



AIR QUALITY

Historical actor in the field of atmospheric pollution, NUMTECH provides expertise & consulting services and offers a range of software dedicated to air quality diagnosis and monitoring in urban and industrial environments.

Industrial releases: regulatory studies and monitoring

Our experience in the dispersion modeling of air pollutants allows us to intervene within the framework of impact or hazard studies in any type of installation, regardless of the complexity of the site and its environment: complex topography, valley bottom, presence of obstacles, seashore, temperature inversions, diffuse emissions, particle dispersion, dense gases, etc.

The latest generation of Gaussian models allows us to provide rapid assistance to a wide range of plants. If a more sensitive approach is required (e.g. in case of a facility based in a complex terrain), our engineers are able to use Lagrangian or Eulerian three-dimensional tools, depending of the scales involved: CFD models for near-field studies and in presence of obstacles, Lagrangian models for complex dispersion phenomena, regional meteorological models for extended areas of study, integral models for dispersion modeling of accidental dense gas, etc.

NUMTECH develops and distributes a range of software for industrial companies, operators and consulting firms, to assess the impact of atmospheric releases emitted by industrial facilities:

- The range of ADMS software, world-class model and reference software in France, dedicated to industrial companies and consulting firms for regulatory studies.

- NUMTECH implements systems for air quality monitoring and forecasting in industrial environment. Thus, the system Plum'Air® is currently used by several French refineries and integrated in platforms dedicated to the management of industrial releases impact. This system can work with different dispersion models and can provide, coupled with a weather station and/or weather forecasting models, real-time information and/or forecasting information in the immediate vicinity of a plant.

The experience of hundreds of dispersion studies associated with a continuous Research & Development activity in collaboration with our academic partners (INRIA), enable our experts to provide a critical analysis of the calculated results and an estimation of uncertainty levels.

Odour nuisances

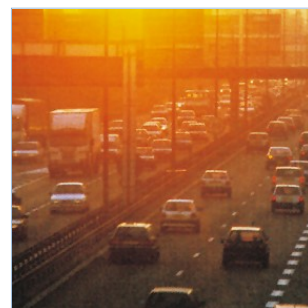
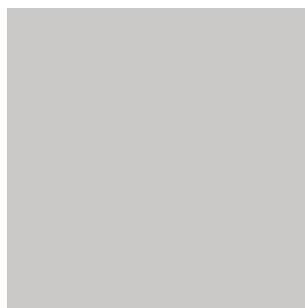
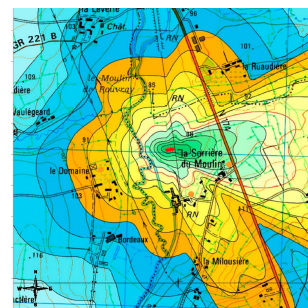
In case of impact studies for composting, water treatment, rendering, petrochemical activities, NUMTECH simulates odours dispersion using specific software.

Models enable concentration odor mapping (OU/m^3) in the environment of installations from the emission rate and the representative meteorological chronology, taking into account complex effects (presence of obstacles, diffuse sources, near-fields, turbulent fluctuation of odors concentrations, etc.).

Our results allow industrial companies to verify that they meet regulatory requirements and, if necessary, dimension stacks heights and/or deodorization systems resizing to reduce the impact on the neighbourhood.

These dispersion calculations can be associated with meteorological diagnosis, allowing operators to identify the adverse meteorological conditions for odours dispersion, and thus anticipate and postpone some activities (e.g. windrow turning).

With our industrial customers, we also develop software solutions for odour nuisances monitoring and forecasting in the environment of facilities whose activities generate odours.



Air quality in urban environment

Our expertise in the field of air dispersion at urban scale enables us to establish air quality diagnosis in urban areas (pollution mapping).

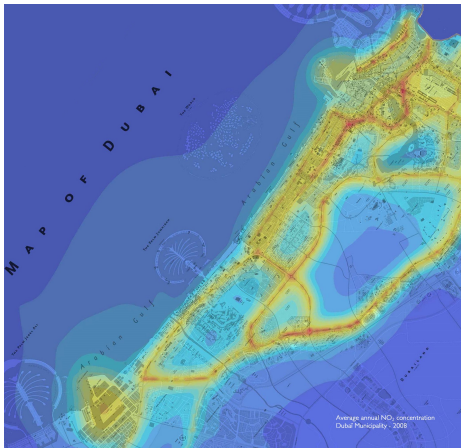
These studies are generally based on the use of emission cadastres integrating the transport, industry, residential and tertiary sectors and on the implementation of the ADMS-Urban model, which is the reference digital model developed with our partner (CERC).

Our dispersion models are configured to take into account the urban environment specificities: "canyon" effects for the streets lined with buildings, heat island effect, urban photochemistry, regional pollution forcing, etc. The results of these calculations are used for air quality GIS mapping at the scale of the agglomeration, with a very fine resolution to "zoom in" until street-level.

These studies often precede the implementation of the operational system Urban Air[®], developed by NUMTECH for air quality monitoring and forecasting at the scale of the agglomeration.

This system can automatically generate web pages showing the evolution of air pollution across the city up to street-level, from the same day to two days after (D+2).

Besides, within the framework of urban developments for which users' climate comfort must be guaranteed, and the impact of urban pollution limited, NUMTECH implements CFD models (Code_Saturne for example). These models allow to very finely take into account the architecture of the envisaged projects and their impact on meteorological fields and consequently on the dispersion of pollutants released in the air. Thus, the constructions can be optimized in an eco-responsible approach for the protection of the environment, goods and people.



Air pollution map - Dubai city

"Air and Health" impact assessment studies for road infrastructures

NUMTECH proposes "Air and Health" impact assessment studies concerning road infrastructures. These studies involve the most recent modeling tools, NUMTECH's public health expertise and partners specialized in metrology.

Depending on local regulations, and with our partners in metrology, we set up measurements in the environment in order to quantify the initial state of air quality before the implementation of projects.

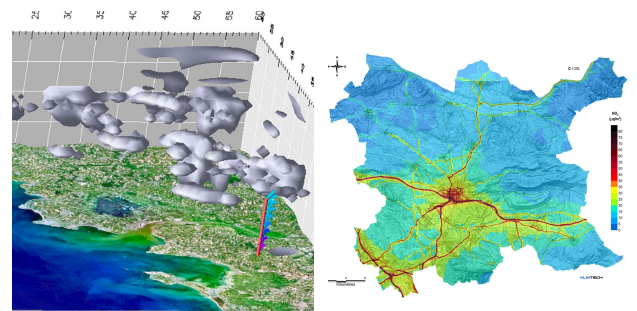
Emission calculations (COPERT V methodology) allow to initialize our dispersion models (Gaussian, Lagrangian, Eulerian) in order to assess the concentrations of pollutants in the air. These results are used to create pollution maps and allow comparisons with air quality regulatory requirements.

If required, health risk assessment can be achieved using measurements or modeling results. Inhalation and ingestion pathways can be considered.

Indoor air quality

Even if outdoor air quality is NUMTECH's core business, we also work on indoor air quality issues. In this capacity, we use specific modelling tools: multizone/nodal approach, CFD aerualics-thermal model, etc.

NUMTECH establishes diagnosis of the current situation and can test various optimization solutions taking into account the customer's technical and financial constraints.



numtech
ENVIRONMENTAL INTELLIGENCE

6 allée Alan Turing
Parc technologique de la Pardieu
CS 60242 - 63178 AUBIÈRE CEDEX
FRANCE

Tel. (33) 4 73 28 75 95

numtech@numtech.fr
www.numtech.fr