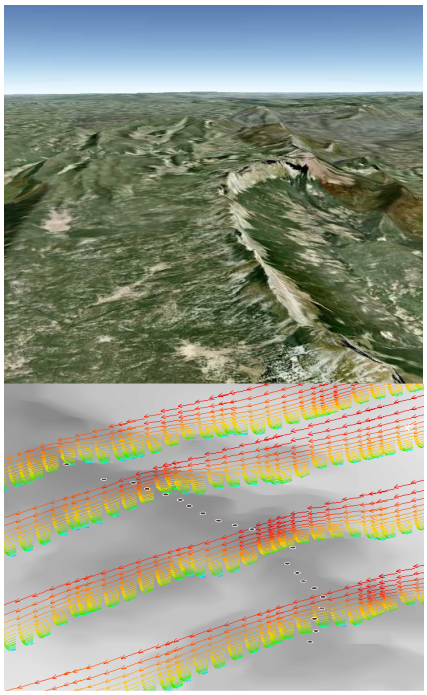
fluidyn PANEOLE



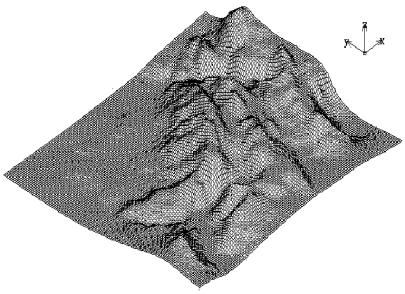
WIND TURBINE POTENTIAL

fluidyn-**PANEOLE** is a CFD software dedicated to the generation of wind turbine potential atlas.
The software has been developed with active support from **ADEME**, the French Ministry of Environment Agency to answer the requirements and specifications of the upcoming wind energy sector.
fluidyn-**PANEOLE** is a module of *fluidyn*-**PANACHE** family which includes its main characteristics and allows a quick and accurate simulation of wind flows around buildings or on a regional scale by taking into account:

- all kinds of **obstacles**,
- the **topography**,
- the influence of terrain and **vegetation**,
- the **local meteorological conditions.**

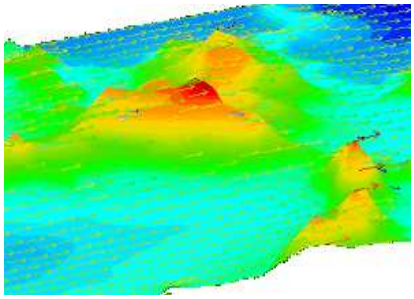
APPLICATIONS :

fluidyn-**PANEOLE** was developed for mesoscale and microscale analysis of a site for micro wind turbines energy potential prediction in highly undulated region.
fluidyn-**PANEOLE** offers wind farm developers a reliable and high precision tool capable of generating a wind field atlas for the wind turbines farm sitting.



This CFD software can be used for:

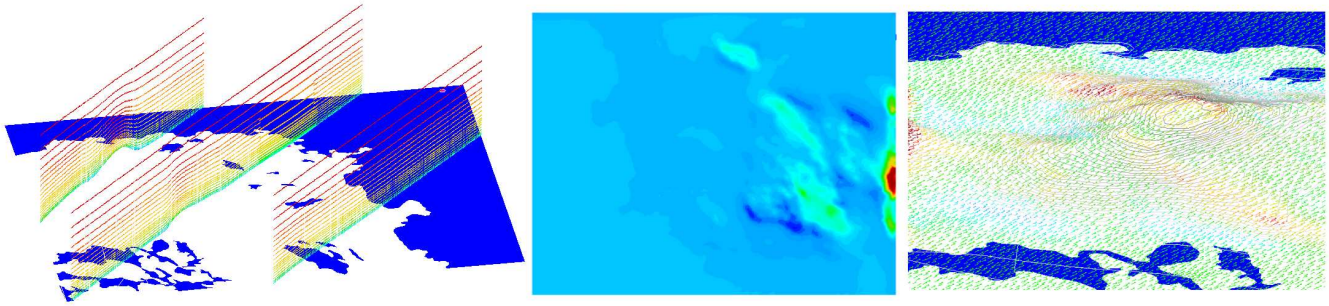
- **The flows (wind speed acceleration, wind direction deviation, vertical wind profile, sea breeze) and turbulence simulations** on complex terrain (wind shear, small velocity wind, venturi effect…),
- The **wind energy resource assessment** in urban and hilly areas and the optimization of the wind power production,
- Optimization of the wind measurement mast location



TECHNICAL DESCRIPTION:

For the wind flow modeling in highly undulated terrain, *fluidyn*-**PANEOLE** uses a fast and powerful solver for the **3D fluid mechanics equations computation,** the Navier-Stokes equations. The modeling includes all the important phenomena and parameters which influence the air flows:

- 3D complex topography,
- local constant and transient meteorology,
- local effects (thermal wind, venturi effect, sea breeze...),
- local atmospheric and mechanical turbulence,
- the forest canopy



fluidyn- **PANEOLE** automatically includes the atmospheric boundary layer definition and several turbulence models.

The software uses **automatic and quality grid techniques** for meshing closely the topography for accurate air flow computation.

The computational domain can have horizontal dimensions from a few hundred meters to several kilometers, and can be several hundred meters high.

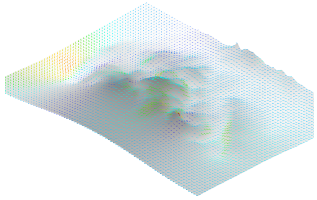
Files import and export with other software formats (AUTOCAD, ARCGIS, etc. or meteorological models such as MM5) allow an easy result analysis.

SYSTEM CONFIGURATION:

fluidyn- **PANEOLE** can be run on Windows Linux or UNIX operating systems with **multiprocessors**.
fluidyn- **PANEOLE** includes a user-friendly graphic interface with a **preprocessor, solvers and postprocessor**. The interface has been developed for a **simple and quick case definition and results analysis**. The software can be modified as required by our development team with a specific interface or input/output data integration.

USERS:

Wind energy companies, Sustainable development experts, council technical services…
By its characteristics, *fluidyn*-**PANEOLE** can be used without any specific technical knowledge in numerical analysis or fluid mechanics.



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