

The banner features a green and blue background with stylized mountains, a sun, and an airplane flying over a globe. The text is white and blue.

ICAO Symposium on Non-CO₂ Aviation Emissions

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Montréal, Canada



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ELLONA

Speaker

Session 4: Partnerships to act on (Part I) **Research and
Monitoring**



ellona

An all-in-one environmental service
for real-time monitoring of emissions

Control • Identification • Alert • Regulation • Remediation

Pierre Quintard, business development manager

Our ambition

Optimizing safety and performance to enhance lives and protect the environment

Our commitment...

- Monitor the planet's pulse by collecting actionable environmental data.
- Improve lives by tracking ecosystems and personal health.
- Reduce the environmental footprint of industrial operations and urban areas.
- Promote safety, quality, and sustainability for communities.



Ellona's expertise in a nutshell

Acting on Situational Intelligence

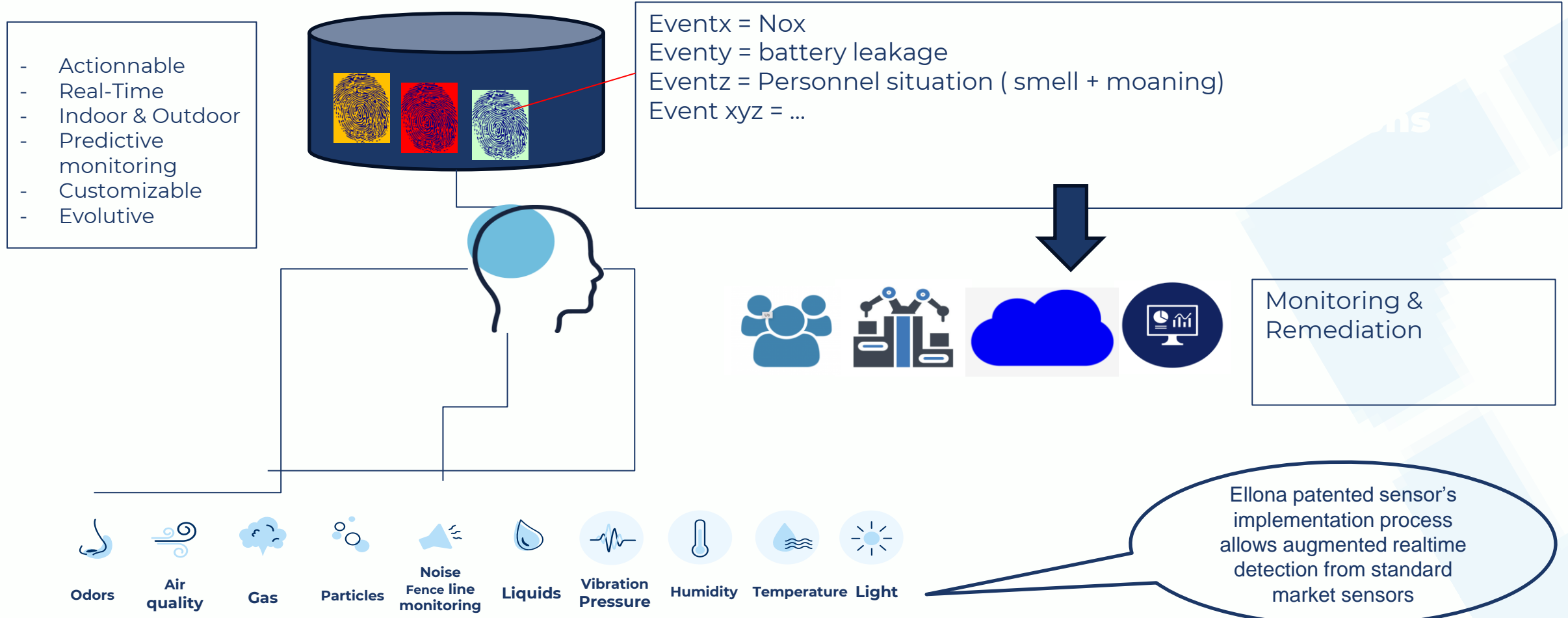
A unique fusion of expertise

- ✓ Identification of environmental factors, including odors and particles, and measurement of gases, light, and sounds
- ✓ Algorithms and signatures based on intelligent miniature sensors
- ✓ Proficiency in Hardware and Software design
- ✓ Application of data science for signature recognition tailored to our customers' specific business needs

18 Patents

Ellona's Technology in a nutshell

ELLONA : Understanding a situation through a multisensorial fingerprint & an AI driven evolutive databank



- Odors
- Air quality
- Gas
- Particles
- Noise Fence line monitoring
- Liquids
- Vibration Pressure
- Humidity
- Temperature
- Light

Airport

24/01/2024



Situational insights via multisensory data and AI

1

Real-time multi-variate analysis

Multi-variate data, real-time analysis, environmental intelligence, 10-second updates, comprehensive insights, effective actions...

2

Identification and triangulation of footprints and sources

Source triangulation, AI algorithms, advanced databases, cross-referencing...

3

Dynamic emission modeling

Advanced dispersion software, dynamic simulation, impact points visualization...

4

Smart alerts and customized notifications

5

Automatic triggering of remediation systems

6

Integration of human knowledge



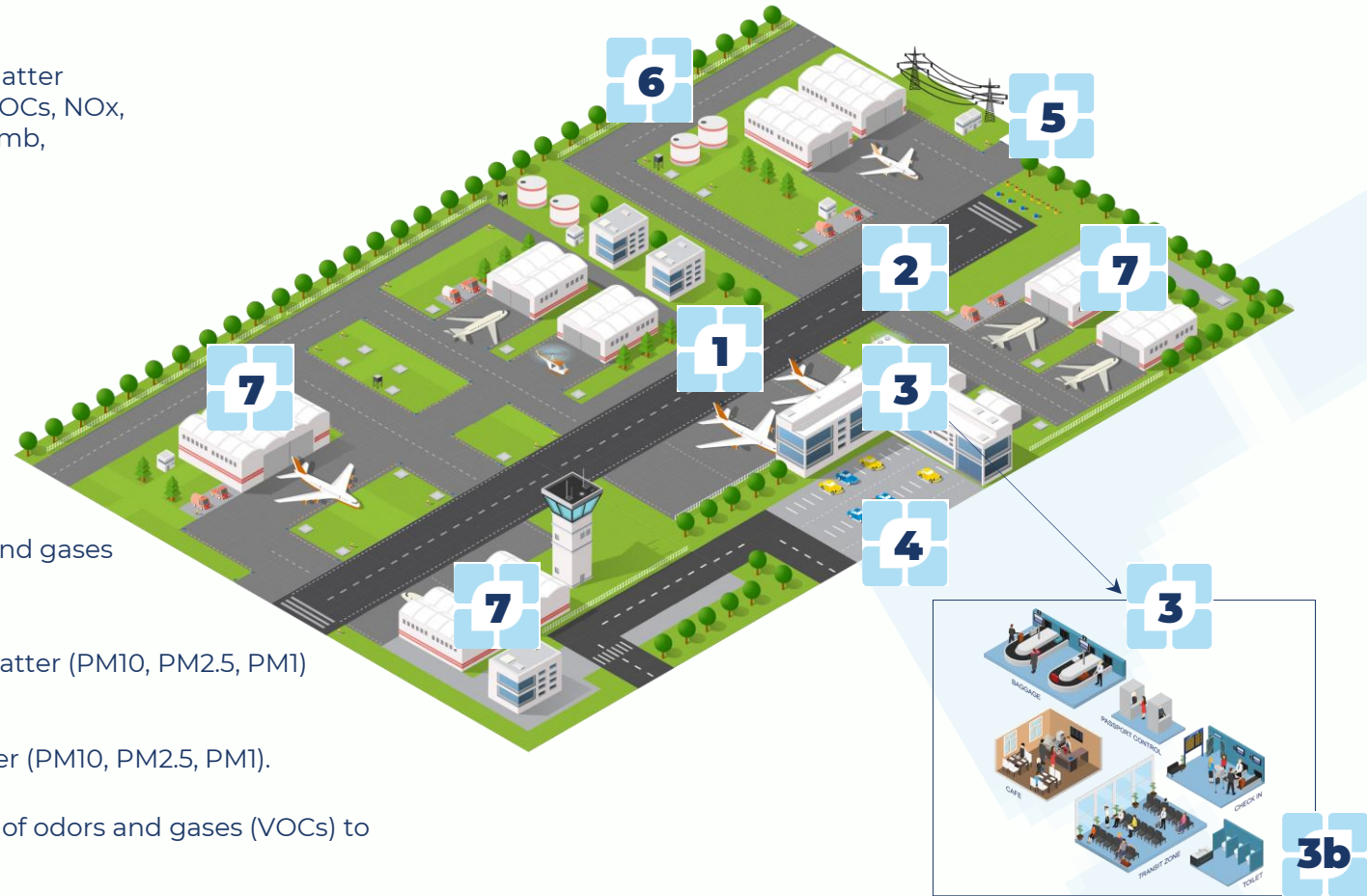
What we do today for the aviation sector

Control > Identification > Alert > Regulation > Remediation

- ▶ Enhance environmental and safety risk management
- ▶ Assist constructors in testing and optimizing aircraft performance
- ▶ Ensure safety for both indoor and outdoor infrastructure
- ▶ Support the transition to Green Aviation.

Where are our actions making an impact ?

- 1 **ON AND AROUND THE RUNWAYS:** monitoring of noise, particulate matter (PM10, PM2.5, PM1), and gases particularly related to aircraft de-icing (VOCs, NOx, CO, SO2, O3) and kerosene throughout the entire LTO cycle (takeoff, climb, landing, taxiing).
- 2 **RUNWAY VEHICLE TRAFFIC:** monitoring of particulate matter (PM10, PM2.5, PM1) and gases (NO2, VOCs, CO, O3) related to runway vehicle traffic (GPU, ACU, baggage belts, towing vehicles, etc.).
- 3 **COMMERCIAL AND PASSAGE AREAS (INDOOR):** monitoring of temperature, humidity, noise, particulate matter (PM10, PM2.5, PM1), odors, and gases (VOCs, CO2) indicating levels of comfort and indoor confinement.
- 3b **TOILETS:** monitoring of particulate matter (PM10, PM2.5, PM1), odors, and gases (NH3, H2S, VOCs, CO2) indicating levels of cleanliness and occupancy.
- 4 **ROAD TRAFFIC AROUND THE AIRPORT:** monitoring of particulate matter (PM10, PM2.5, PM1) and gases (NO2, VOCs, CO, O3).
- 5 **POWER PLANTS:** monitoring of gases (NO2, CO) and particulate matter (PM10, PM2.5, PM1).
- 6 **HYDROCARBON STORAGE AND DISTRIBUTION AREAS:** monitoring of odors and gases (VOCs) to detect potential leaks.
- 7 **MAINTENANCE WORKSHOPS:** monitoring of noise, gases (particularly VOCs), and particulate matter (PM10, PM2.5, PM1).
- 8 **ENGINE TESTING AREAS:** monitoring of gases (VOCs, NOx, CO, CO2, SO2, O3), odors, and particulate matter (PM10, PM2.5, PM1).





WT1 / WT1 LITE

Outdoor
environment solutions



Odors



Air quality



Gas



Particles



Noise



Temperature



Humidity



Vibration



Pressure



Light

POD2

Indoor
environment solutions





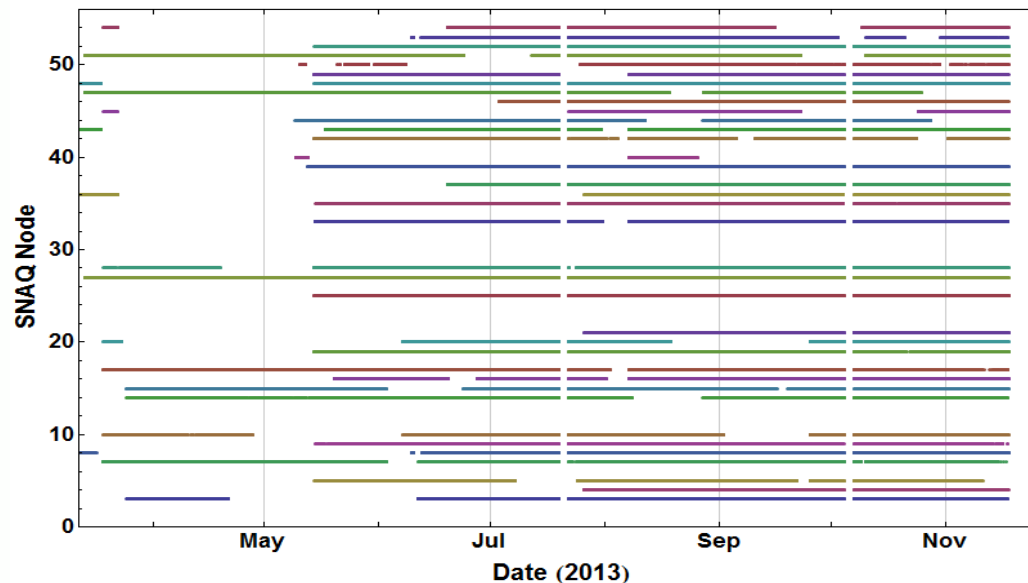
HEATHROW AIRPORT - UK

Real-time monitoring for air quality, noise, and odour levels

Heathrow Airport (LHR) Sensor Network System



Data transmitted

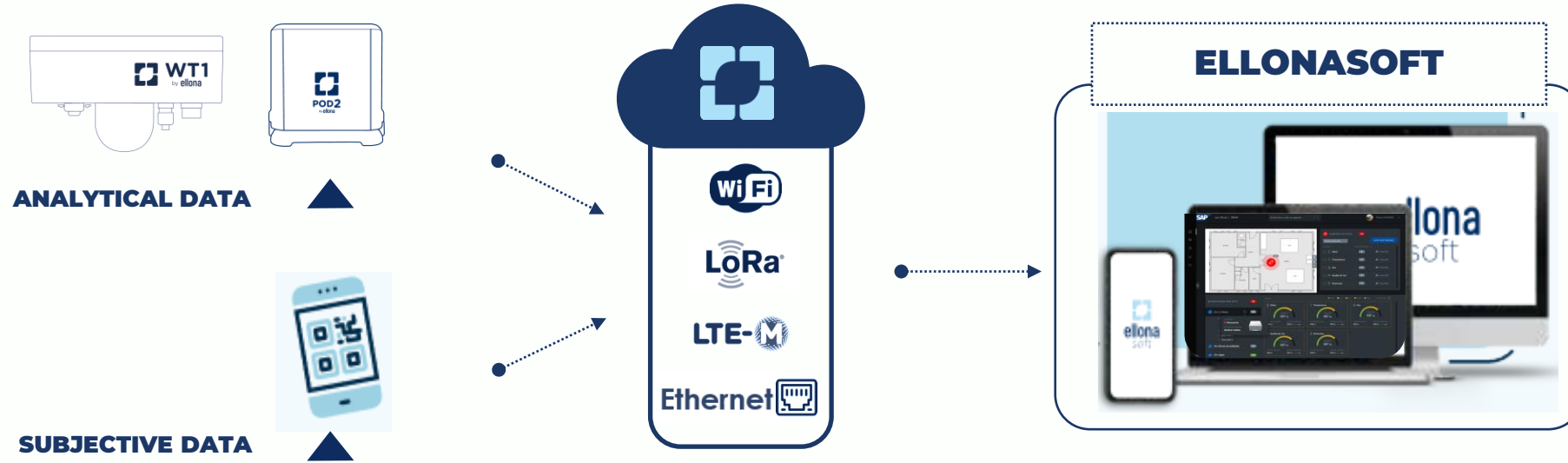


- **Real-Time Data** Transfer via GPRS
- Monitoring of **NO, NO₂, CO, SO₂, O₃, CO₂, VOCs, Particles (PM), Odors, and Noise**
- **Software Calibration** for Sensor Network
- Deployment of **40 Sensor Nodes** across Airside and Landside Areas
- Recording and Management of **over 9 Billion** Data Records



(Electrochemical,
NDIR, PID, Optical)

The Ellonsoft platform



DATA COLLECTION

- Pollutants
- Nuisances
- Perceptions

TREATMENT AND STORAGE

- Principal component analysis (PCA)
- Advanced data processing
- Quantification
- IDs

DATA ACCESS AND VISUALIZATION

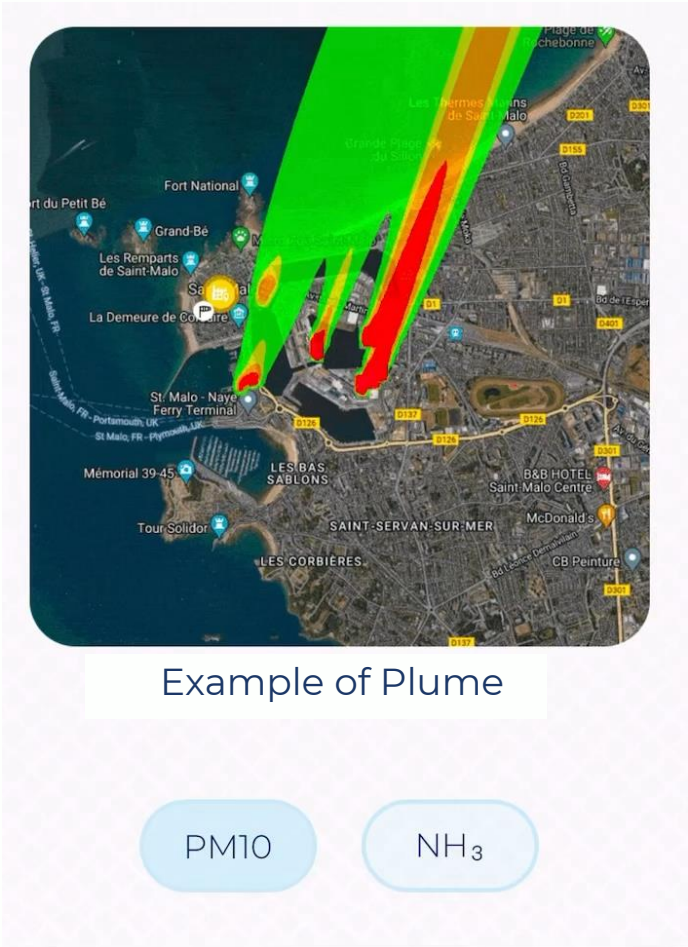
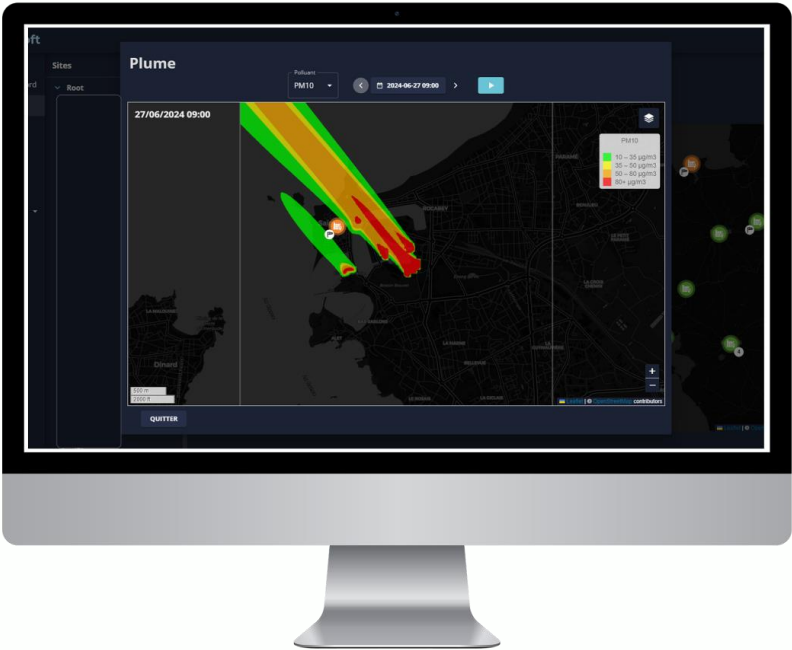
- Secure customer account
- Custom setting
- SaaS mode
- 24/7 access via API
- Automatic process activation

ELLONASOFT

Data visualization and understanding

Examples

Dispersion Plumes

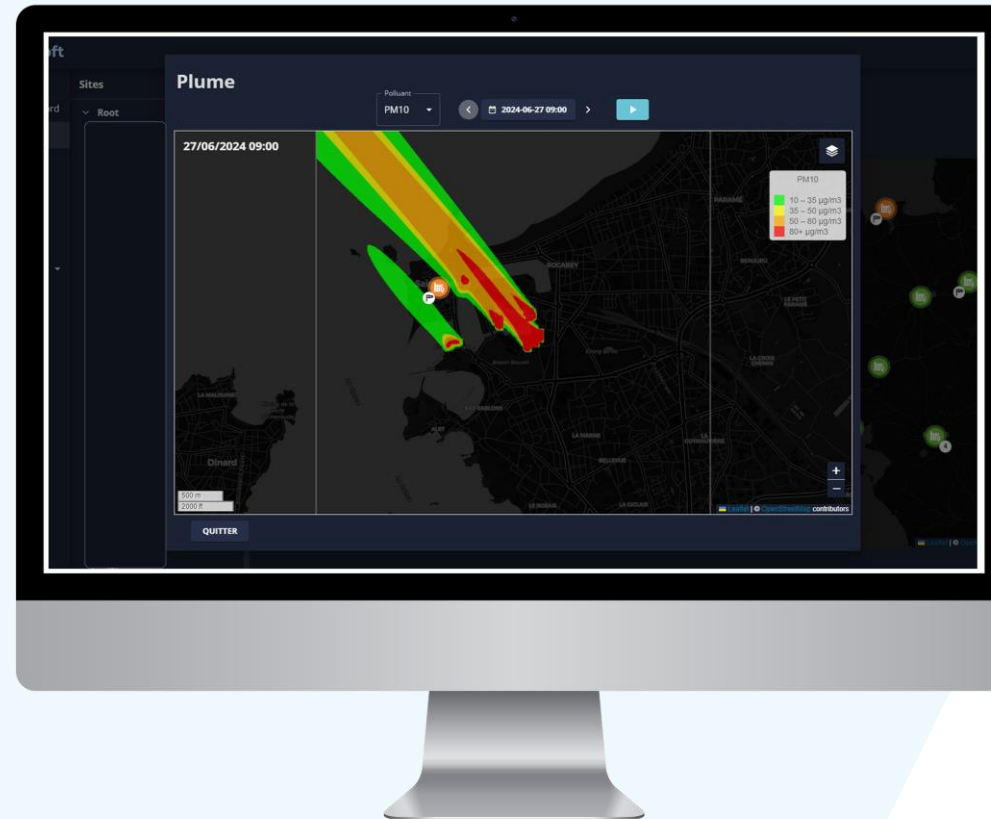


The EllonaSoft Platform



Environmental Intelligence Platform

- ✓ Device location
- ✓ Site administration
- ✓ Custom alert threshold settings
- ✓ Alert management
- ✓ Detailed real-time monitoring
- ✓ Historical data
- ✓ Dispersion modeling
- ✓ Source identification
- ✓ Data export
- ✓ Advanced automatic reports





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Thank You

