How To Measure Odour, Gas & Particles Emissions With An Electronic Nose And Trace Dispersion In The Environment ?

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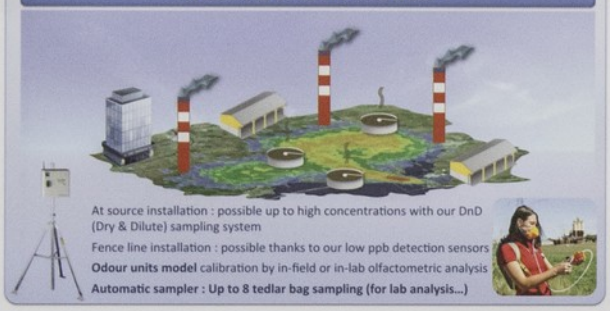
Industrial odours can significantly impair the residents quality of life. After noise, odour is the second reason of complaint for nuisance. To reduce odour pollution and meet regulatory requirements, industrial operators are looking for efficient corrective and preventive actions.

In this context, odour measurement is essential to identify, target and characterise the emission sources, to understand the phenomena of emission and dispersion involved, to obtain real-time indicators of odour pollution and to take action in case of threshold exceedance.

To monitor olfactive pollution at source or in the environment, one solution consists of using an electronic nose with dispersion modelling, which offers **continuous monitoring** and **source identification** capabilities.

At source or Fence line installation



At source installation : possible up to high concentrations with our DnD (Dry & Dilute) sampling system

Fence line installation : possible thanks to our low ppb detection sensors

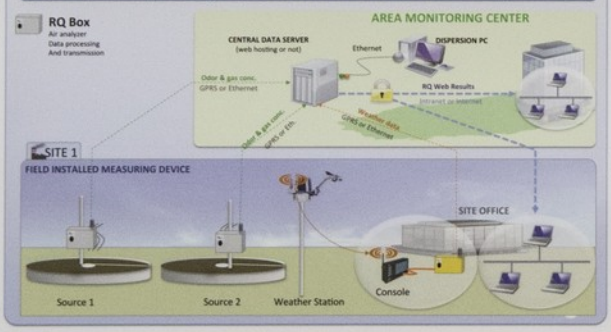
Odour units model calibration by in-field or in-lab olfactometric analysis

Automatic sampler : Up to 8 tedlar bag sampling (for lab analysis...)

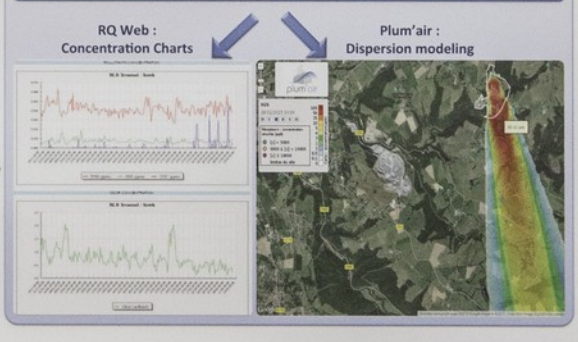
How works an RQ Box electronic nose and what can it detect ?

- **Up to 8 parameters monitored**
  - **Odour Units (MOS sensors)**
  - **VOC** concentration **(PID sensor)**
  - Up to 6 compounds among **H_2S, NH_3, Mercaptans, CO_2, CO, CH_4, NO, NO_2, O_3, SO_2, Cl_2, C_2H_4O, H_2, HCl, HCN, PH_3,** electrochemical cells
  - **Particles : PM1, PM2.5, PM10**
- Continuous & constant flow pumping
- One measure each 10 seconds
- **Automatic zero air calibration** each week
- **Source identification**

E-nose network architecture



Results – Daily use



Expected Results

- **Anticipating odour nuisances**
  - Dispersion model with a 48h forecast mode
  - Threshold alert on source : threshold exceeded on source on average 1 to 2h delay before odour being detected by the neigbourhood
- **Source identification**
  - PCA analysis
  - GC analysis after automatic sampling
  - Real time retro dispersion modeling
- **Communication improved with the neigbourhood and administrations**
  - Communication about nuisances (by a web site, or calling...)
  - Tool: history of all dipsersion plumes
- **Costs reduction on chemical additives used for odour treatment**
  - Servomechanism electronic card 4-20 mA on RQ Box
  - Treatment system activation (ex : misting ramp) only when needed
- **Payback : less than one year**