

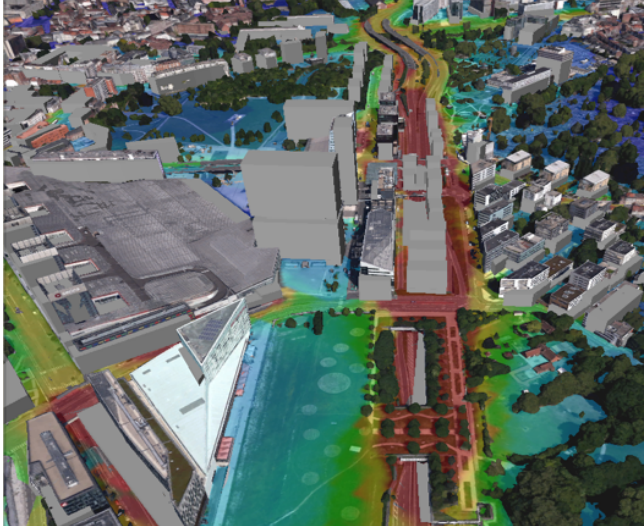
## Protecting Cities During Pollution Episodes: What Works

Each winter, sharp spikes in urban pollution have made air-quality alerts almost routine. Yet end-of-pipe measures such as smog towers or curb-side filters continue to show limited results while consuming significant energy.

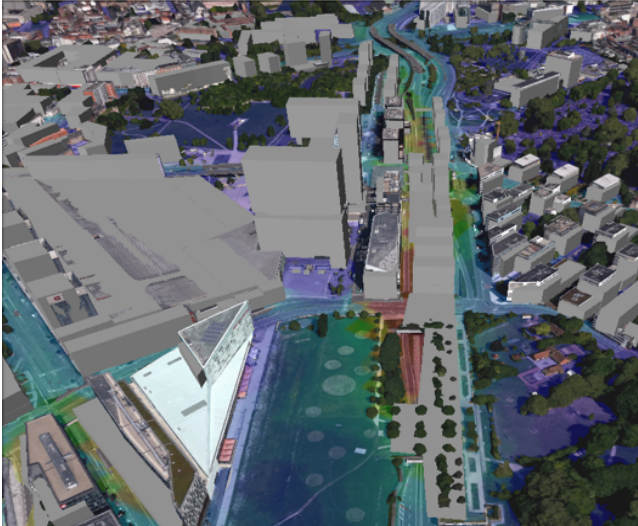
Effective mitigation comes from cutting emissions at the source. Instead of imposing abrupt restrictions on industries or traffic—which often face economic pushbacks, a phased, episode-based emission reduction strategy offers a more practical and publicly accepted approach when supported by scientific air-quality modelling.

Targeted impact mitigation must begin with vulnerable groups—hospitals, schools, pediatric and geriatric centres—where pollution episodes have immediate and visible consequences like increase in mortality and respiratory emergencies. Visible health benefits from episodic emission have shored up public support quickly and naturally, as we have seen in some of the past cases - Lyon, Nottingham, Beijing, etc.

Fluidyn has implemented this approach in multiple urban centres, including city-scale projects such as Dijon, Plaine St. Denis etc in France—achieving measurable reductions in PM2.5, PM10, VOCs, NOx, SOx, odours, and greenhouse gases like CO<sub>2</sub> and CH<sub>4</sub>.



Before Traffic re-organisation



After Traffic re-organisation

- Credible & Extrapolatable Monitoring Using CFD**  
A strategically deployed sensor network, optimized through CFD-based dispersion modelling, ensure reliable detection of key emission sources—roads, industries, and hotspots even during low-wind pollution episodes.
- Reliable Fore-time source apportionment by Inverse CFD**  
For sensitive locations (e.g., hospitals), Fluidyn's inverse CFD technology identifies and quantifies the contribution of all impacting sources, enabling precise, targeted emission reduction actions.
- Forecast-Driven Episode Management**  
Episode prediction and mitigation planning are performed ~3 days in advance using high-resolution urban microscale simulations that consider buildings, terrain, vegetation, and thermal gradients—key factors governing pollutant behaviour during calm atmospheric conditions.

By integrating accurate forecasting, targeted emission control, and cutting-edge CFD technologies, Fluidyn provides cities with a practical and effective pathway to cleaner air. This science-driven approach strengthens the protection of vulnerable populations and delivers tangible improvements in urban air quality.

## Fluidyn Showcases Innovation at Pollutec 2025



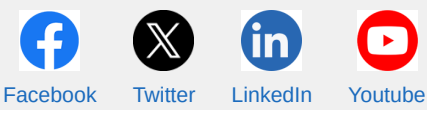
7-10 OCT. 2025

LYON EUREXPO FRANCE

where the sustainable world is invented

**Fluidyn participated in Pollutec 2025**, where we showcased our advanced **Inversion Modelling Tool**. The live demonstration highlighted how real-time emission source mapping can accurately identify, quantify, and manage emissions, enabling more effective mitigation strategies. This innovation empowers cities and industries to make informed, science-based decisions on their journey toward net-zero emissions. The event also provided an excellent opportunity to engage with policymakers, researchers, and industry leaders who share a strong commitment to sustainable and actionable climate solutions.

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