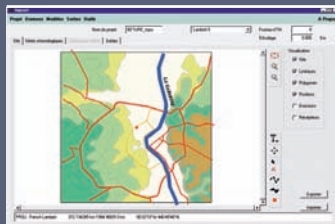


## ARIA Impact

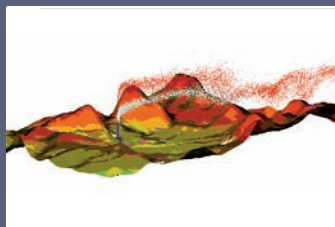


ARIA Impact is a user-friendly software explicitly designed for evaluating the long-term impact of emissions (gas and particulate) from industrial sites, vehicular traffic and diffuse sources. The system is designed for decision-making purposes providing results that can be compared with regulatory norms of air quality as well as being

used for complete evaluation of health risks or odour evaluations.

> *Aria Impact is a second generation local scale gaussian model that takes into account industrial plume rise, deposition, topography, calm wind situations, NO/NO2 conversion and canyon effects in urban conditions.*

## ARIA Industry

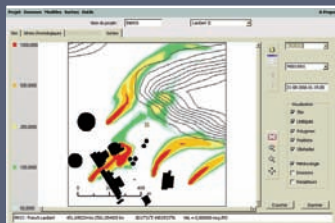


ARIA Industry is a software package that enables industries to know the impact of their plant on air quality in the surrounding area, through the simulation of actual or virtual emission scenarios. It simulates the 3D atmospheric dispersion of pollutants (gaseous or particulate) from stacks and diffuses or fugitive sources by taking into account detailed data on topography, the effect of buildings on the flow, as well as different types of simultaneous meteorological data (both ground level and

upper air, measured or forecast).

> *Used by industries, consulting companies and air quality management boards overseeing industrial areas, ARIA Industry is a software for detailed evaluation of chronic risks, equipped with a state of the art 3D Lagrangian model. When used as the computational engine of the ARIA View system, with an on-line connection to monitored stack emissions and meteorological data, it provides maps of the real time impact of an industrial site.*

## ARIA Risk



ARIA Risk is a 3D software for the evaluation of industrial risks linked to the airborne dispersion of toxic releases (storage accidents, pipe failure, fire clouds). The software outputs maps of instantaneous or integrated concentration and deposition, it also enables the determination of safety limits and zones of threshold exposure and

IDLH. ARIA Risk can be incorporated in an alert system.

> *ARIA Risk is built with modules using 3D calculation of meteorology and dispersion (puff or particle model) and takes into account arbitrarily complex topography, the effect of buildings on the flow, and very low wind conditions.*

## ARIA Local

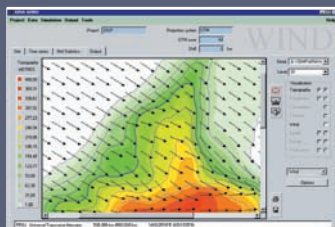


ARIA Local models air pollution conditions down to the very small scale in industrial and urban environments for continuous or accidental emissions by taking into account detailed data on obstacles (buildings, topography...). The software can also be used for micro-meteorological applications such as wind power plants,

construction works or indoor air quality assessments.

> *ARIA Local is based on a CFD (Computational Fluid Dynamics) model dedicated to the atmospheric environment, including a 3D non-stationary modelling of multi-phase flows, turbulence and atmospheric dispersion.*

## ARIA Wind



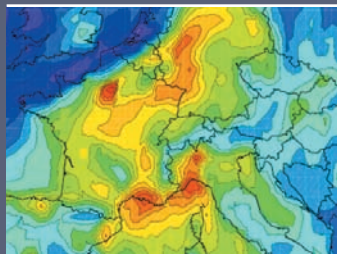
ARIA Wind is a tool for planning of wind farms and forecasting production during operation. Based on the evaluation of available energy resources it can be used for assessment of wind power potential, optimization of the design of the farm and determination of the variability of the energy production. By using real time connection of

meteorological forecasting data it also enables the supply of reliable forecasts of the production of the turbines.

> *ARIA Wind is a 3D model using wind fields adapted to wind power applications, integrating data on meteorology (arbitrary number of stations and types), topography (even complex), land-use and obstacles.*



## ARIA Regional



ARIA Regional is a complete system for analyzing and forecasting the atmospheric dispersion at a regional and urban scale for primary and secondary pollutants, with a full blown photochemical model. ARIA Regional includes an ensemble of modules allowing to evaluate and manage air pollutant emissions of diverse origin : industry, traffic, natural sources. Used in a diagnostic mode, the system allows the

evaluation of past episodes. In prospective mode it enables to test and evaluate the effect of different measures intended to improve air quality (traffic control, reduction of industrial emissions, fuel composition...).

> *In forecasting mode, through the use of a 3D mesoscale meteorological forecast model, it provides information on air quality up to 48 hours ahead (ozone, NO<sub>2</sub>, PM).*

## ARIA View

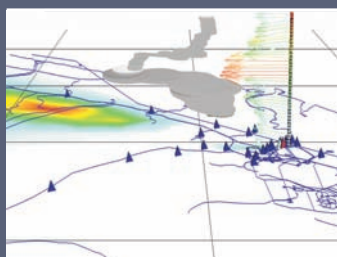


ARIA View is an integrated air quality supervision system using on-line modelling connected to plant sensors. It allows industrial environmental managers to follow in real time the evolution of air quality and odours, both inside and around their site, and to inform the authorities and the surrounding communities regularly about the real impact on air quality. ARIA View also gives the plant management the possibility to forecast the air quality levels as a

function of future meteorological conditions and foreseen emissions, thus avoiding the occurrence of high-pollution episodes.

> *ARIA View can use the ARIA Impact or ARIA Industry software modules according to site complexity and user needs. Through its on-line connection to meteorological and emission sensors, it provides a complete Air Quality Management System (AQMS).*

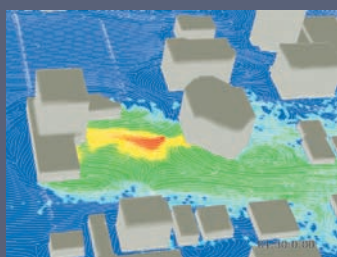
## ARIA Specific systems



For particular cases ARIA Technologies develops and configures systems based on validated software for applications answering to client specifications. As in the case of CNES (French space agency), ARIA Technologies developed an operational system calculating the impact on ambient air quality from the

emissions during each launch of ARIANE 5.

> *In the Defence area, ARIA also offers systems based on parallel architectures : some are designed to provide emergency response tools for terrorist attacks in urban areas, others to give high-performance and high-resolution meteorological forecasts.*



## References software and systems

ADEME, AFSSA, AGENCE ENVIRONNEMENT DE PITESTI, AIR BREIZH, AIR LIQUIDE, AIR NORMAND, AIRPARIF, ALCATEL SPACE, ANDRA, APAVE, ARKEMA, ARMINES, ARPECHIM, ASCAL, ATOFINA, AVENTIS, AXE, BARRICALLA, BCEOM, BETAREA, BETURE, BUREAU VERITAS, BURGEAP, CABINET MERLIN, CAEPE, CAREPS, CEA – DAM, CEA CADARACHE, CEB, CERCHIMIE, CETIM, CNES, CNIM, CNRS, COGEMA, COKERIE DE CARLING, COPARLY, CTP, DGA, EADS, ECOLE CENTRALE DE LYON, ECOLE DES MINES DE DOUAI, ECOLE DES MINES DE PARIS, EDF, EDS, EEC, ENEA, ENVIRONNEMENT SA, EOG, EURIWARE, FIAT, GCT, GDF, GEC ALSTOM, GES, GIVAUDAN, GOUVERNEMENT D'ANDORRE, GSN, GUIGUES SA, HANFORD CENTER, HEMISPHERES, IBERDROLA, IBM, ICF ENVIRONNEMENT, IFP, IMGW, IMOE, INERIS, INGEROP, IRIS CONSEIL, IRMA, IRSN, ISPESL,

JANUS, JRC, KALIES, KIT-JAPAN, LAMMA, LBC, METEO FRANCE, MGPI, MINISTERE DE L'ECOLOGIE ET DU DEVELOPPEMENT DURABLE, MONCTON UNIVERSITY, OLIVETTI, OMIFCO, OPALAIR, ORAMIP, OTE, PHOSPHATES DE GABES, PROJECT AUTOMATION, PROVINCIA DI TORINO, PSA, PSI, QUEENSLAND UNIVERSITY OF TECHNOLOGY, REGIONE CAMPANIA, REGIONE LOMBARDIA, REGIONE PIEMONTE, RENAULT, ROMPETROL, SAFEGE, SAFRAN, SAGES, SAIC, SECTOR, SGN, SGS ECOLOGIA, SIEE, SNET, SOCATOP, SOCOTEC, SODEREC, SOLLAC, SPI INFRA, SPX, ST MICRO, TECHNIP, THALES, TIRU, TOTAL, UNIVERSITA DI ALESSANDRIA, UNIVERSITA DI BRESCIA, UNIVERSITA DI MESSINA, UNIVERSITA DI MODENA, UNIVERSITE DE LIEGE, US-DOD, VALEO, VEOLIA, VILLE DE PARIS, VILLE DE SAINT-MAUR, WINDLOGICS,