

Act on Ultra Fine Particles and urban pollution in Europe and the world

Panel discussion



www.atmo-aura.fr



Alexandre THOMASSON – Head Manager of **STATS** Department
Spatial & Temporal Survey Treatment & Analyze on Air Quality

ATMO Auvergne-Rhône-Alpes

One of the French Air quality Network



French Network = Associations approved by the Ministry of Ecology for monitoring air quality (1 network in each Region)

Fédération des associations de surveillance de la qualité de l'air



Tools for Air quality Observatory

FIXED MONITORING
(7d/7 - 24h/24)



MOBILE MONITORING



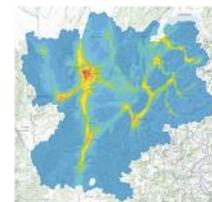
Observatoire régional

INVENTORY OF EMISSION

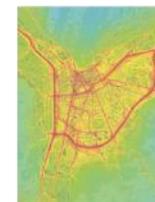


Cadastre régional (résolution 1km)

MODELISATION / CARTOGRAPHY



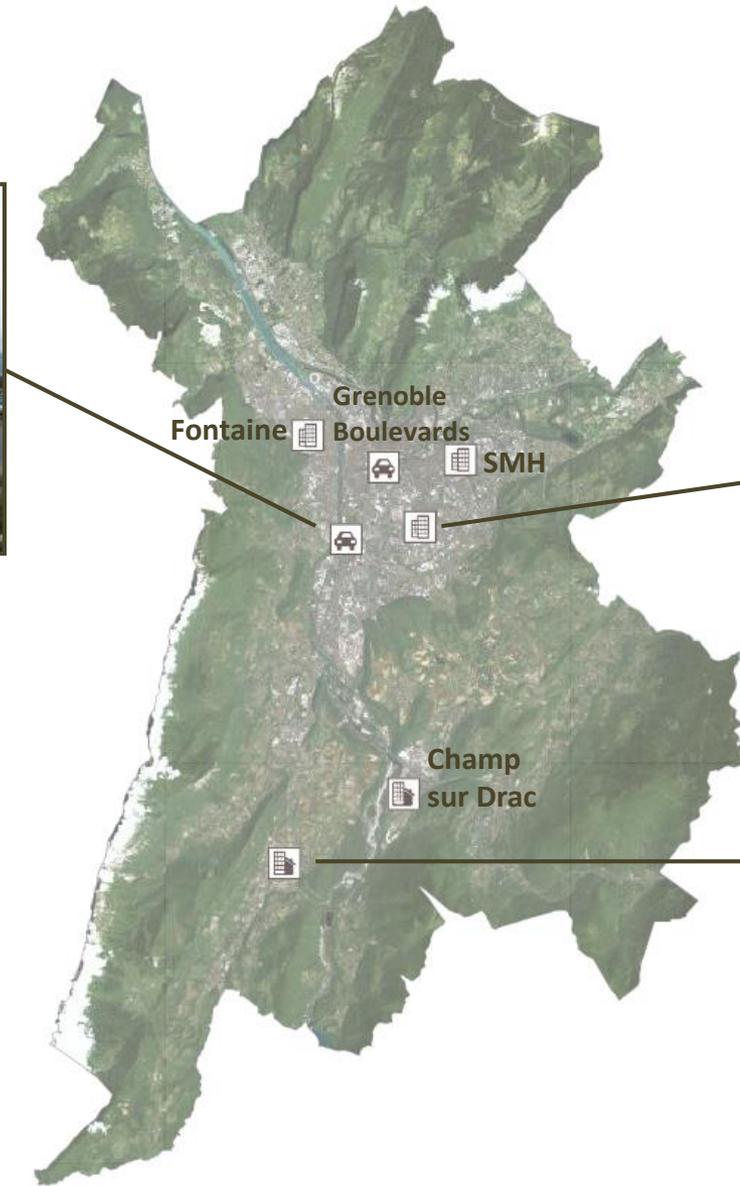
Cartographie régionale (résolution 1km)



Cartographie urbaine/proximité trafic (résolution 10m)

Monitoring Network

About 100 permanent stations in Auvergne-Rhône-Alpes
7 stations in Grenoble Métropole



 Urban background

 Peri-urban background

 Traffic

Introduction :

Atmospheric pollution...

Issues and consequences

Did you know... ?



Atmospheric Pollution

Recurring thresholds overruns for PM, NO₂ and ozone

Regulatory Overruns

PM10 : Daily Mean : 50 µg/m³ (Not more than 35 days /year)

NO₂ : Annual Mean : 40 µg/m³

Ozone : Daily Max of 8h average : 120 µg/m³ (Not more than 25 days/year)

WHO recommended values overruns

PM10 : Annual Mean : 20 µg/m³

PM2.5 : Annual Mean : 10 µg/m³

France Condemned by EU

The French state is under European litigation because of **regulatory standards** overruns for PM10 and NO₂



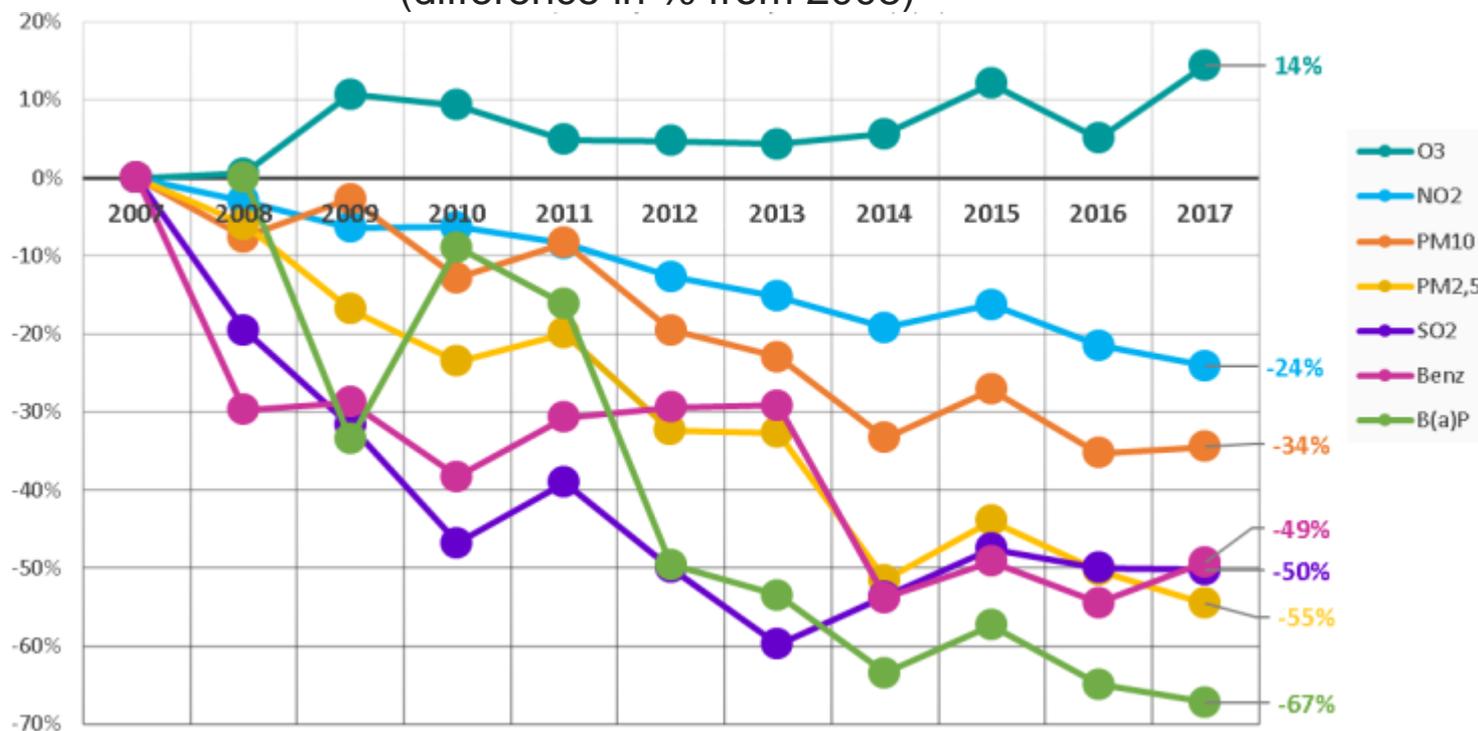
France is liable to pay...

100 M€ the 1st year

and 85 M€ the years after

Trends in concentration annual average in Auvergne-Rhône-Alpes region

(difference in % from 2008)

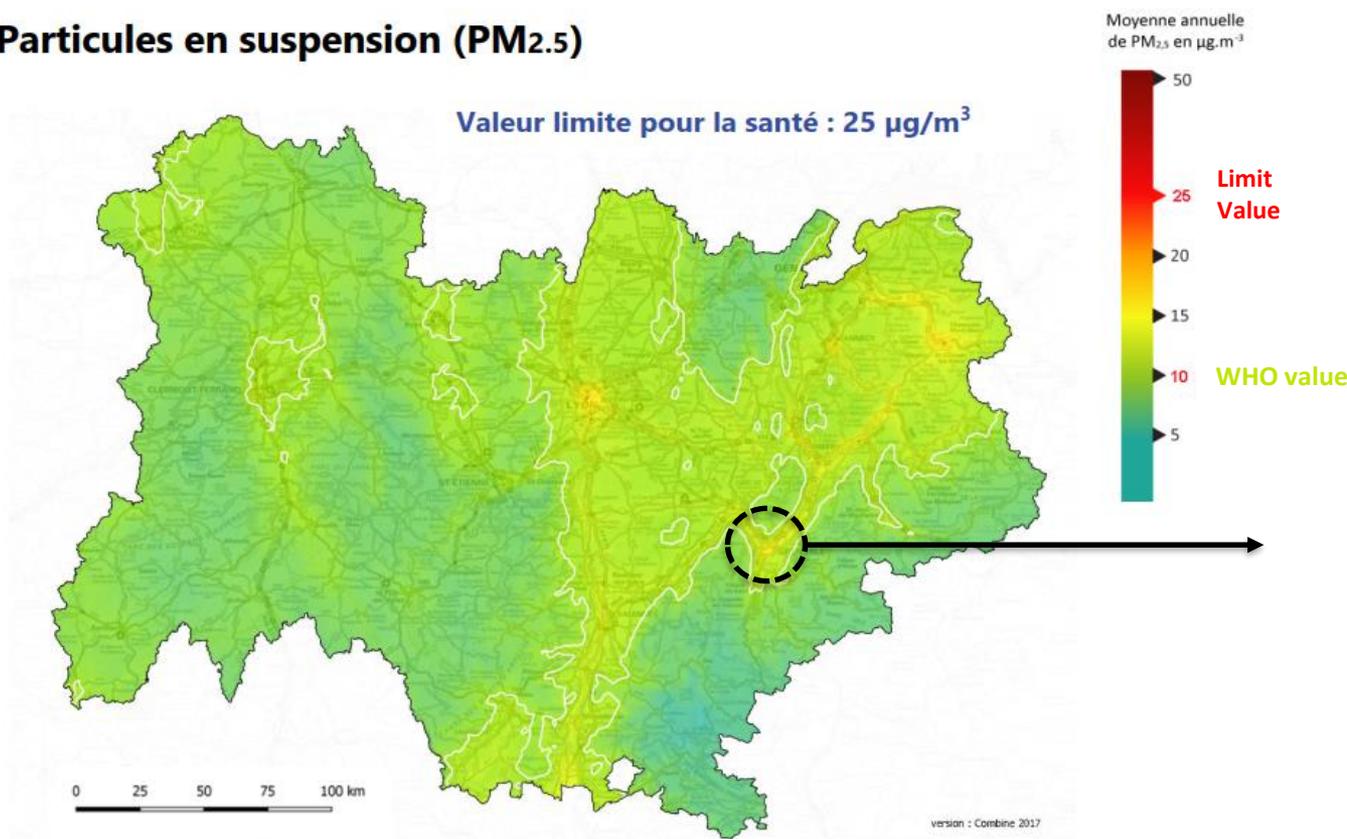


Population exposed to PM_{2.5} in 2017

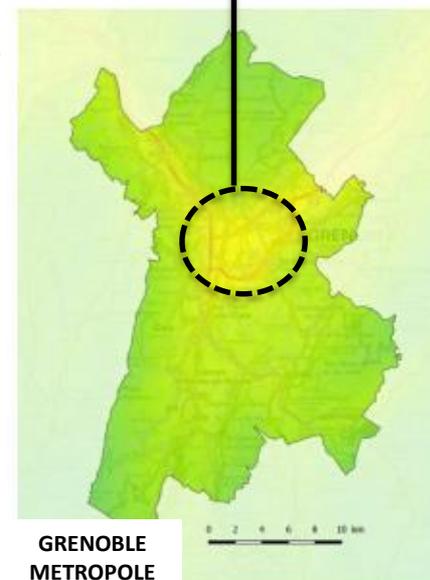


In 2017, in Auvergne-Rhône-Alpes region : **more than 6 millions of inhabitants (85%)** exposed to values **above the threshold recommended by WHO** for PM_{2.5} (10 µg/m³)

Particules en suspension (PM_{2.5})

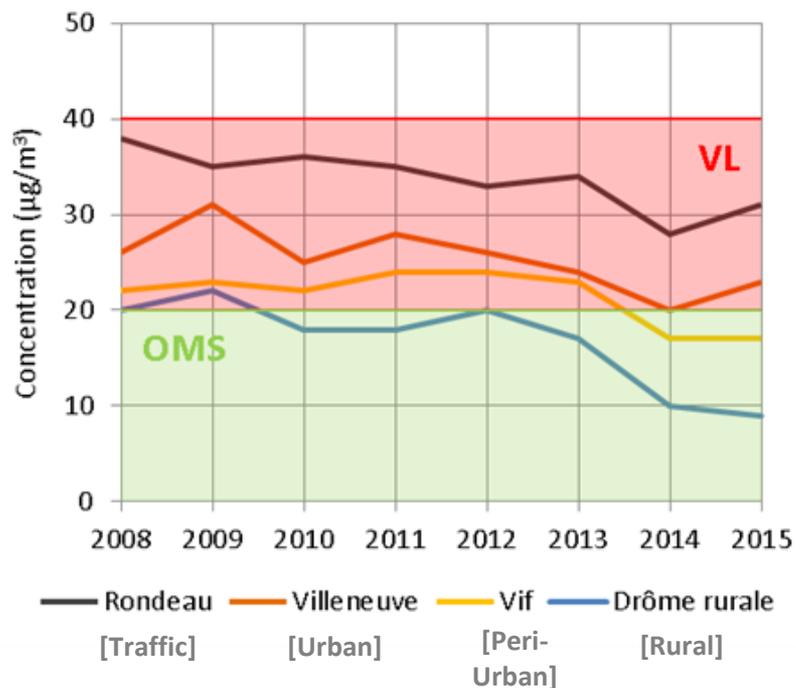


Downtown:
100% of residents are exposed to overruns of WHO value

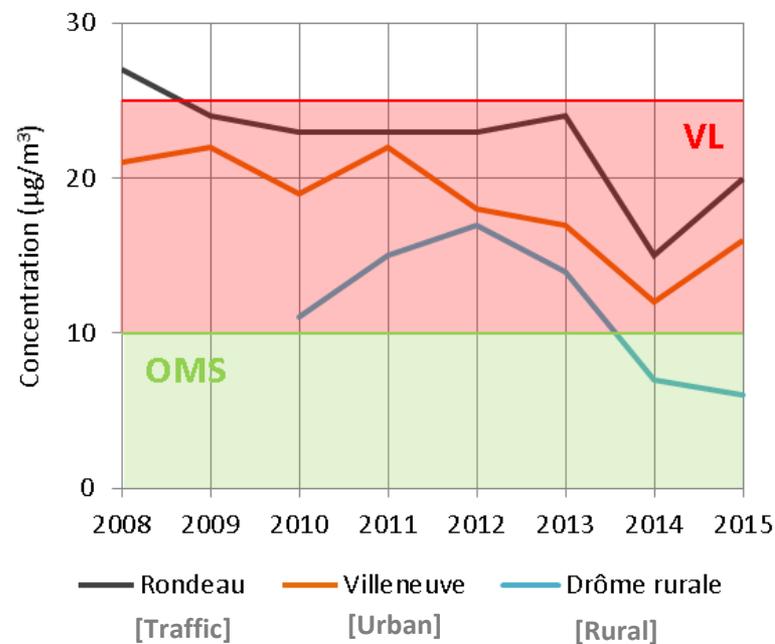


A situation observed for a long time...

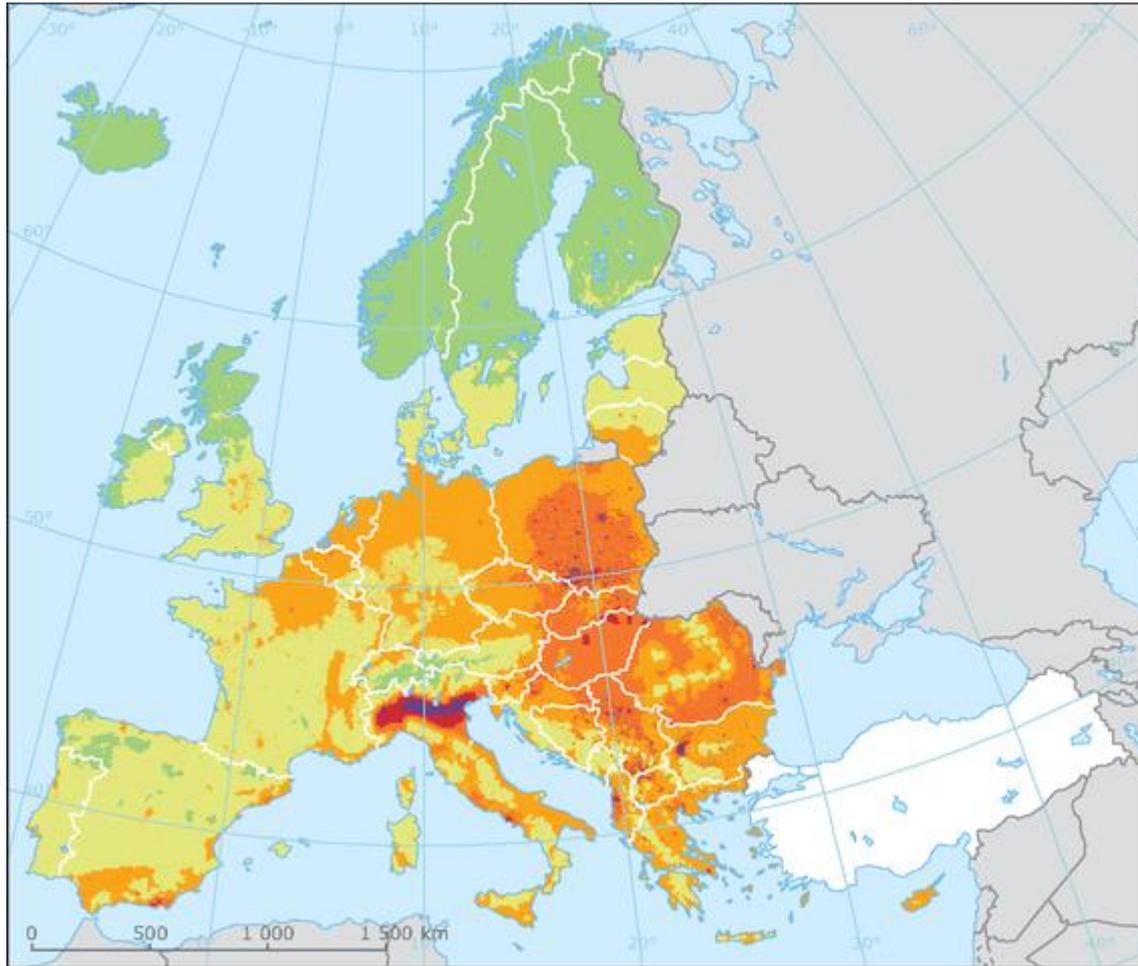
PM10 - Annual Average



PM2.5 - Annual Average



A situation observed elsewhere in Europe...



PM_{2.5} annual mean in 2015

$\mu\text{g}/\text{m}^3$

- ≤ 5
- 5-10
- 10-15 **WHO value**
- 15-20
- 20-25
- > 25 Limit Value**

- No available data
- Countries/regions not included in the data exchange process

Trends in the world...



Table 3: Trend in $PM_{2.5}$ or PM_{10} based on cities available in several versions of the database, by region¹.

Region	Trend over the mean period 2008-2013 ²
Africa (Sub-Saharan)	NA
America, LMI	→
America, HI	↘
Eastern Mediterranean, LMI	↗
Eastern Mediterranean, HI	↗
Europe, LMI	↘
Europe, HI	↘
South-East Asia	↗
Western Pacific, LMI	↗
Western Pacific, HI	↘
World ³	↗

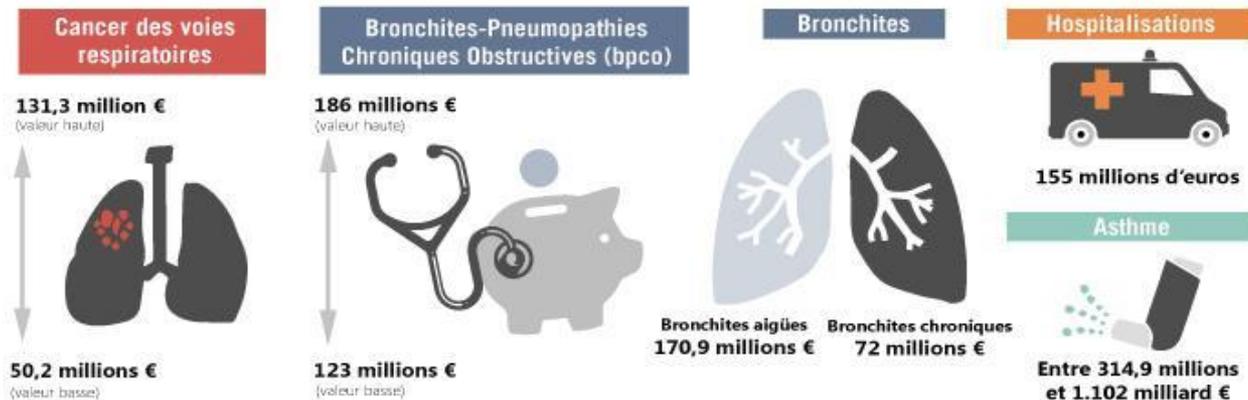
http://www.who.int/airpollution/data/AAP_database_summary_results_2016_v02.pdf

Atmospheric Pollution

Health impact is proved

Respiratory and cardiovascular health effect
+ Cost of health

- **In the EU**, nearly 430 000 premature deaths per year are due to air pollution according to the European Environment Agency
- **In France**, it is estimated that 42 000 deaths per year were associated with regular exposure to air pollution.



Costs due to the air pollution :
1-2 000 000 000 euros per year on health care in France

Panel Discussion

Pr. David PUI (University of MINNESOTA, USA)

Pr. Zhao Yuliang (China Nanocenter, China)

Olivier LE BIHAN (INERIS, France)

Olivier AGUERRE-CHARIOL (INERIS, France)

Sebastien ARTOUS (CEA, France)

Olivier DELLEA (CEA, France)

Rémy SLAMA (INSERM, France)

Sophie LANONE (INSERM, France)

Jérôme DUTRONCY (Grenoble Métropole, Vice-Pdt Air-Climate-Energy, France)

Ultra Fine Particles (UFP) studies

How monitoring UFP? (mass, number, size, chemical characterization...)

Where ?

What results?

Health Impacts

Health impact of urban particles pollution?

What about nanoparticles impacts?

Best indicators/metrics for health assessment?

Pollution impact versus other risks?

Mitigation Solutions

What is reasonably possible to do for reducing particles pollution?

What are the mitigation solutions today?

Few examples?

Policy Actions

What are the citizens questions/expectations ?

What actions are (or can be) implemented by policy makers?

Can we involve citizen for participating to a better air quality?

Thank you for your attention



<http://delair.air-rhonealpes.fr>

De l'Air dans nos idées reçues!

(put some « air » into our « misconceptions » !)



www.atmo-aura.fr