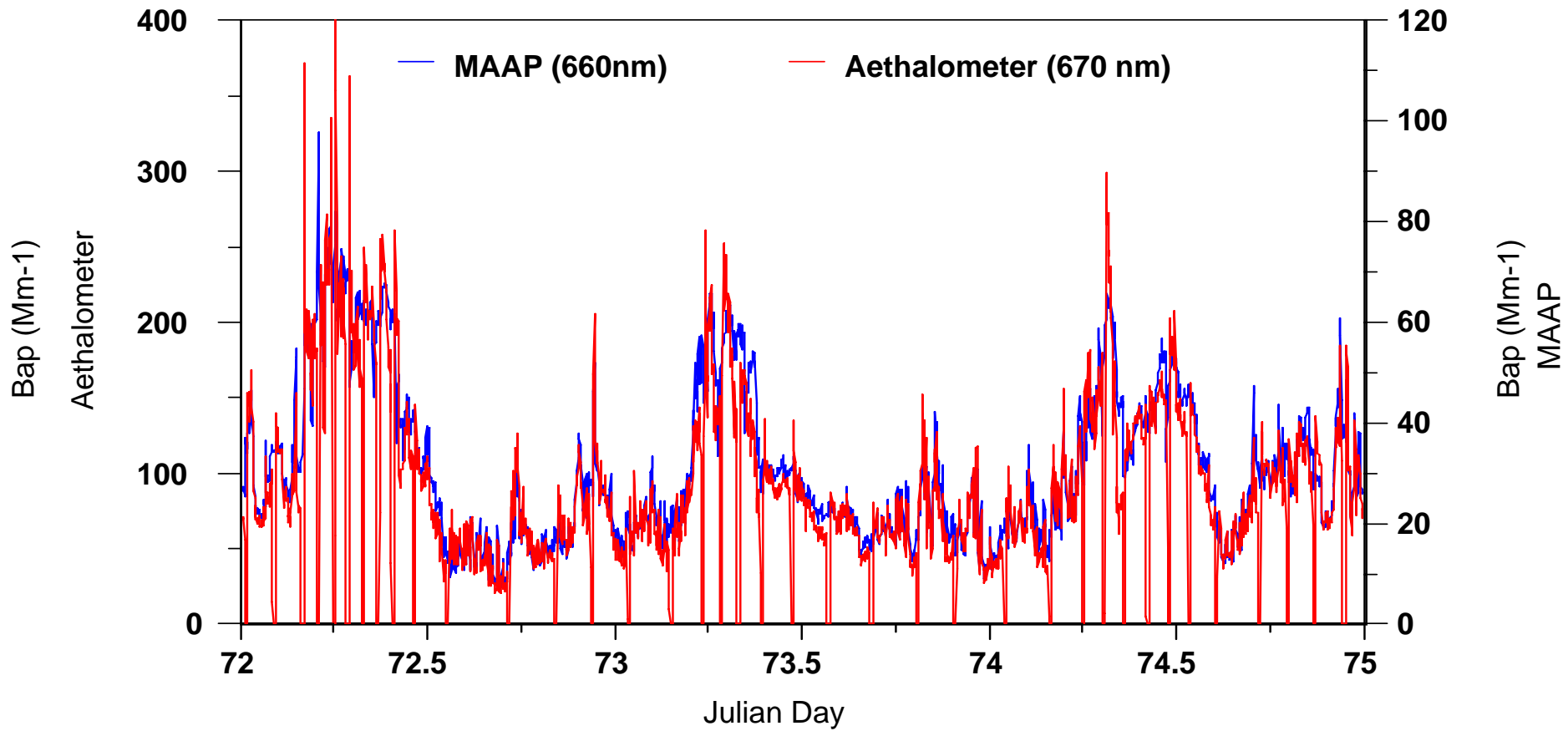
Thermo Carusso / Model 5012 MAAP Black Carbon Monitor control panel featuring a small LCD screen and several buttons.

Particle Absorption



As expected, the Aethalometer results are higher than the MAAP
The MAAP correlates well with the Photoacoustic.

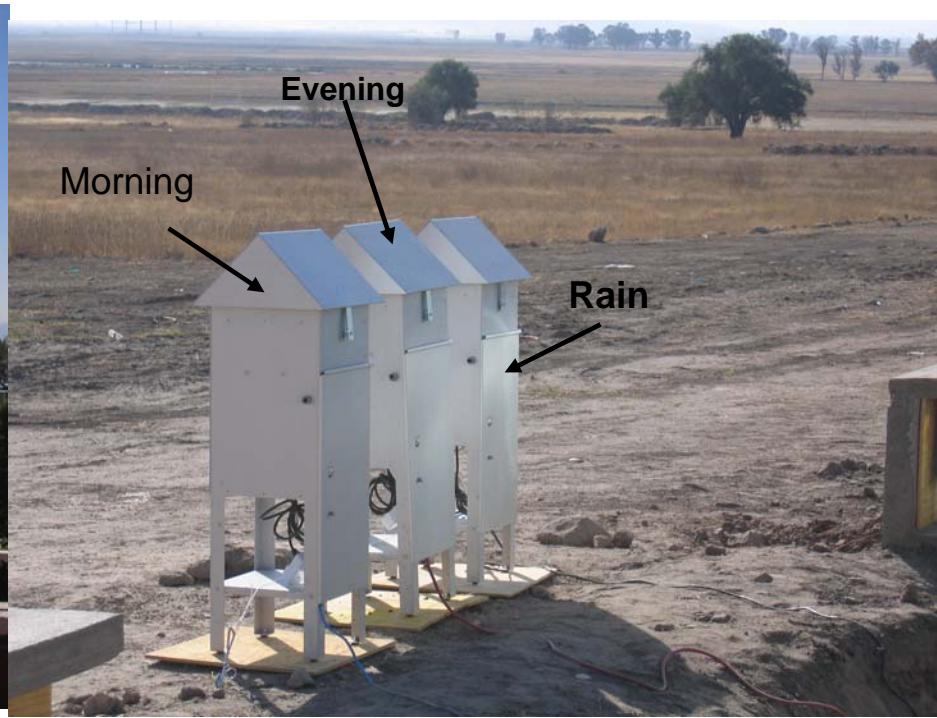
Particle Absorption



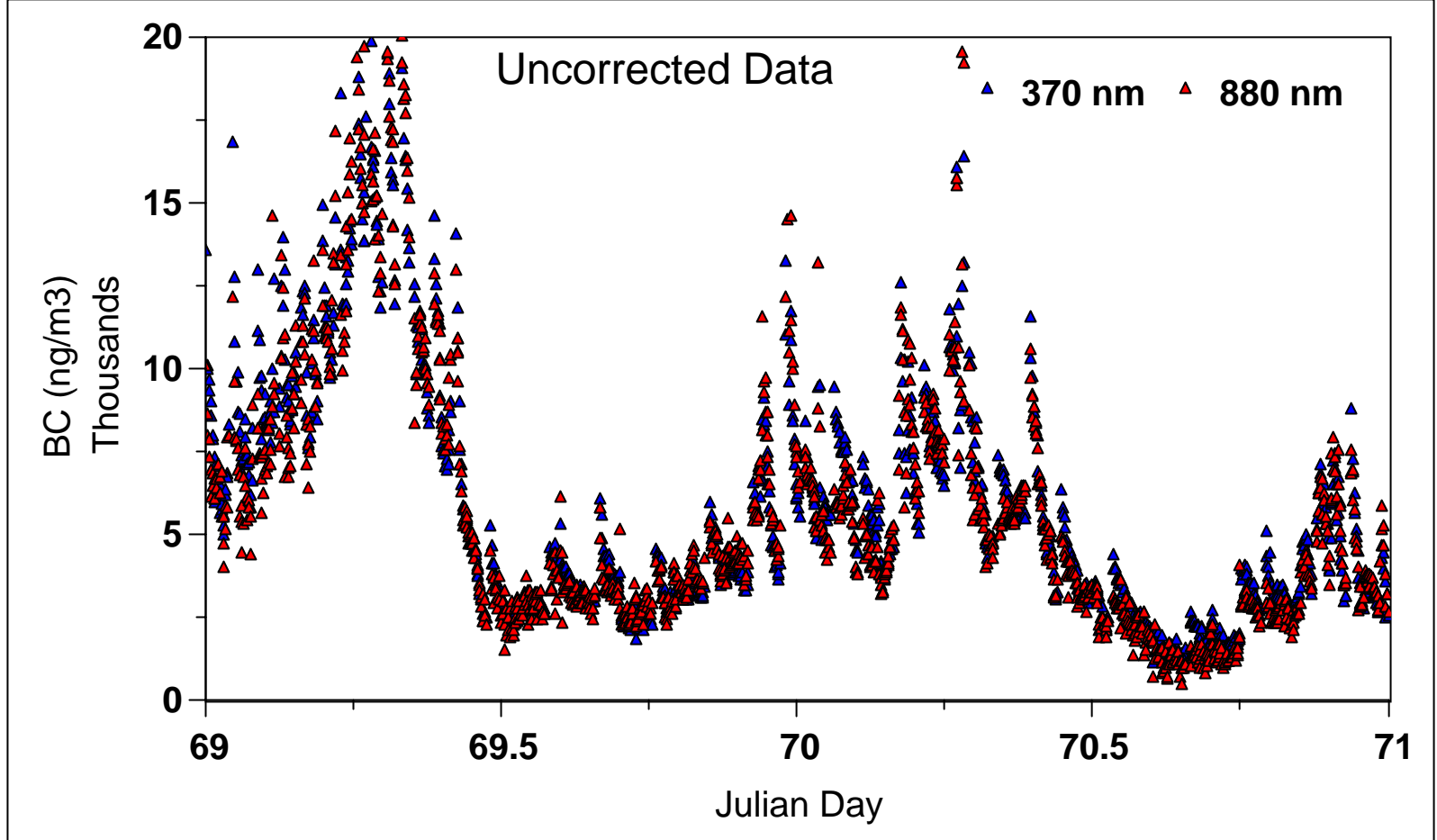
Once the Aethalometer offset is accounted for – The results correlate well



T0



T1



Some Evidence of increased absorption at 370nm
Fires?
Data needs to be converted to Particle Absorption
Comparison to C13/C14 results.