ADAPT: Automated Data Analysis Plotting Toolset

COOPER ENVIRONMENTAL
A DIVISION OF SCI

Automated Data Analysis Plotting Toolset

ADAPT Screenshots

Description

The Automated Data Analysis Plotting Toolset (ADAPT) software includes an intuitive user interface, providing advanced air shed monitoring graphical tools to assist and empower environmental regulators, researchers, and industry to make data driven management decisions.

The software package allows Xact® 625i users to interpret and analyze the large quantity of elemental data produced by the Xact® 625i easily and efficiently. ADAPT is a powerful tool for elemental source characterization, using intuitive graphical analysis to identify source direction and further data filtration by co-varying analytes and/or high frequency temporal variability. Reports and graphics can be easily downloaded and shared with collaborators.

Features of ADAPT

- Intuitive user interface to efficiently examine elemental data produced by the Xact® 625i
- Automated analysis of elemental measurements over user-selected time periods
- Temporal analysis to reveal peak concentration episodes
- Daily and time-of-day distributions to examine variability trends
- Correlation examination for identifying co-varying metal emissions
- Integration of meteorological parameters for gauging directions of metal sources
- Designed by air quality researchers with over 50 years of combined experience

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Graphics

ADAPT produces a variety of graphics to examine Xact®-measured metals and displays them through an intuitive user interface on the instrument. These plots allow the user to examine the metals contribution to each sample in addition to the concentration trends over time. The graphics are designed to track high metals concentration events and capture the variability resulting from source emission patterns. Examination of metals in conjunction with on-site meteorological measurements enables ADAPT to provide improved directionality estimation of metal sources impacting the monitoring site. ADAPT processes large datasets to produce graphics which helps the user to better visual the Xact® results, saving users' time and resources towards reaching their air quality objectives.
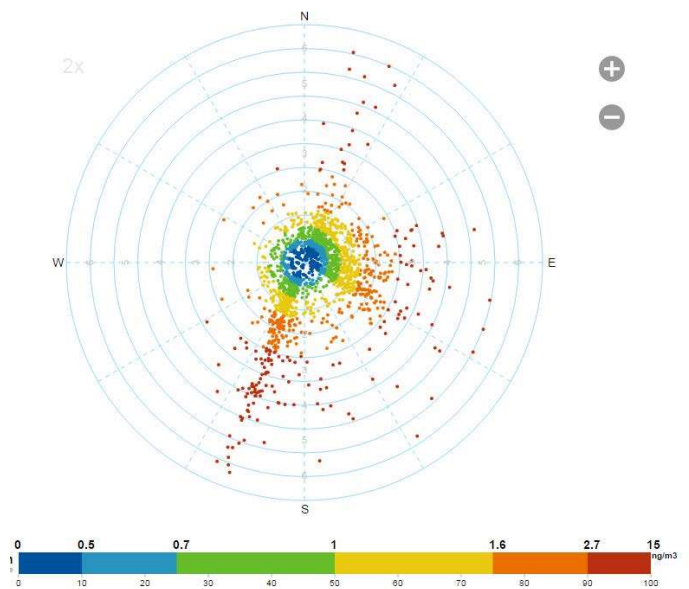
Features Include
- Intuitive design to view metals of choice
- Select time period of interest from the convenient calendar view
- Statistical metrics for examining the spread of concentrations
- Downloadable reports in PDF format
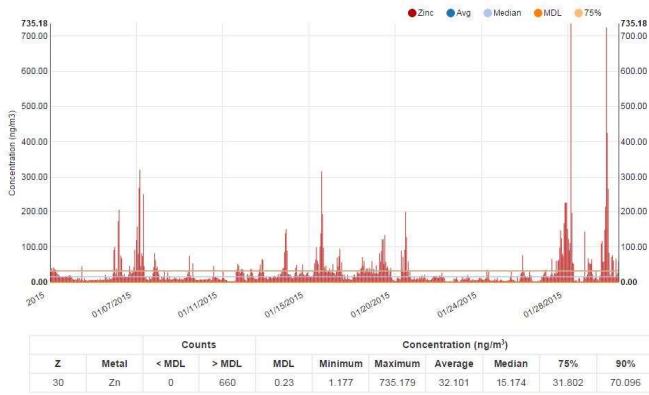
Home Screen
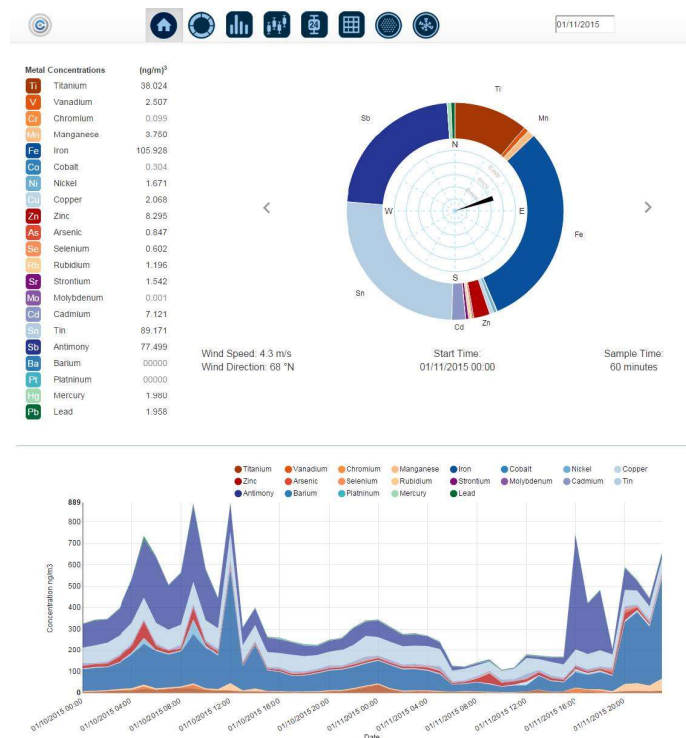
Meteorological Correlation
Association of metals with wind direction based on percentile ranges

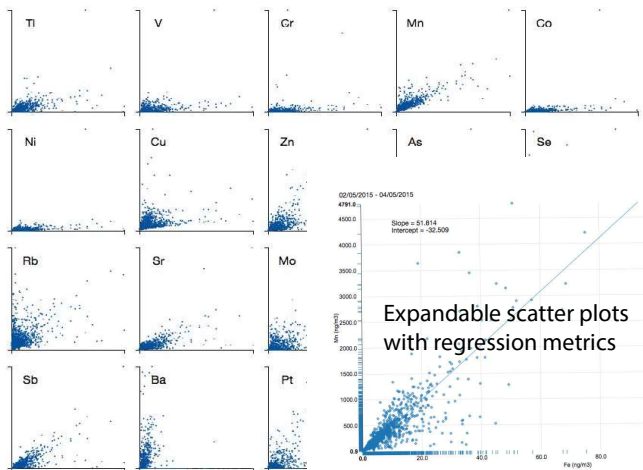## Temporal
Trends in metal concentrations over time

		Counts				Concentration (ng/m³)				
Z	Metal	< MDL	> MDL	MDL	Minimum	Maximum	Average	Median	75%	90%
30	Zn	0	660	0.23	1.177	735.179	32.101	15.174	31.802	70.096

Daily
Daily distribution for examining day-of-week trends

Average
Average concentrations over selected time period

28 Days

Element		Counts				Concentration (ng/m³)			
Z	Symbol	< MDL	> MDL	Minimum	Maximum	Average	Median	75%	90%
82	Pb	16	653	0.000	62.219	7.044	3.795	8.220	17.512
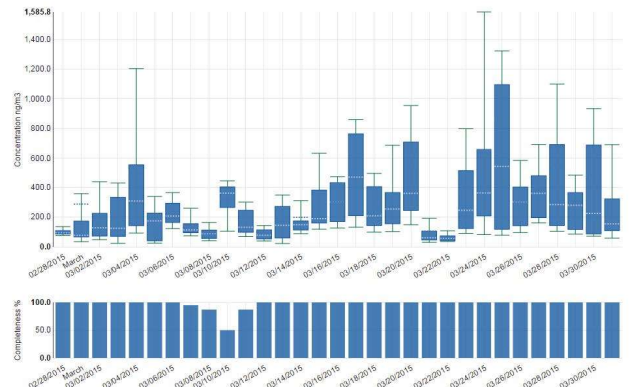
Time-of-Day
Variability across 24 hour duration examined for emission patterns

Correlation
Correlation between metals assessed simultaneously

Expandable scatter plots with regression metrics
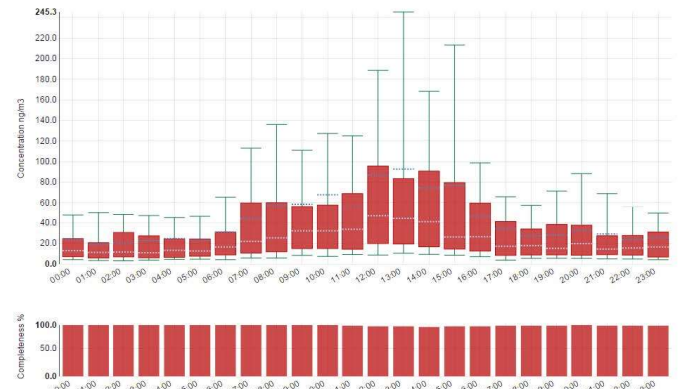
Day of Week Trends
High time resolution variability across days of the week for examination of activity pattern
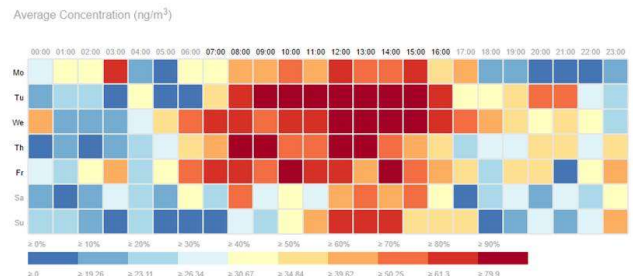
Visit our website for a video demonstration of ADAPT

www.sci-monitoring.com

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Correlation with Wind Direction

The ADAPT software supplements Xact® 625i metal and meteorological measurements to enable identification of trends and directionality of peak metal concentration episodes. The package includes an application server that gathers meteorological parameters corresponding to the metals data acquired from Xact® 625i in real-time. The analysis results are accessed through the Xact® 625i computer using a customized web browser provided on the application server. The intuitive and user-friendly interface allows for efficient exploration of the metals data to investigate source emission patterns captured by the Xact® 625i.

Concentration Directionality

Frequency distribution of concentration ranges for identifying directions of peak metal impacts
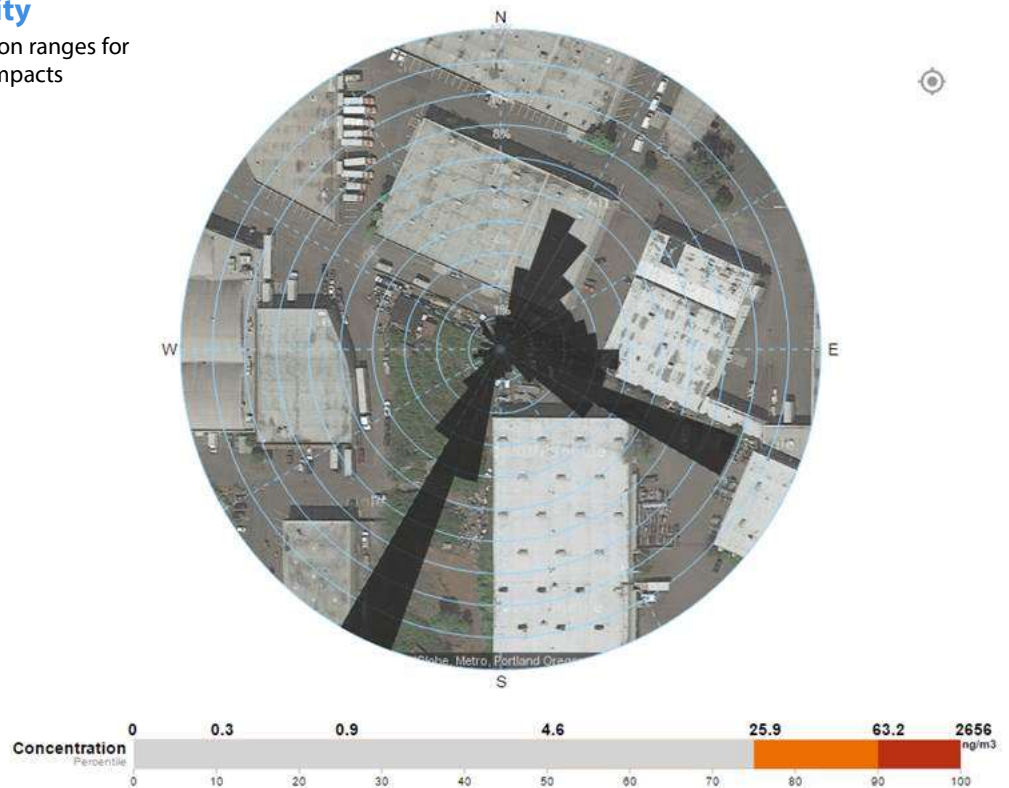
Benefits of ADAPT

- Graphical analysis reports generated in real time
- Results displayed with numerous research-quality graphics
- Data-driven support for monitoring the efficacy of control strategies
- Cost effective resource for minimizing data processing time
- Beneficial for air quality managers and environmental agencies

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