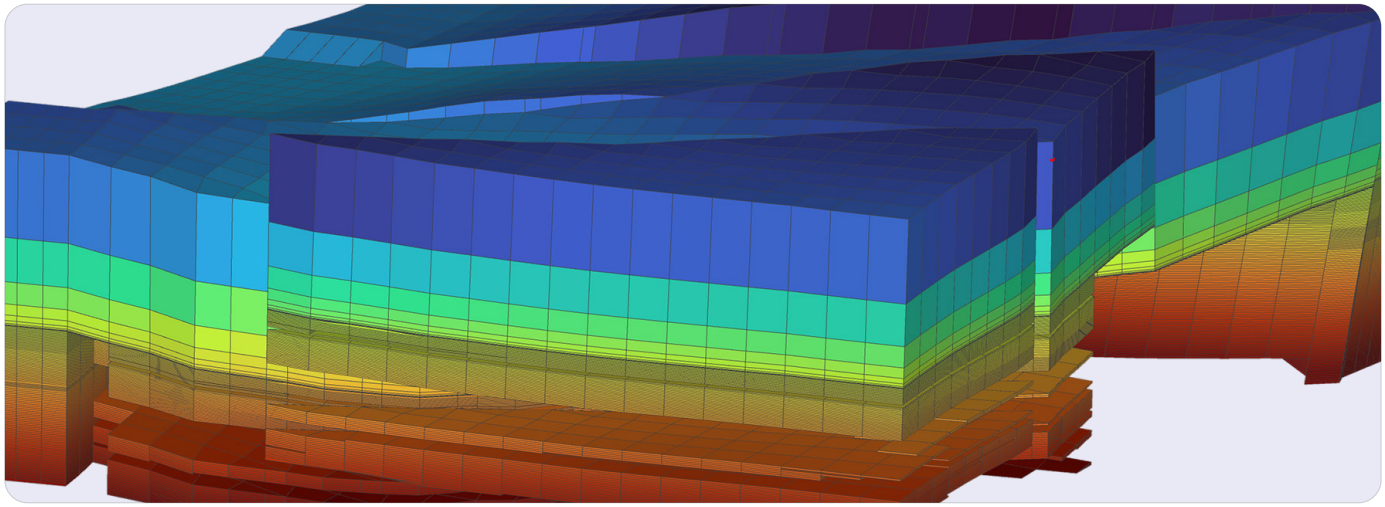
tNavigator®

Rock Flow Dynamics

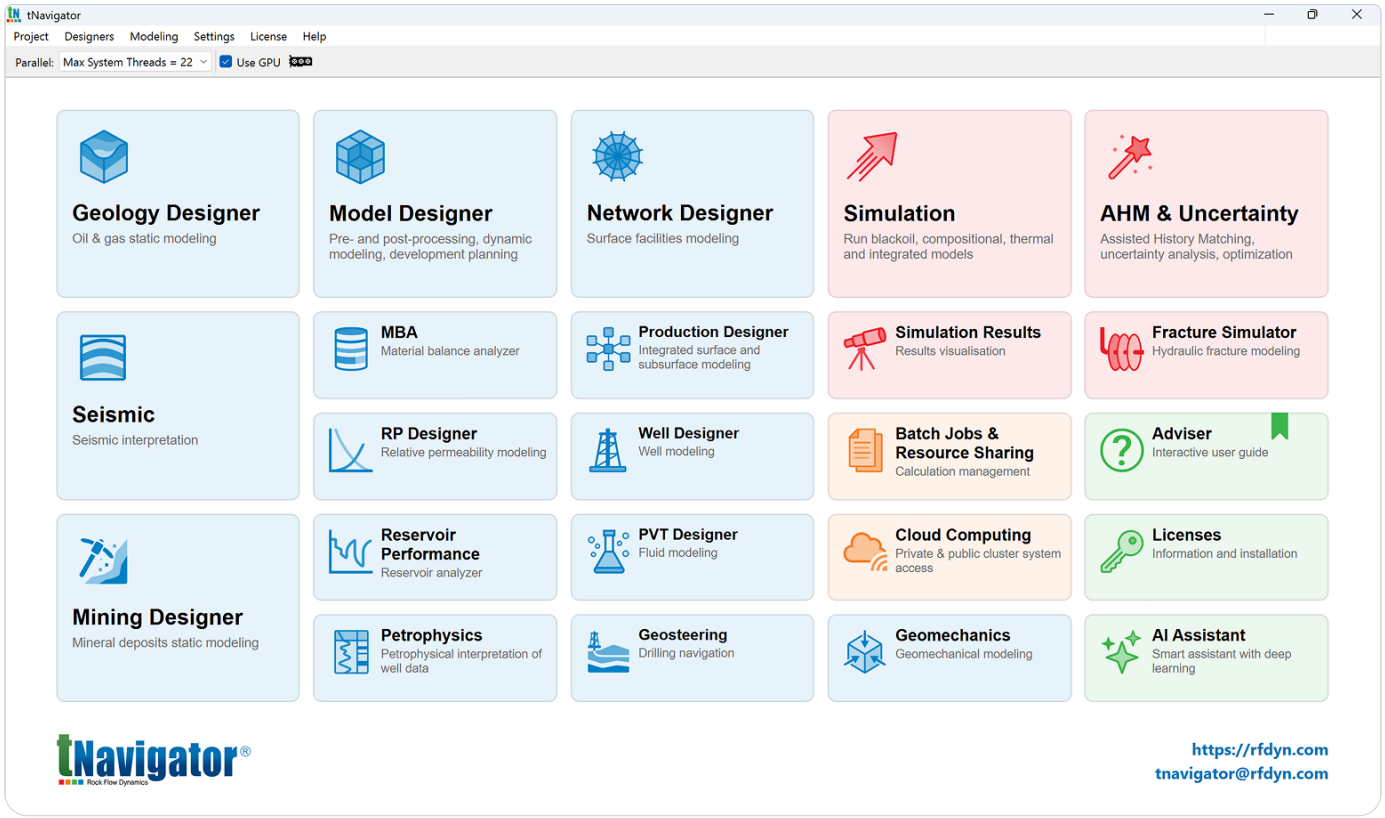
SOFTWARE OVERVIEW



RESERVOIR MODELLING SOFTWARE

tNavigator is a state-of-the-art reservoir modelling and simulation platform, offering a wide range of advanced innovative tools for geoscience, reservoir and production engineering disciplines.

Promoting cross domain collaboration, tNavigator is a single environment that enables subsurface teams to work together to navigate the reservoir and save time or data lost between moving between applications. In tNavigator, you will find unique workflows from geophysics to reservoir modelling, allowing geoscientists to construct a robust interpretation and reservoir model of their field. In the same interface, models can be instantly carried forward to simulation, well and surface network modelling, allowing for thorough analysis and evaluation of the field and more informed decision making.



ONE ASSET, ONE SOFTWARE

tNavigator®
Rock Flow Dynamics

FULLY INTEGRATED WORKFLOW FROM SEISMIC TO SURFACE

ALL IN ONE SOLUTION - ONE ASSET, ONE SOFTWARE



Seismic - visualise subsurface structures, interpret geological features, and guide reservoir characterisation



Simulation - built for speed dynamic modelling with hybrid CPU/GPU utilisation



Coupled subsurface-well-surface **network modelling**



AI embedded throughout the entire workflow



Geological interpretation, structural modelling, and reservoir characterisation



Geomechanics - coupled well model, subsurface and surface integrity



Uncertainty, history matching and field development planning

SEISMIC

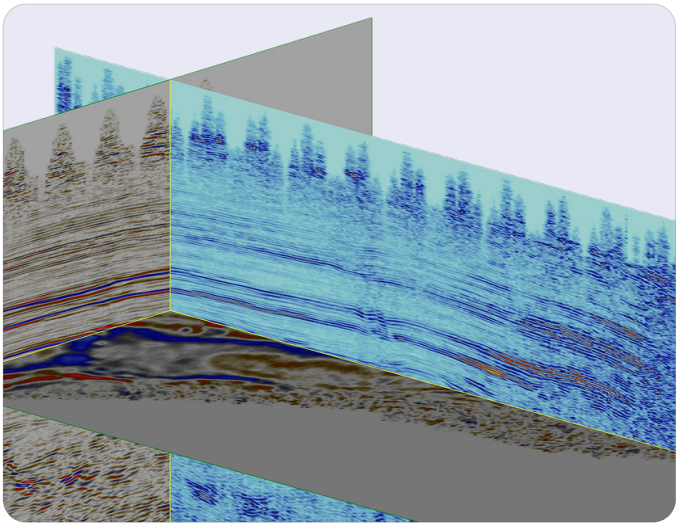
Understanding subsurface conditions with precision is vital for geophysicists making informed decisions in exploration and development. tNavigator's Seismic module offers advanced tools for analysing 2D, 3D and 4D seismic data at various scales, including seismic well tie, data visualisation, interpretation techniques and velocity model creation. A comprehensive attribute library and QI functionalities support improved interpretation and reliable model building, and because Seismic operates on high-performance systems (clusters), large seismic data volumes can be handled at scale, giving a robust foundation for advanced analysis and faster decision-making.

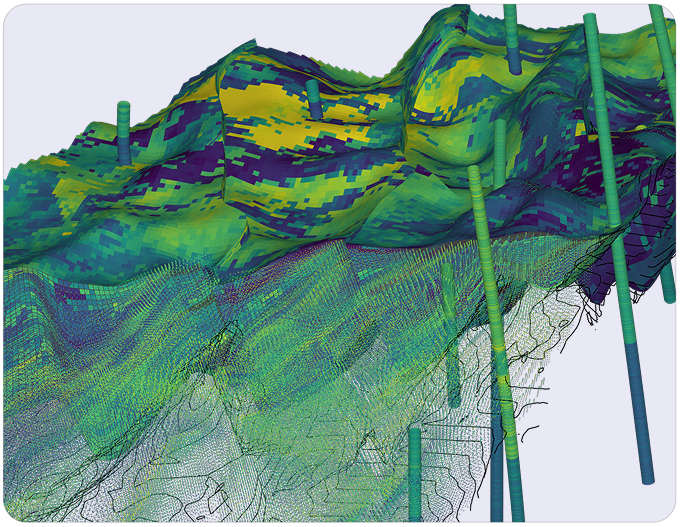
GEOLOGY DESIGNER

Overcome the challenges of complex geological modelling with best-in-class static modelling technology to seamlessly QC, build and optimise 3D geocellular grids. Geology Designer takes full advantage of high-performance computing environments, keeping large, complex models practical, and applies AI and machine learning within the modelling workflow. It supports advanced well log analysis, geological mapping, structural and unstructured grid creation, fault and fracture analysis, geomechanics and advanced property interpolation, with automated processes and intuitive workflows that streamline the creation of simulation-ready models.

GEOSTEERING

Efficient well drilling operations are essential for minimising risks, maximising reservoir penetration, and optimising productivity in complex subsurface environments. A comprehensive suite of tools to support every phase of well drilling, from planning to post-well reviews. It integrates real-time geological and technological data, enabling precise decision-making and enhanced operational efficiency for drilling and subsurface teams.





MINING DESIGNER

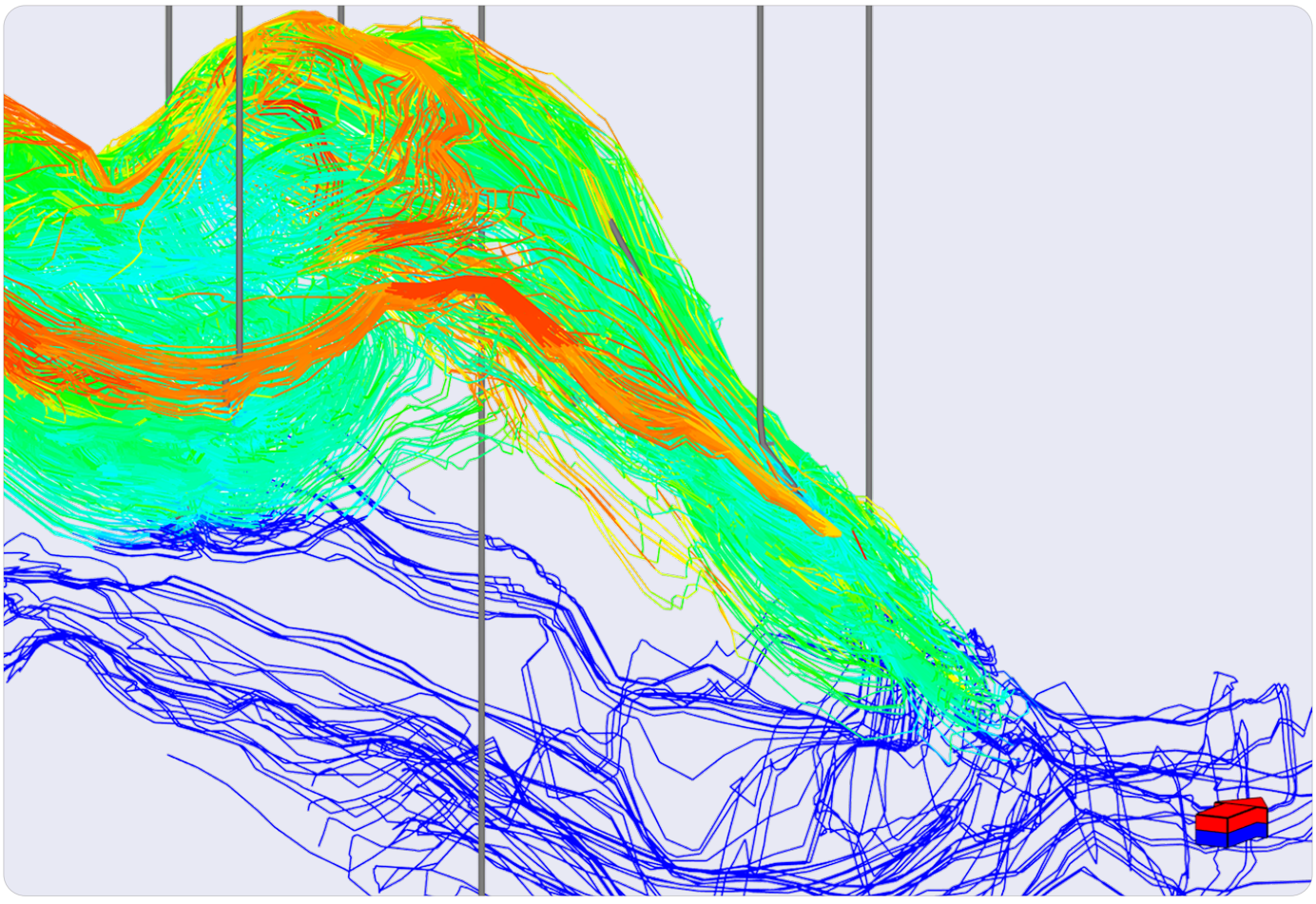
Accurate and efficient geological modelling is crucial for mining professionals to understand deposits, optimise resource development and support informed decision-making. tNavigator provides end-to-end geological modelling, combining geochemical, geophysical, core and field data in a single intuitive interface. With support for large grids and parallel computing, even very large deposit models can be built and updated quickly, while proprietary interpolation algorithms, machine learning techniques and multivariate modelling accelerate resource estimation, ranking and development.

INTEGRATED AI

tNavigator offers a wide range of options for integrating cutting-edge artificial intelligence, neural network, and machine learning algorithms into seismic data processing, static modelling, and assisted history matching of dynamic field models - now extended through MCP, connecting AI assistants and large language models directly to your workflows.

MODEL DESIGNER

Accurate fluid dynamic modelling is essential for optimising reservoir performance. Streamline the creation and updating of models, with a unified interface for pre and post processing, managing well events, running property calculations, and processing development history and well rules. Seamlessly integrated within tNavigator, it enables automated workflows, uncertainty quantification, and precise hydrodynamic modelling, for efficient model analysis and enhanced decision-making.



PETROPHYSICS

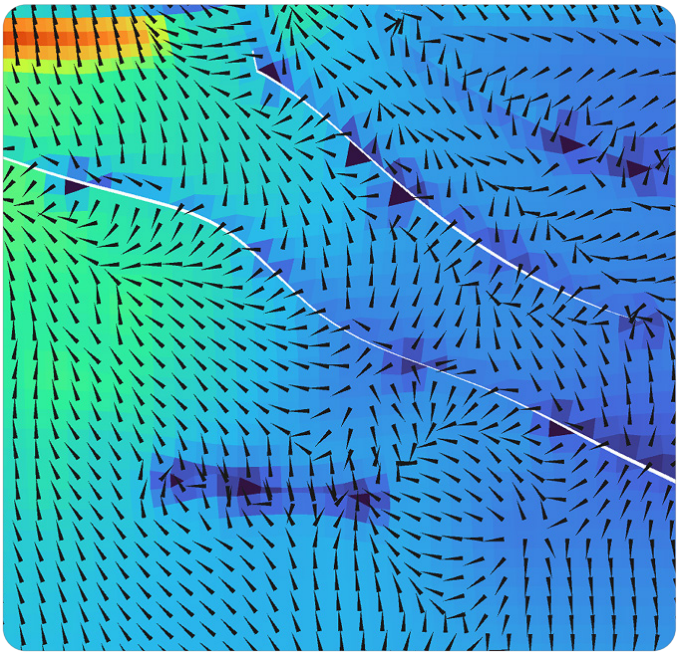
Integrating the Petrophysics, Geology Designer, Model Designer and Seismic modules within a single graphical user interface provides a seamless end-to-end workflow – from initial well log QC and core-to-log depth matching to 3D property modelling on a geological grid and subsequent reservoir dynamic model initialisation. Combined use with the Assisted History Matching module enables multi-scenario petrophysical interpretation, evaluating uncertainties in cutoff values and petrophysical equation parameters with automatic 3D model updating. All module calculations are fully integrated into a single automated sequence using workflows.

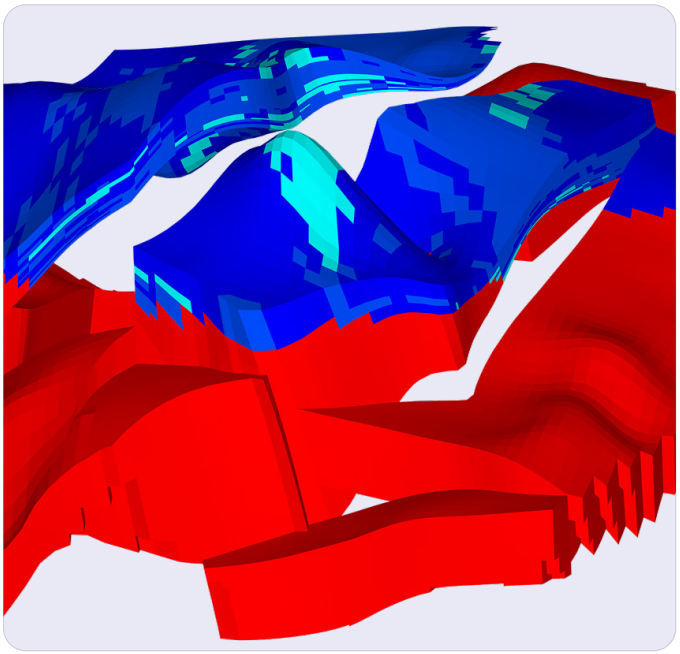
GEOMECHANICS

Taking account of geomechanics ensures safe reservoir management by predicting rock deformation, optimal operating conditions, and potential fracturing risks. The technology calculates coupled geomechanical and filtration equations on a single grid, using fully implicit numerical methods and rock failure criteria. This enables precise forecasting of irreversible deformations, fracturing direction, deterioration of filtration capacity, and strategies to avoid infrastructure damage, ultimately preserving reservoir integrity and performance.

MATERIAL BALANCE ANALYSER

Material Balance Analyser streamlines reservoir analysis and forecasting by creating a simplified numerical reservoir model that keeps the full physics of the simulator. Using proxy models, history matching and integration with other tNavigator modules, it supports multi-reservoir flows, efficient parameter evaluation, history matching and short-term forecasting, improving accuracy and efficiency and enabling better decision-making and optimised reservoir development.





RELATIVE PERMEABILITY DESIGNER

Simplify the creation and optimisation of relative permeability and capillary pressure models for accurate reservoir simulations. By integrating measurement data, advanced modelling features, and visualisation tools with customisable settings for various reservoir conditions, it allows users to import SCAL data, create tailored relative permeability curves, model hysteresis and advanced flow processes, and seamlessly export properties for simulation. This comprehensive approach streamlines workflows, delivering improved accuracy and efficiency in reservoir modelling.

COMPREHENSIVE GUIDANCE

Access an extensive library of user manuals and step-by-step training tutorials, or seek quick help with tNavigator's AI Assistant.

FAST & AGILE DEVELOPMENT

Over 350 in-house developers, and release 4 major software updates per year. tNavigator is driven by the needs and wants of users.

WELL DESIGNER

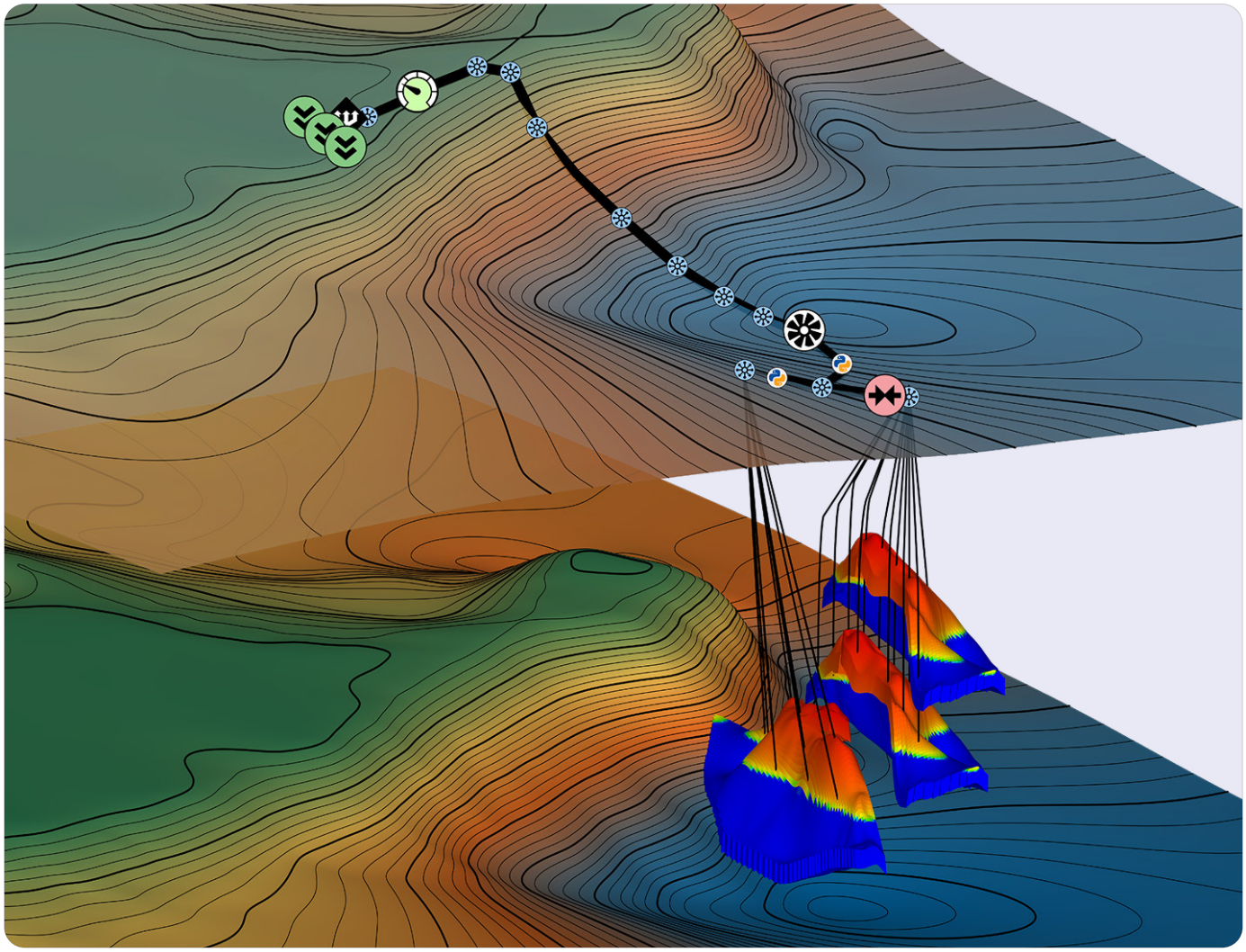
Streamline well design and analysis by enabling accurate modelling and optimisation of production strategies. Incorporate advanced multiphase flow modelling, smart completions and corrosion rate evaluation tools. Optimise multisegmented wells, gas lift design, VFP table generation, and the simulation of smart completions. This comprehensive approach provides unmatched speed and flexibility for well and field development, resulting in more efficient and effective reservoir management.

NETWORK DESIGNER

Optimise surface network efficiency and field development by integrating reservoirs, wells, and facilities into a unified model. By offering advanced tools for pressure and temperature analysis, and fully implicit simulations of both reservoir and surface systems, it provides a unique single software approach to integrated asset modelling. PVT tables and well designs control full-field optimisation through steady-state calculations and dynamic coupling of connected reservoirs.

PRODUCTION DESIGNER

The module is fully integrated with other tNavigator modules such as Simulator, Model Designer, Material Balance Analyser, Network Designer, Well Designer, PVT Designer, and Relative Permeability Designer. All modules are accessed through the Project Manager. Access to AI Assistant is also supported.



PVT DESIGNER

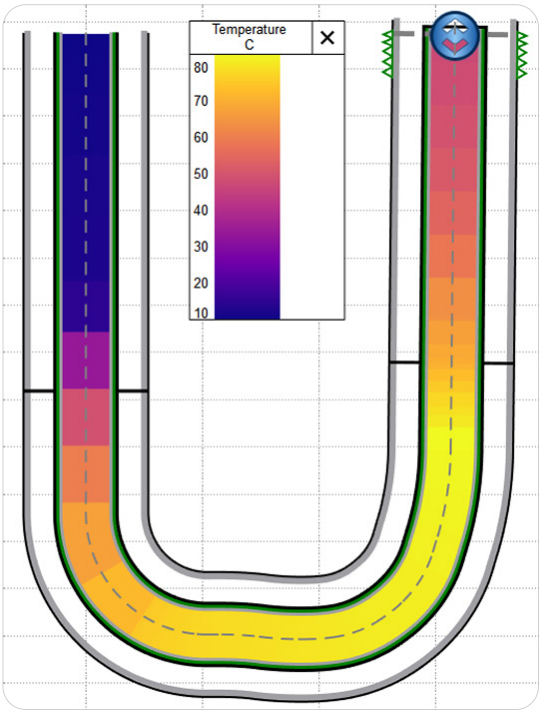
Generate reliable reservoir forecasts from precise fluid property models for black oil, compositional, and thermal simulations. By leveraging experimental data, industry-standard correlations, and flexible modelling features such as component selection, lumping, and blending, it allows users to create phase envelopes, match experimental results, manage pseudo-components, and export PVT tables for simulation workflows. This integrated approach streamlines fluid characterisation, ensuring consistent, accurate representations of reservoir fluids, ultimately enhancing the quality and efficiency of reservoir modelling and decision-making.

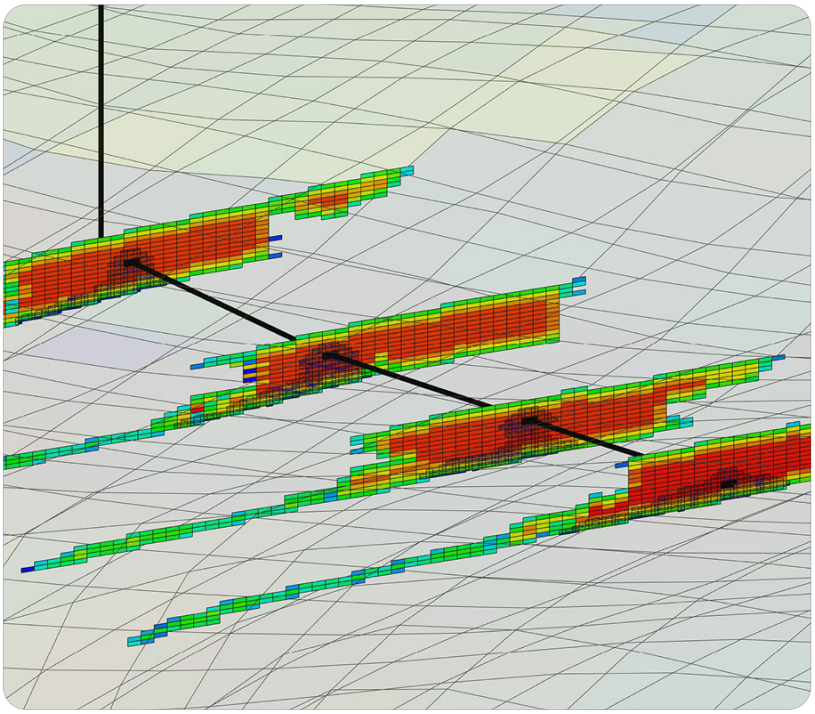
GROUND WATER

This module is designed for groundwater modelling, calculating water inflows to mine workings, designing dewatering systems and assessing the spread of chemical contaminants in underground horizons, taking into account salinity and thermal properties. It also supports geothermal models and U-shaped wells.

FRACTURE SIMULATOR

Reduce time and complexity in hydraulic fracturing modelling for improved production results, with seamless integration of static, dynamic, and geomechanical modelling on a unified grid. Fracture propagation simulation, flow analysis, flexible well and frac placement, and integration with assisted history matching and uncertainty workflows, ensuring robust optimisation across varied reservoir types.





SIMULATION

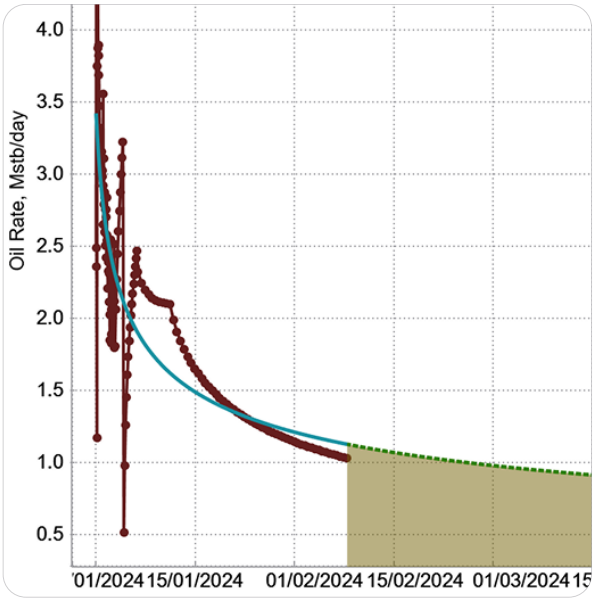
The fastest, most scalable reservoir simulation technology in the energy industry. Universal fluid flow equations and robust physics-based models, enhanced by cutting-edge CPU+GPU computational technology. Simulation studies become so much easier due to the synchronised interface. Models can be paused at anytime step without the need to complete the full simulation before interacting with the field wells allowing for more control on history matching workflows.

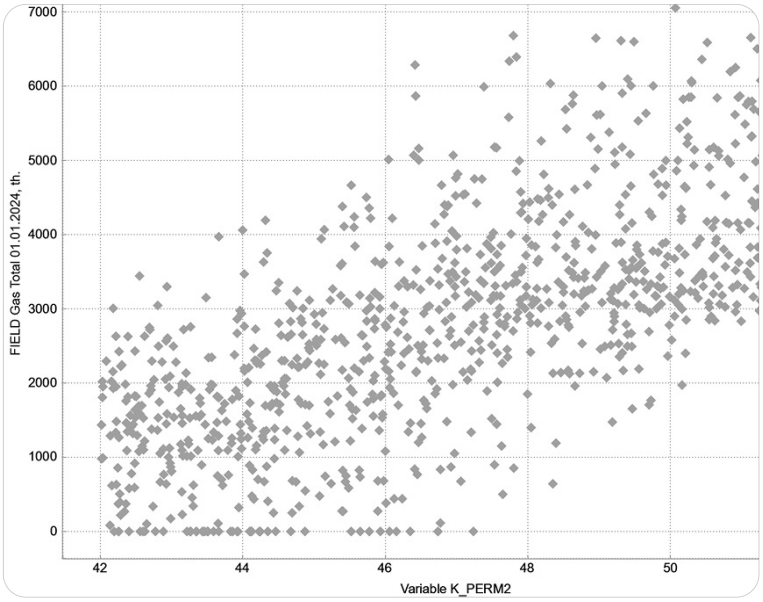
RESERVOIR PERFORMANCE

Enhance production forecasting by benchmarking results across multiple modelling approaches. Reservoir Performance now combines Decline Curve Analysis (DCA) with Rate Transient Analysis (RTA). Interactively select historical production periods, apply a range of mathematical models to forecast future performance, and analyse individual wells or groups of wells with interactive charts and visualisations. It can also create a numerical reservoir model for a single well, so analytical forecasts can be compared with physics-based simulation. Easily import data from a full-field Model Designer project or directly from production spreadsheets.

DIGITAL ASSET

The Digital Asset module is a web platform for interactive work with digital twins of oil and gas fields and for integrating tNavigator projects with the corporate data infrastructure. By integrating real-time data, advanced analytics, and predictive modelling, this tool enables proactive, data-driven decisions across the asset lifecycle. The Python API acts as a key enabler, connecting models with live data streams, automating workflows, and supporting integration with dashboards for real-time visualisation and insights.



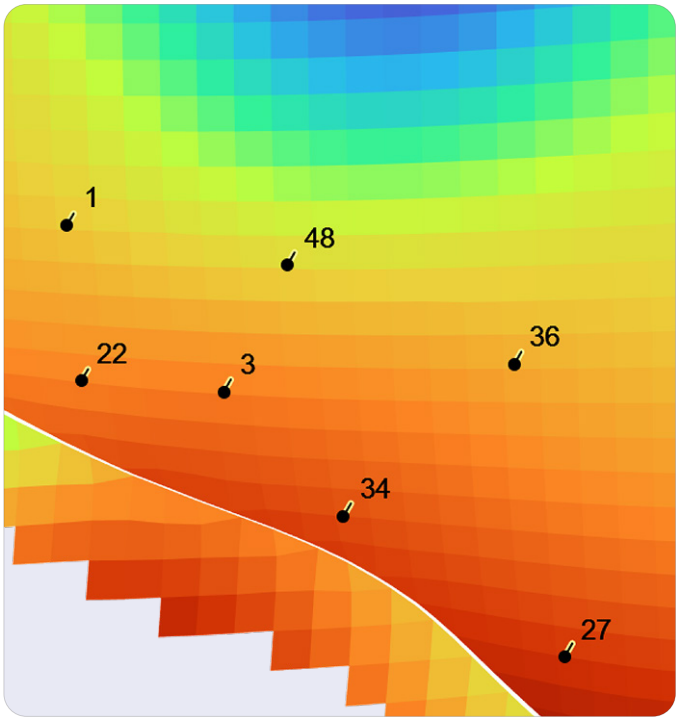


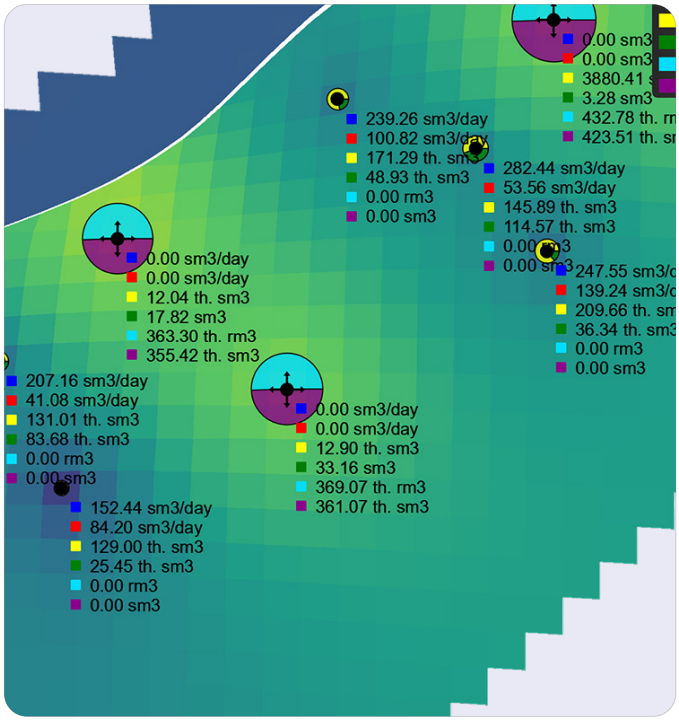
UNCERTAINTY

Evaluate risks and refine models with extensive uncertainty quantification, history matching, and forecast optimisation capabilities. By seamlessly integrating static and dynamic uncertainties and leveraging live result analysis, enable faster, more informed decision-making. A customisable dashboard, advanced algorithms, and machine learning tools elevate the reliability of field development strategies and enhance reservoir performance.

RESOURCE SHARING

Resource Sharing, a practice widely used across the industry, helps organisations get the most from the hardware and licenses they already own. Through the Batch Jobs & Resource Sharing module, calculations are managed centrally and compute resources are shared between users and projects, so capacity is used fully and queues stay fair. Combined with flexible licensing, where licences can be shared globally with no geographical restrictions, and on-demand cloud capacity, teams can scale up for peak workloads without leaving hardware idle in quieter periods.





TEAMWORK

The teamwork architecture is based on an organisational structure similar to a corporate one: each participant has their own working project, while centralised control of all changes is carried out through the administrator's project. Users make changes in their local copies of the project and submit them for review. All proposals are sent to the administrator, who decides whether to approve or reject them and also resolves potential conflicts if different participants have modified the same objects. The administrator's project contains approved, up-to-date working objects and is accessible only to the project manager or an authorised user. User projects may contain either full or partial copies of data from the administrator's project, as well as the users' own work in progress. After completing their tasks, users submit the results for review, and once approved, those results become part of the main project. This ensures centralised data storage and control while preserving each employee's ability to work independently.

ADVISER

Adviser provides centralised access to all software documentation, including manuals, tutorials, and release notes, with a powerful global search function for easy navigation. While using tNavigator, users can quickly access calculation-specific documentation with one click. Stay informed about new features with release note slide packs and master the software through over two hundred tutorials covering workflows from seismic, geology, simulation, relative permeability, PVT design, fracture simulation, Material Balance Analyser, facility and well design, history matching, and uncertainty analysis.

AI ASSISTANT

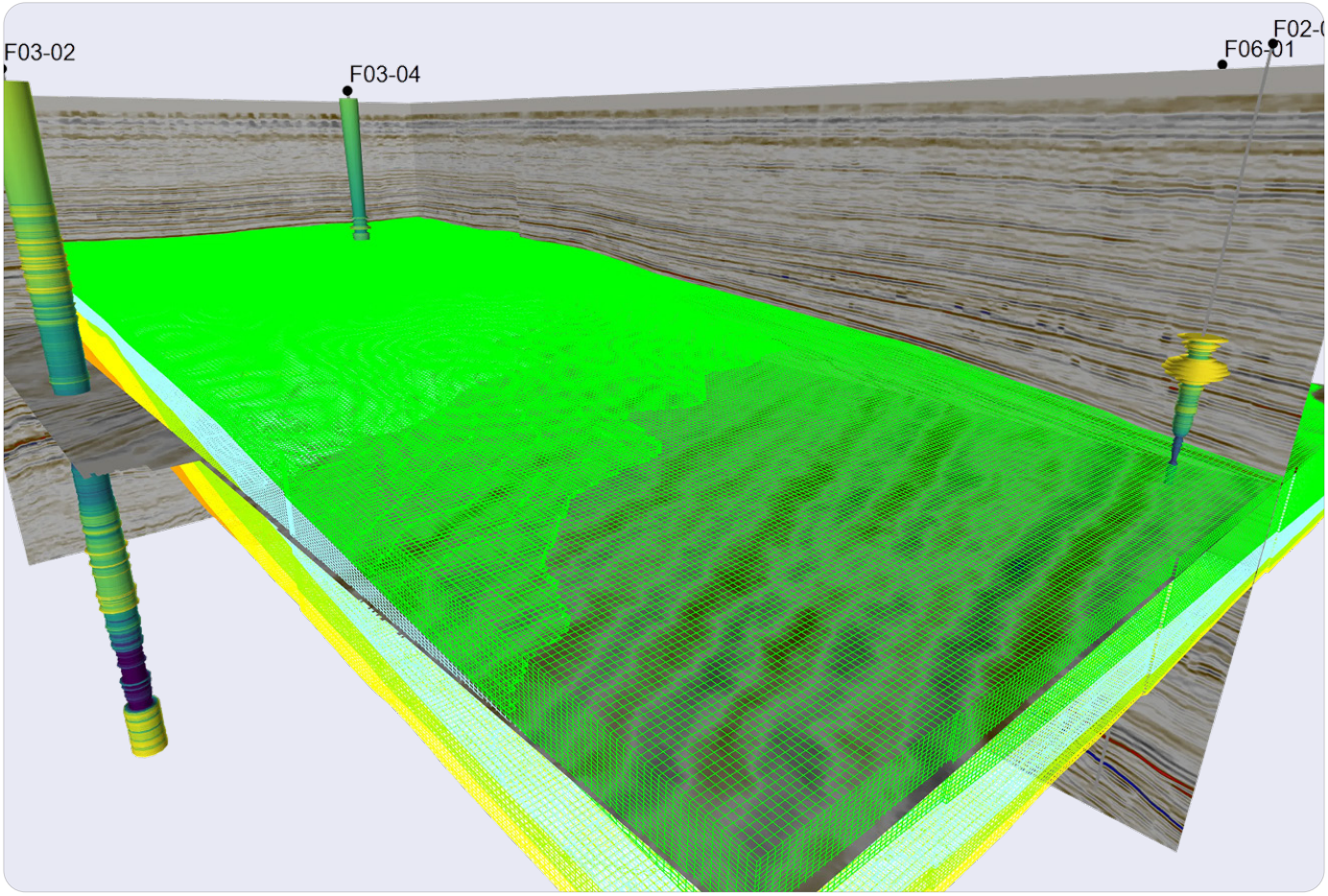
The AI Assistant enhances the user experience with contextual help, keyword definitions and workflow guidance in natural language, drawing on a knowledge base of 23,800+ pages of documentation, 8,500+ pages of training courses and 4,500+ Python API entries. Integrated into the GUI, it supports the full workflow, helping speed up model setup, troubleshoot errors and guide users through complex tasks. Its multi-agent mode brings agentic AI into the process, and with MCP connectivity, external AI tools and large language models can interact directly with your models, run tasks and surface results through the same natural-language interface.

24/7 SUPPORT

24/7 software support with rapid response time for issues, questions or suggestions. Reach out to the global support email, or local teams in our 35 regional offices.

INTUITIVE UI

The tNavigator user interface is intuitive and interactive, carefully built to provide an intuitive, seamless and efficient user experience across all disciplines.



A SOFTWARE FOR ALL ENERGY PROJECTS

Carbon Capture and Storage (CCS), Geothermal, Hydrogen & Wind

tNavigator provides a vital tool for CCS, offering advanced simulation of CO2 injection, plume migration, and pressure changes, while ensuring safe containment through fault-seal and caprock integrity analysis. Its integrated modelling environment supports full lifecycle CCS project design, from storage site evaluation to long-term monitoring. For geothermal projects, tNavigator delivers high-precision reservoir simulations with thermal-hydraulic modelling, heat transfer analysis, and fractured system support - maximising energy recovery and efficiency. Hydrogen storage capabilities include modelling of subsurface behaviour and geomechanical stability. Wind applications focus on subsurface analysis to support turbine siting and reduce geological risk.

BRING IT ALL TOGETHER - TRUE INTEGRATION

One integrated platform, multiple energy applications. tNavigator brings together the modelling, simulation and uncertainty tools needed to evaluate complex subsurface projects - from traditional oil and gas to CCS, geothermal, hydrogen storage and beyond.

EMBEDDED PYTHON

Python API

API-native by default, from the very beginning. The Python API provides a fully programmable interface to automate workflows, manipulate simulation models, run simulations, and extract or analyse results, with 4500+ ways to call it across every part of the platform.

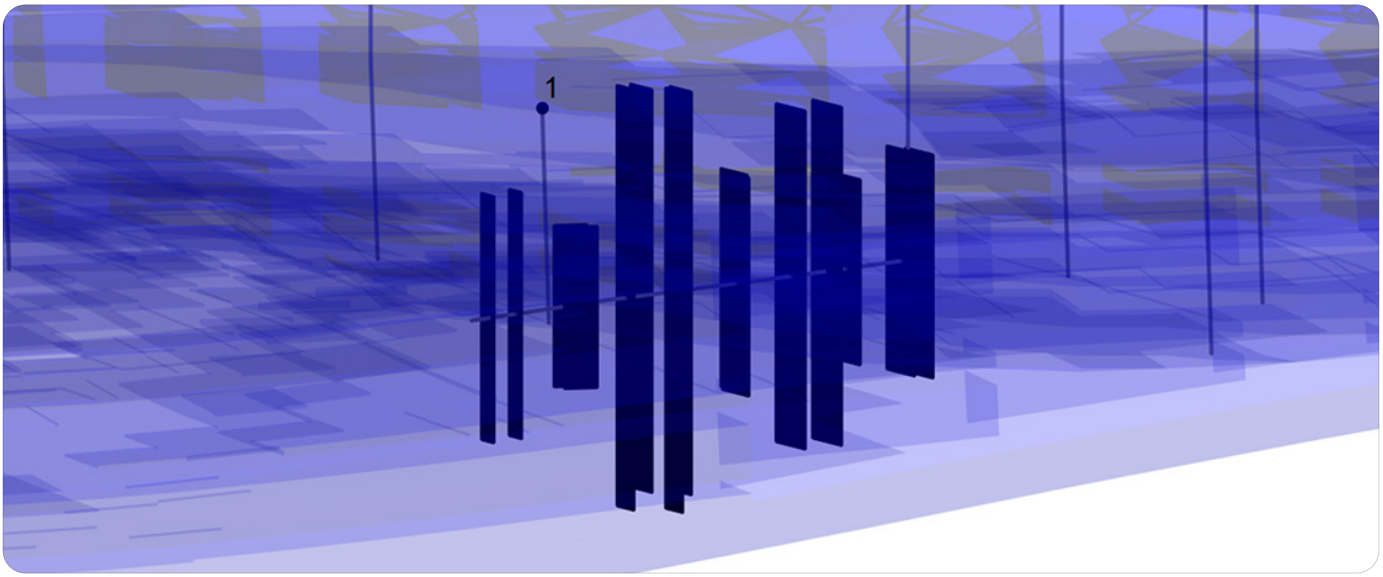
Because it's native from the ground up, the Python API integrates directly with existing data workflows. It supports automated simulation runs, model updates, and custom processing in Python, letting reservoir engineers and data teams build dynamic, scalable workflows for forecasting, optimisation, and continuous model calibration.

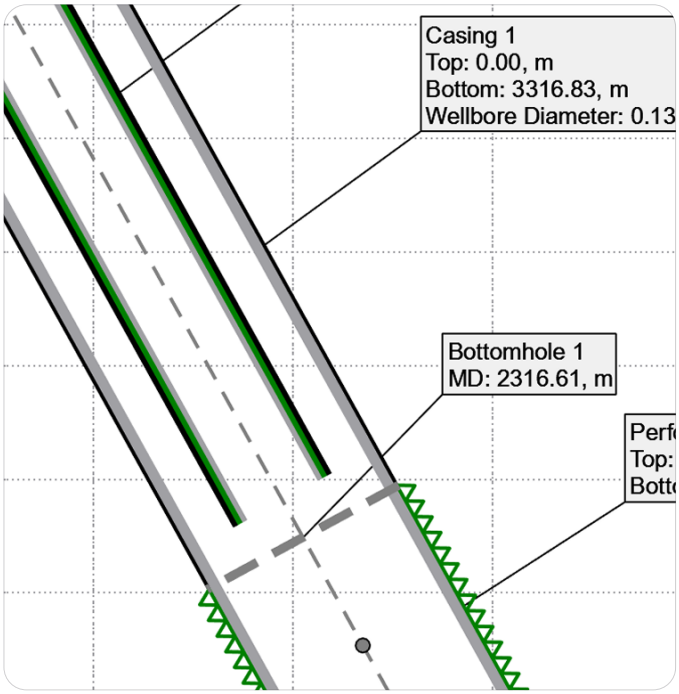
FLEXIBLE LICENSING

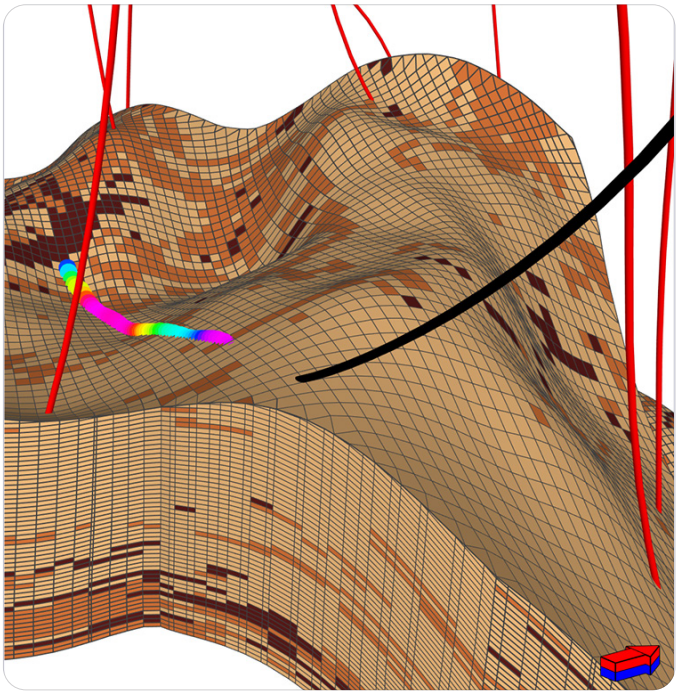
Rent, own, enterprise or SaaS cloud solutions. Licenses can be shared globally with no geographical restrictions.

CLOUD SOLUTIONS

Deployed on the vendor of your choice with on-demand and pay-as-you-go available for up to thousands of nodes.







BEYOND SOFTWARE

Training

tNavigator is intuitive and easy to learn, with over 250 tutorials available to help users get up to speed quickly. However, should you require a more in-depth introduction to maximise the potential of tNavigator within your teams, high-quality, bespoke training courses suited to your organisation's needs are available. These can be delivered at your business location, at an off-site venue or online.

Proof of Concept (PoC) Studies

Rock Flow Dynamics offers comprehensive services for proof of concept (PoC) studies, helping clients evaluate the feasibility and performance of reservoir simulation projects using tNavigator. Experts can demonstrate the capabilities for solving complex reservoir challenges, assisting in model setup, validation and performance assessment. These studies enable clients to assess potential value, optimise workflows, and make informed decisions before full-scale implementation.

Consultancy

Rock Flow Dynamics have a large network of in-house and external experts who can provide a wide range of technical geoscience, reservoir and petroleum engineering and advisory services to support projects within your organisation. Consultancy expertise includes assisting clients with geological modelling/rebuilding, dynamic reservoir analysis, history matching & optimisation, and production forecasting. Consultancy services are tailored to suit your business needs, offering flexible solutions with specialist skills from a team of friendly, professional experts.

Model Conversion

With many software providers in the market, the thought of converting existing models can be a drawback when switching to a new technology that better suits your needs. tNavigator supports most industry standard formats, and with an intuitive ˝plug & play" solution, it is easy to bring your existing models into the suite. For more complex projects, specialised model conversion services are provided, enabling a seamless transition from third party platforms into tNavigator. Rock Flow Dynamics' experts ensure accurate data translation, model integrity, and validation throughout the conversion process. This service allows users to fully leverage tNavigator's advanced reservoir modelling and simulation capabilities while maintaining consistency with existing reservoir models and workflows.

GET IN TOUCH!

tNavigator@rfdyn.com

WWW.RFDYN.COM