

## Ecole doctorale SIE



**Fanny VELAY-LASRY** [fvelay@aria.fr](mailto:fvelay@aria.fr)

Team manager Regional air quality and climate

**ARIA Technologies SA**

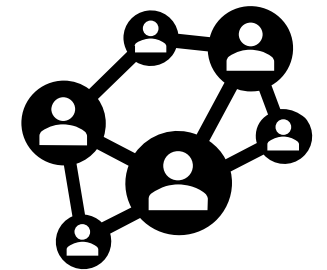
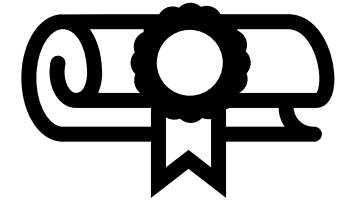
8-10, rue de la Ferme – 92100 Boulogne Billancourt – France

Telephone: +33 (0)1 46 08 68 60 – Fax: +33 (0)1 41 41 93 17

E-mail: [info@aria.fr](mailto:info@aria.fr) – <http://www.aria.fr>

# Mon parcours

- **2006** Ph. D. in Atmospheric Physics and Air Quality Modelling with LISA (Laboratoire Inter-universitaire des Systèmes Atmosphériques) at UPMC (Université Pierre et Marie Curie, Paris)
- **2007** ARIA Technologies en tant qu'ingénieur/chef de projet
- **2016** Responsable de l'équipe qualité de l'air et climat



## ARIA Technologies SA

- Créée en 1990 d'un essaimage d'EDF R&D

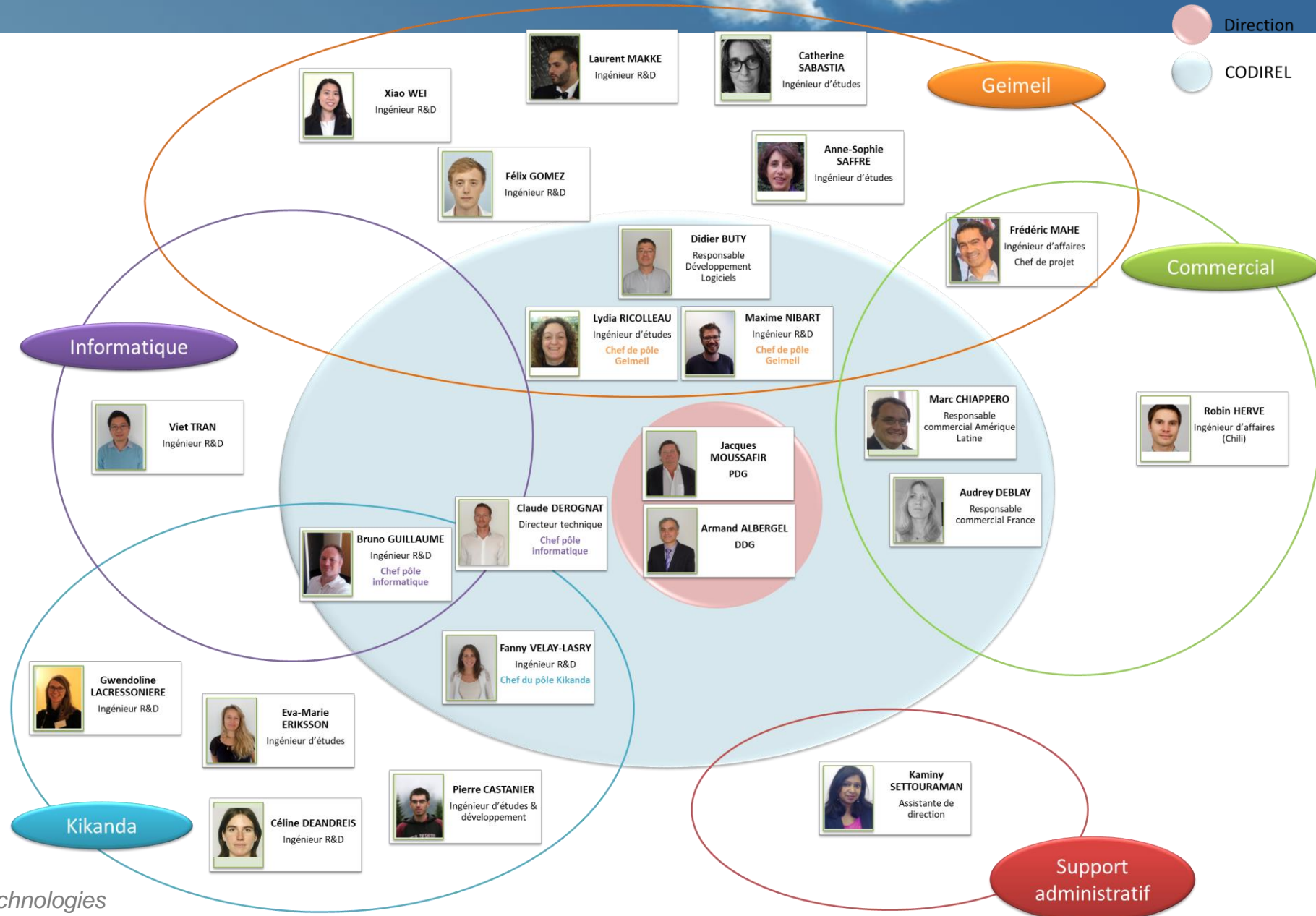
## PME indépendante

- Siège à Boulogne-Billancourt
- Bureaux à Metz, Lyon, Marseille, Grenoble, Toulouse, Brest
- Filiales à Milan et à Turin (Italie) : ARIANET et SIMULARIA
- Filiale à Rio (Brésil) : ARIA do Brasil

## Un seul métier : l'environnement atmosphérique

- Logiciels et systèmes
- Etudes et conseils
- Formations







# Domains of activity



**Industrie**



**Sustainable cities**



**Risks**



**Climate**

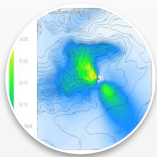


**Renewable energies**

Studies and expertise

Software and systems

Training



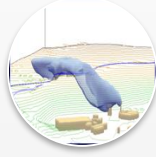
**ARIA Impact™**



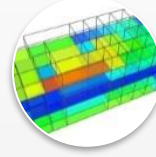
**ARIA Impact 3D™**



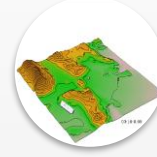
**ARIA City™**



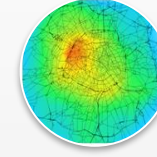
**ARIA Local™**



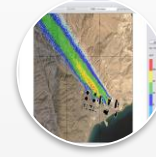
**ARIA Indoor™**



**ARIA Risk™**



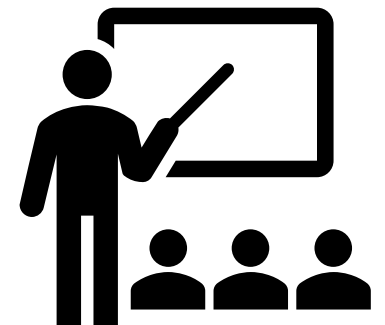
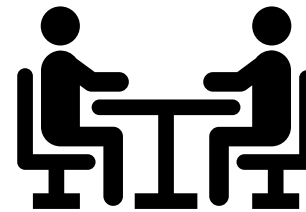
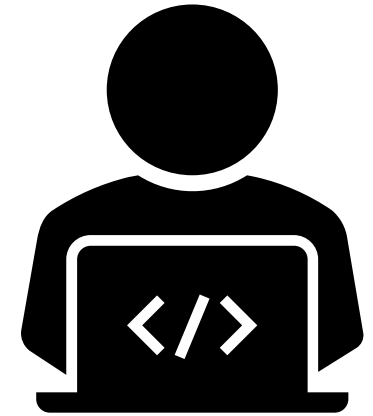
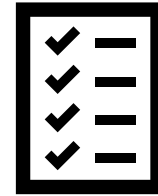
**ARIA Regional™**



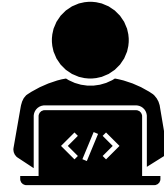
**ARIA View™**

# Le travail d'ingénieur et de Chef de projet

- Assurer les développements techniques pour répondre au besoin du projet
- Gérer la relation avec le client
- Participer à des reunions
- Gérer le budget
- Assurer des formations
- Répondre à des propositions techniques
  - En support des commerciaux
  - Ou en autonomie
- Participer au commercial pro-actif



# Le travail de chef d'équipe



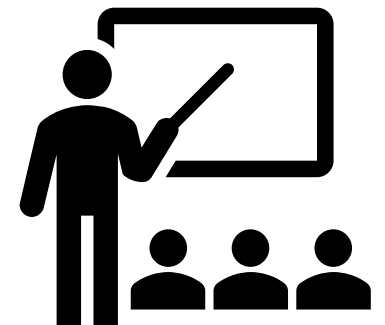
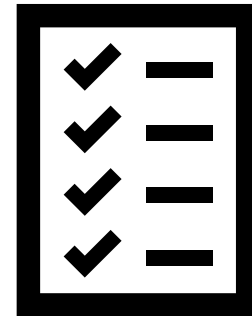
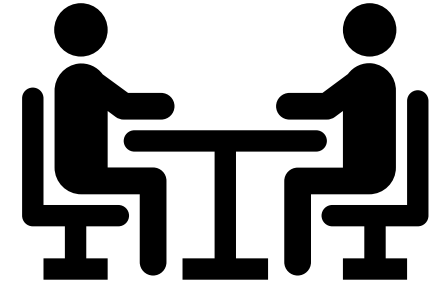
## Animer des reunions de groupe

- Gérer le planning et taux de charge de l'équipe
- Dispatcher les nouvelles affaires

**Beaucoup de relationnel!**

**Réalisation des entretiens individuels**

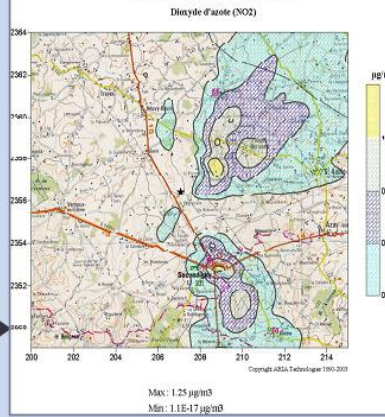
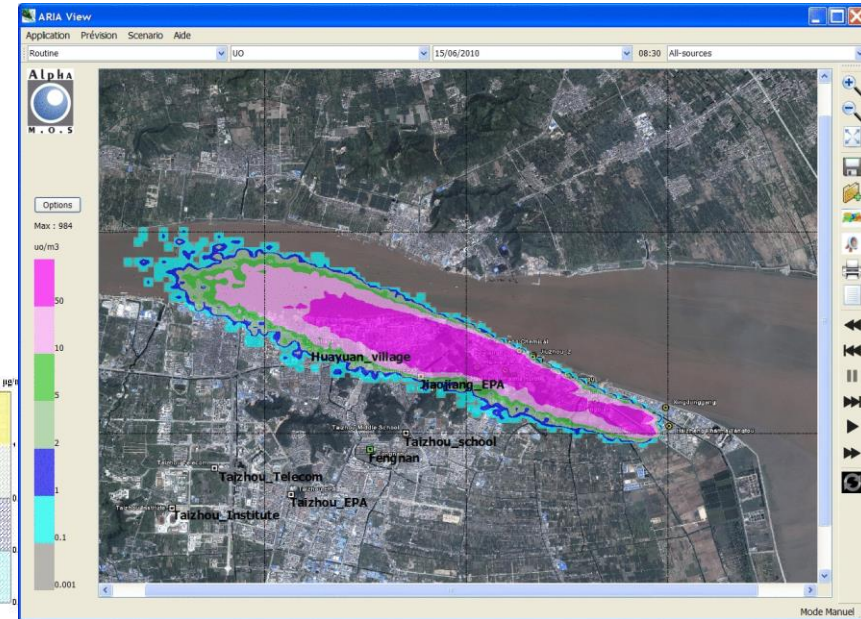
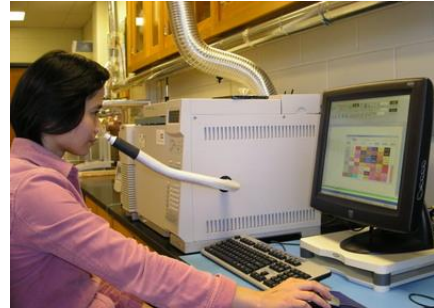
**Point d'entrée pour discuter avec la direction**



## Exemples de projet



# Industries



RQ BOX constellation



Data access on central monitoring center



Example of real time odor supervision system ( Taizhou – China)

# Safety and emergency response



Risks

Example of FORECAST of the radioactive plume of Fukushima (Japan) and dissemination on smartphone

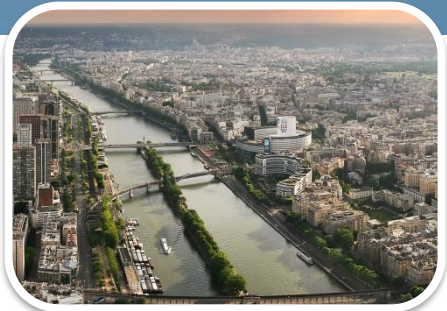
Back Air quality modelling  
Cs-137  
Dep Cs-137  
Cs-137 from 11. May 2011, 04:00 LT  
Virtual Sensor  
Cs-137  
2011/05/11 07:00:00  
JIMERE Model  
Enter Location town, country ...  
Enter Location  
Plot sendai Clear

Client AIR LIQUIDE

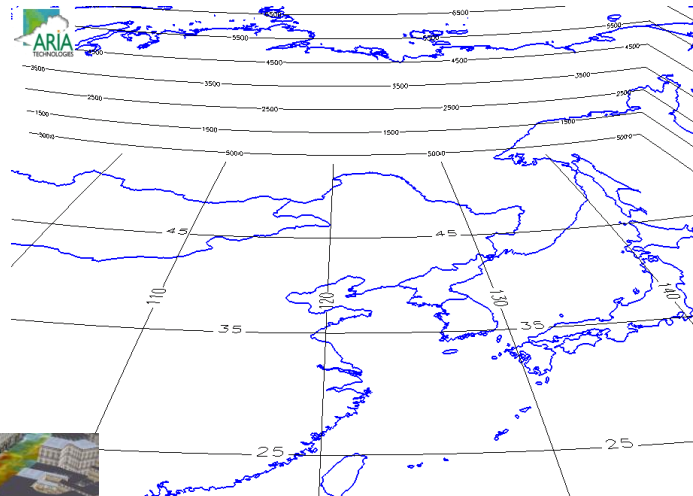
Aria Technologies Forecast - Mozilla Firefox  
http://web.aria.fr/Gearth/OLAQM\_FUKUSHIMA\_tst.html  
Air quality modelling Regional scale  
Cs-137  
2011/05/09 06:00 LT  
Emission Meteo Large scale Local scale  
Enter location: City, adress, cou  
Extract! On Click  
max: 7.22  
min: 0  
sendai  
lat: 38.268  
lon: 140.869



# Urban and regional application



**Sustainable cities**



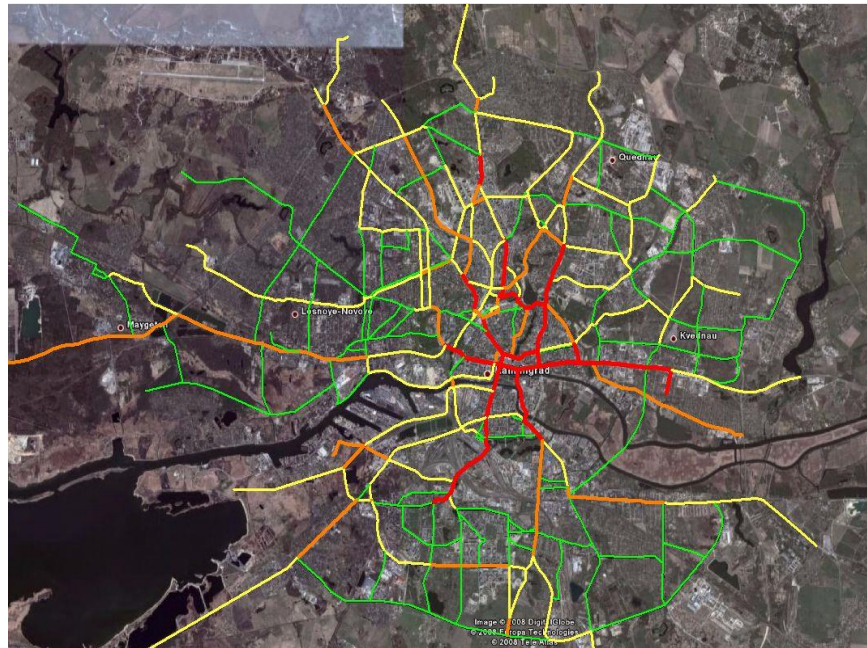
03/15/2002 00:00:00.00  
 emission : 5.5 t/s iso\_green=10mcg/m3 iso\_blue=1mcg/m3

**Desert yellow sand long range transport**  
 (Beneficiary : CNEMC Beijing)

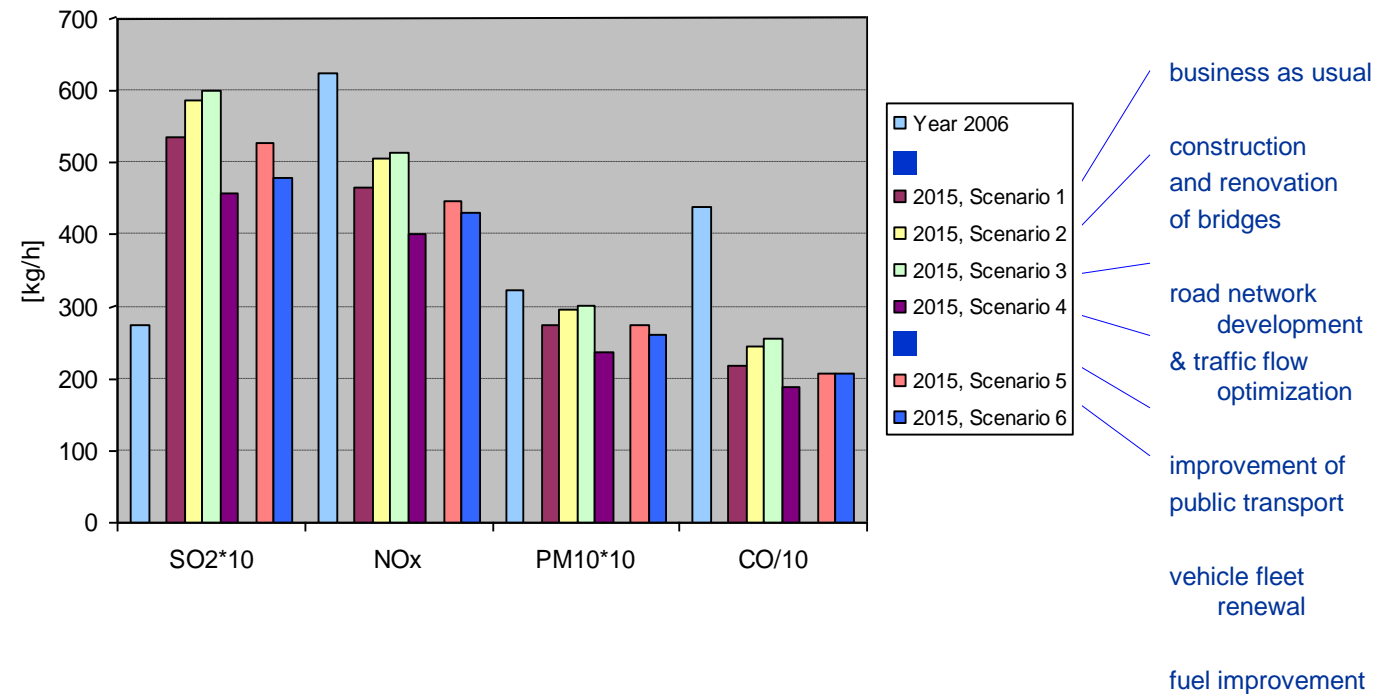


 	° ARIA Regional : Air quality forecast system (AIRPARIF)
 	° Urban Air quality modeling tools (city of paris)
 	° ARIA Regional : Air quality forecast system (Beijing Olympic games) ° ARIA Regional : contribution from province to province (SEPA/CNEMC)
 	° ARIA Regional : Air quality forecast system (Commonwealth Games 2010)
 	° ARIA Regional : Air quality forecast system (Winter Olympic Games 2006)
 	° ARIA Regional : Air quality Policies studies improvement ° ARIA Regional : Air quality forecast system for 2014 World cup
 	° ARIA Regional : Air quality Policies studies improvement on Kaliningrad (UE Project)
 	° ARIA Regional : AIR quality forecast system and Air quality Policies studies improvement on Romania (UE project)
  	° ARIA Regional : Air quality forecast system and Air quality Policies studies improvement on Romania (UE project Eten E2SP)
	° ARIA Regional : Air quality improvement studies on QATAR (Total and Qatar Petroleum Project)
	° ARIA Regional : National emission inventory and Air quality improvement studies on TUNISIA
	° ARIA Impact for the Malta Island
	° Air quality study and air quality improvement studies on Antananarivo (World bank project)

## Traffic flow and emissions modeling over Kaliningrad



## Traffic scenarios Impact on Air quality







## Blue sky for Beijing

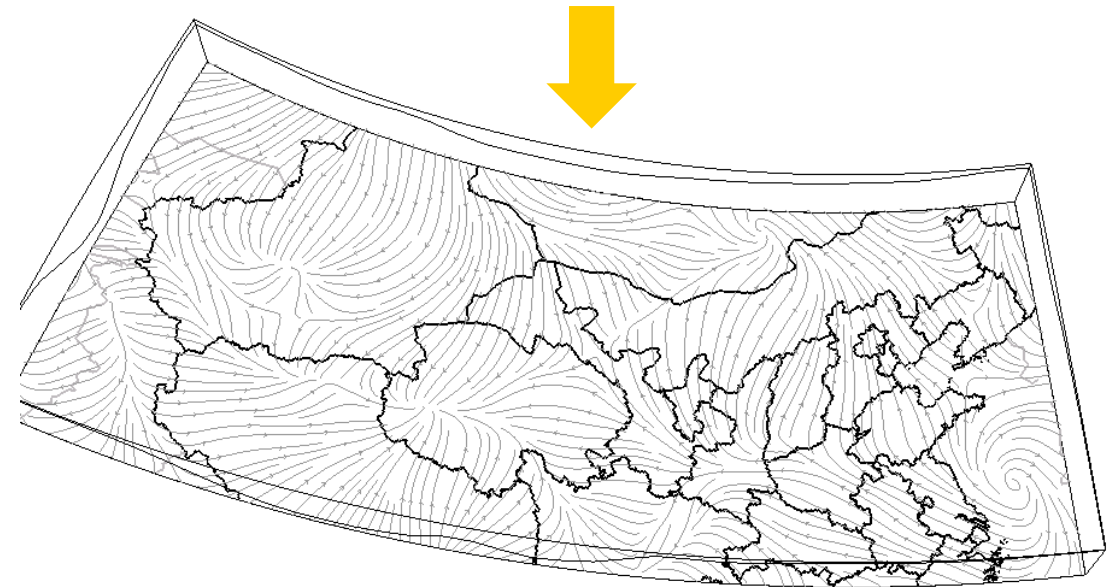
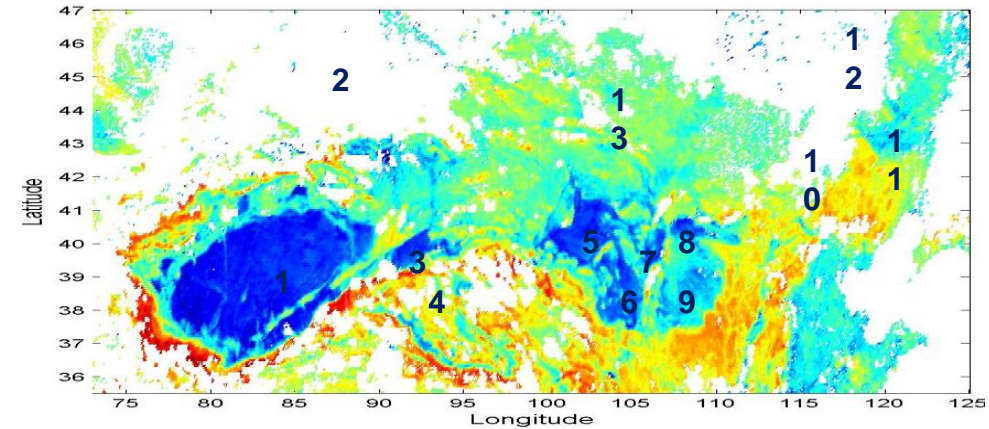
- Desert dust specific work



- Module d'émissions développé au LISA (Marticorena et Bergametti, 1995)
- Cartographies des sols (Laurent et al., 2005; 2006)



Bénéficier des avancées de la recherche pour obtenir des systèmes opérationnels fiables





# CONAIRE – A/Q system in Concepcion CL

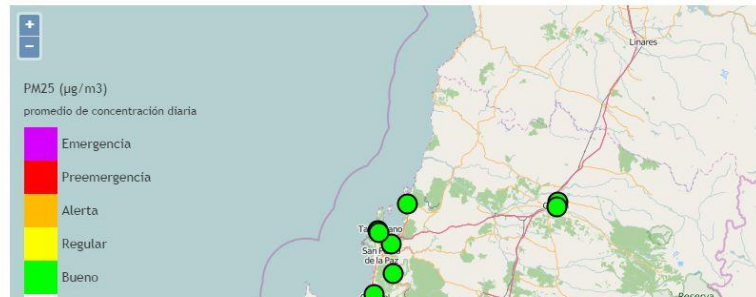


Estación	D (2015-11-05)	D+1 (2015-11-06)	D+2 (2015-11-07)
Puren	Bueno	Regular	Bueno

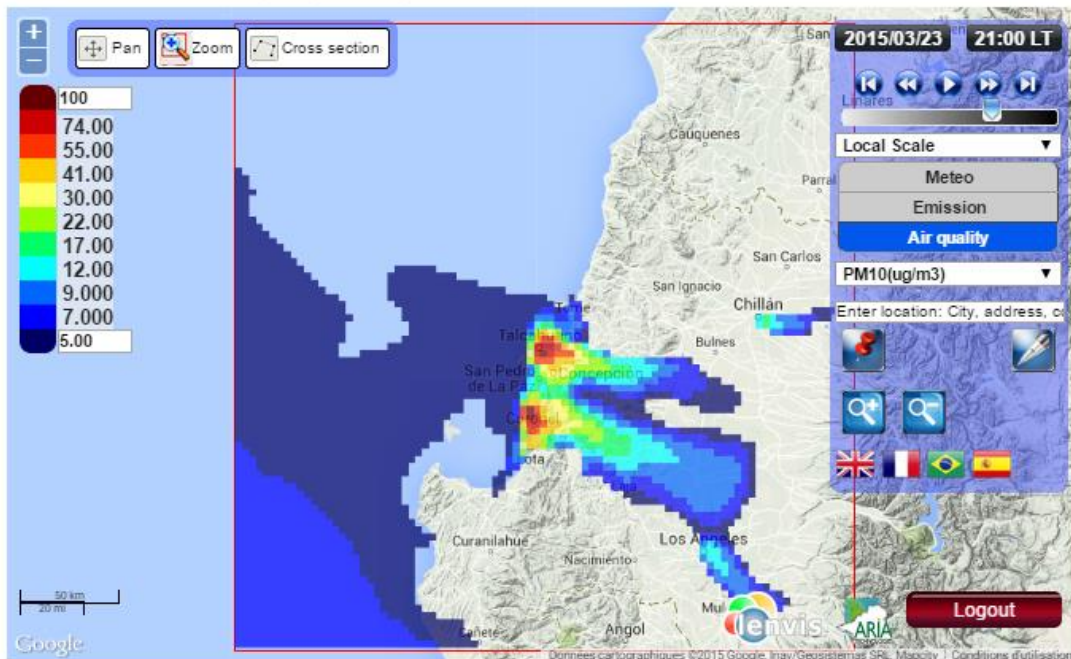
Bajar pdf

Pronóstico a partir del 2015-11-05

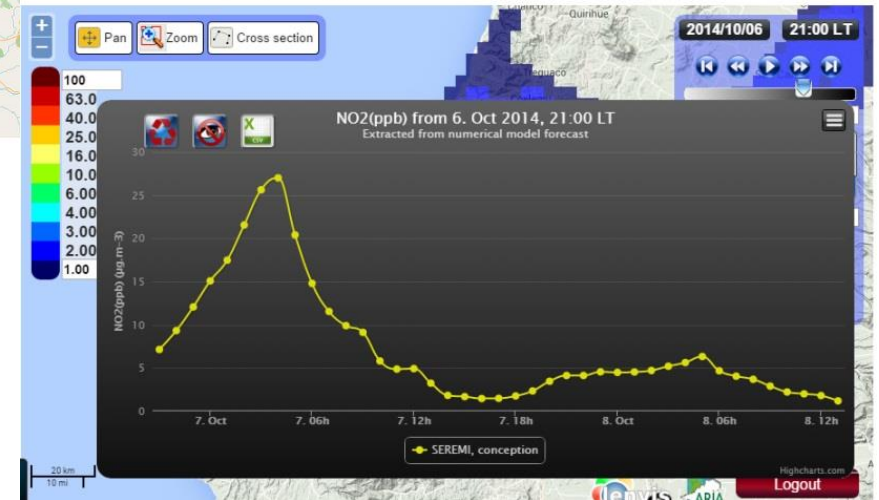
pronóstico D (2015-11-05)



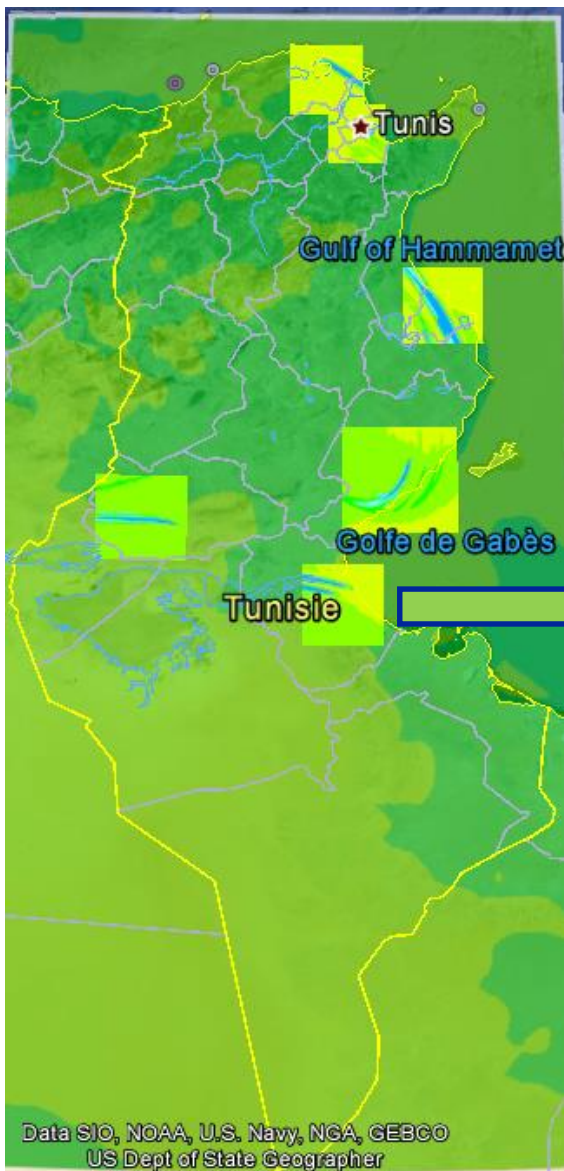
CONAIRE AirDisplayWidget



CONAIRE AirDisplayWidget



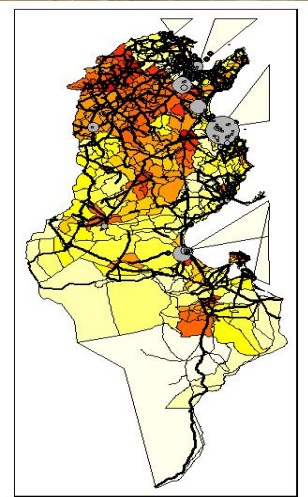
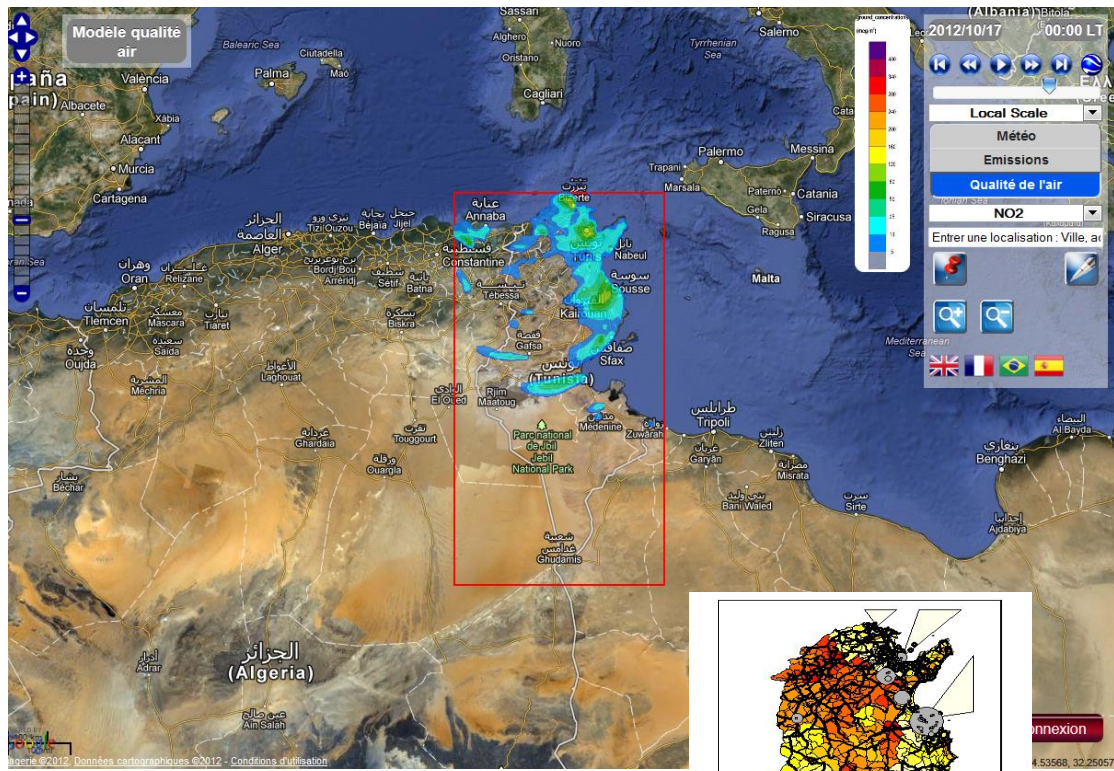
# TUNAIR air quality forecast



**Système TUNAIR**  
6 zooms sur les principales agglomérations  
Résolution: **1 km**  
Modèles : **SWIFT/FARM**



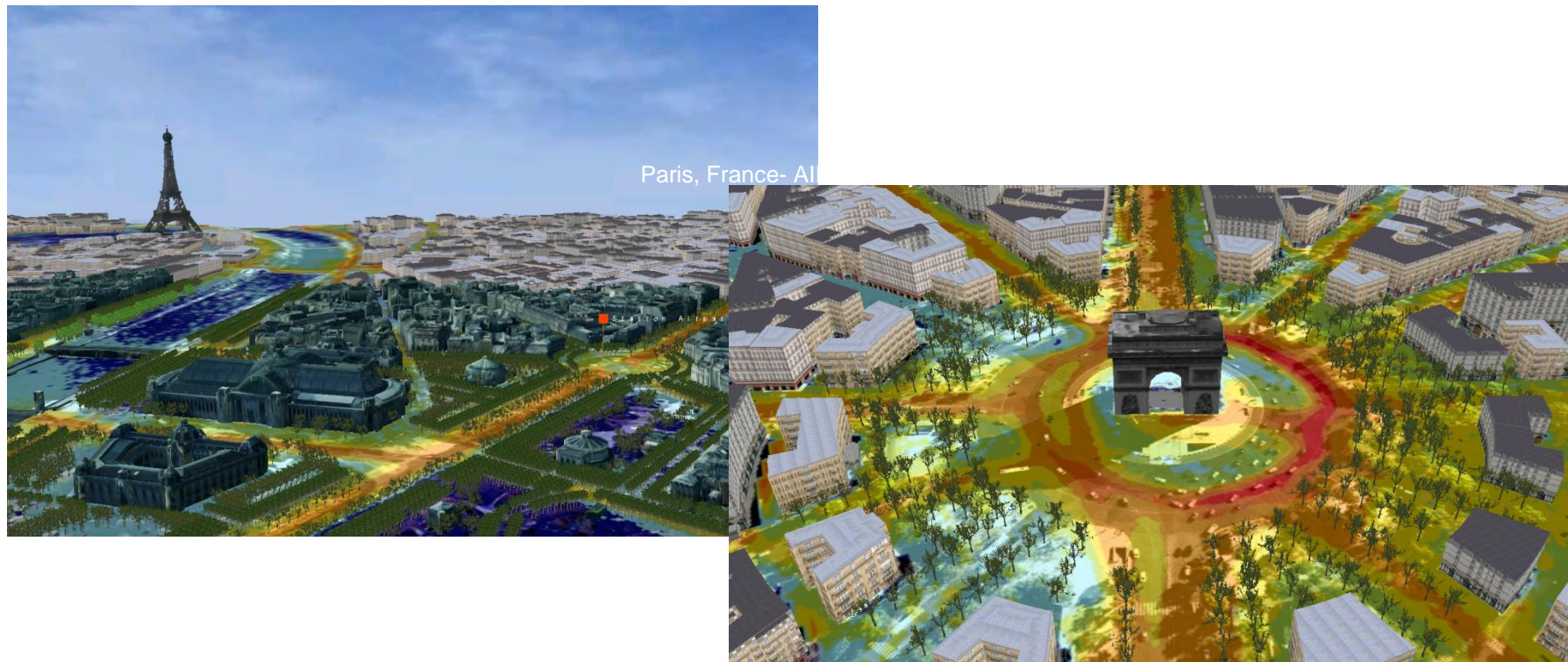
**Projet Gabès:**  
Modélisation lagrangienne avec PMSS pour représenter les panaches industriels





## AIRCITY Project

- A revolutionary simulation system to represent and provide the forecasting of the atmospheric pollution at any point within a very big city, with a resolution of about a few meters throughout the city.

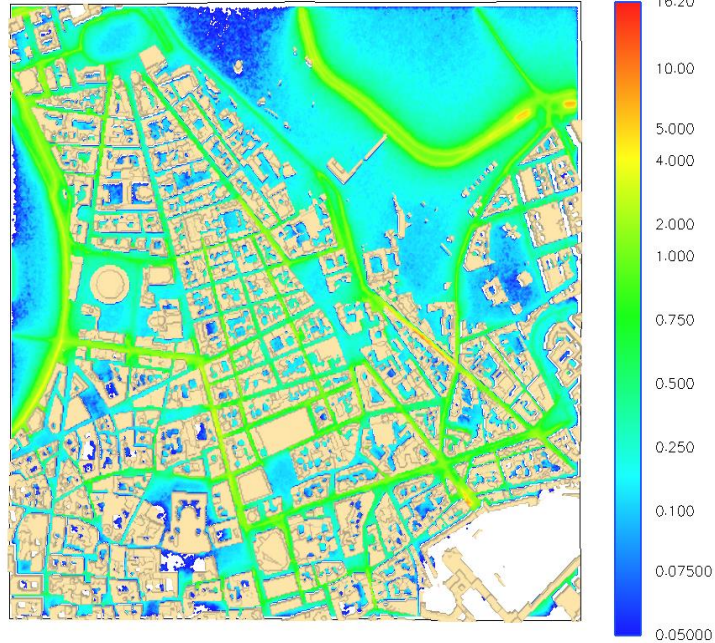


# Study of the benefits associated with Electric Vehicles introduction

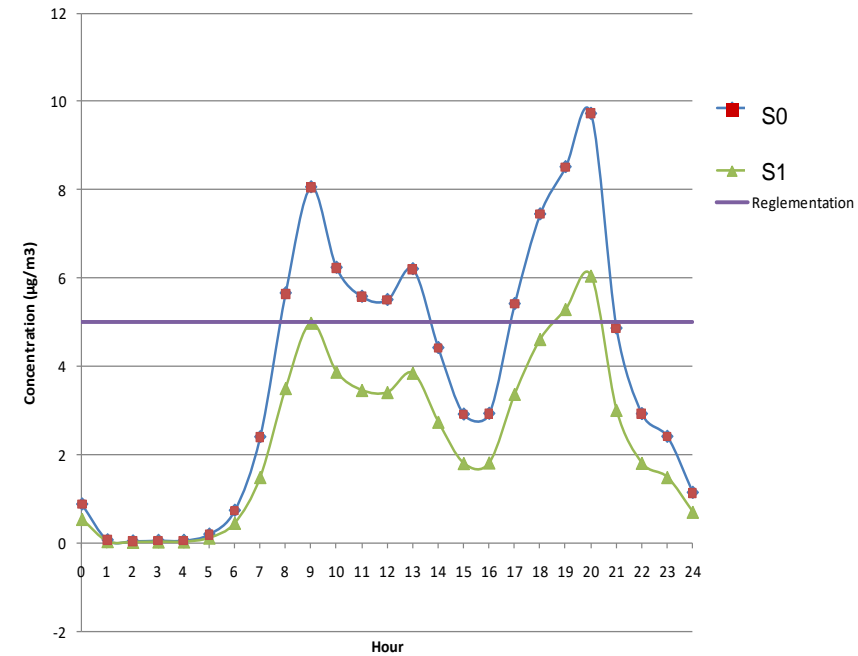


Hypothesis: 25% of EV in the ZTL city center

PM<sub>10</sub> concentrations  
Variations between S0 and S1 (µg/m<sup>3</sup>)



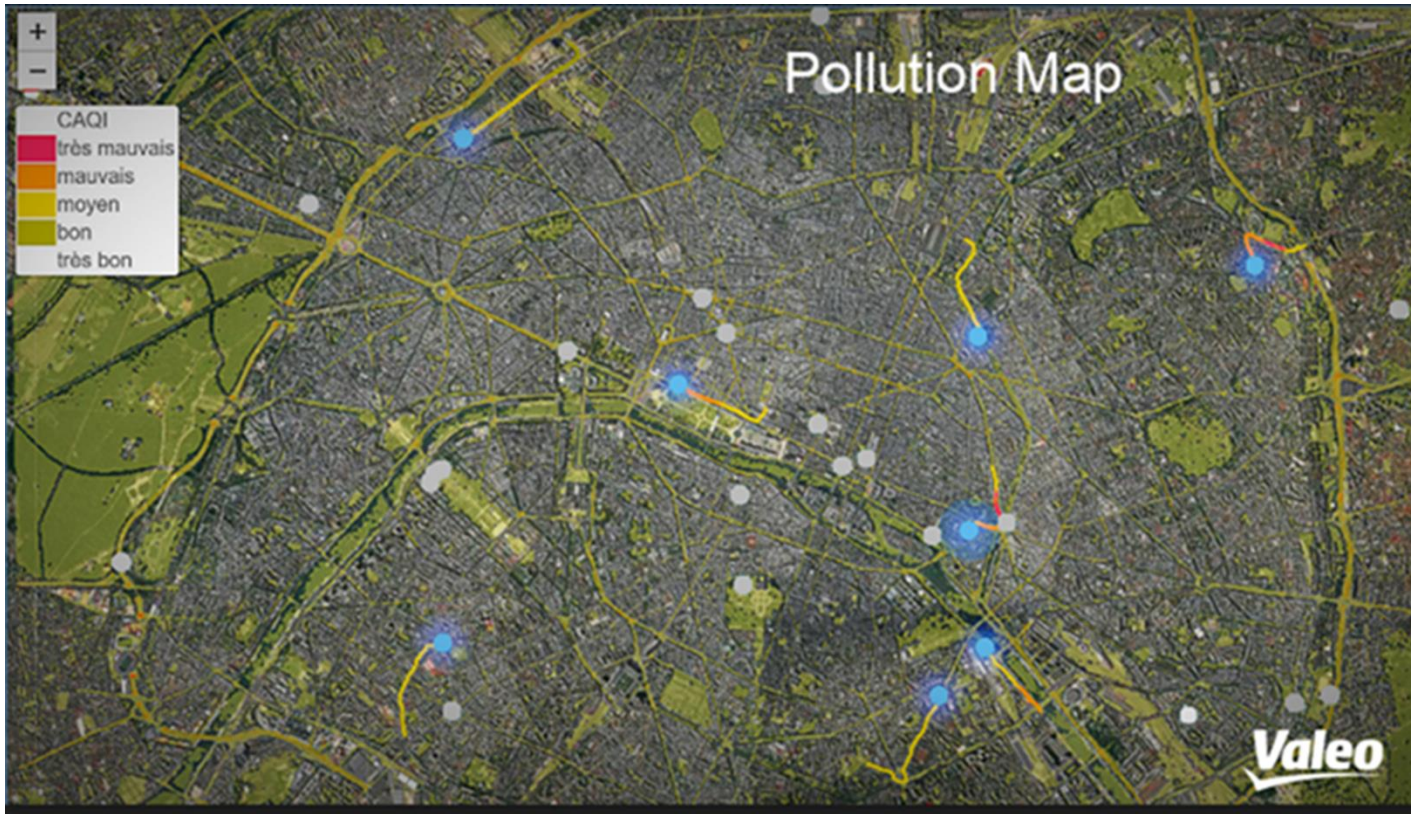
Evolution of Benzene - Corso



**Reductions for voluntary Scenario (maximum level at 8pm)**

- 38% for Benzene
- 34% for NO<sub>x</sub>
- 33% for CO
- 29% for PM10
- 22% for PM2,5







## SNC PARIS : projet « 1000 arbres »

Complément d'étude en étudiant l'impact de mesures compensatoires

- Mise en place d'aérateurs dans le tunnel
- Mise en place de murs anti-bruit
- Mise en place d'écrans végétaux

