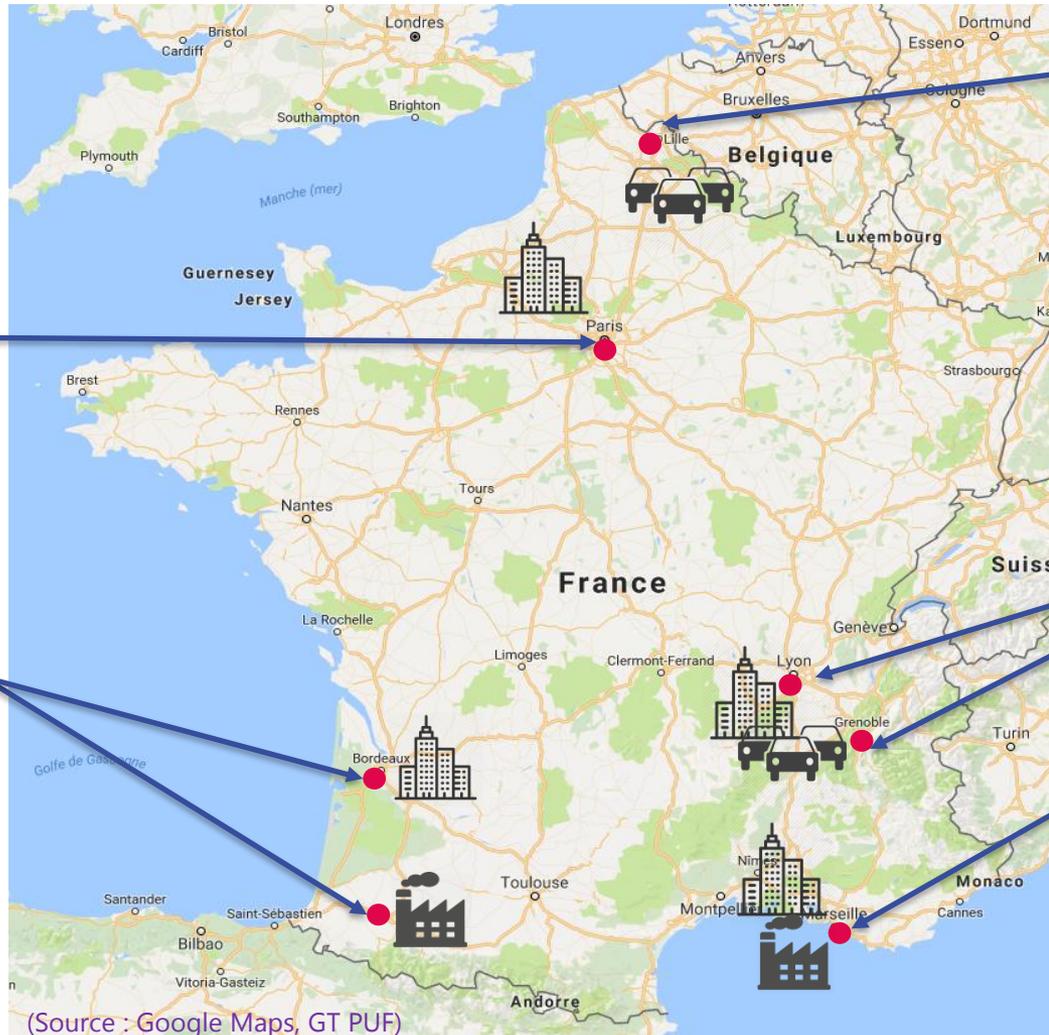


UFP monitoring in France

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³Air PACA, 13000, Marseille, France ⁴Atmo Nouvelle-Aquitaine, 33692, Mérignac, France ⁵INERIS, 60550, Verneuil en Halatte, France



Atmo Hauts-de-France
- Traffic (Lille)

INERIS/Airparif

- Urban Background
(Gennevilliers) 2003-
2011

Airparif

- (Paris) 2018-

Atmo Auvergne-Rhône-Alpes

- Urban background and
Traffic (Lyon and
Grenoble)

Atmo Nouvelle-Aquitaine

- Urban bckg (Talence)
- Industry (Mourenx)

Air PACA

- Urban bckg (Marseille)
- Industry (Port de Bouc)

(Source : Google Maps, GT PUF)

➤ Objectives

- Emerging « pollutant »
- Additional parameter to understand complex questions

➤ Instrumentation

- Core: UFP 3031 (TSI) – ~10 instruments
- In addition: CPC CEN (~5), SMPS (1)
- Trend: Number of instruments, sites and Regional Network are increasing

➤ Networking

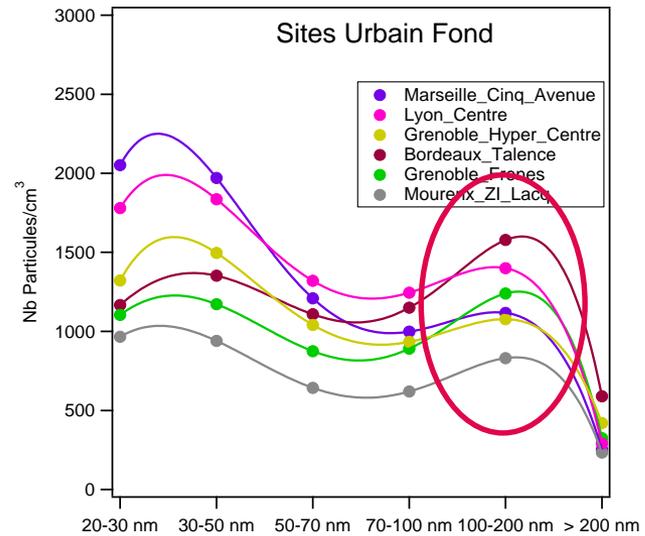
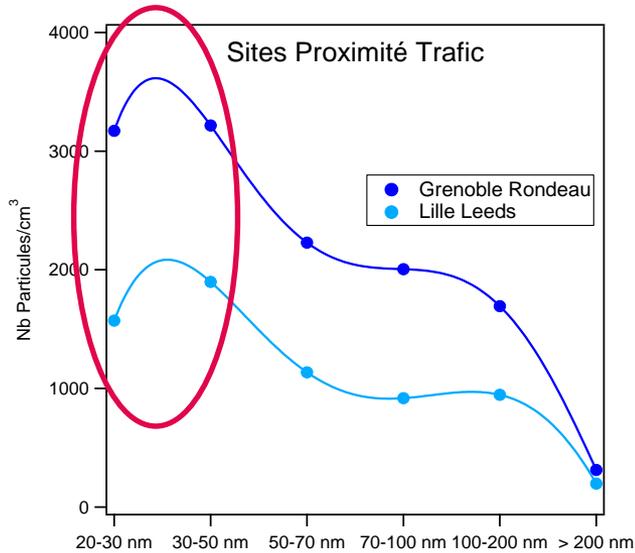
- QA/QC
- Data management and analysis
- Standardisation (CEN)
- Technical and scientific support
- Communication

➤ Interlaboratory exercises



channel		%		Trend (*)
		2014	2015	
1	20 - 30 nm	19	23	21%
2	30 - 50 nm	22	25	14%
3	50 - 70 nm	23	17	-26%
4	70 - 100 nm	15	13	-13%
5	100 - 200 nm	33	23	-30%
6	200 - 800 nm	150	90	-40%
Total	Total	20	24	20%

➤ Size distribution of UFP – typology

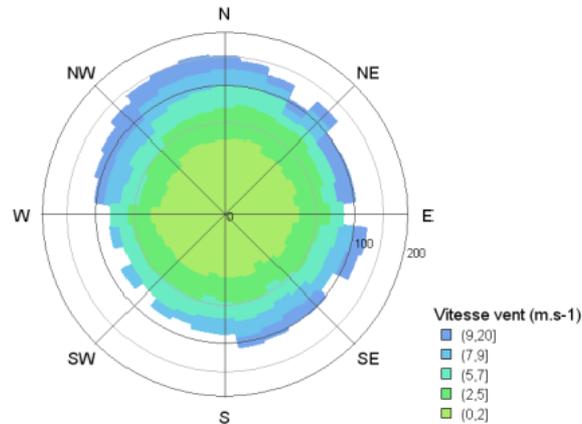


➤ Identification of industrial sources of UFP

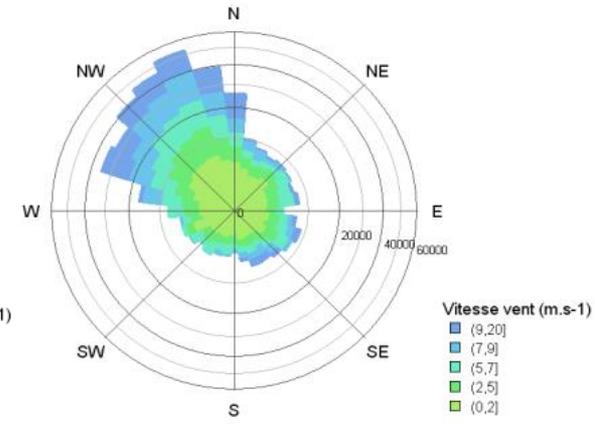


Industrial area, Fos-sur-Mer

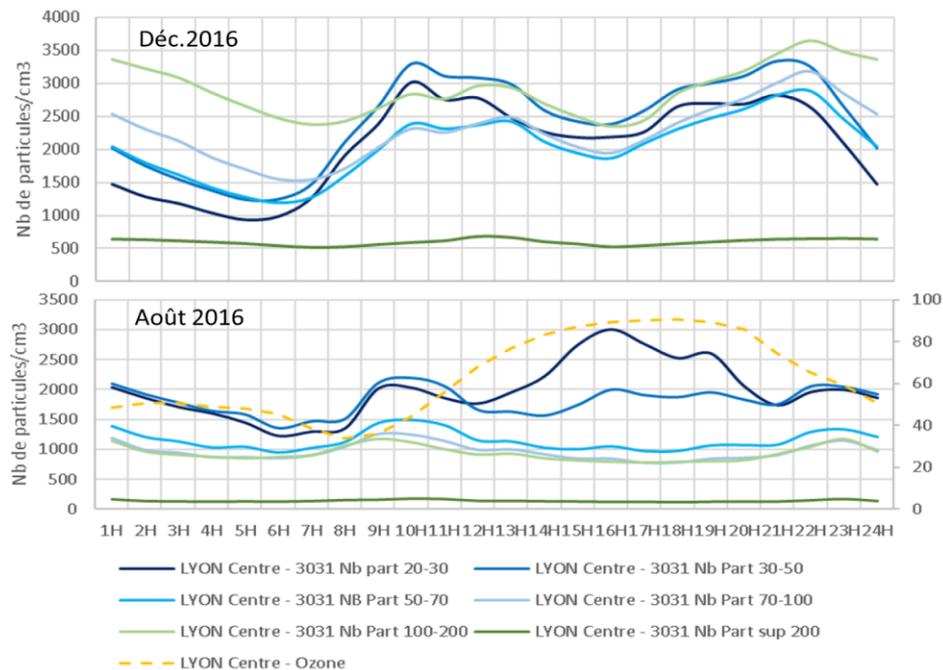
Moyenne des concentrations massiques de particules PM2.5 (aciérie)



Moyenne des concentrations numériques de particules 20-30nm (aciérie)



➤ Sources: combustion, photochemistry



- ☐ Combustion: winter, < 100 nm and 100-200 nm concentration increase during rush hours and heating hours, respectively
- ☐ Photochemistry: summer, 20-30 nm peak during the afternoon, connected with photochemical processes involving sun / O₃ production

Forest fire, Bouches-du-Rhône, 10-11 August 2016 :

- ☐ Strong increase, especially in the 100-200 nm range, connected with wood burning

