fluidyn -PANAIR

URBAN AIR QUALITY

fluidyn-**PANAIR** is a module of *fluidyn* -**PANACHE** dedicated to environmental impact assessment of urban air quality. It simulates general air quality in various weather conditions, by taking into account low wind velocities and by including the natural convection in the urban canopy.

Designed to be used by highway and environmental engineers, it is used to :

- ▪ Assess the impact of any changes in the existing infrastructure and simulate the effects of pollution due to incoming projects.

- ▪ Evaluate the pollution on a regional scale

fluidyn –**PANAIR** has been validated in East American regions, is used when the simulation of the air quality for a particular area is necessary. It can evaluate the contribution of several habitats to the air pollution, including the vehicles, the heat emissions from industries and urban areas. The ozone formation and regional transport can be evaluated by means of different reactive schemes.

fluidyn-**PANAIR** has been developed in collaboration with ADEME (French Ministry and Environmental Agency). It is a part of the *fluidyn*-**PANACHE** family and integrates all its features: it can take into account the topography, obstacles, high buildings, influence of the vegetation and nature of the terrain on the dispersion, effects of solar radiation and the ambient temperature conditions.

Due to the integration of rapid and advanced numerical techniques, this software can simulate dispersion for the complete wind rose, which provides a good representation of the local weather conditions.

fluidyn-**PANAIR** also calculates Pollution index. Moreover, its user-friendly menu interface is very easy to use.
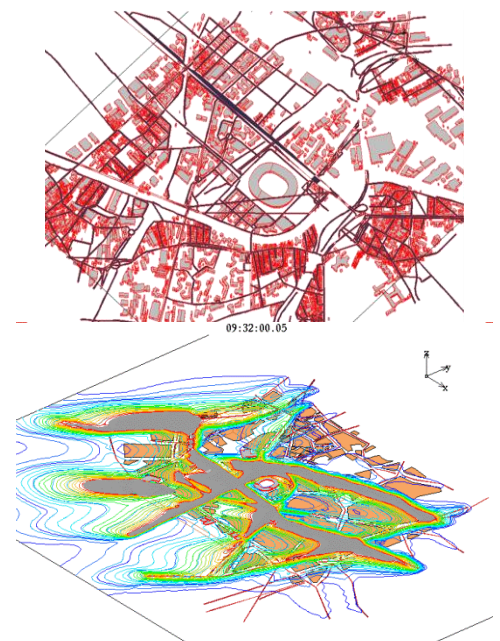
The *fluidyn*–**PANWIND** model, integrated in all the software of **PANACHE** family helps to design a wind rose diagram on an undulating terrain for weak winds and for strong solar radiation on flat or undulating terrain in urban and peri-urban zone, by taking into account the influence of height. A diagnostic or forecasting model evaluates the wind fields. The effect of atmospheric turbulence is one of the elements aiding the software to provide good results.
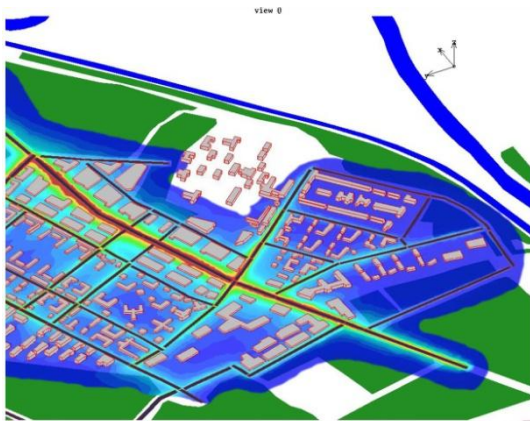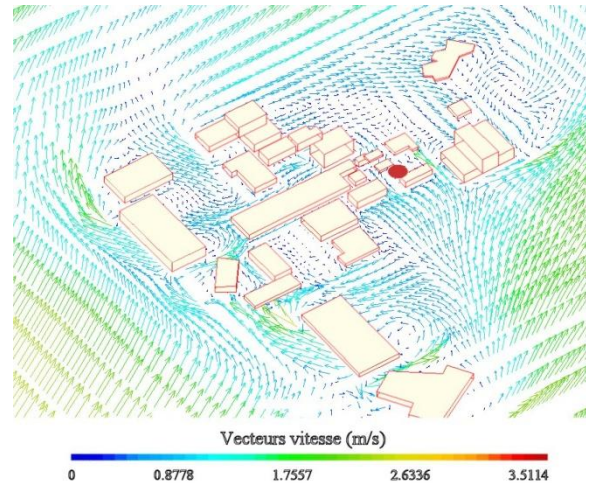
The results of the calculations are displayed on a background map in the form of colour concentration contours, concentration profiles on traffic routes, wind fields etc.

The concentration data in air and in the deposits provide the quantification elements of health effects due to inhalation or ingestion.

A video animation tool to view the successive stages of the dispersion is also integrated in the software

GAUSSIAN MODEL IN *fluidyn*-PANAIR

The Gaussian model ISCST (Industrial Source Complex Short Term) developed by the USEPA (US Environmental Protection Agency) solving probabilistic equations is available in *fluidyn*-**PANROAD,** thus providing a simplified approach for the atmospheric dispersion.

APPLICATION FIELDS:

Risk studies for environmentally sensitive sites, complying with the statutory directives (air quality laws), health impact studies, authorisations for infrastructure and industrial modification

CUSTOMERS

Industries, environmental consultancy firms, consultants, pollution control boards, city councils, government construction firms ..…

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