I&E INDUSTRIES & ENVIRONMENT

Managing Real Time and Fixed Lab Data At the Same Time

SAFER
GREENER
SMARTER

SGS

Agenda

The Benefits of Real Time Data

The Challenges of Real Time Data

Combining Real Time and Confirmatory Data in One Spot.

Delivering the most powerful data to your clients.

Federal Funding Sources

Inflation Reduction Act

$369B in Energy & Environment

- Community Investment and Environmental Justice
- $2.8B – 3 year Grants Envi & Climate Justice
- $3B + $1.1B for disadvantaged Communities to monitor and improve infrastructure
- $3B for air pollution at ports

Agriculture & Forestry

- Lower NOx & GHG &Methane

Bipartisan Infrastructure Bill

$550B in 5 yrs

- $50M EPA/State/City/Community to manage funds and contractors
- $50M Air Quality Monitoring

$55B in water infrastructure

$21B on pollution cleanup

American Rescue Plan

Approx. 50 Million dollars to EJ related projects.

Sensors

SENSOR SPECIFICATIONS[1]

PARAMETER	DISPLAY UNIT	MEASUREMENT RANGE	ACCURACY	SENSOR TYPE
Temperature	°F or °C	0 – 120°F	0.02°F	–
Humidity	%	0 – 100	0.04%	–
Pressure	hPa	950 – 1050 hPA	1 hPa	–
Particulates (PM1, PM2.5, PM10)	µg/m³	0 – 3000 µg/m3	4 µg/m³	Optical
Nitrogen Dioxide	ppb or µg/m³	0 – 5 ppm	10 ppb	Electrochemical
Sulphur Dioxide	ppb or µg/m³	0 – 5 ppm	10 ppb	Electrochemical
Ozone	ppb or µg/m³	0 – 5 ppm	6 ppb	Electrochemical
Carbon Dioxide	ppm	0 – 5000 ppm	40 ppb	Nondispersive Infrared
Carbon Monoxide	ppm	0 – 50 ppm	10 ppb	Electrochemical
Hydrogen Sulphide	ppb or µg/m³	0 – 20 ppm	50 ppb	Electrochemical
Nitric Oxide (NO)	ppb or µg/m³	0 – 5 ppm	10 ppb	Electrochemical
Hydrogen (H_2)	ppb or µg/m³	0 – 150 ppm	600 ppb	Electrochemical
Volatile Organic Compounds (VOC) eq. isobutylene	ppb or µg/m³	0 – 20 ppm	20 ppb	Photoionization Detector (10.6 eV)

1. Specifications are guaranteed provided that sensors are calibrated per manufacturer's recommendations.

Field Calibration

- Sensor drift can be a concern when monitoring for a long period
- Field calibrations and bump checks are critical to ensure accurate and defensible data

Managing Real Time Data
Client Challenge: What do we do with all this stuff?

- Real Time Data has created new challenges for Data Managers
- The lab is generating thousands of data points per hour
- Most clients are confirming real time data with fixed lab confirmation samples
- We are also doing field calibrations and bump checks – this QC data is important at well.
- What do we do with all this DATA?

Cloud Portal

To view your online data

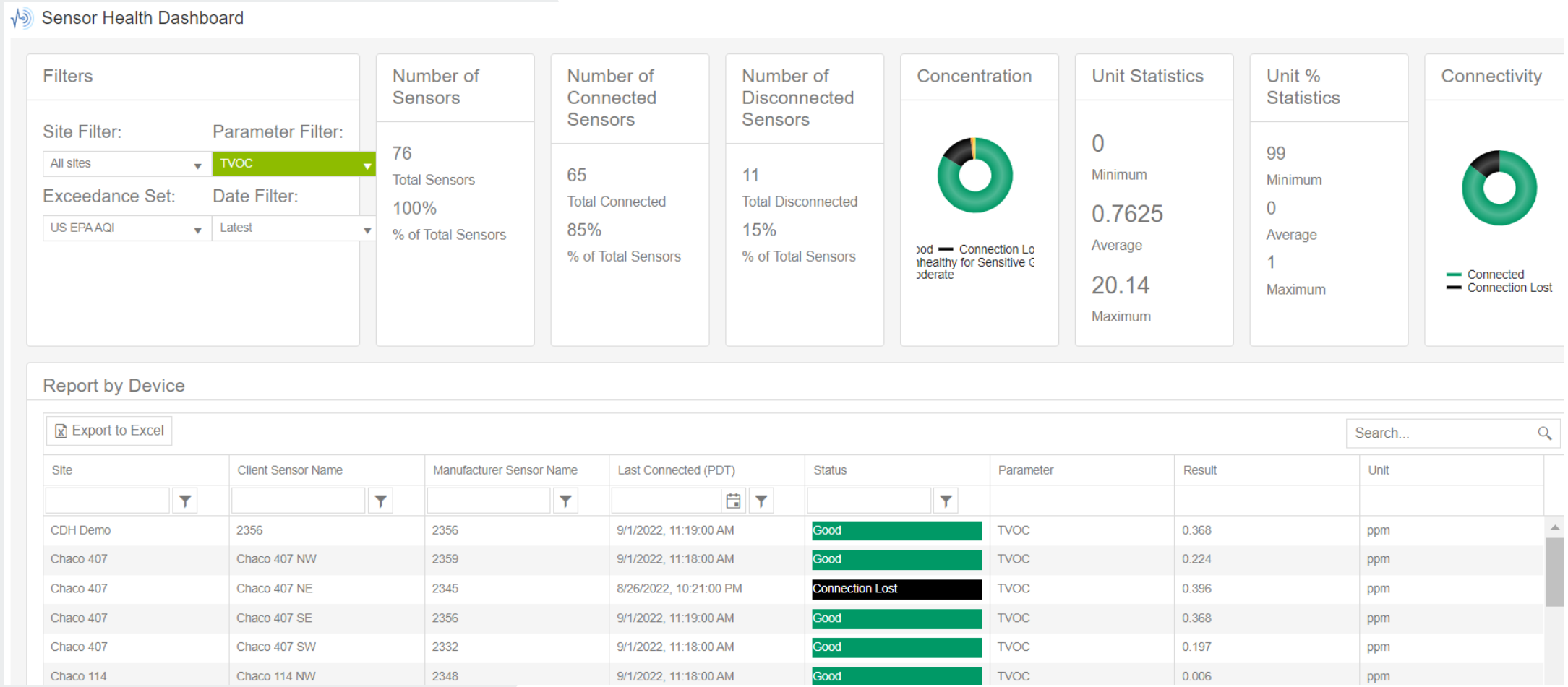
Run reports

Look at graphs

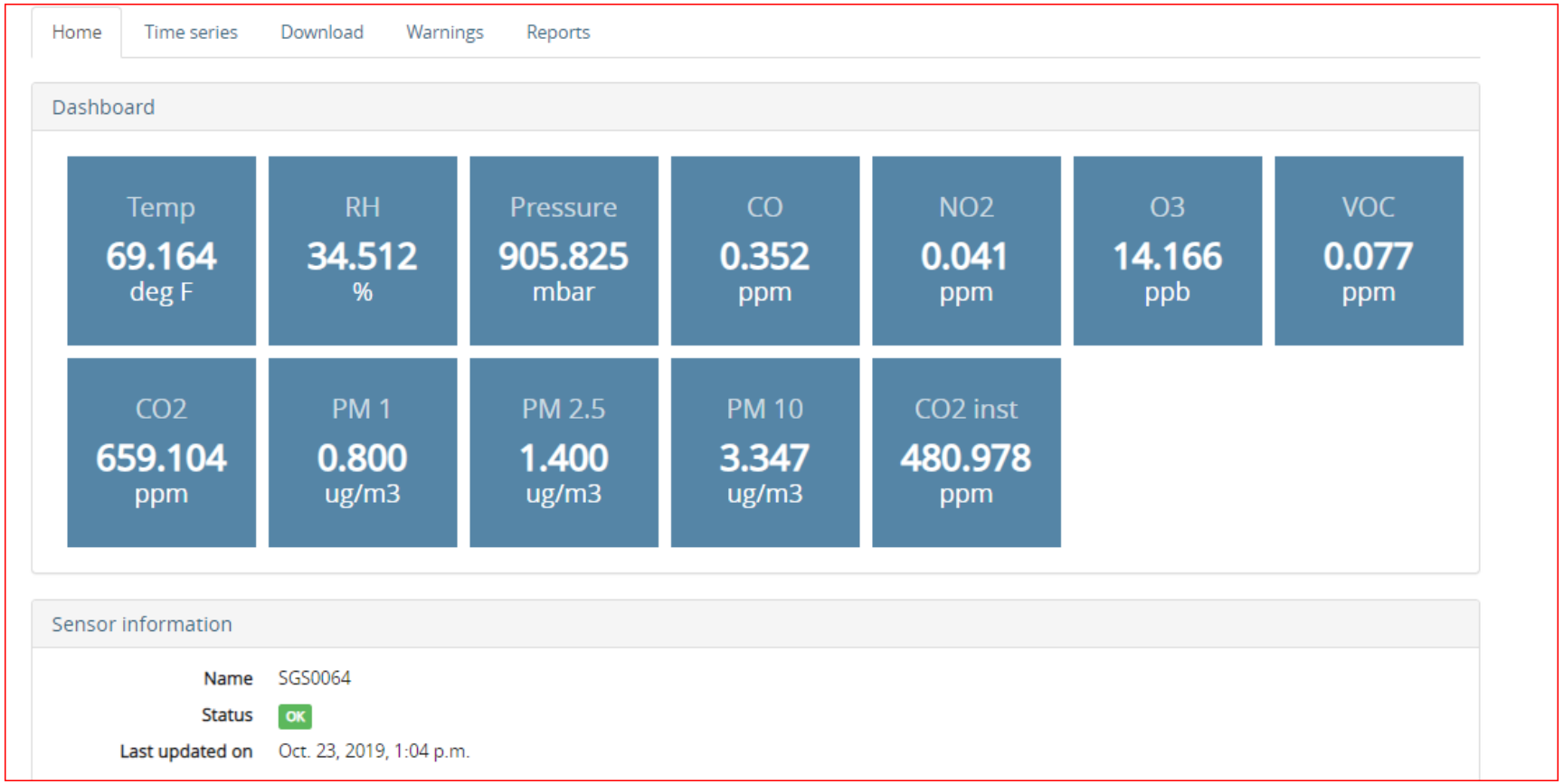
View alerts

Communicate with your field team

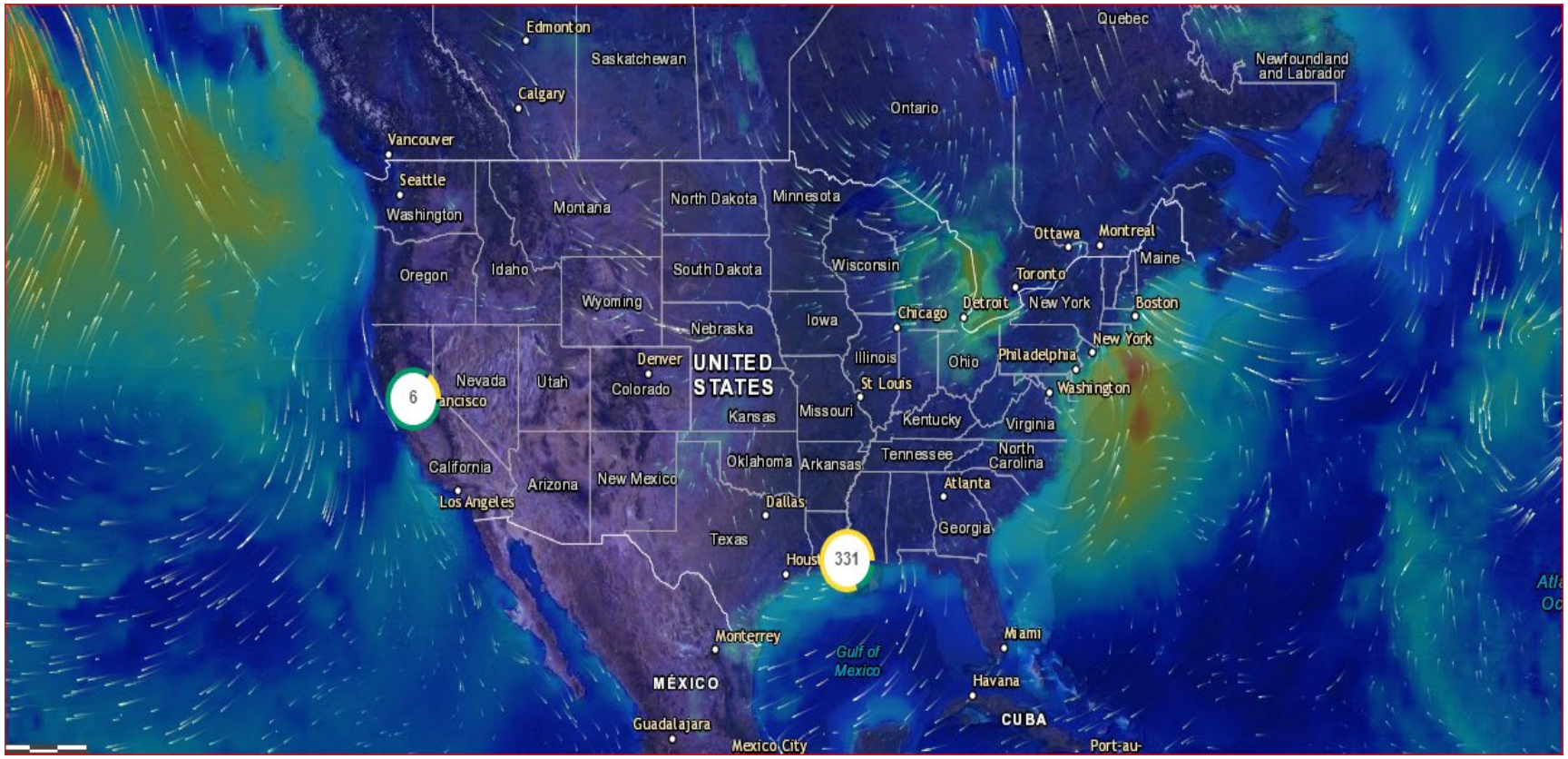
View Your Data Online



User Interface



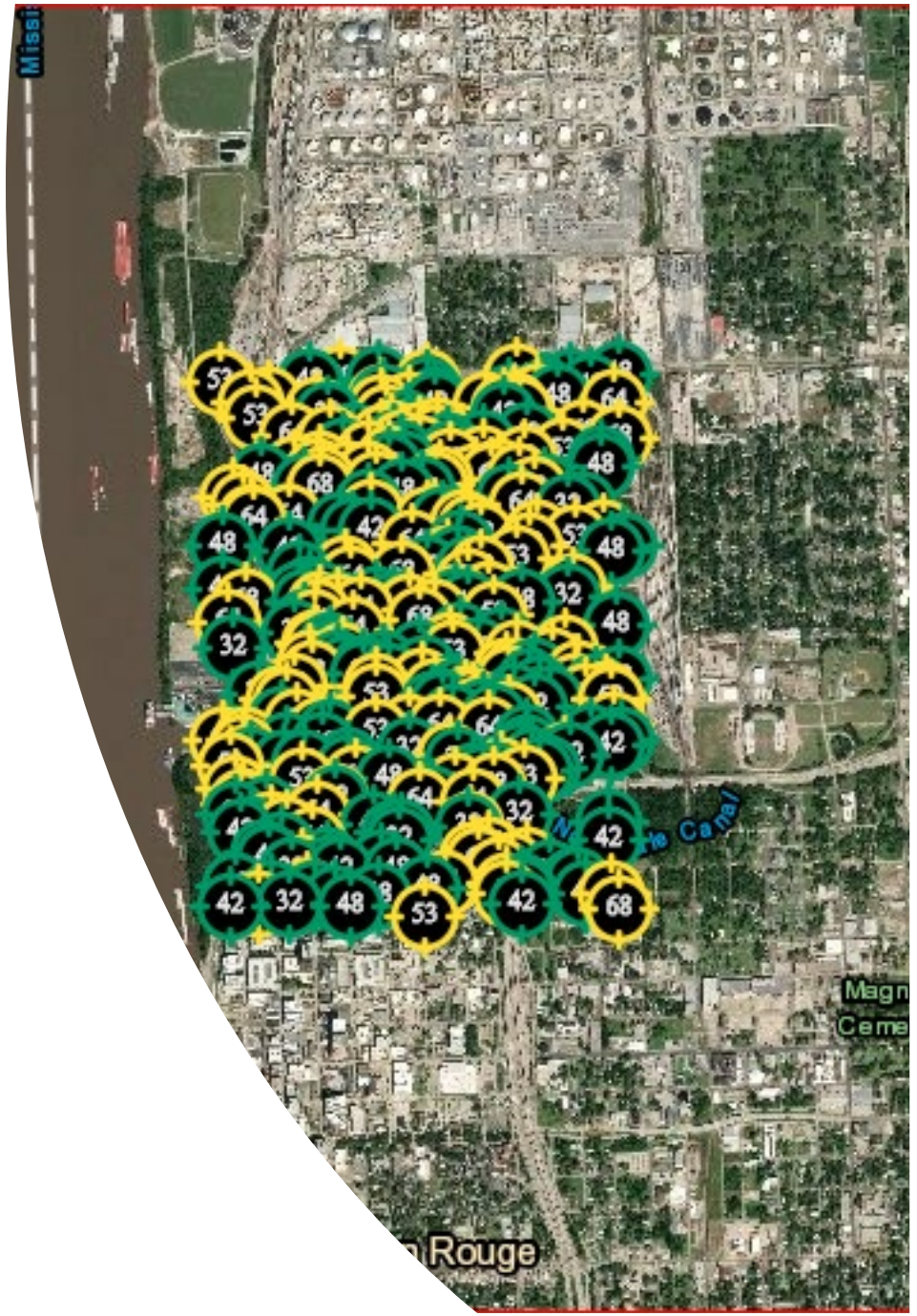
Wind Direction and Speed Overlay



Smoke Map Overlay

Cluster View

- Monitor data from 1 unit to thousands of units
- Green, Yellow, Red alerting feature
- Instantly pick out troubled sensors
- All data viewable on any connected phone, tablet and PC



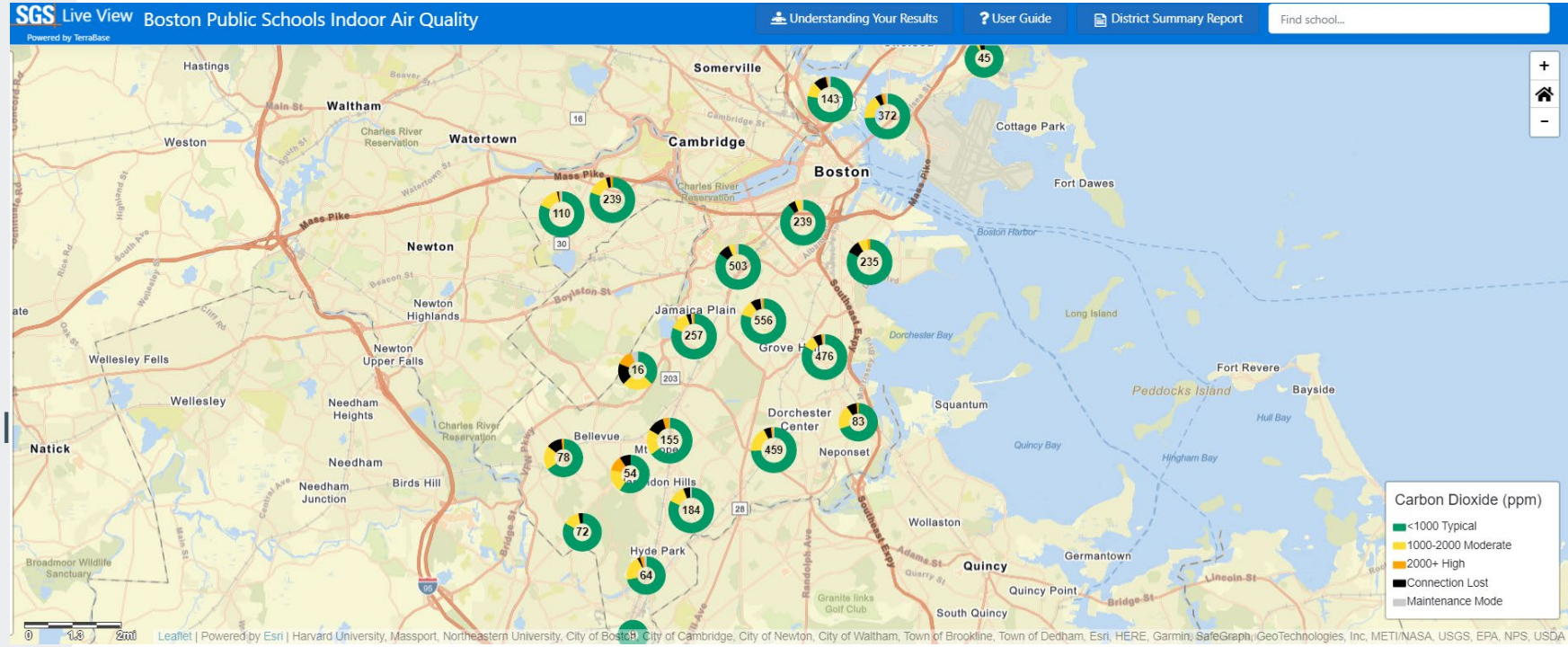
Case Studies

California Wildfires

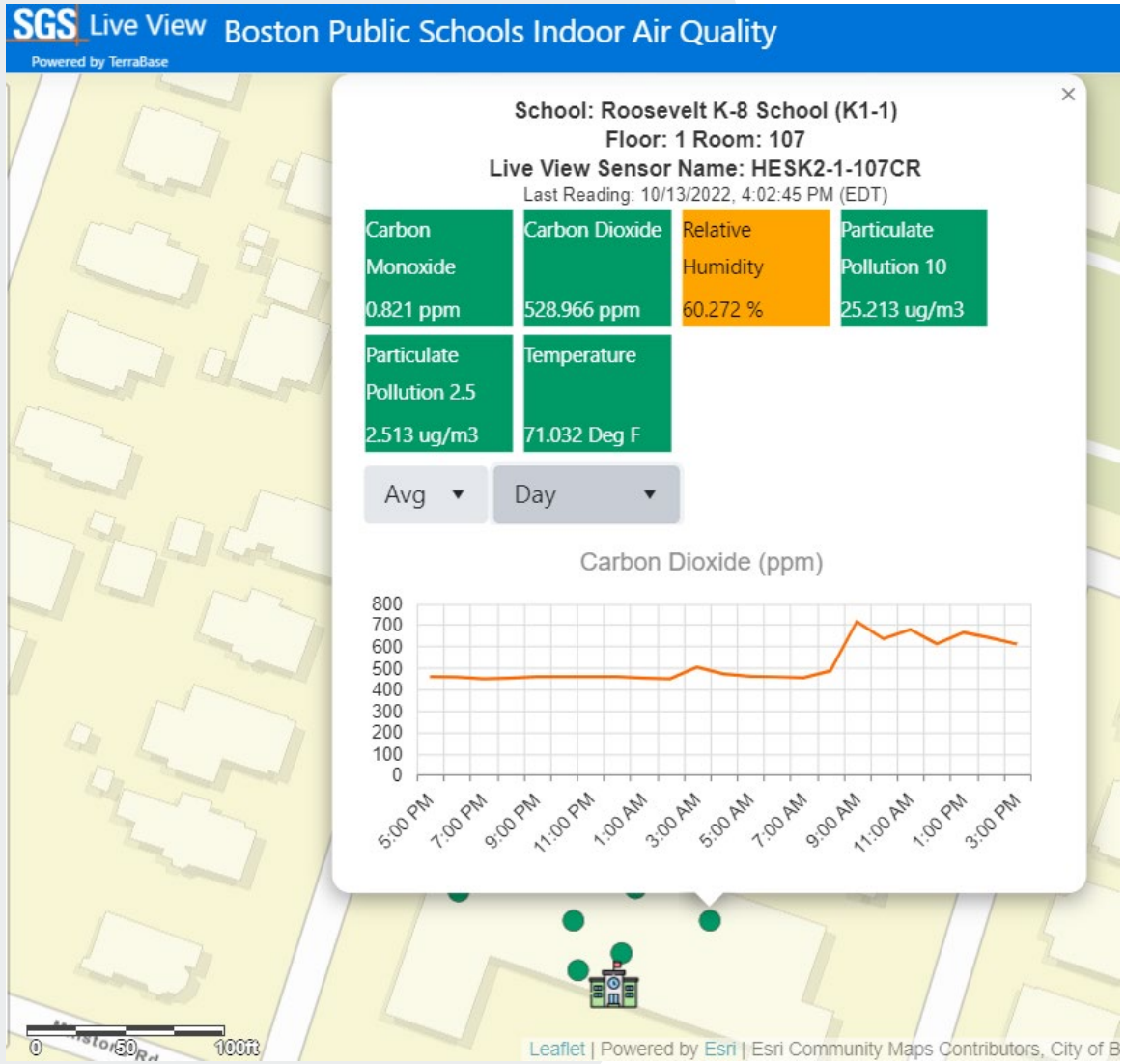
- Sampling post wildfire.
- Project length: 6 months
- Locations: Perimeter outdoor and indoor.
- 14 monitors
- Sensors: CO2, NO2 & PM 2.5 & 10.
- Outdoor units in protective cases.
- Plug-in power & external battery
- Connectivity: School Wi-Fi Network

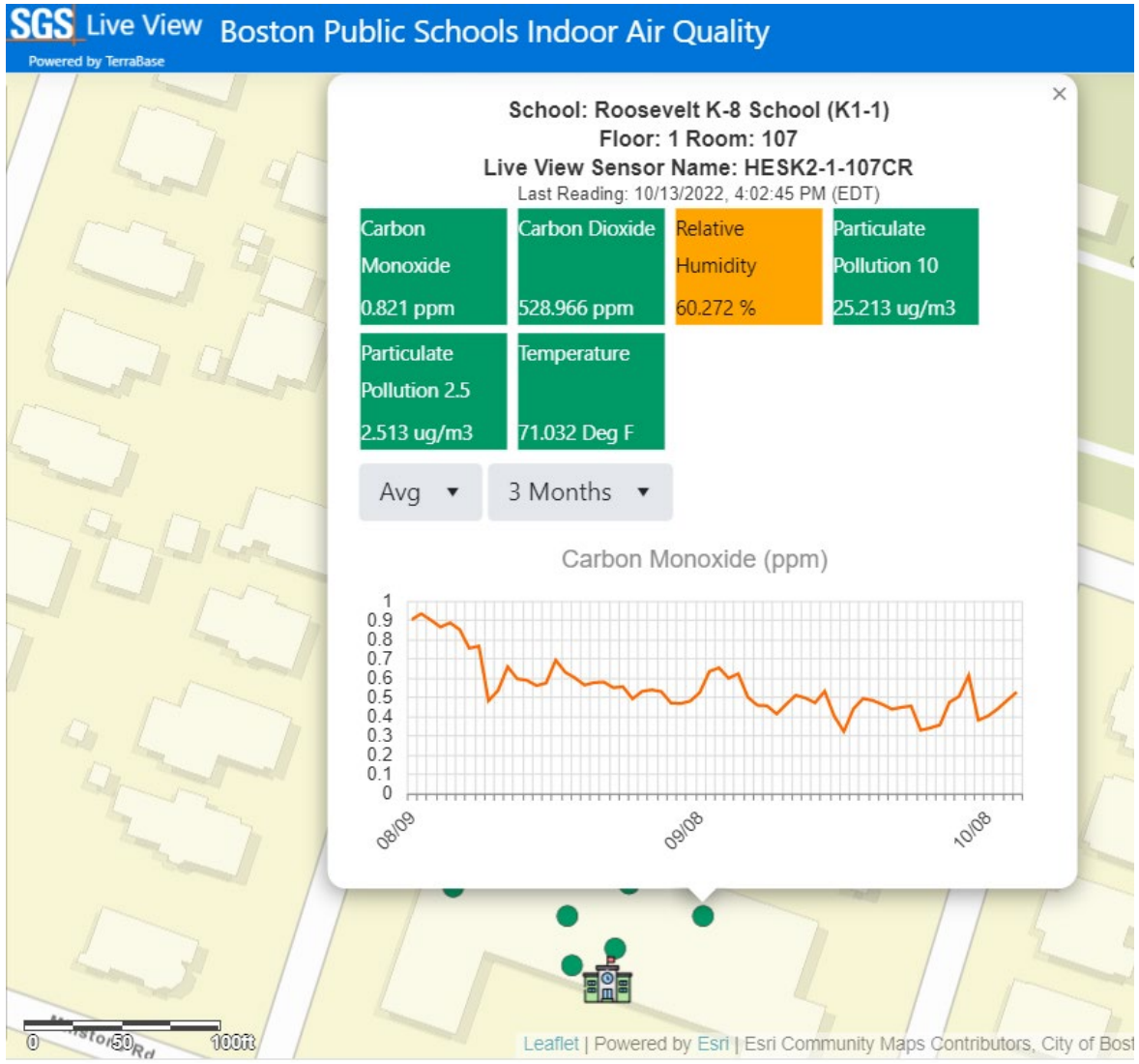
Boston Public Schools Indoor Air Monitoring

- ~4,500 indoor air and ambient air units
- Publicly Available Data
- IAQ Parameters:
  - Carbon Dioxide (CO2)
  - Carbon Monoxide (CO)
  - Airborne particulates - Total (PM10)
  - Airborne Particulates - Respirable (PM2.5)
  - Relative Humidity (RH%)
  - TO-15 Confirmatory Sampling for VOC
- Boston Public Schools Indoor Air Quality



Boston Public Schools Indoor Air Monitoring





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Thank You!

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