

Our team has extensive knowledge in all leading CFD software packages and has provided solutions for a wide variety of engineering challenges for over 20 years.

CFD modelling offers the following benefits:

- Better understanding of fluid behavior
- Safer operations through issue mitigation
- Improved design and advanced optimisation
- Reduction of conservatism and costs

Computational Fluid Dynamics

CFD applications in the oil and gas industry

Computational fluid dynamics (CFD) is the advanced numerical modelling of the flow of fluids in simple as well as complex 3D geometries. It provides the means to analyse and visualise the various aspects of the fluid flow to better understand the corresponding thermal-hydraulic behavior and evaluate associated structural interactions and effects.

CFD provides a high level of detail to get a better understanding of the flow dynamics, which would not normally be captured by standard simulation tools. Unexpected flow behavior can be analysed with CFD and potential problems can be avoided or systems can be redesigned before any failure occurs. Given

CFD's more accurate predictions, significant design cost savings can be achieved without sacrificing the safety of the asset, making projects more economically viable.

Oil and gas industry applications

Wood Group has used CFD to investigate issues in areas such as flow assurance, separation performance assessment, gas dispersion studies, chemical injection studies, blast explosion and radiation assessment, and failure-consequence analysis. We have also supported projects involving fluid-structure interaction (FSI) such as flow-induced vibrations (FIV), and vortex induced vibrations (VIV).

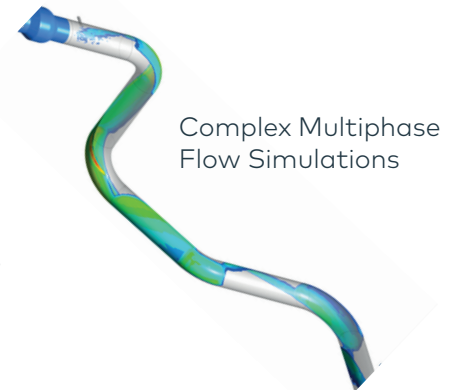
Benefits of working with Wood

- Our experts understand the importance of maximising revenue whilst maintaining safety
- An experienced team delivering integrated and cost effective solutions globally
- We provide you with the information to quickly decide on the appropriate action for your design or equipment or operations
- We harness the power of sophisticated modelling and simulation technologies to provide better visualisation of complex fluid behaviour
- Strong track record in delivering CFD studies, which covers the following aspects:
 - Internal flows - sand transport, erosion, inhibitor mixing, flow assurance issues, slug flow simulations, OLGA CFD coupling
 - External flows - gas dispersion, explosion modelling, wave and wind loading, slamming flow, seabed stability, oil spill response
 - Subsea and topsides equipment design
 - Fluid structure interaction (FSI) issues

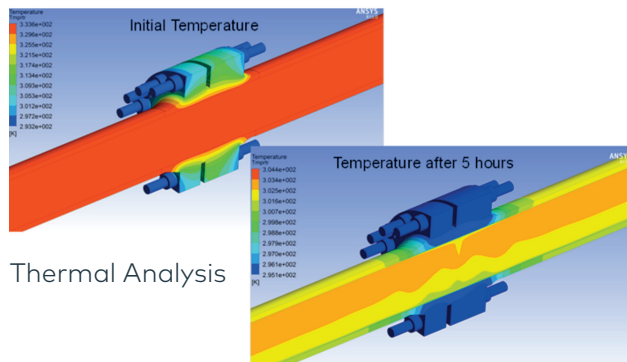
www.woodplc.com



Gas Dispersion and Explosion Analysis



Complex Multiphase Flow Simulations



Thermal Analysis

Related services:

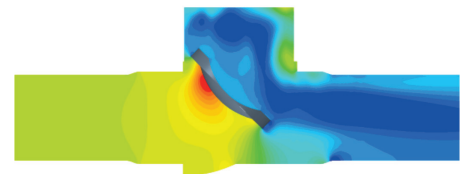
- Screening assessment
- Detailed evaluation
- Multiphase dynamic simulation
- Equipment optimisation

Asset types:

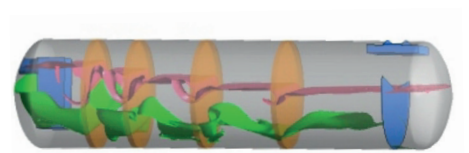
- Onshore
- Topsides
- Subsea
- Subsurface
- Installation and commissioning
- Decommissioning
- Renewables

Software types:

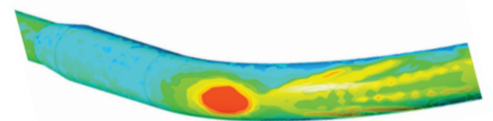
- ANSYSTM CFX
- STAR CCMTM+



Vibration Analysis



Separator Dynamics



Erosion Analysis