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TECHNICAL SERVICES

Training The new office will offer a full hands on training room and additional space for performing in house instrument repairs.

Customers are welcome to visit and receive free training anytime and observe instrument repairs being performed.

Services Routine preventative maintenance service is recommended once per year of continuous instrument operation.

Upgrades Instruments manufactured from 2003 and later can receive an upgrade from the Floppy Disc Drive to a new Compact Flash Memory Card Drive as part of the routine factory service.



Wildfires in Southeast Australia: Courtesy of NASA's Earth Observatory 03 Feb 2009

The Multiple Wavelength Aethalometer[®]: Use It To Measure Wood Smoke

Ongoing research by several distinct scientists has led to the development of a method for rapidly detecting the impact of wood smoke on local air quality. The Aethalometer is an instrumental method which has been in use for over 30 years to measure Aerosol Black Carbon in ambient air using optical absorption of light at a single, 880nm (IR) wavelength. Over the recent decade, Aethalometer instruments have been developed to include multiple wavelengths, mainly using two or seven LED light sources. The multiple wavelength optical absorption measurement allows for the identification of physical characteristics of aerosols collected on a filter, in addition to the "blackness".

Generally, aromatic compounds have been known to absorb light in the Ultraviolet wavelength spectrum. However, the specific particle phase compounds which illustrate enhanced absorption of light at the 370nm wavelength have been historically unknown. Recent studies suggest that the absorption of 370nm UV light by PM material collected on a filter is very highly correlated to those compounds found specifically and exclusively in wood smoke. This leads to the ability of actually measuring the amount of wood smoke in air in near real-time.

By assessing the difference in absorption of Ultraviolet versus Infrared light, a term now recognized as "Delta-C", the composition of Particulate Carbon species specifically formed through the combustion of biomass can be determined. By combining this data processing tool with automated, short-time resolution measurements, powerful source apportionment can be performed.

The "Delta-C" method for assessing air pollution due to wood smoke has been well studied and is the work is published in journals and presented at conferences. Articles and information documenting some of this work can be found below.

Relevant Articles and Studies:

1. Allen et al (2004). "Evaluation of a New Approach for Real Time Assessment of Wood Smoke PM" Presented at the Air & Waste Management Association Visibility Specialty Conference on Regional and Global Perspectives on Haze: Causes, Consequences and Controversies. Asheville, NC 24-29 Oct 2004.
2. Wu et al (2007). "Source apportionment of PM_{2.5} and selected hazardous air pollutants in Seattle." Science of the Total Environment 2007; 42-52.
3. Wegesser et al (2008). "California Wildfires of 2008: Coarse and Fine Particulate Matter Toxicity." Environmental Health Perspectives doi: 10.1289/ehp.0800166 (available at <http://dx.doi.org>)
4. Sandradewi et al (2008). "A Study of Wood Burning and Traffic Aerosols in an Alpine Valley using a Multi-wavelength Aethalometer." Atmospheric Environment 42 (2008): 101-112



microAeth® Model AE51 shipping in March!

The commercial instrument is currently in production with deliveries being made in March 2009. Visit our web site for information or contact us directly for a free demonstration.

New Products for 2009!

SootScan™ Model OT21 Optical Transmissometer

- Instantaneous, non-destructive measurements of Black Carbon on a Filter
- Dual-wavelength (IR, UV) measurement for performing “Delta-C” measurements
- Analysis on a variety of filter media including quartz, cellulose, and Teflon®
- 25mm, 37mm, and 47mm diameter filters accepted
- NIST-traceable calibration verification kit
- Automotive emissions, Industrial Environments, Ambient Air Quality



SootScan™ Model OT21 (dual wavelength) Optical Transmissometer

Magee has moved!

The new facility is located in Berkeley, CA. Accessible in 30-40 minutes via BART from SFO International or 20 minutes from OAK International Airport.



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Upcoming Events

- **02-05 March 2009 US EPA National Air Quality Conference**
Come visit our exhibit booth at the upcoming conference which is being held at the Intercontinental Dallas Hotel, located in Addison, TX, USA. Our space is No 25.
- **22-25 March 2009 AWMA Greenhouse Gas Measurement Symposium**
The first annual GHG measurement symposium has drawn an exceptional amount of interest. We have a poster entitled, “Aerosol Black Carbon: globally, the #2 Greenhouse Gas” will be available for viewing and discussion. Feel free to also stop by our exhibit booth to view our products.
- **31 March-01 April 2009 US EPA Region IV Monitoring Manager’s Meeting**
The workshop and managers meeting will be held in Jacksonville, FL.
- **03-05 May 2009 Health Effects Institute Annual Conference**
An important conference with discussions on Public Health exposure to traffic-related pollution. This will be held at the Hilton Portland & Executive Tower.

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