



Dimensions of Political Ecology (DOPE) Conference
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PUBLIC POLICIES CONCERNING AIR QUALITY: A SO-CALLED PARTICIPATORY ACTION FACTORY FOR BETTER AIR QUALITY

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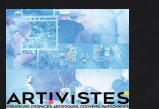
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Outline

1. PRESENTATION

2. ARTICULATION : participatory measurement of air quality
& participatory device for decision making

3. OUTLOOKS : limits and contributions of
our project and approach

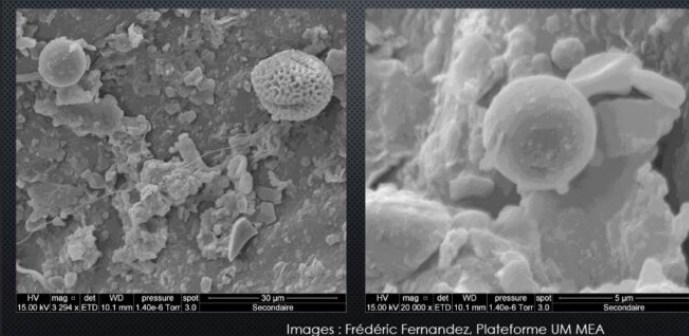
- *Can we consider citizen participation as a guarantee of air quality public policies effectiveness ?*
- *Is there a real participation in our French environmental democracy ?*

1. BREATHE PROJECT –

What are we talking about ?



Air pollution is a one of environmental matter of concern (Hopke, 2009; J. (Jim) Zhang & Smith, 2003) and **source of social and political conflicts** (Botero, 2021; Boutaric, 2007; Calvillo, 2018; Fenger, 1999; Joumard et al., 2007).



Images : Frédéric Fernandez, Plateforme UM MEA



In July 2021

The french government was condemned by the Council of State to face with a 10-million-euros fine every six months until air quality is improved.

1. BREATHE PROJECT –

What are we talking about ?

TWO scientific goals

On the metrological level

On the political level : integrate the citizen from the Citizen Sciences up to the Participatory Action Research (Buckles et al., 2013; Cooper, 2017), in other words from the monitoring of dust deposition on accumulative surfaces up to the political decision making.

The main challenges will come in dealing with:

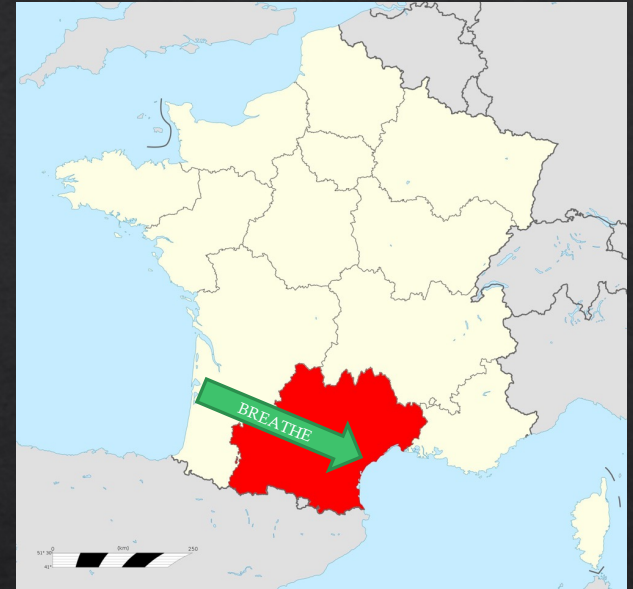
- the scientific legitimacy regarding the quality and robustness of the analyzes produced (Irwin, 2001; Bœuf et al., 2012; Strasser et al., 2019),
- social and political challenge of emancipation by increasing citizens empowerment (Kieffer, 1984; Booney et al., 2016; Ottinger, 2010. Bela et al., 2016),
- environmental challenge regarding the effectiveness of the actions produced to preserve ecosystems (Kythreotis et al., 2019; Brossard et al., 2014; Salles, 2014),
- the ethical compliance regarding both the social categories mobilized in this type of participatory mechanism (Riesch et al., 2014; Ethique, Leduc, 2015), and the theoretical reference framework (Grainger, 2017).

1. BREATHE PROJECT

CITIZEN SCIENCES PROGRAM

Innovative air quality monitoring thanks to Environmental magnetism and isotopic geochemistry to identify origin of pollutants

- calibrated against the regulatory PM measurements
- magnetic maps match the numerical dispersion modeling of air pollutants (ADMS-Urban).



PARTICIPATORY ACTION RESEARCH PROGRAM

Innovative Participatory engineering designed for decision making and for analyse the impact of participation and empowerment in public decision

Cultural and Artistic Device

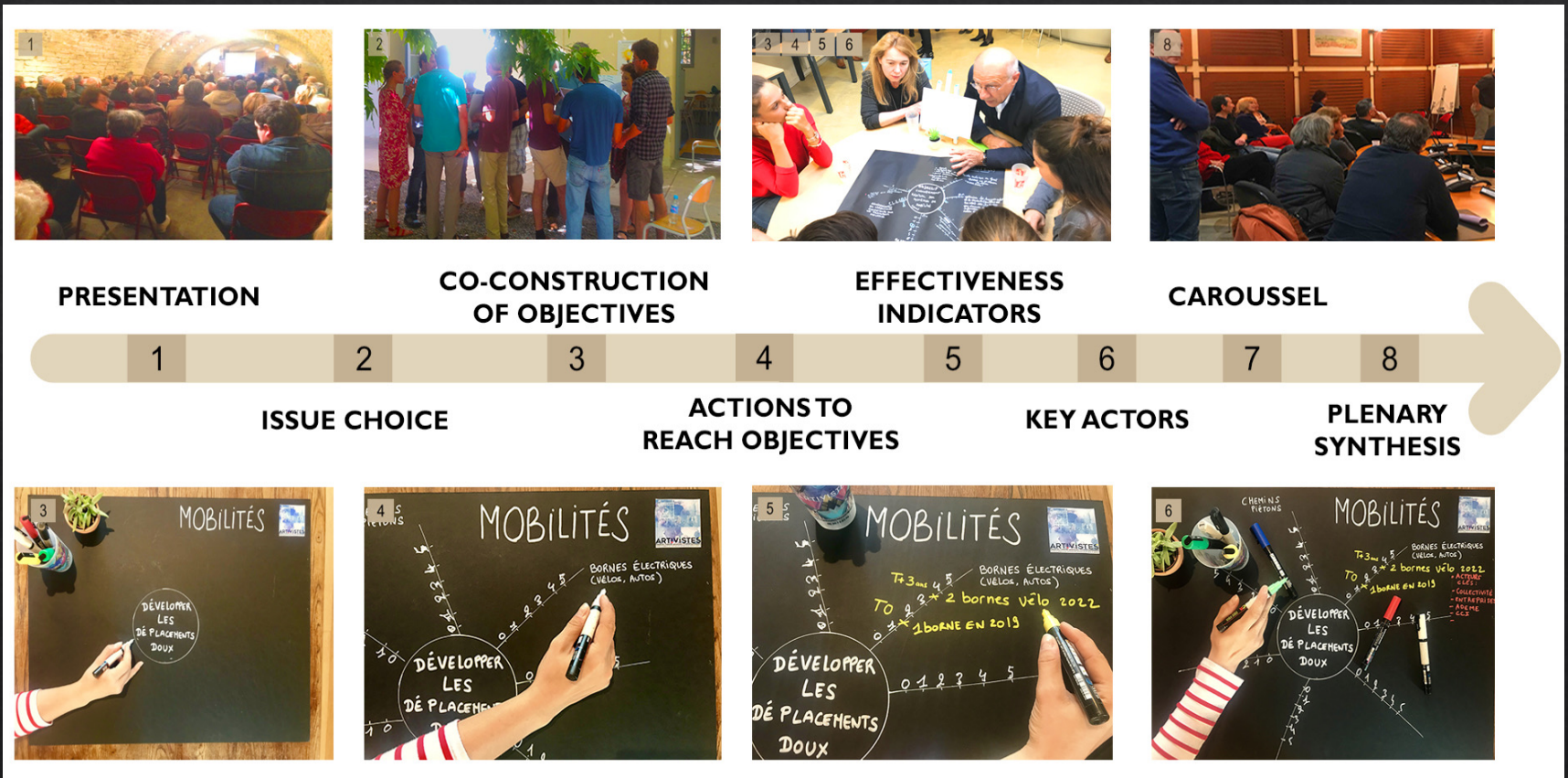
Citizen mobilization



Participatory, debate and conflict up to decision making

Participatory engineering tool (*Dosias-Perla et al., 2020*)

co-production of action plan and indicators for monitoring of air&climate territorial public policies

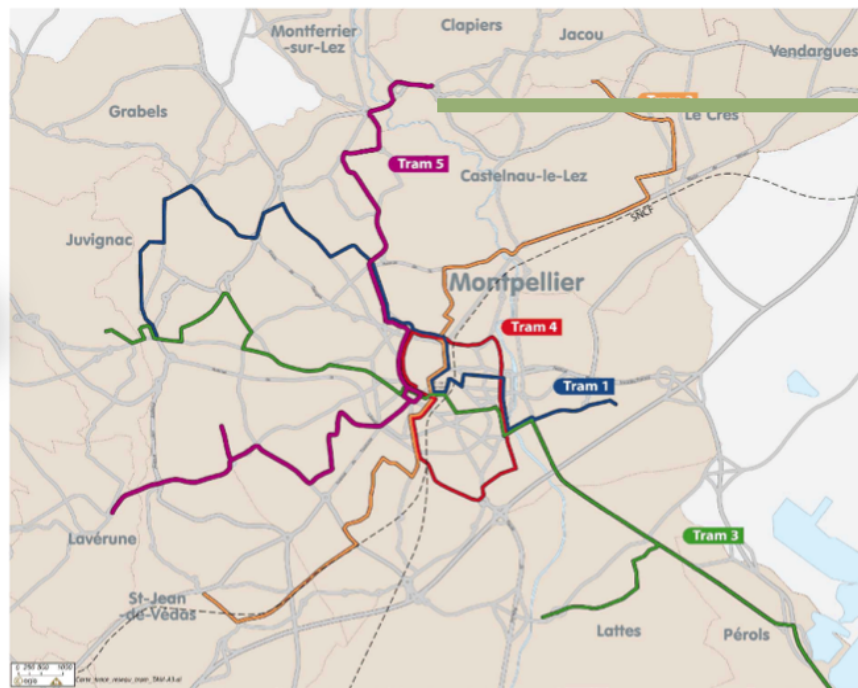


Design of multi-actors workshop by Dosias-Perla.

2. BIOMONITORING

Genesis of the approach → Montpellier
(Line 5 of the tram)

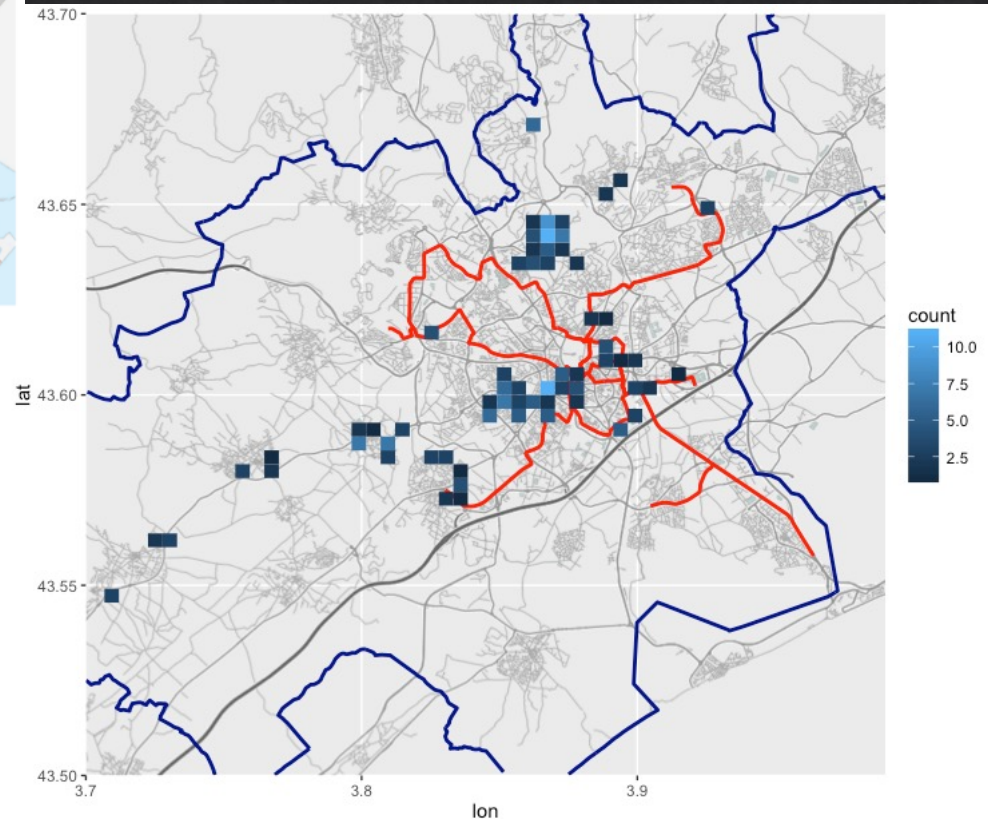
FIGURE 15 Réseau tramway à 5 lignes à l'horizon 2017



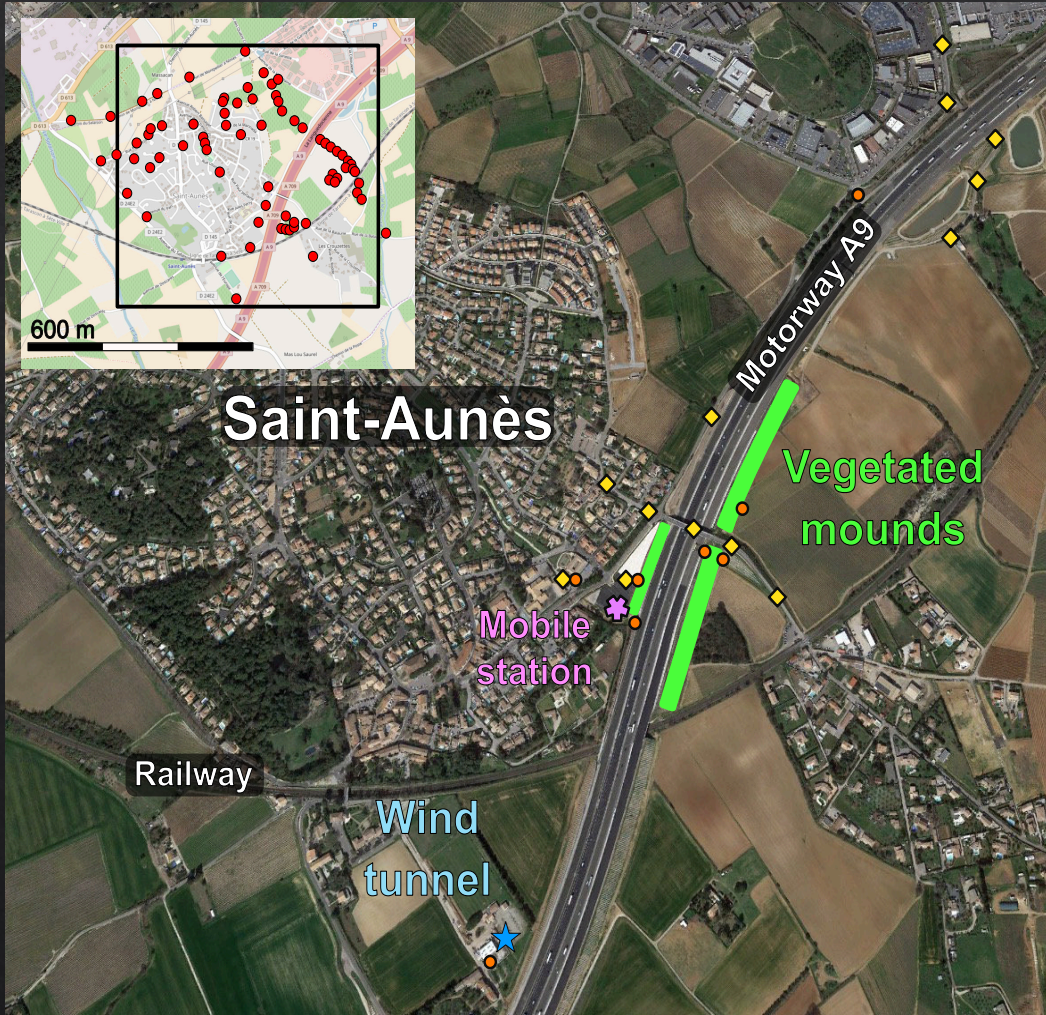
Strong conflictual political issue

Strong citizen involvement

Limits of social representativeness



Bio monitoring air quality



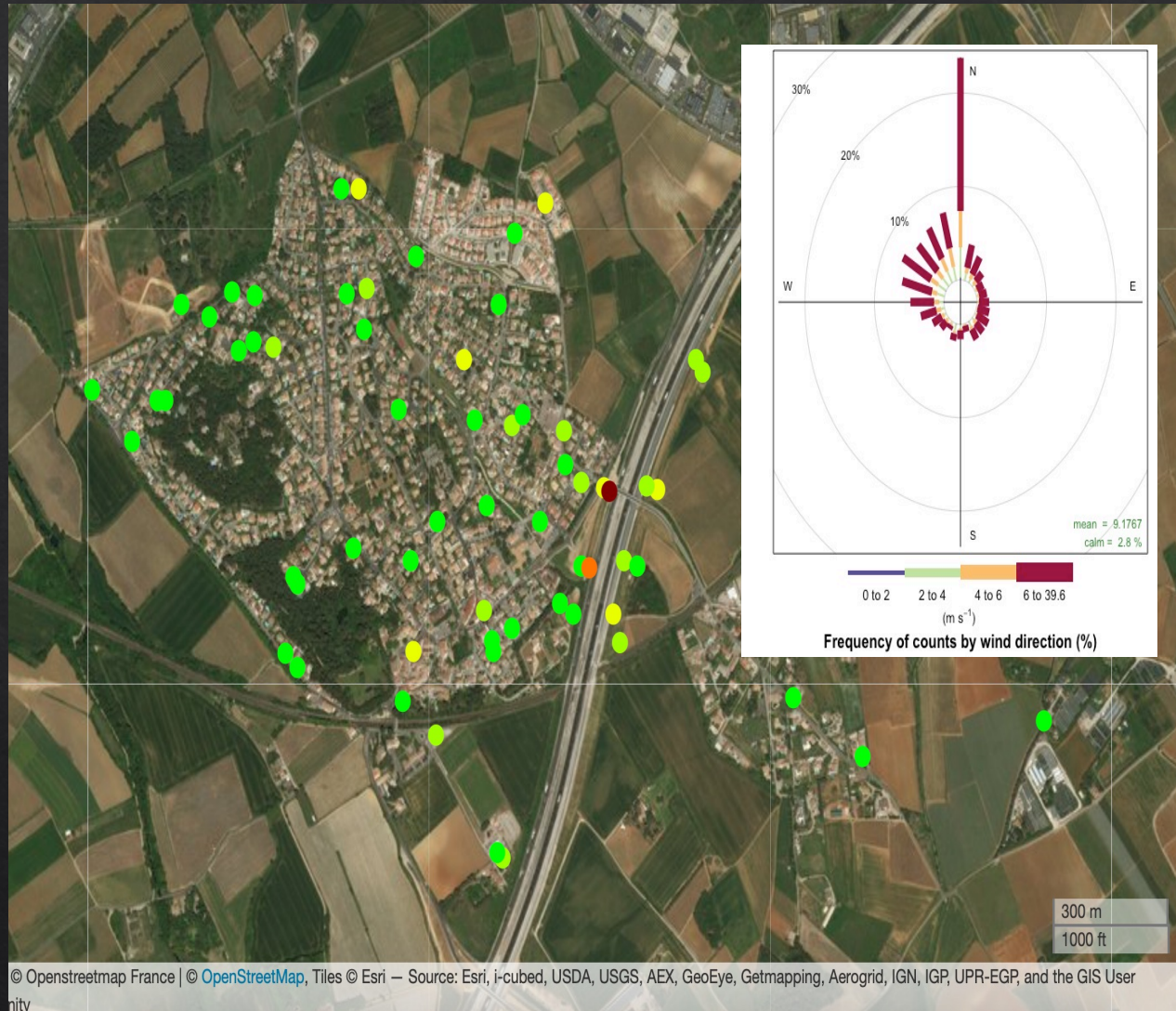
This site was instrumented with :

- 8 PM μ -sensors,
- 13 Nox passive filters
- 2 weather stations.

Bio monitoring air quality



Artificial passive filters.
Cao et al., *Environ. Pollut.*, vol. 205, pp. 97–102, 2015.



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2. BIOMONITORING

BREATHE Citizen Lab
financed by french motorway company

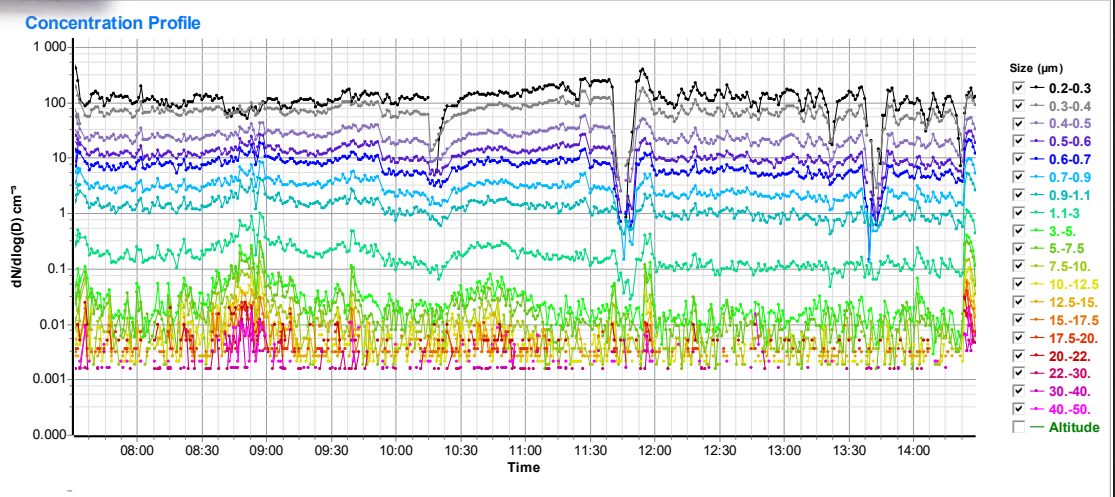
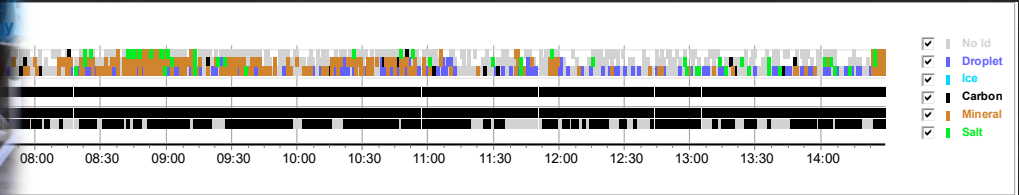


Zephyr Lab on Saint Aunès

Data measured on 19/03/2019 at 07:26

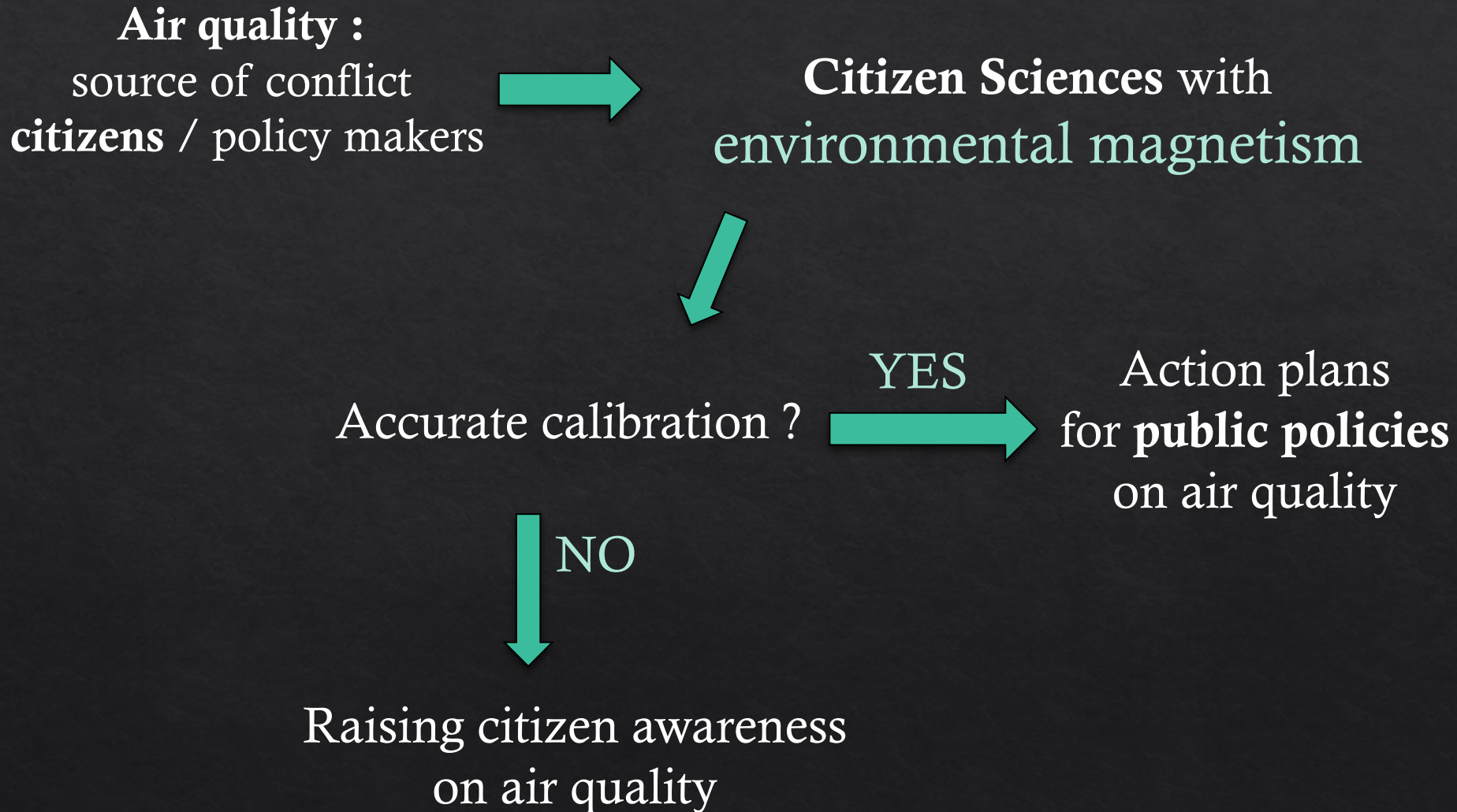


Wind tunnel accessible to citizen



2. BIOMONITORING

In summary

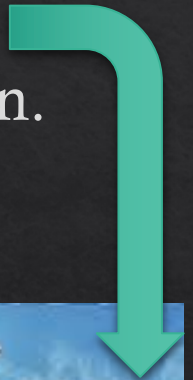
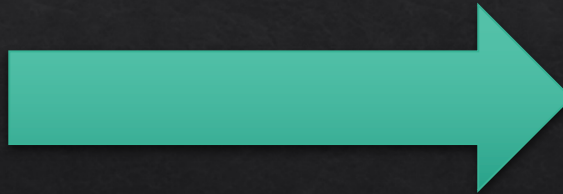


3. OUTLOOKS

Objectives of the Participative Action Research

Create a new expertise model

- A synergy of scientific and citizen expertise.
- Development of public policies on air with citizen.



3. OUTLOOKS

Inclusion of citizen air expertise and metrology
in territorial public policies is it possible and measurable ?

Institutional levels : effectiveness of air quality action ?

Democracy
Measure of air quality
→ Local scale

PUBLICATIONS

Dosias-Perla, D., Scotto d'Apollonia, L., Blangy, S. (2017). La fabrique participative des politiques publiques sur la qualité de l'air au prisme d'un dispositif innovant: Artivistes-atelier, Revue Technologie et Innovation, 2017, ISTE Editions, Paris.

Scotto d'Apollonia, L. & Dosias Perla, L., Camps P., Poidras T., (2019). De la biosurveillance participative de la qualité de l'air, Revue Technique de l'ingénieur.

Letaïef, S.; Scotto-d'appolonia, L., Dosias-Perla, D.; (citizens, elected officials) ; Nicol, P.; Camps, P., (2023). Community Sciences.

Objectives of the metrology:

- Evaluate the effectiveness of green spaces to monitor, reduce air pollution to fine particles
- Calibrating physical measurement : to what extent can citizen mapping represent a network of receptor points for constraining numerical modelling of the dispersion of fine particles?
- Substitute: can citizen mapping replace numerical models of dispersions?