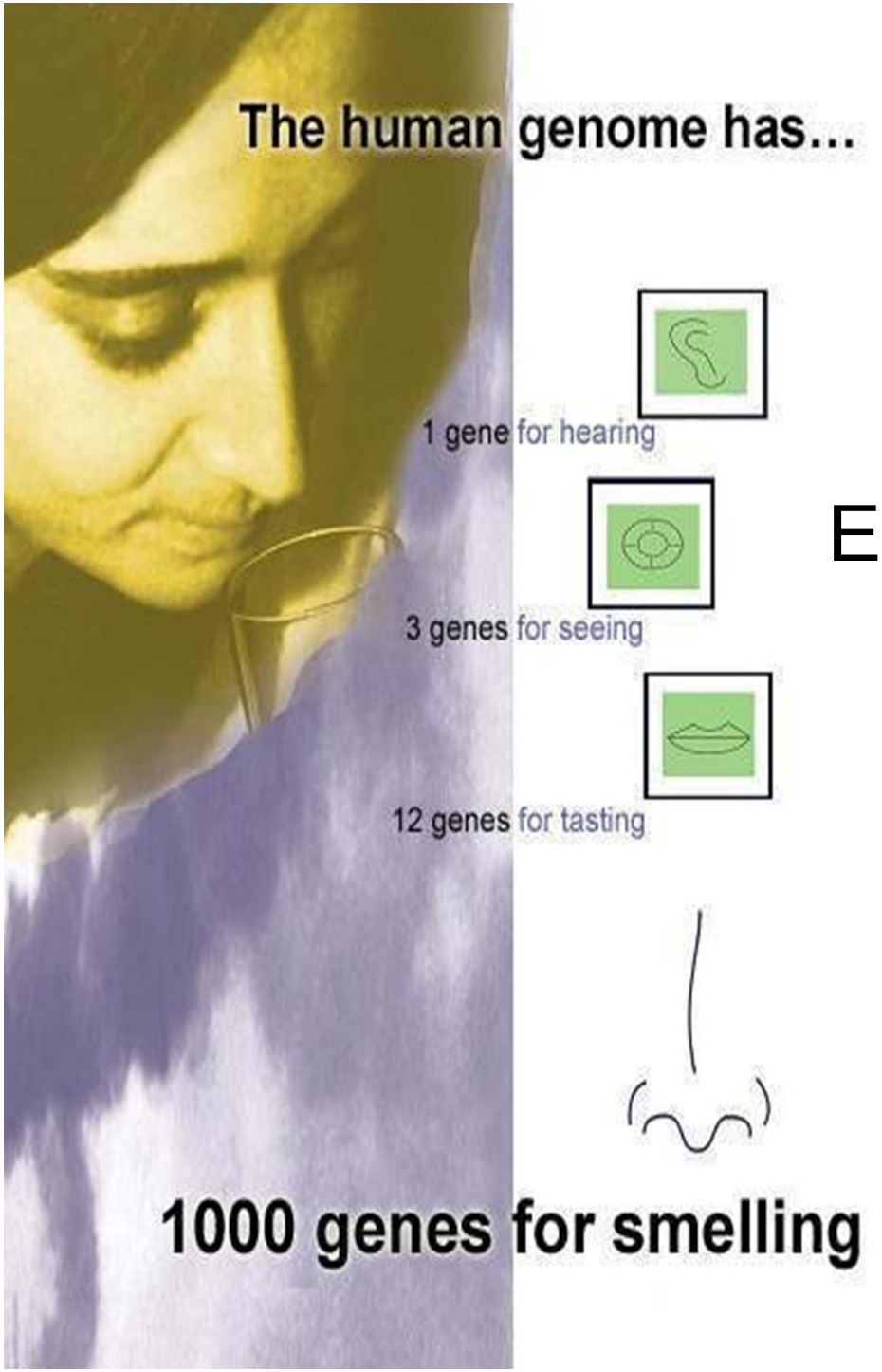

OdoWatch

Real-time Odor Emissions and Impact Monitoring Using Electronic Noses

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OdoWatch

Agenda

- Introduction
- Who is Odotech?
- What is OdoWatch?
- How does it work ?
- Features and Benefits
- Project Examples
- Questions

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Odotech – US, Canada & France

- **Provide the best tools to understand odors and to save $ managing environmental odors**

- **Sampling**
- **Measurement**
- **Dispersion**
- **Monitoring**

Odotech
Odor Experts

An environmental problem…

- **Odours:**
  - lower citizens' quality of life
  - are the main perception of pollution (with dust and noise)
  - 70% of air quality complaints
  - are a growing concern as cities encroach on plants

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Odors – Social and Human Impact

Direct Impact

- Interruption of activities
- Discomfort and nuisance
- Loss of quality of life
- Loss of enjoyment of premises

Concerns

- Health risks
- Loss of property value
- Fear of more odor episodes

Psychosocial Impact

- Stress
- Frustration and anger
- Growing irritation as odor continues
- Greater olfactory sensitivity
- Loss of trust in those responsible
- Feeling powerless and disenfranchised

Health

- Sleep disturbances
- Loss of appetite
- Headaches, cough, asthma, vomiting
- Interference with reading and concentration

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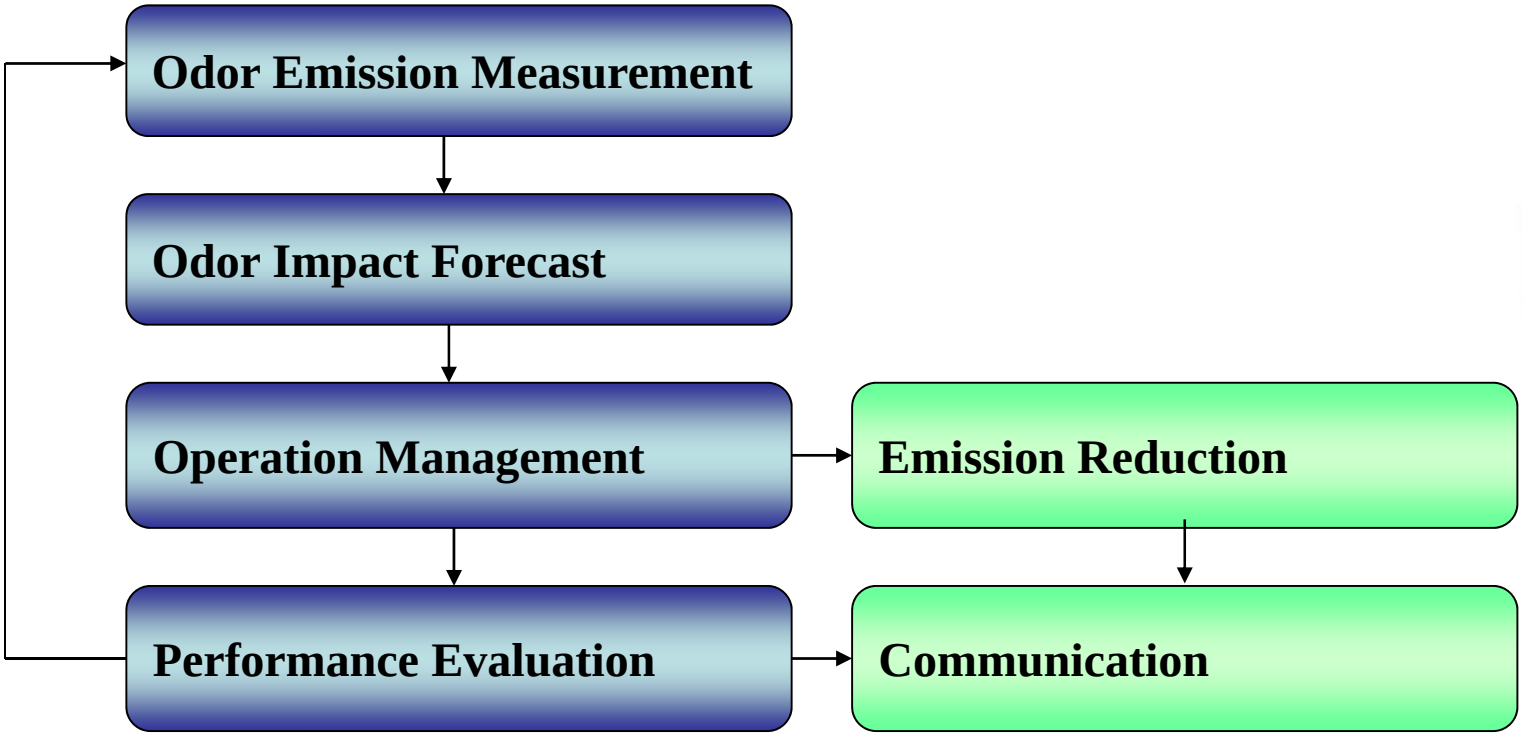
Odor management



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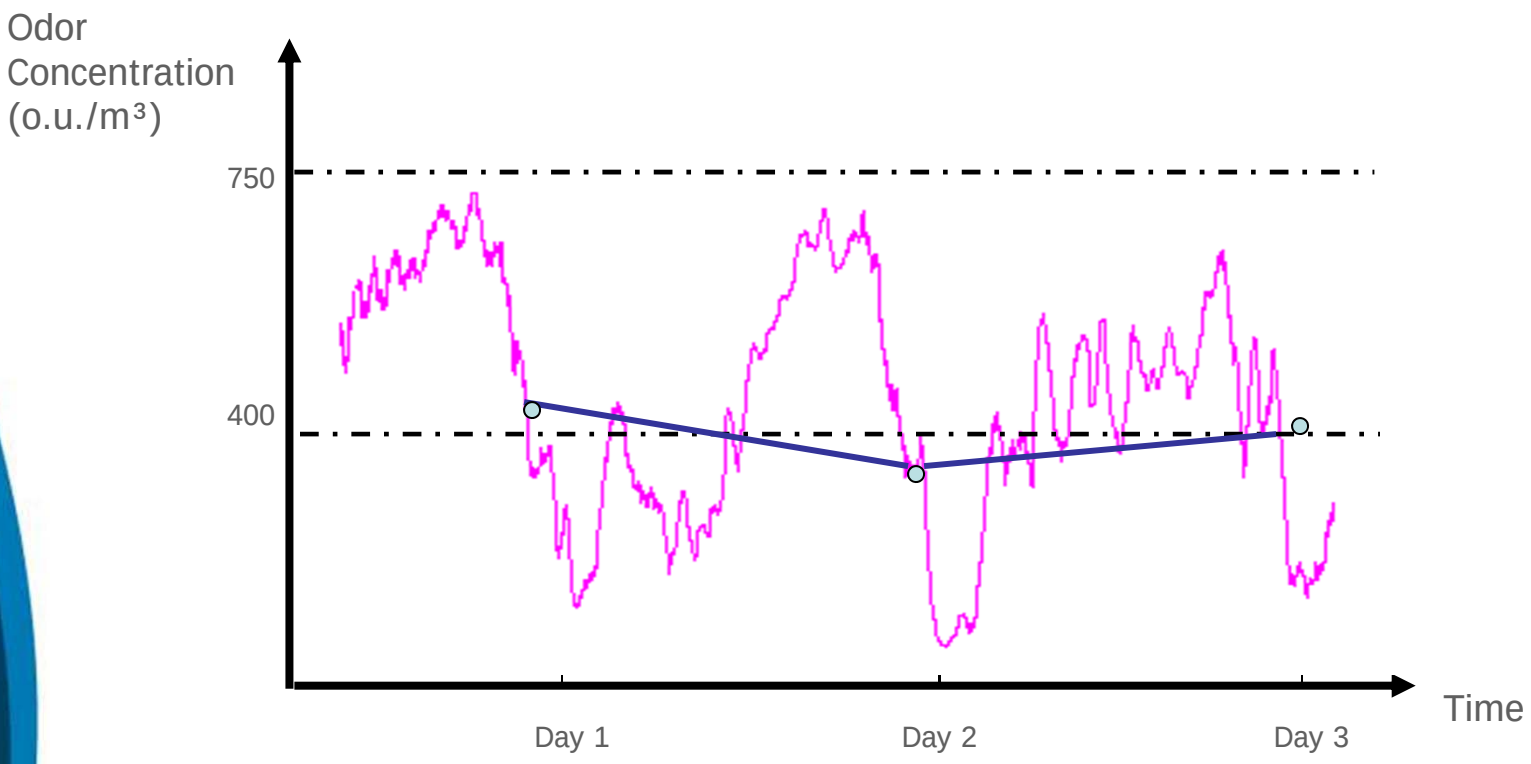
Tracking Real-time Odors



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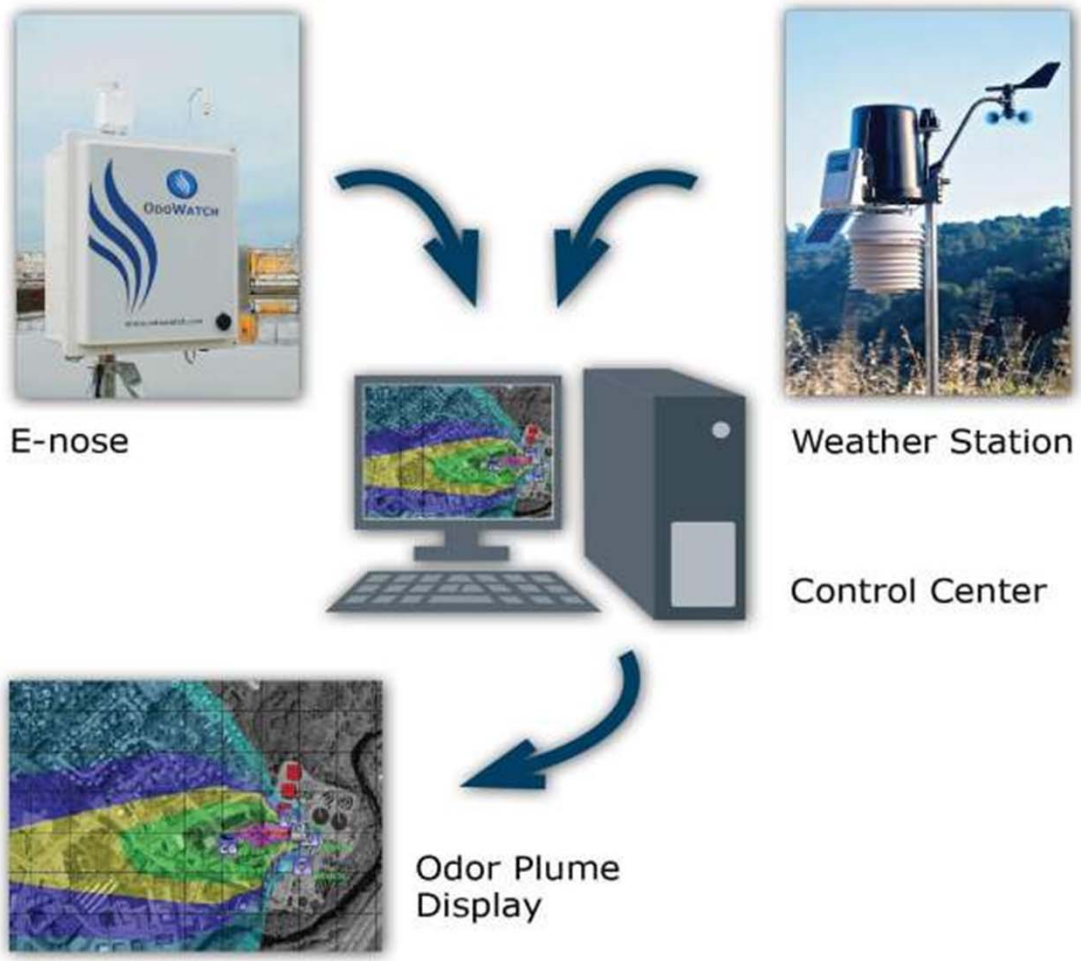
The Odor Monitoring & Management Solution

What is OdoWatch®?



OdoWatch® Be the first one to know !

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Inside The eNose

Sensor matrix is composed of…

•16 MOS (Metal-oxide semiconductor) sensors
•Specially designed stainless steel measurement chamber
•Air sample pump
•Cooling fan
•Wireless RF communications

Key features of MOS sensor:
• Wide spectrum of responses (non-specific)
• Sensitive
• Durable
• Easy to replace
• Inexpensive

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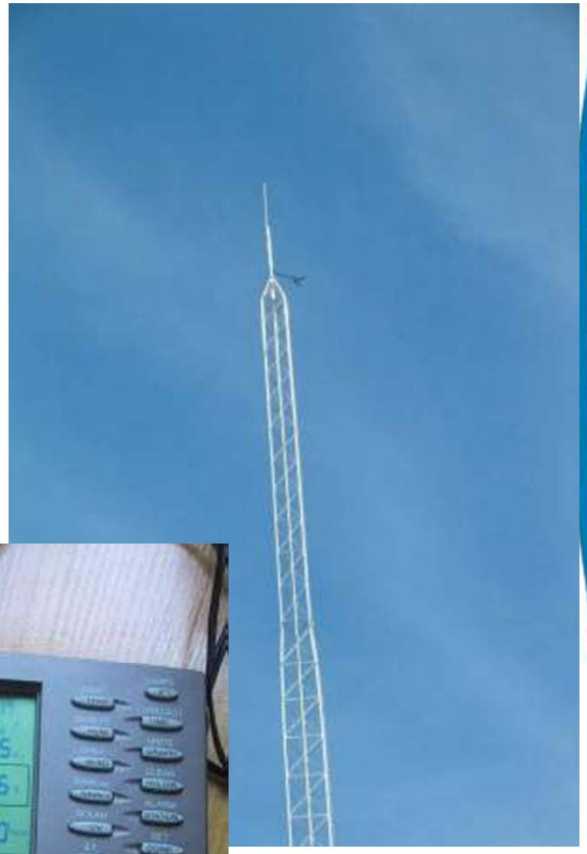
The Weather Station

The system uses a weather station installed on the site to measure:

- Temperature
- Humidity
- Atmospheric pressure
- Solar radiation (used to determine mixing height and stability class)
- Wind direction
- Wind speed



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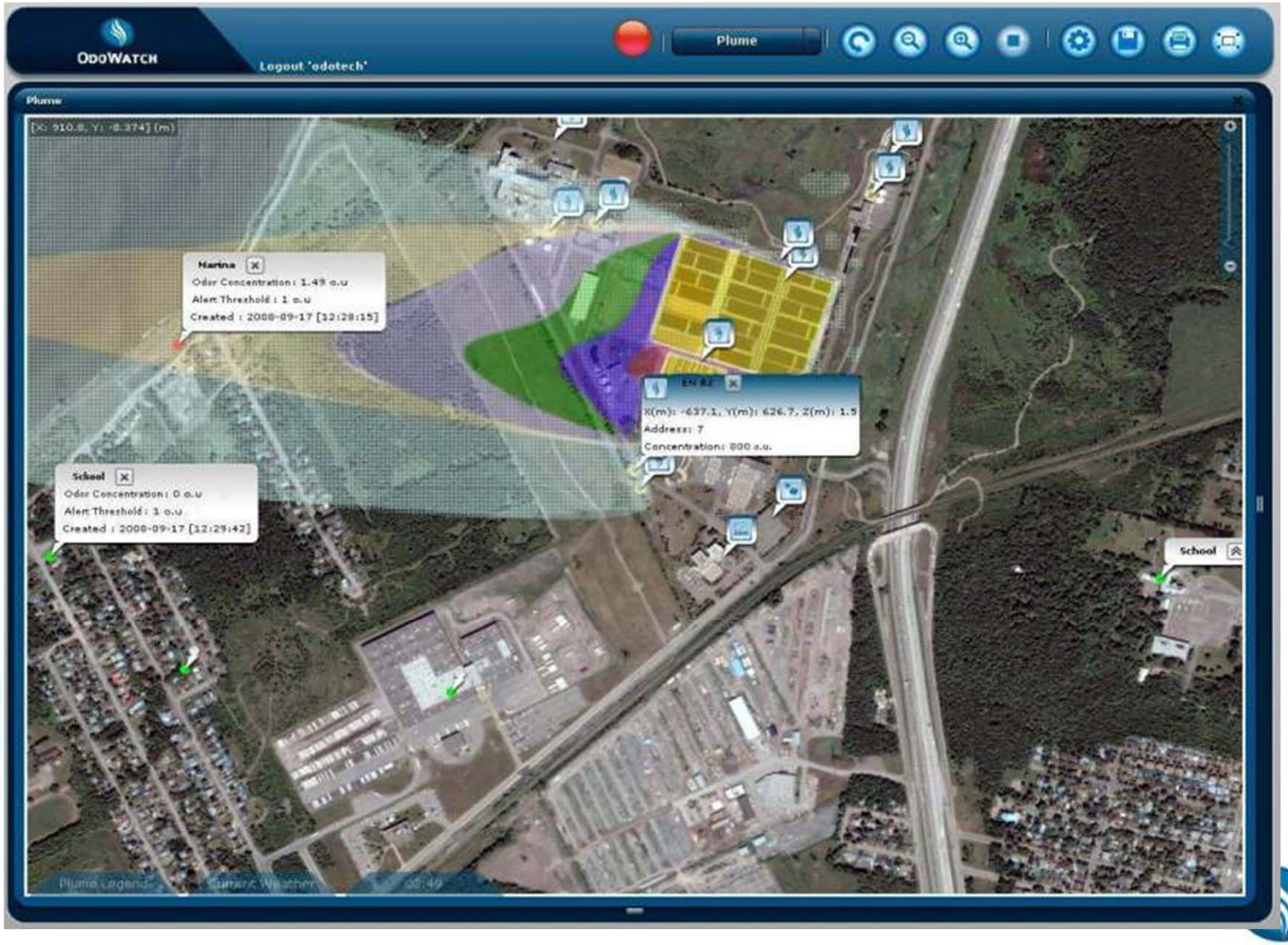
Display Example



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System Display – 4 Views

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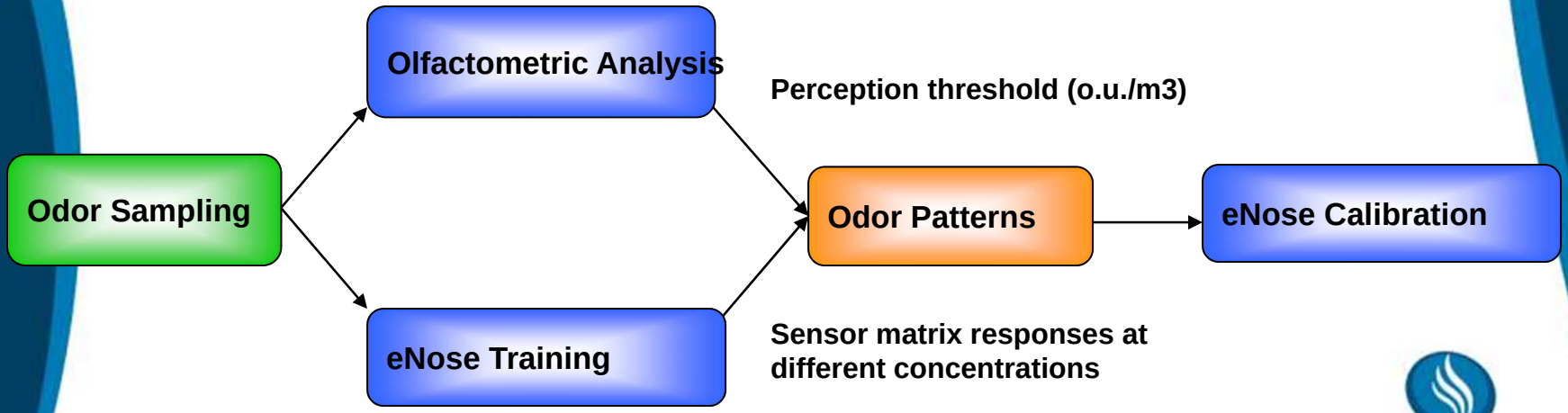
eNose Calibration

STANDARDS

EN 13725

ASTM E679-91



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Benefits

Continuous Measurement and Monitoring System

- **Manage odors**
  - odor snapshot anytime
  - Weather and odor archives
- **Respond quickly**
  - odor alerts
- **Cut costs**
  - Abatement tuning (case study)
  - Report data
  - Avoid sampling campaigns
- **Objectivize**
  - Discussion base with odor committees
  - Permit application
- **Highlight your corporate responsibility**

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Where are the Savings?

- Right-sizing plant & equipment
- Optimizing chemical use
- Avoiding unnecessary controls
- Putting the capital investment where it belongs
- Choosing the right method to control specific odors

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Example Project
Pima County, Arizona
Roger Road WRF

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Examples of US Wastewater Treatment Plant Installations:

- Clark County - Las Vegas, NV
- Pima County – Tucson, AZ
- Hampton Roads S.D. - Virginia Beach, VA

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Roger Road Water Reclamation Facility
First US Installation

Tucson's largest wastewater treatment plant treats 41 million gallons per day of wastewater. It has 6 primary and 9 secondary clarifiers, and 2 biotowers.

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ODOWATCH

Roger Road

OdoWatch

Roger Road WRF

- Weather Station and eNose

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Roger Road Odor Plumes

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Clark County Nevada

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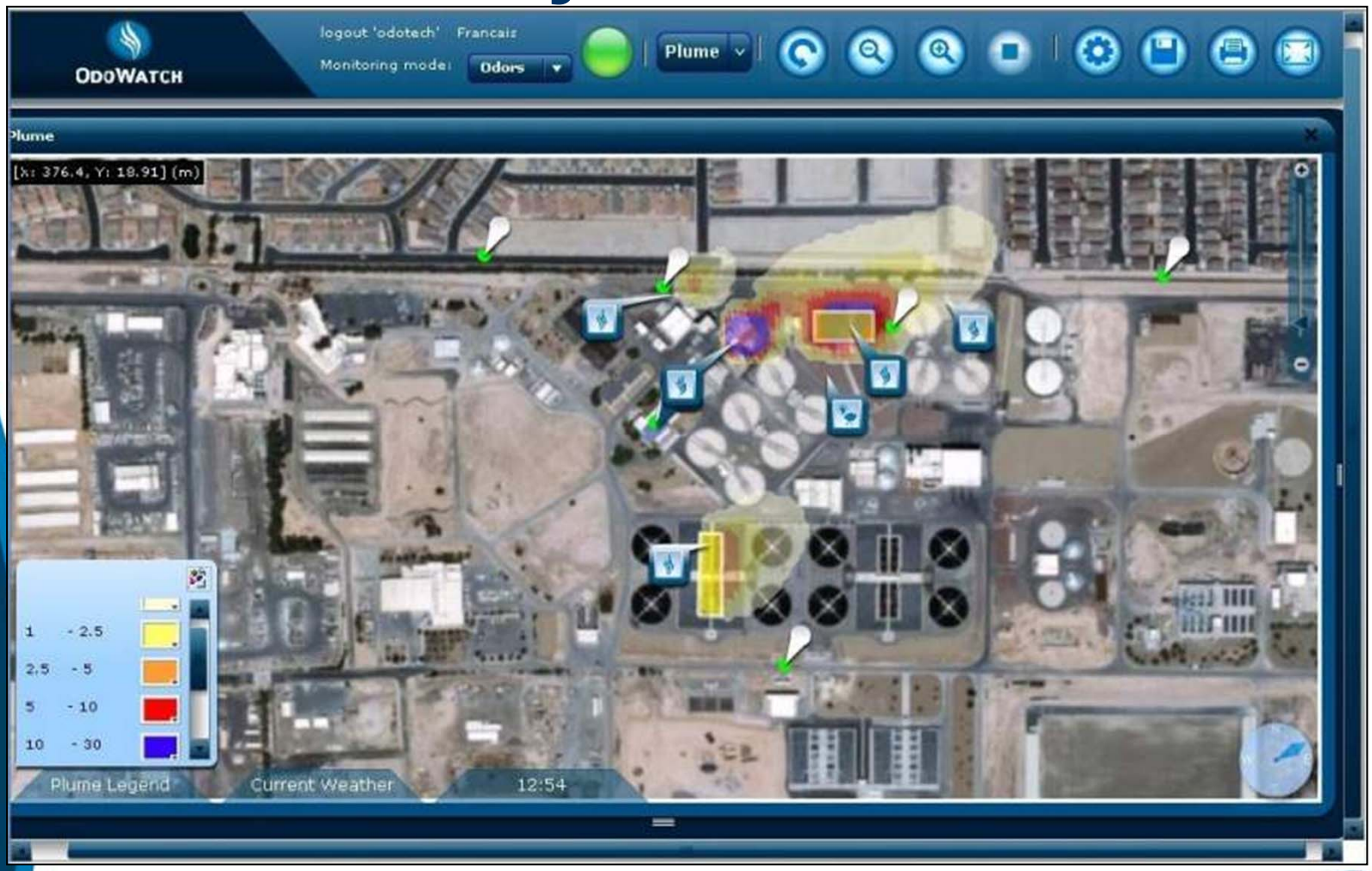
Clark County Odor Plume



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Virginia Beach, Virginia

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Virginia Beach Site Plan

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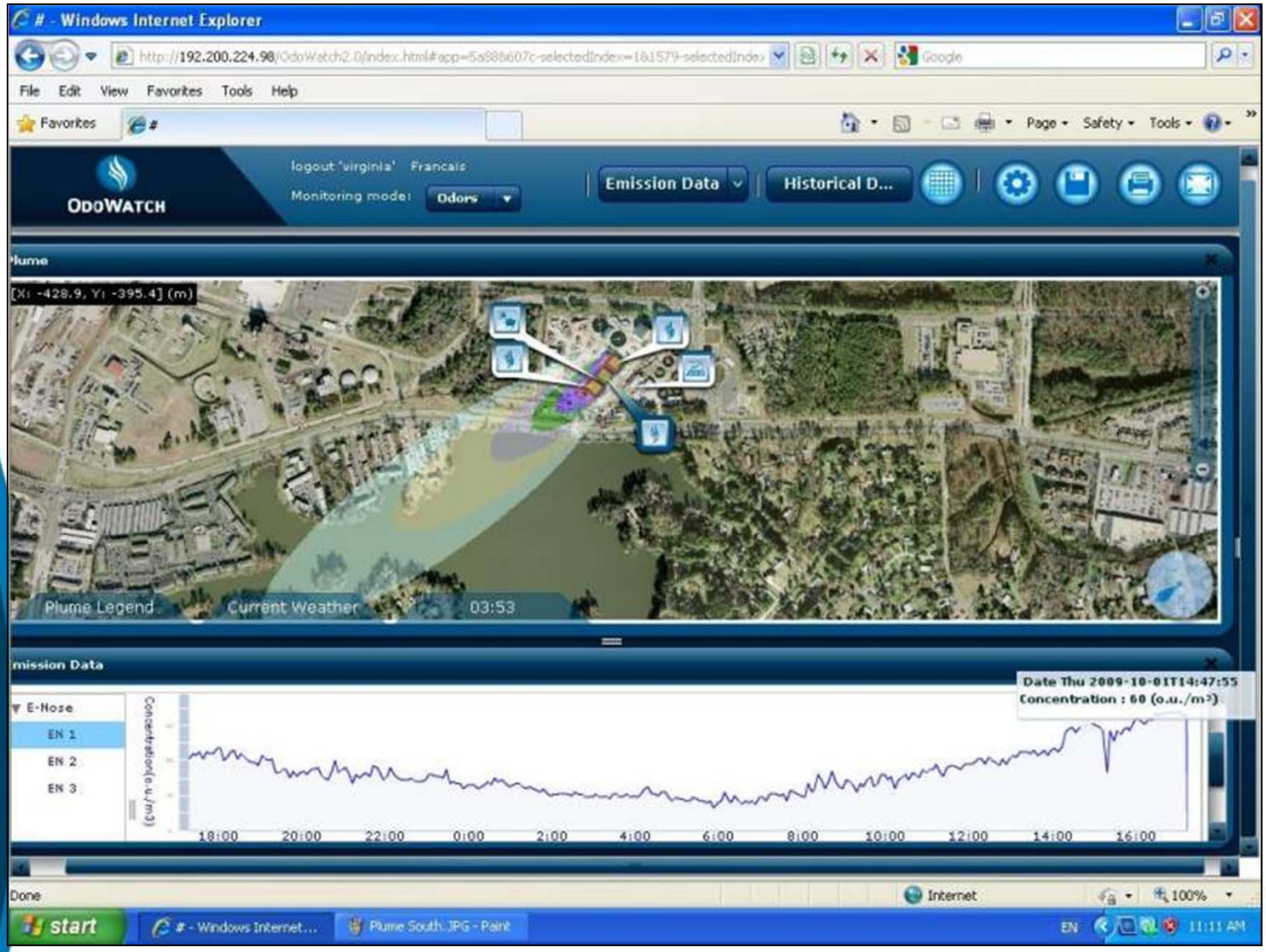
Virginia Beach Odor Plume



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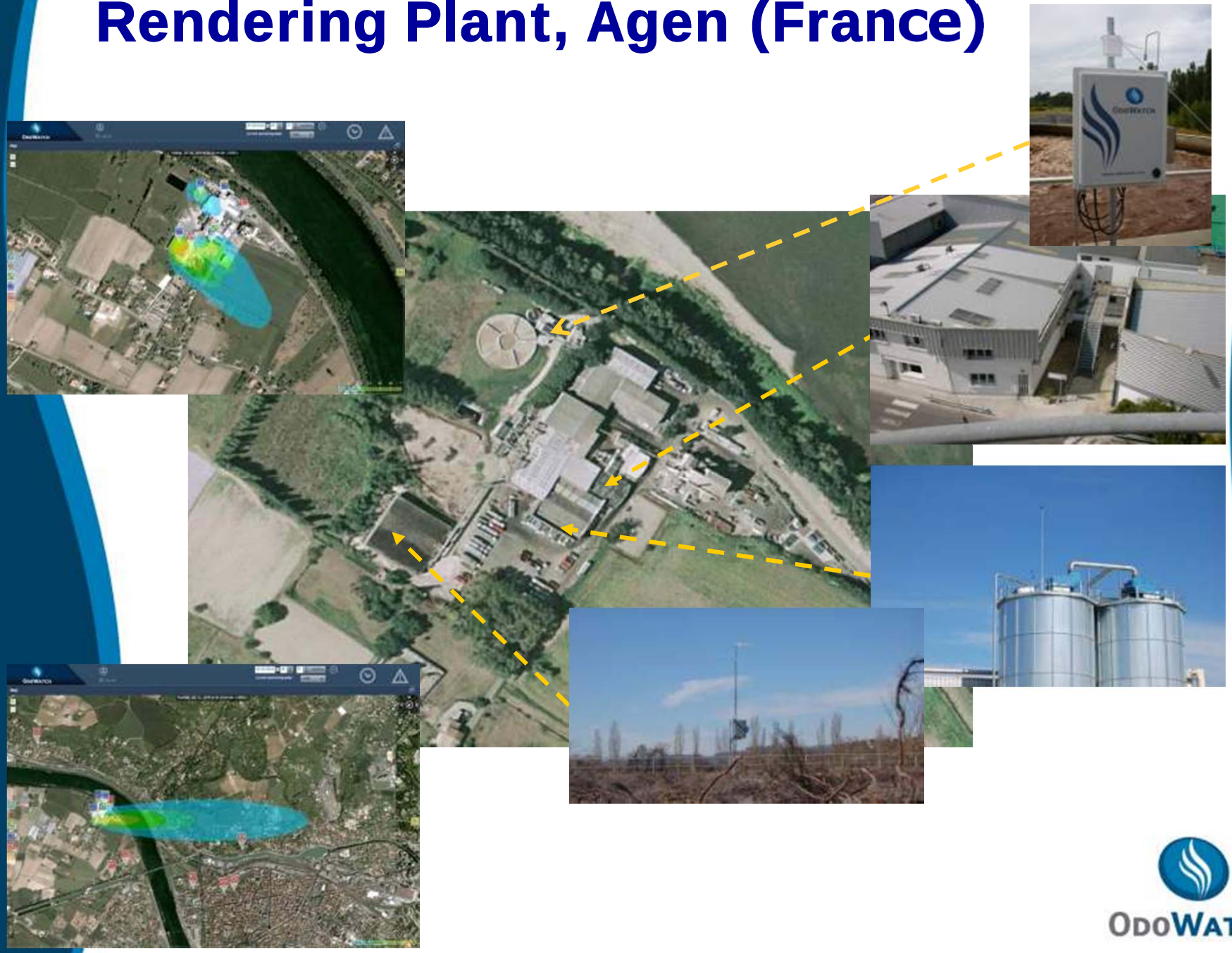
Rendering Plant, Agen (France)



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Ginestous, Toulouse, France

WWTP & Biosolid Composting Plant

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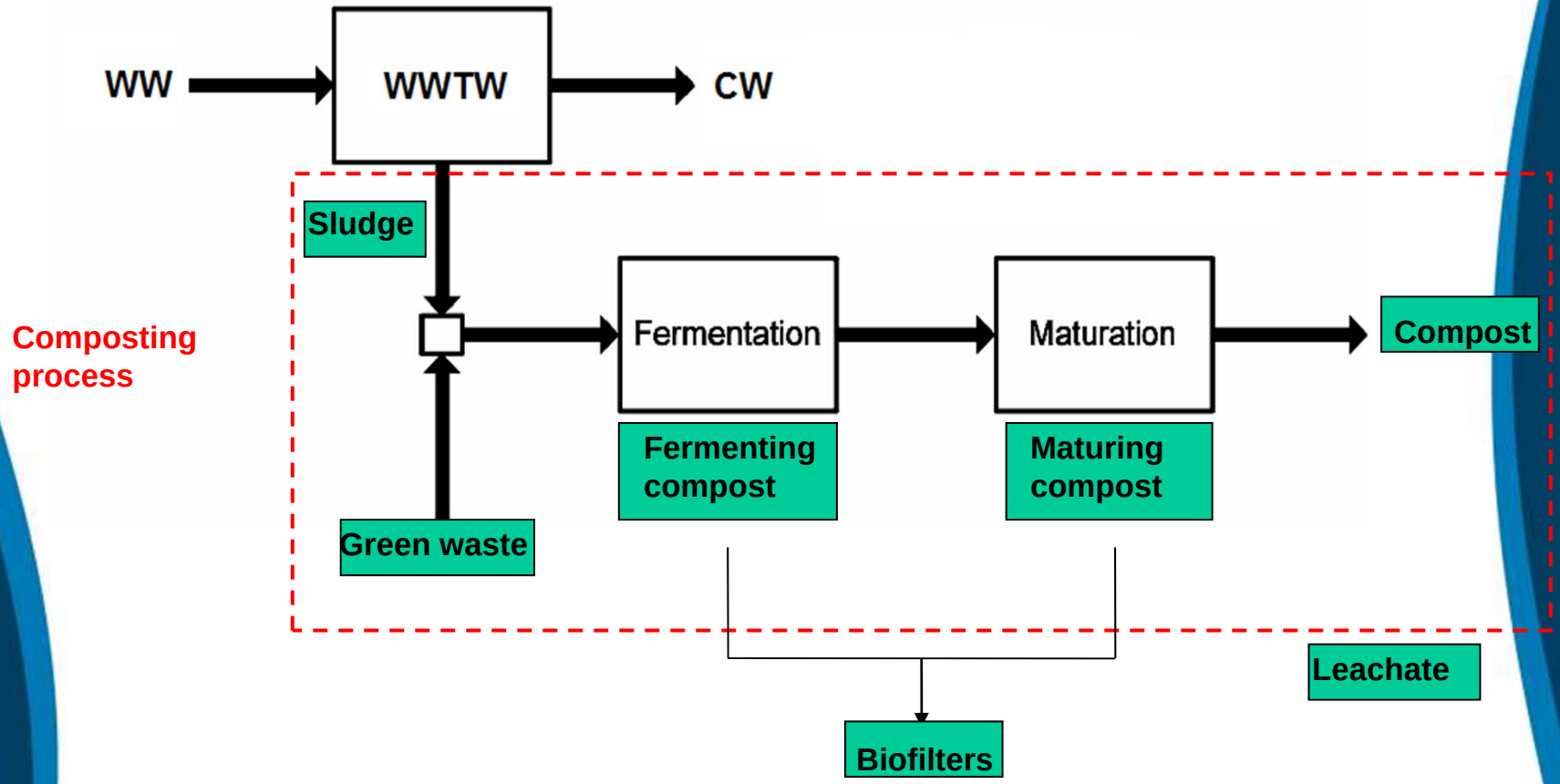
Composting process description



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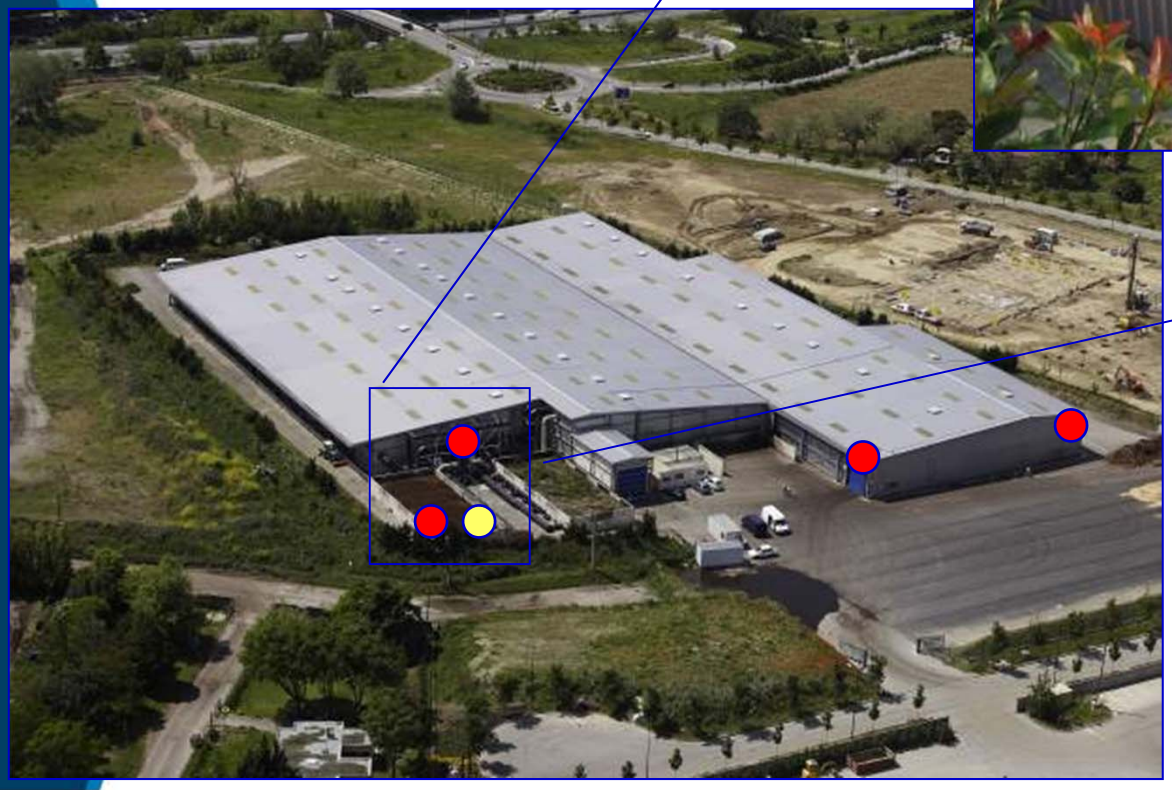
Toulouse case stud

- E-nose
- Weather tower



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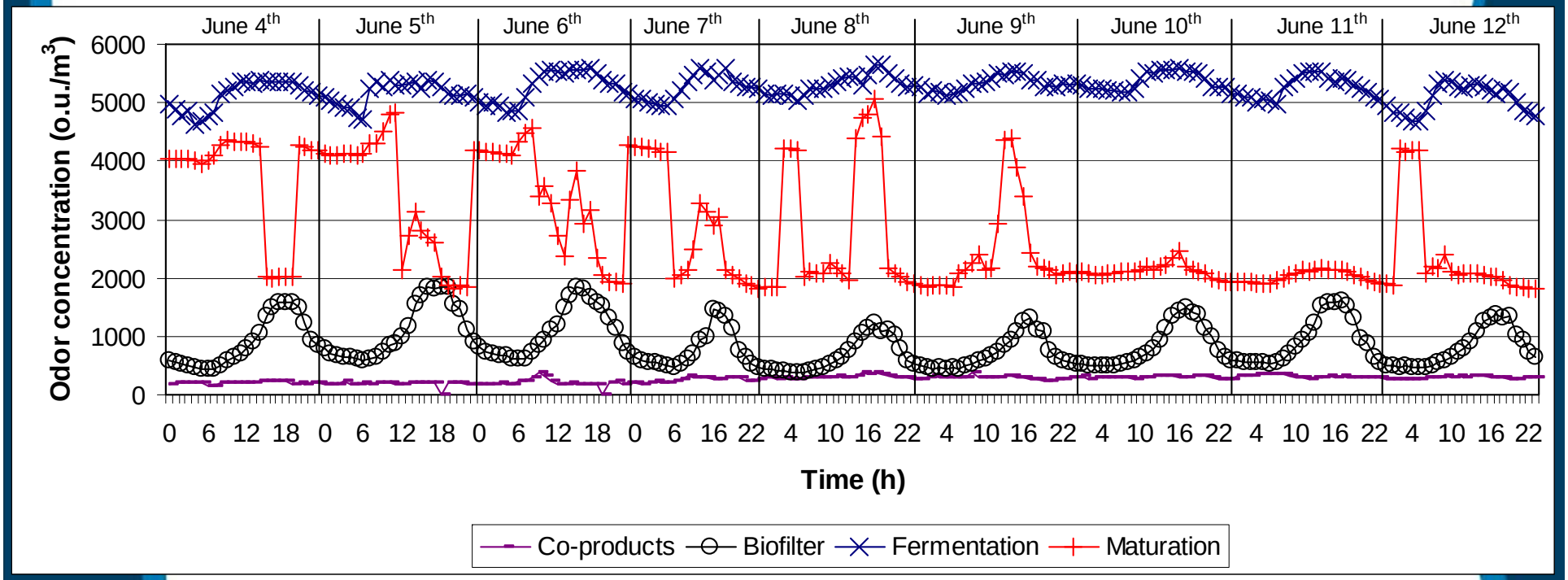
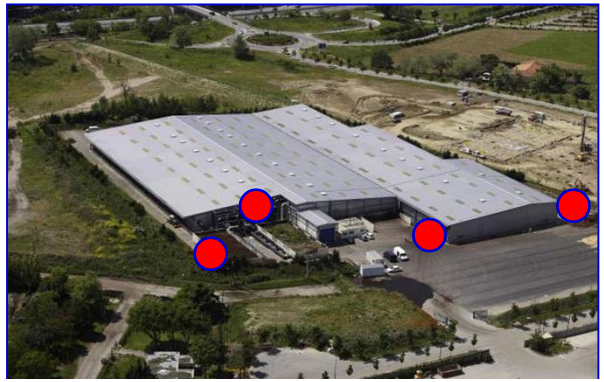
eNose process and Biofilter monitoring

2006





● E-nose

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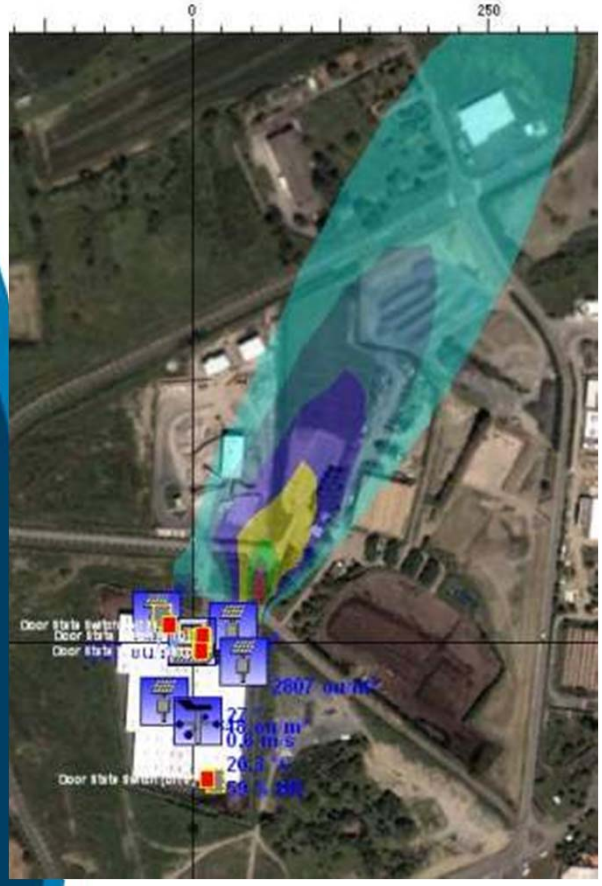
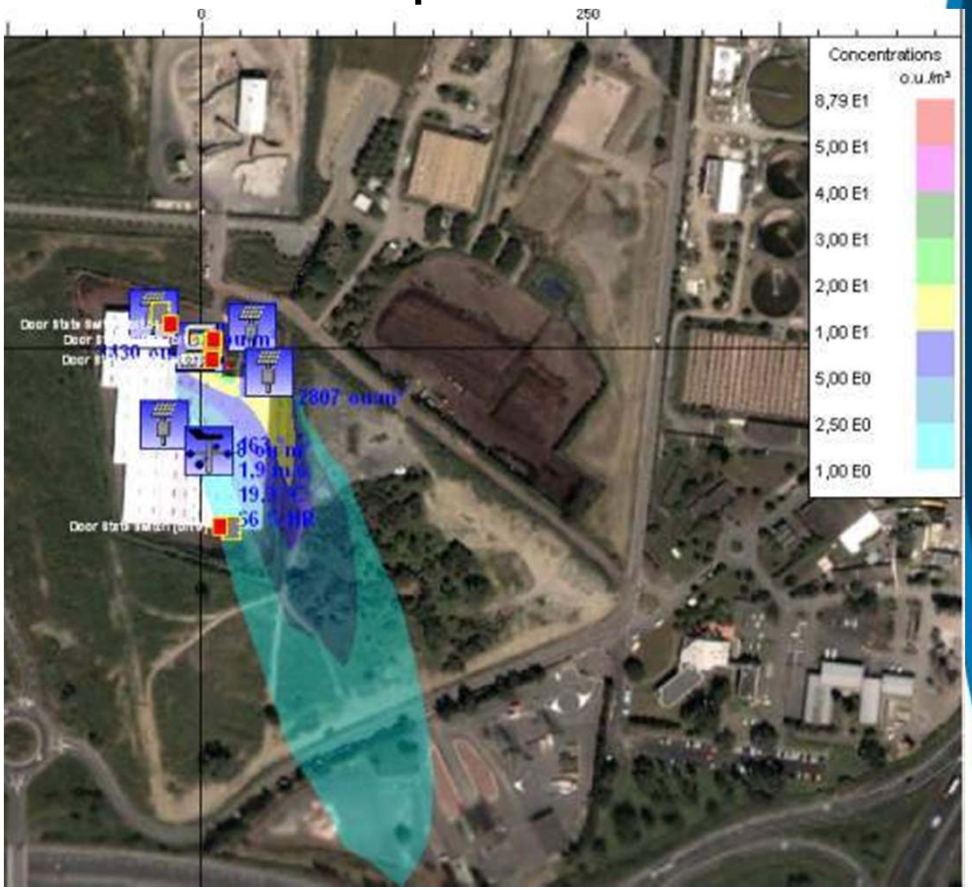
Odor impact modeling

April 15, 2006

Odor plume 3:45 PM



Odor plume 4:00 PM



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ODOR AND VOC IMPACT ASSESSMENT AND AIR QUALITY MONITORING PROGRAM AT A MUNICIPAL SOLID WASTE LANDFILL

- **Case study**
- **BFI Canada**

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AMBIENT AIR MONITORING

West Station
VOC

East Station
VOC, H_2S, CH_4, Odors

South Station
H_2S, CH_4, Odors

Prevailing winds

H_2S: Teledyne™ 101E
CH_4: ADC MGA 3000
Odours: OdoWatch® electronic noses

EAST and SOUTH stations: H_2S, CH_4 , ODOR
Continuous monitoring since March 2007
Instantaneous data every minute

Modeled and measured odor concentrations

Odor Concentration (o.u./m³)	Maximum	99th centile	98th centile	Average
EAST STATION				
Modeled with Aermod based on surface sampling	17	7	4	0.3
Measured with OdoWatch eNose	15	6	5	4.4
SOUTH STATION				
Modeled with Aermod based on surface sampling	28	8	5	0.3
Measured with OdoWatch eNose	7	7	6	4.5

AIR QUALITY MONITORING :

Correlation coefficients

		EAST STATION			SOUTH STATION		
		ODOR	**H_2S**	**CH_4**	**ODOR**	**H_2S**	**CH_4**
EAST STATION	**ODOR**	**1**	0.13	0.44	0.21	0.14	0.15
	H_2S		**1**	0.36	0.10	0.71	0.18
	CH_4			**1**	0.18	0.23	0.50
SOUTH STATION	**ODOR**				**1**	0.20	0.40
	H_2S					**1**	0.15
	CH_4						**1**

What is OdoWatch?

« OdoWatch® is to odor what the thermometer is to temperature. Imagine a world without thermometers. »
Noel Moya, General Manager, Halton Recycling Ltd.

OdoWatch

Thank You!

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