

Air Pollutant Dispersion

The study of air quality calls on knowledge at the crossroads of both air flow and particle physics. Our specialists, whose expertise is put to the test particularly in mobility sectors, offer a series of aerodynamic simulation models with particle transport, that enable us to understand the levels of pollution of various kinds, both indoors and outdoors.

L'hypercube refers to AREP's internal research and scientific support workshop, specializing in the modeling of complex physical phenomena.

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Our Expertise

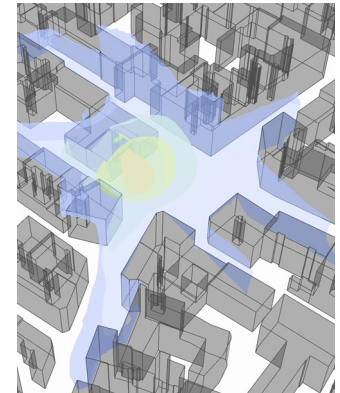
Our approach is based on **numerical simulations of air currents incorporating fine particle transport models**. These dispersion calculations take into account real wind conditions and can simultaneously involve dynamic phenomena such as the piston effect generated by a train entering a station. **The processing and representation of the results** are adapted to the phenomena studied and to the needs of the assignment **using computer scripts specific to the study**.

Our Services

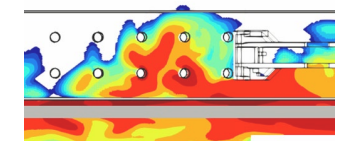
Analysis of the impact of indoor air movements

- Computing and mapping local air velocities,
- Identification of areas susceptible to anomalies (acceleration, recirculation, stagnation),
- Identifying health risks by calculating air change rates.

Design assistance by recommending preventive and corrective measures.



3D mapping of pollutant concentration levels in a dense urban environment.



Dynamic mapping of the concentration of pollutants in a transient underground space.