NEAR-REFERENCE DATA WHERE YOU NEED IT WHEN YOU NEED IT

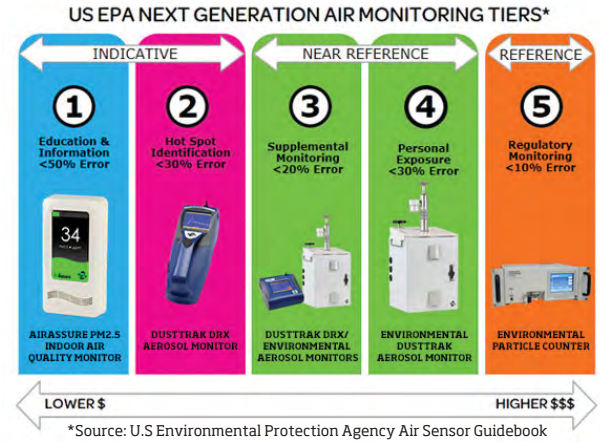
Introduction

The National Ambient Air Quality Standards (NAAQS), developed by the U.S. Environmental Protection Agency (EPA), sets limits on air pollution levels in an effort to protect public health and the environment. Measuring these pollutant levels with instruments that are Federal Reference Method (FRM) and Federal Equivalent Method (FEM) compliant can be expensive, and there is a growing interest in lower cost air quality measurement instruments.

TSI engineers have developed the Environmental DustTrak™ Aerosol Monitor to enable the collection of data logged measurements 24/7, 365 days a year. The Environmental DustTrak is easy to set up and can be rapidly deployed. This near-reference data may indicate trends and can be used to take action when levels exceed set limits.

What Is Near-Reference Data?

The term "Near-Reference" quality data is tied to established air monitoring standards and methods. This data from these monitors is of sufficient precision and quality to complement existing air pollution monitors and networks, and the equipment is less expensive to own and operate. Oftentimes, the monitoring stations are located far away from the actual sources of pollution, and accurately reporting short-term (seconds to minutes vs. 24-hour average), and localized high concentration public exposure events is challenging for most systems.



*Source: U.S Environmental Protection Agency Air Sensor Guidebook

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NEAR-REFERENCE DATA, WHERE YOU NEED IT, WHEN YOU NEED IT

Applications

The range of applications for TSI's new Environmental DustTrak includes supplementary monitoring, air quality studies, industrial compliance monitoring, and special purpose monitoring (VOCs, gases, wind speed and more). Additionally, there is a focus on monitoring PM during natural disasters such as wildfires, where rapid deployment, real-time data and comparability to FEM data are key attributes the new Environmental DustTrak provides. Below is a comparison of data from the Environmental DustTrak and a similar air monitoring device.

REAL-TIME DATA THAT'S EASY TO DEPLOY.

Controlled Burn Comparison Testing: Met One's E-BAM vs. TSI's Environmental DustTrak™

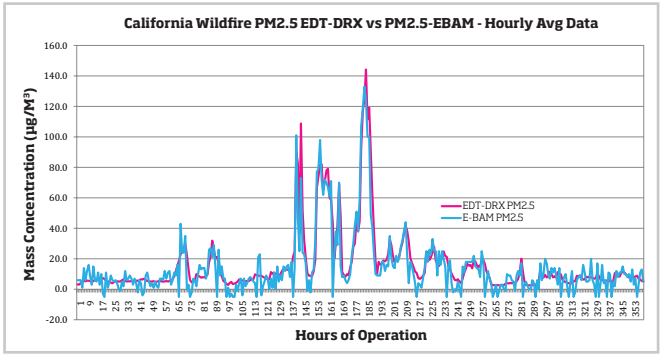
In October 2015, California Office of Emergency Services (OES) Sacramento conducted a controlled burn event in Orleans, California, to compare the performance of an EDT-DRX* and a Met One E-BAM, in support of wildfire monitoring. Both instruments were located within five feet of each other and operated according to the manufacturers' standard operating procedures over a 15 day period. The PM2.5 24-hour average data from the EDT-DRX is shown to compare extremely well with the E-BAM as supported by the correlation plots on the right. The hourly average data from the E-BAM highlights the increased negative concentration data from a filter-based measurement, due to volatile losses and the filter hysteresis that occurs with this type of method of detection (filter tape sampler/monitor for PM).

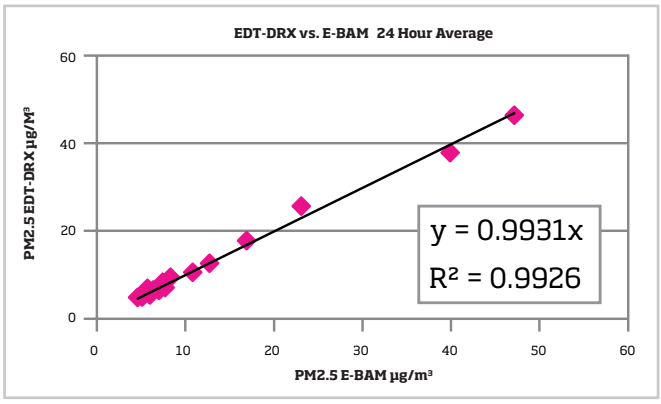
NONE OF THIS MATTERS IF YOU CAN'T GET THE DATA.

The EDT-DRX enables turn-key wireless cloud-based data management. It provides real-time access to the instrument data 24/7/365 from any web-accessible device. This near-reference data is priceless when considering the value of the data and the cost of alternative market options currently available. TSI provides a platform for integration of multiple measurement devices, so different types of data can be collected at the same time (e.g., dust, VOCs, wind speed and direction, noise and vibration.) The flexible near-reference system allows the end user to customize the solution for each specific project – ultimately saving money and time.

*The EDT-DRX model measures PMTotal, PM10, PM2.5, and PM1.0 simultaneously.

California wildfire comparison: EDT-DRX (left) vs. E-BAM (right)





The PM2.5 24-hour average data from the EDT-DRX compares extremely well with the E-BAM (Slope of 0.993 and R^2 of 0.99), as supported by the correlation plots above.

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