

FLUIDYN-PANAIR

Urban air quality

User friendly integrated tool for consultancy firms and urban architects

FLUIDYN-PANAIR is dedicated to the simulation of air quality in urban areas and periphery to evaluate the individual contribution by including all pollutant and heat emissions sources: vehicle traffic, industries, urban areas, as well as the efficiency of proposed mitigation solutions.

- 🔧 Air quality on a small scale from street level to an urban agglomeration,
- 🔧 Environmental impact of Urban Development Planning (UDP),
- 🔧 Air quality-health impact,
- 🔧 Combating heat islands,
- 🔧 Impact of mitigation measures to reduce the pollution effects on new projects or development of existing infrastructures.

Modules adaptable to different applications

FLUIDYN-PANROAD: Pollutant dispersion modelling from road traffic.

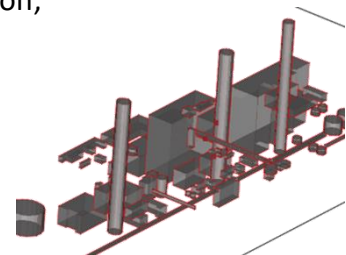
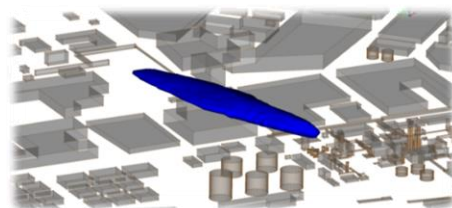
- 🔧 Impact of changes in road layouts: (deviations, ring roads...), development in existing roads (addition of lanes, crossroads...),
- 🔧 Impact of acoustic barriers installation.

FLUIDYN-PANEIA: Atmospheric dispersion modelling of industrial emissions.

- 🔧 Impact studies,
- 🔧 Quantification elements for health studies,
- 🔧 Impact of industrial sites development and modification,
- 🔧 Particles, droplets, odors: dispersion, source identification and plume visibility,
- 🔧 Optimizing monitor point locations.

FLUIDYN-PANWIND: Wind flow modelling in complex urban environment.

- 🔧 Wind flows around buildings and on complex terrain (recirculation zone, low velocity flows...),
- 🔧 Analyzing pedestrian comfort in the developing areas,
- 🔧 Wind energy potential analysis and optimization,



AIR QUALITY AND PUBLIC COMFORT IN THE CITY

Air quality-Health impact

- Statutory response to the environmental impact assessment of urban projects
- Simulation of concentrations and pollutant deposits according to different scenarios and w.r.t emission modification hypothesis
- Road traffic emissions calculation (COPERT methodology)
- On-site campaign measurements

Air quality monitoring platform

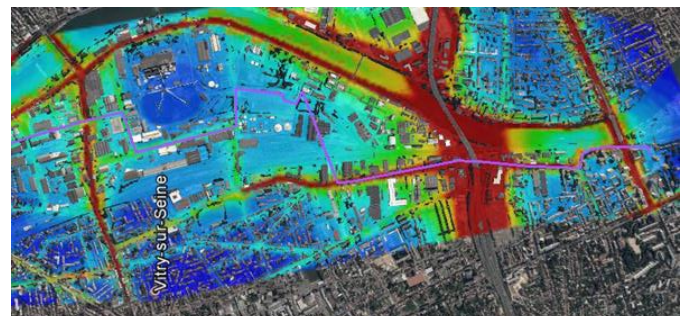
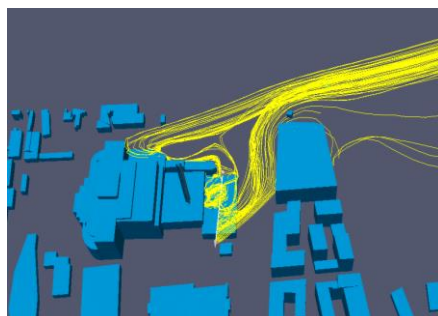
- Short term prediction of pollution peaks by coupling with a sensor network
- Major pollutant sources identification (road traffic, urban heating, etc.) by model inversion from in situ sensors
- Efficiency of active / passive pollution mitigation systems

Urban developments

- Decision making tool for urban architects and design engineers.
- Coupling with sensor networks and source identification.
- Improving pedestrian comfort: urban planning and building materials
- Mitigate public discomfort and reduce exposition: wind flow around buildings and public establishments.

Climate impact

- GHG assessment
- Heat island effect
- Forecasting allergen episodes (pollen)



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