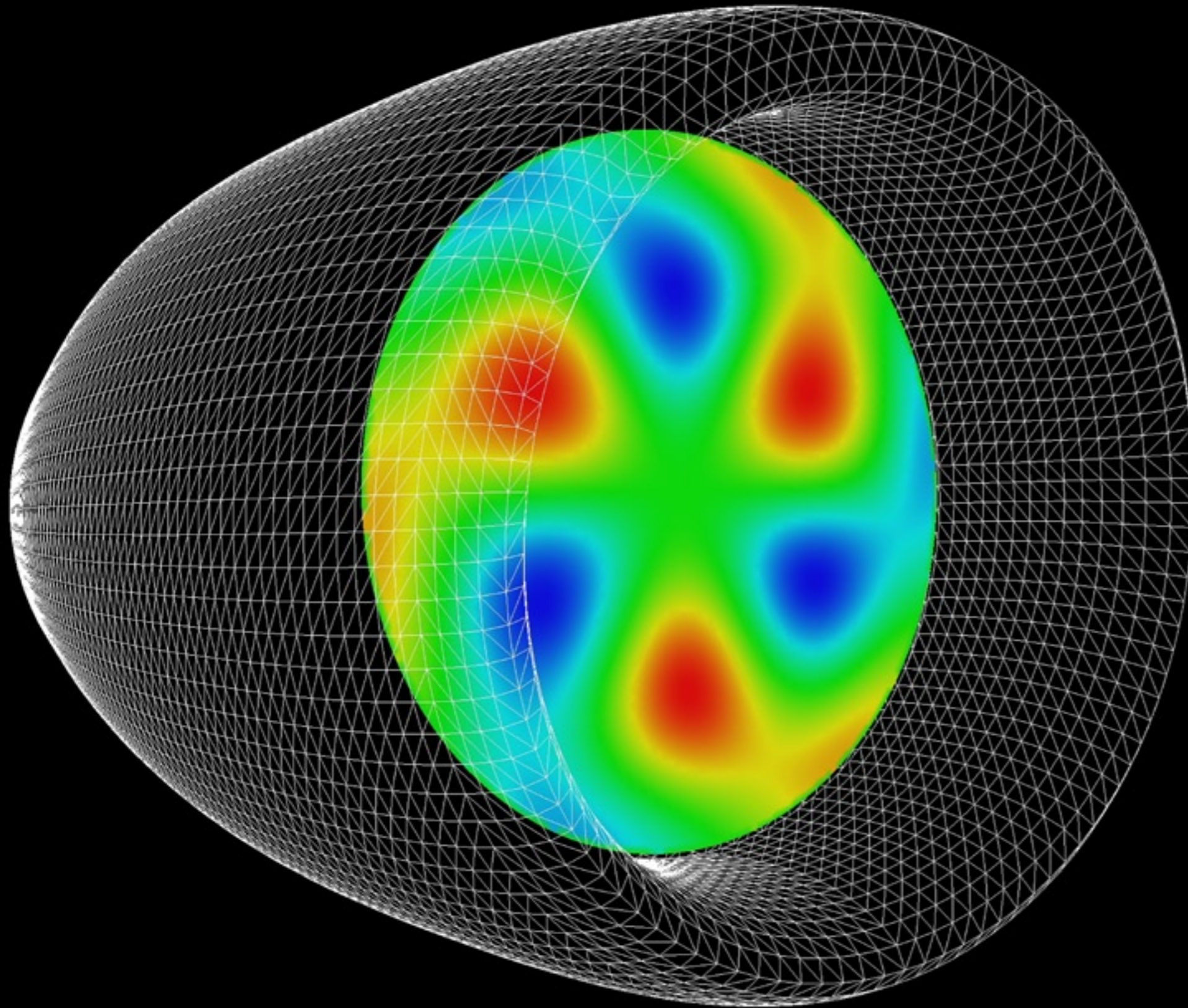


It takes advanced tools
to create a technological masterpiece





Case:
142

Name:
Jet Engine noise reduction

Customer:
Airbus France

Problem:

International environmental regulations place increasing demands on the aerospace industry to reduce noise from aircrafts at take-off and landing. Aircraft engineers are challenged to reduce internal and external noise from the aircraft engines, while maintaining and even increasing performance. To overcome this challenge, the engineers need specialized tools for simulation and visualization.

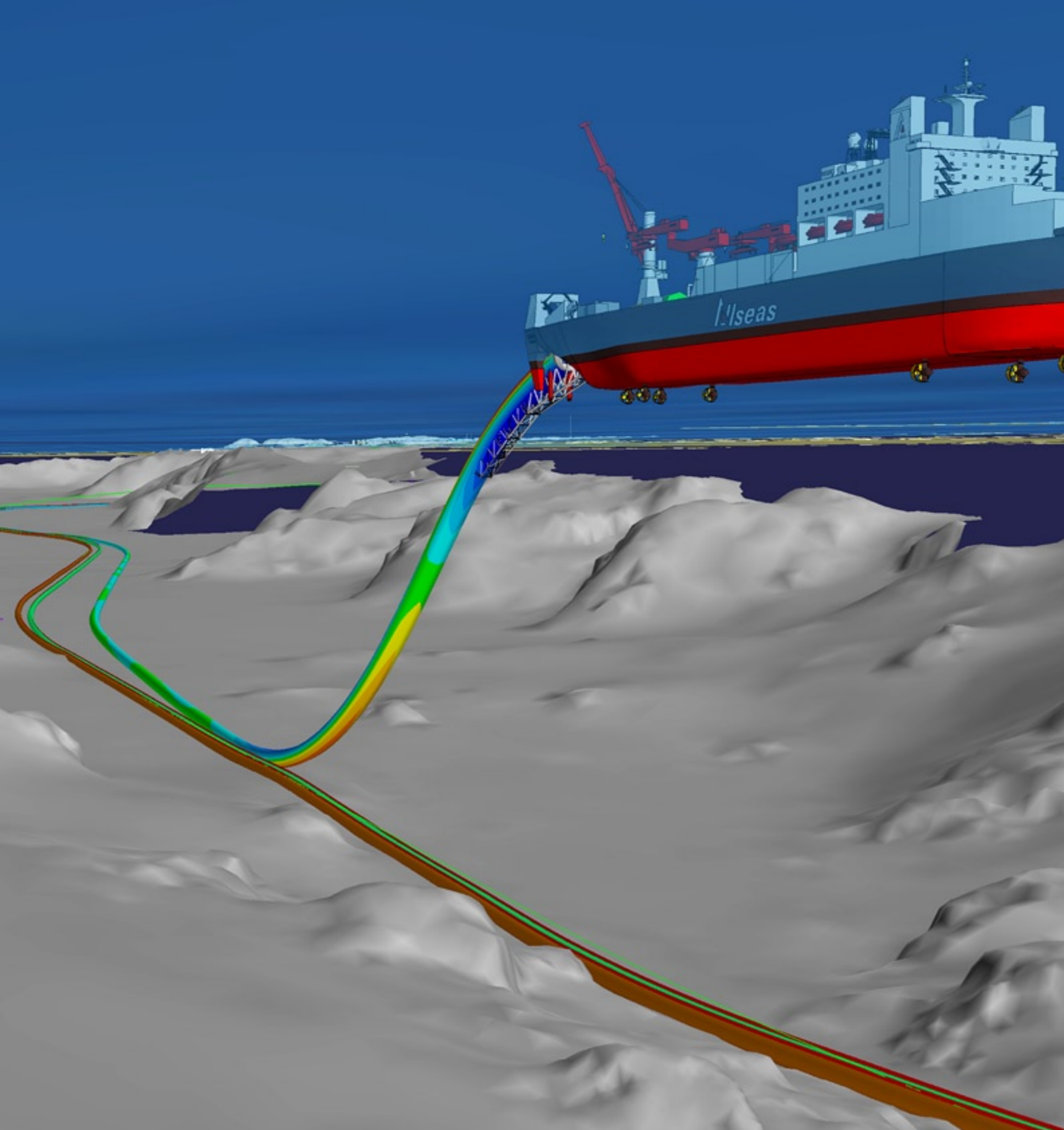
Process:

Aircraft engine design is a highly specialized problem that involves complex multi-disciplinary simulations. To obtain an optimal solution, engineers from different disciplines need to cooperate closely in an iterative process. In addition, specialized engineering tasks are sub-contracted to external partners. Throughout the design- and engineering phases models and results are continuously revised and shared within the engineering team and with external partners.

Solution:

The use of GLview visualization technology within Airbus enabled effective result interpretation and communication within the team. Airbus is using specialized solvers to carry out the simulation of the noise reduction problem. The flexible VTF format from Ceetron ASA is ideal to carry models and results from different applications in a heterogeneous simulation environment. GLview Inova is used to interpret the results from the different applications involved.

As a bonus, the simulation results can also be viewed in the free tools GLview Express and GLview 3D Plugin. This facilitates simplified communication of complicated engineering information to the management of Airbus and external partners.



Case:
221

Name:
Ormen Lange

Customer:
Norsk Hydro

Problem:

Laying of sub-sea oil- and gas-pipes on highly irregular seabed topography, at large water depths and with strong ocean currents. Challenges comprise finding the optimal route for the pipes, performing free span analysis along the selected route, and design of pipe supports.

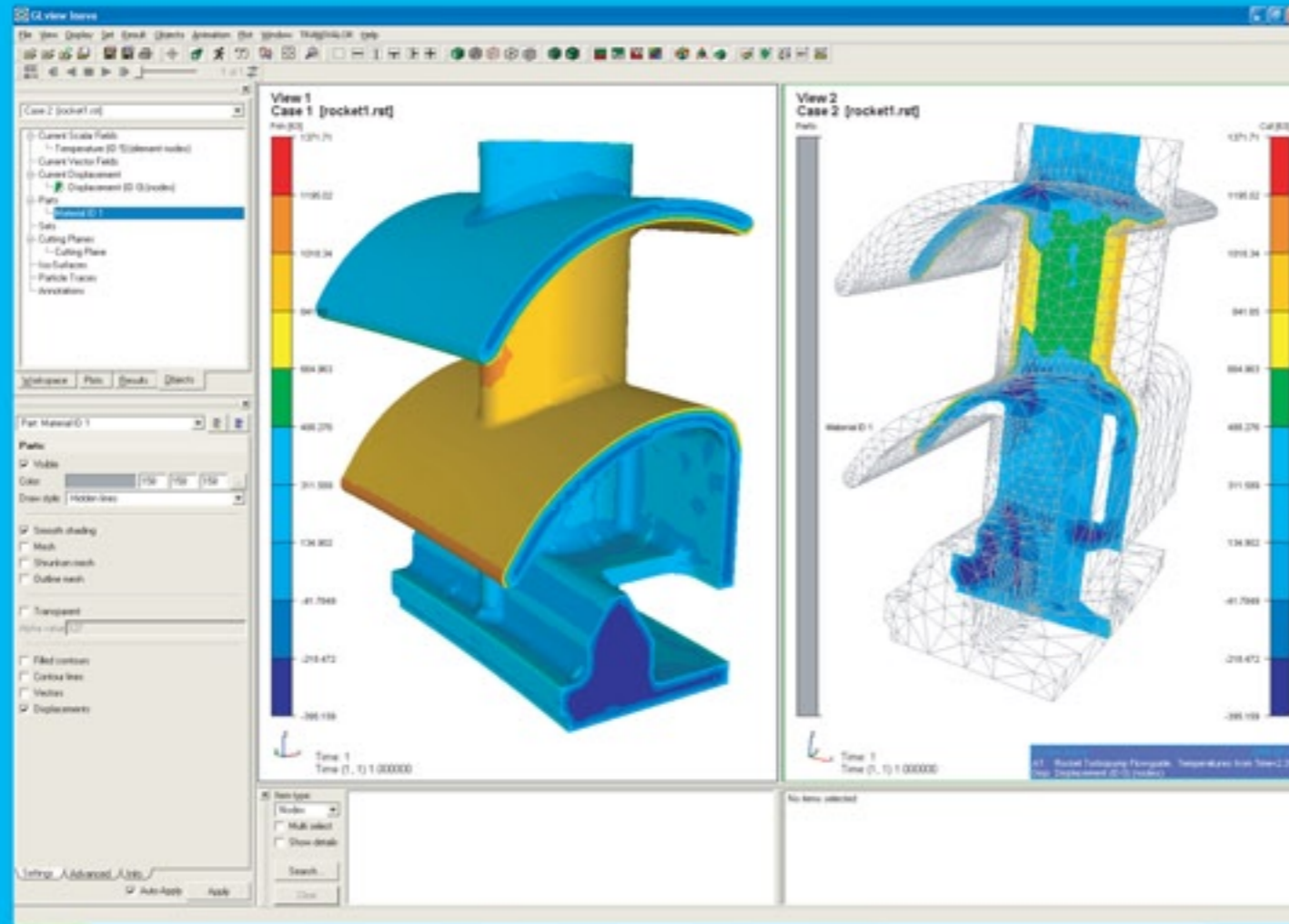
Process:

The problem specification was done by Norsk Hydro, and a team comprising resources from Ceetron ASA, Marintek and Systems In Motion was put together. Calculation skills and resources were supplied by Marintek, expertise on digitalized Seabed topography and software was supplied by Systems In Motion. The overall visualization in the simulator is based on GLview Visualization API by Ceetron ASA. Ceetron ASA also contributed with engineering expertise and development resources on visualization.

Solution:

A real-time simulator, SimVisHLA, that is able to simulate 3 categories of complex marine operations. For this particular problem, the simulator is used to study the installation process using 3D visualization of the pipe on a digitalized seabed. The forces and tension on the pipe may be visualized on the pipe using color codes and vector arrows. The visualization module also includes tools for inspection of free spans and distance measurement.

Result interpretation



GLview Inova Post-processor

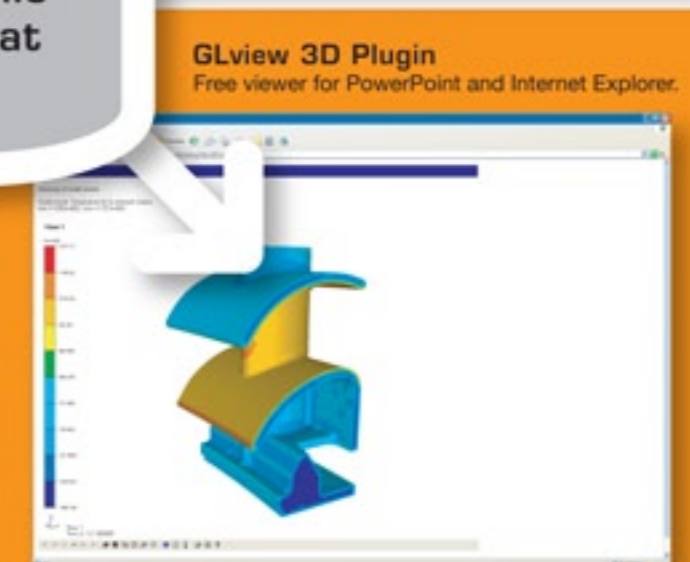
Supported CAE systems

ANSYS, ABAQUS, FEMAP, I-DEAS, MSC.Nastran, MSC.Marc, LS-DYNA, RADIOSS, PAMCRASH, FLUENT and CGNS

Result presentation & communication



GLview Express Free stand-alone viewer.



GLview 3D Plugin Free viewer for PowerPoint and Internet Explorer.

VTF file
format

ABOUT CEETRON

Ceetron ASA offers advanced 3D visualization products and solutions to customers within energy, marine, aerospace and automotive industries. The product portfolio comprises developer tools and end-user applications

SOFTWARE DEVELOPMENT PRODUCTS

GLview 3D Visualization API

Object-oriented C++ class library. For development of full post-processors and visualization applications. Ideal for OEM solutions and third-party developers.

GLview Express Writer

C++/FORTRAN class library for producing portable VTF files from within a FEA code. VTF files are supported by all GLview end-user products.

END USER PRODUCTS

GLview Inova

2D/3D Post-processor including import filters for all major CAE systems on the market.

GLview Express (Free)

Interactive 3D Viewer (standalone). Analogous to Adobe Acrobat Reader. Available on Windows, Unix and Linux. Presentation and distribution of 3D models and results generated by GLview Express Writer or GLview Inova.

GLview 3D Plugin (Free)

Interactive 3D Viewer Plugin for integration with PowerPoint and Internet Explorer. 3D interactivity and animation capabilities similar to GLview Express.



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understanding by visualization

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