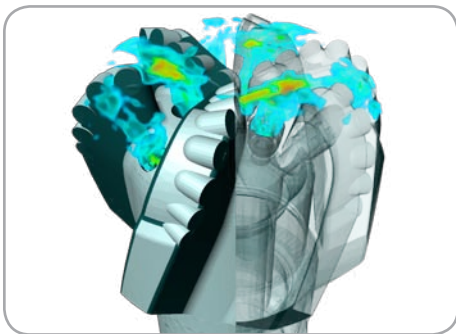


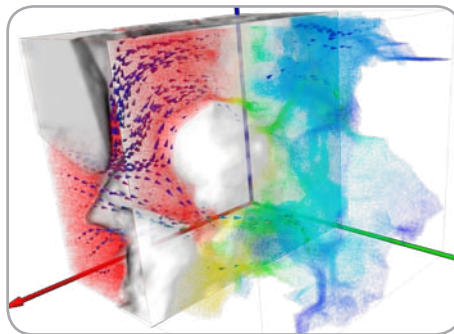
# Avizo® Wind

## 3D Analysis Software for Simulation Data

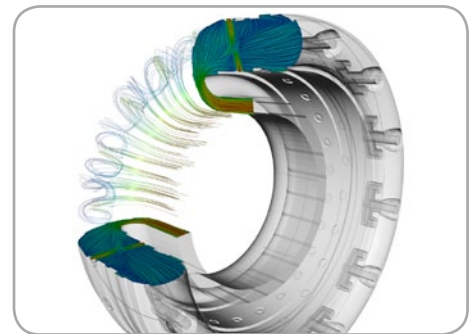
- From CFD/FEA results to visual analysis and post-processing
- Advanced analysis, visualization and feature extraction tools
- From 3D imaging to simulation
- High quality communication and collaboration
- Fast and easy to use
- Scalable for the increasing size of simulation models



Volume rendering of high vorticity mud injection by a drill bit.  
Data courtesy : Varel International



Flow simulation in a shale sample pre- and post-processing.



Air injection in an helicopter annular combustion chamber.  
Data courtesy : Turbomeca

### From CFD/FEA results to visual analysis

Import simulation results from widely used CFD and FEA solvers. Easily and accurately visualize scalar, vector and tensor data using a large set of visualization tools including: iso-surfaces, cross sections, boundary views, colored vectors, animated particles, line integral convolution, illuminated stream lines, stream ribbons, and advanced volume rendering. Work with 2D or 3D regular and unstructured meshes. Handle any combination of tetrahedron, hexahedron, wedge and pyramid cells. Display results on selected boundaries. Filter elements by region or by material. Select which fields to load. Handle fields defined per node or per cell.

### Analysis, visualization and feature extraction tools

Accurately isolate regions of interest where secondary variables, surface and volume integrals, and arithmetic functions will be computed. Use interactive probing to get the exact values at a given location or along a given line. Extract advanced features such as critical points or vortex core lines. Seed particles or stream lines from specific locations. Accumulate computation results in spreadsheets and curves. Use ready-to-use computation modules such as enstrophy, vorticity, Mach number, etc.

### From 3D imaging to simulation

Instead of using virtual models coming from CAD systems, it is now possible to scan real objects using CT scanners. The result of the scan process is a stack of images that can be pre-processed to generate 3D meshes used as input to a CFD/FEA solver. Avizo's advanced segmentation, labeling, filtering, surface reconstruction and tetrahedral mesh generation tools can be used to produce high-quality meshes that can be exported to CFD and FEA solvers to run the simulation. The resulting data can be re-imported for visualization and analysis using Avizo post-processing tools.

### Fast and easy to use

Benefit from Avizo's sophisticated user interface to navigate your 2D and 3D meshes. The easy-to-use 3D manipulation tools allow you to precisely locate specific regions of interest. Repetitive tasks can be automated using template networks or scripts.

### Scalable architecture

Take advantage of multi-core systems for faster computation and display on very large models. Avizo Wind has been specifically designed to support multi-core architectures for maximum computation performance.

# Avizo® Wind

## 3D Analysis Software for Simulation Data

### Key Features

#### Extensive data support

- Wide range of formats: Abaqus®, Ansys®, CGNS, Enight™, Fluent®, Ideas, Nasa/Plot3D, Nastran, Star-CCM, Tecplot®,...
- Data types: scalar, vector, symmetric and asymmetric tensors, time, geometry, single and double precision support.
- Transient/steady unstructured meshes
- Multi-part support
- Boundary conditions
- Reference values (density, velocity, pressure,...)
- SI units support
- Multiphysics data support
- Simulated and measured data support
- CAD data readers

#### Advanced post-processing visualization

- High-end 2D/3D visualization techniques
- Effective and innovative flow visualization: boundary view, cross section, isolines, isosurfaces, planar LIC (Line Integral Convolution), vector probes, local flow field probe, stream ribbons, particle plots, critical points, extended particle animation, ISL (Illuminated Stream Lines), flexible data mapping

#### Powerful exploration and analysis

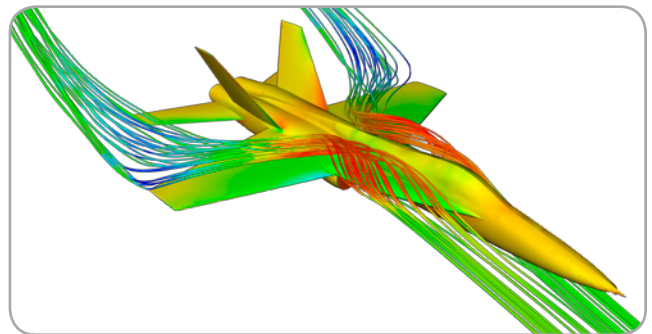
- Slicing, iso-surface, probing,...
- Statistical analysis: surface/volume statistics, 2D and 3D scalar quantities, CSV exportable to MS Excel®
- Accurate and automatic feature identification: vortex core line extraction, critical points extraction, and more
- Secondary variables computation: density, pressure (dynamic, stagnation, total, ...), temperature (shock variable, stagnation,...), energy, (kinetic, enthalpy, entropy, stagnation, total, internal, ...), Velocity (momentum, mach number,...), vorticity (vorticity, enstrophy, helicity,...), turbulence (lambda2, gradient, second invariant, ...), derivatives (gradient, divergence,...), newtonian fluid stress tensor, and more
- Matlab® bridge
- Flexible workflow: TCL scripting, C++ extension interface

#### Presentation and collaboration

- Annotations, measures, legends, histograms, and curve plots
- Export statistics to spreadsheets
- High quality representations, images and videos
- Direct movie file export
- Interactive creation of complex demo scenarios
- Real-time remote collaboration
- Shared work sessions
- Support for scalable high-resolution displays, stereoscopic projection, immersive virtual reality and CAVE® displays

#### From 3D imaging to simulation pre-processing

- Import and fuse 3D volumetric data: microscopy, laser scanner, CMM, seismic, GPR, EMR, 3D modeling tools, CAD, CT-scan, MRI, PET, SEM/FIB, numerical simulation, FEM, CFD and more.
- Mesh reconstruction: segmentation, 3D surface and 3D volumetric mesh reconstruction, mesh export, simulation and experimental data co-visualization.
- Data export : export to solver input formats like Ansys, Abaqus, Enight, CGNS, Ideas, Tecplot, Nastran, and more
- Re-import your data for post-processing



Turbulent flow along an YF-17 aircraft fuselage.

#### Bricks for Building Solutions

Further enhance Avizo Wind Edition with powerful eExtensions:

- XPand enables programmers to create custom extensions to Avizo using C++ and the Avizo open framework.
- XScreen and XTeam enable collaboration, high-resolution and immersive environments.

Open Inventor® and the MeshViz XLM extension are the underlying visualization technology in Avizo Wind. Open Inventor allows application developers to integrate advanced 2D/3D mesh support.

#### Supported Platforms

- Windows® XP /Vista / 7 , 32-/64-bit
- Linux® RHEL 4/5 , 32-/64-bit
- MacOS®X 10.5 32-bit

[www.vsg3d.com](http://www.vsg3d.com)