

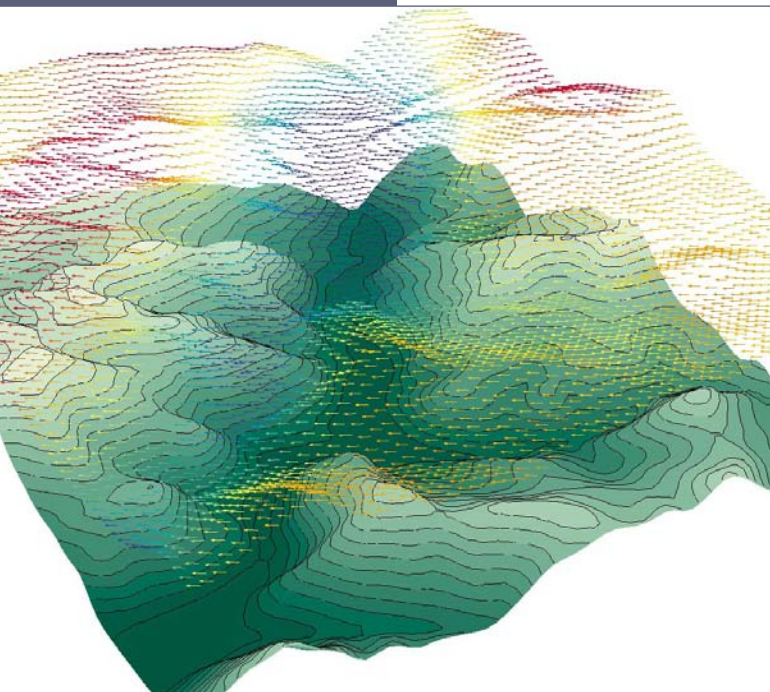
References

ADEME • EDF •
 Japan Nus •
 Centre region
 (Regional government,
 EDF, ADEME) •
 Auvergne region
 (Regional government,
 ADEME, DIREN) •
 Lorraine region (AREL) •
 Corsica region
 (Regional
 government, ADEME) •
 Sallèles-Limousis
 (EDF, EED) •
 La Désirade, Guadeloupe
 (VERGNET) •
 Dominican Republic
 (ADEME, VERGNET SA) •
 Koudia El Baida,
 Marocco (EDF, GERMA).

Mapping, calculation and optimization of wind power farms

Relying on an innovative methodology for assessing wind energy resources, ARIA Wind assists the user at the different stages of the design of wind farms. It allows:

- to carry out exploration studies for a country or a region,
- to evaluate the potential of a particular site,
- to optimize the establishment of wind power plants,
- to supply a reliable forecast of the production of the turbines in real time.



ARIA Wind calculates a 3D wind field based on a meteorological model developed by Electricité de France (EDF). Developed with the support of the French Agency for Environment and Energy (ADEME), it is adapted to wind power applications allowing statistical analysis and flexibility in the choice of meteorological data in combination with technical data concerning the wind turbines.

Advantages of ARIA Wind

- > **Assesses and produces a map** of the wind power potential over a country, a region or a selected site.
- > Takes into account detailed and complex **topography** as well as land use.
- > **Is compatible** with the file formats of the Wasp® software and with the principal GIS and DTM (Digital Terrain Models).
- > Integrates **all types** of meteorological data (ground stations, sodars, meteorological profiles...) regardless of quantity or format.
- > **Statistical processing** and analysis of meteorological data (time series, wind roses, Weibull distribution adjustment).
- > **Reduces costs** by avoiding site measurement campaigns.
- > Yields **historical** visualization of wind profiles for each predefined turbine.
- > Uses **3D visualization** for presentation of results (wind fields, energy production).
- > Has a large **choice of presentation tools** for the generation of reports.

Project management

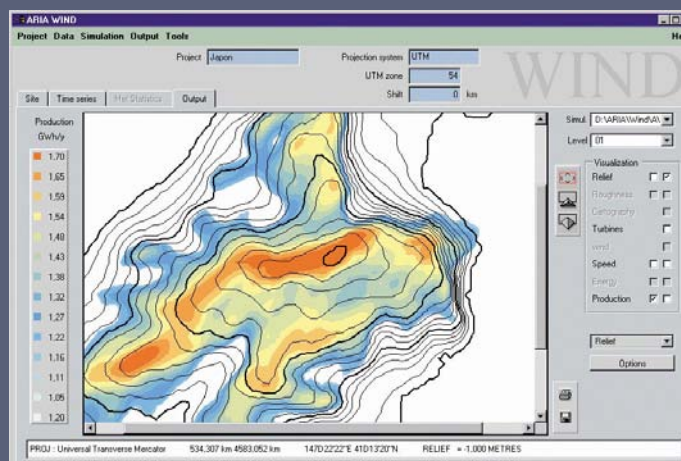
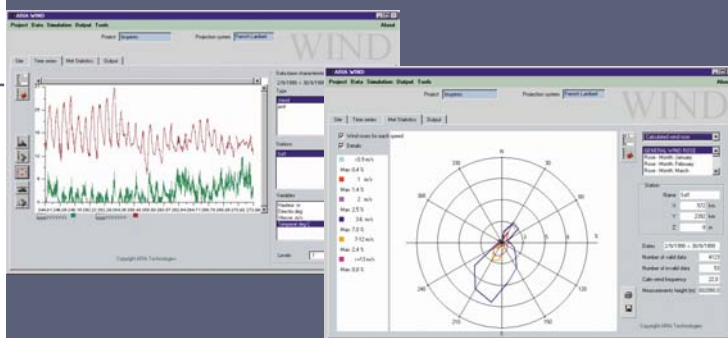
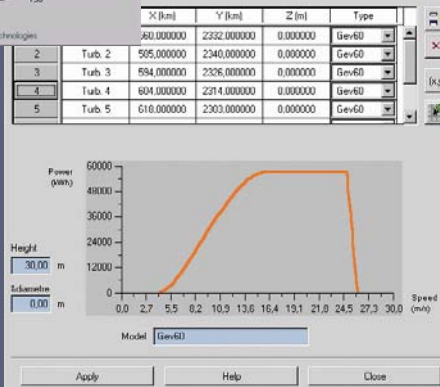
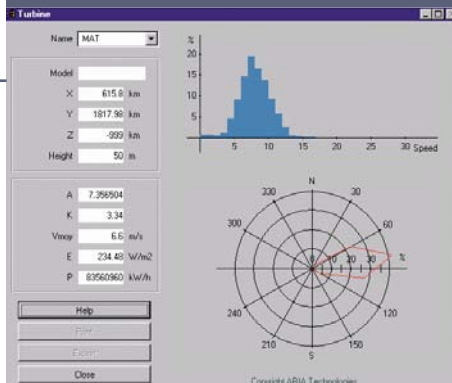
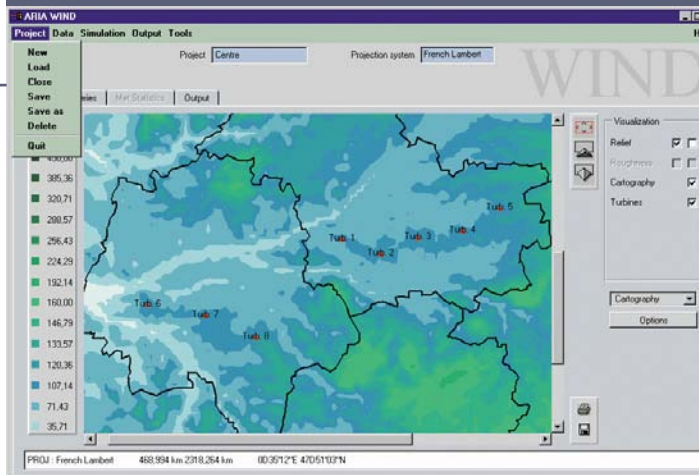
The geographical definition, topography, background maps, land use, the position of stations, the meteorological data and the wind turbines; all the aspects of a project are automatically stored in specific directories associated to the project. The creation of scenarios or different alternatives is facilitated by copying the projects of interest and simply editing the changing parameter(s).

Calculation options

ARIA Wind offers the possibility to carry out different case studies (visualized through iso-lines, streamlines, wind field maps) or to calculate the production of a site based on meteorological time series.

Meteorological analyses

ARIA Wind offers a large flexibility for processing and analyzing the meteorological information: verification, statistical analysis (wind roses, histograms, calculation of Weibull parameters, data variance), creation of a meteorological data base.



Maps, GIS Interface

The geographical data can be directly imported from digital terrain models (Wasp@, USGS,...) and principal GIS (Mapinfo, ArcInfo/ArcView). The topography and the land use files are taken into account in the wind field calculations.

Definition of wind turbines

The user defines interactively the location of each of the wind turbines and describes their dimension and technical characteristics. ARIA Wind allows to easily import and edit the power curves of a large range of wind turbines available on the market.

Report generation

ARIA Wind offers a large range of 2D and 3D presentation tools in color: maps of average wind, energy density and production, values at the level of the turbines (EWB/SAVI3D@ visualization tool). The output includes text files, time series of wind power profiles, graphical files in GIF format ready to be inserted in reports, export options to various GIS formats.