INTERSECT

## New insight with high-resolution simulation

BENEFITS AND FEATURES

- Accelerate screening of subsurface development plans
- Improve decision making through more detailed geological descriptions
- Accurately model reservoirs with high heterogeneity and permeability contrasts, naturally fractured reservoirs, and highly faulted reservoirs with other significant features represented
- Capture fluid fronts with the use of structured and unstructured local grid refinements
- Efficiently and accurately handle reservoirs with extensive well counts
- Correctly capture the physics of advanced downhole equipment such as inflow control devices (ICDs) and flow control valves (FCVs) with new well models
- Execute full-field models of heavy oil recovery schemes such as steam-assisted gravity drainage (SAGD)
- Increase throughput for better reservoir understanding of geological uncertainties
- Advance your field management
- Conduct informed and facilitated production optimization

The INTERSECT* high-resolution reservoir simulator sets the standard for reservoir simulation. By combining physics and performance in a fit-for-purpose reservoir simulator for your reservoir models, the INTERSECT simulator enables modeling at the scale you need with the physics you need—fast. Reservoir engineers are provided with results that can be trusted to provide insight into understanding the progression of hydrocarbon in the reservoir at a resolution that is otherwise too costly to simulate. The outcome is improved accuracy and efficiency in field development planning and reservoir management, even for the most complex fields.

From black oil waterflood models, to thermal SAGD injection schemes, to efficient handling of unstructured grids, the INTERSECT simulator delivers a new approach to reservoir simulation for meeting your reservoir management challenges.

The INTERSECT simulator reveals new insights through the efficient simulation of high-resolution models while employing robust physics to support better field development decisions. Detailed reservoir characterization, together with well and network coupling, can be honored with only minimal or no upscaling.
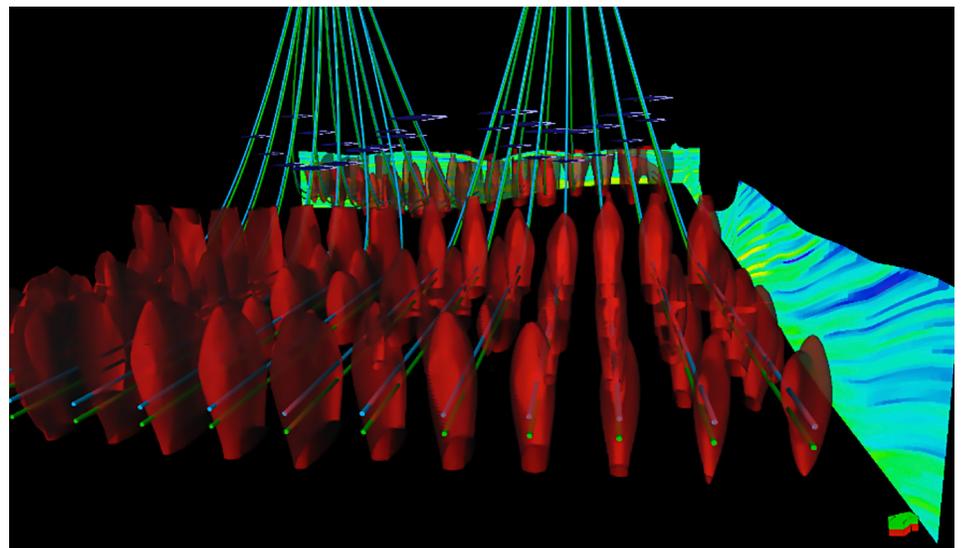
Execute full-field models of heavy oil recovery schemes such as SAGD by using the INTERSECT simulator.
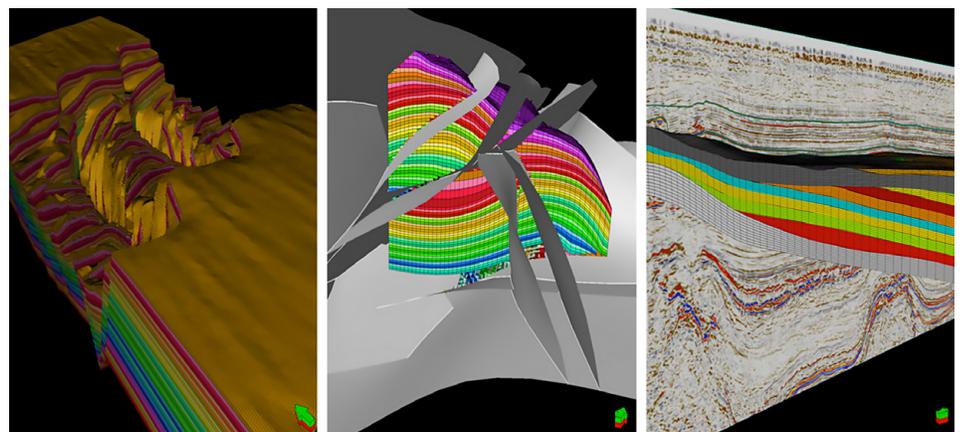
Simulate models at the resolution and scale you need using the INTERSECT simulator.

INTERSECT

Unstructured gridding enables accurate and detailed modeling of the most challenging faults, fractures, and wells. Advanced well capabilities accurately represent fluid behavior in horizontal wells and complex completions to improve both efficiency and accuracy in your reservoir studies.

Field management with the INTERSECT simulator

Production from an oil field can be limited by numerous constraints such as reservoir deliverability, the capability of the surface facilities to handle produced fluids, economic considerations, availability of rig resources, value of produced fluids, and the cost of disposing unwanted fluids.

INTERSECT simulator's field management capabilities let you build a working operational model of the oil field. The model captures all the operational constraints and operating logic to efficiently manage the asset, from optimizing production from a single reservoir model to coupling multiple reservoirs or connecting the reservoir to the wells and network. Multiple scenarios are easily modeled, such as pressure maintenance in reservoir regions, control of water and gas coning, and cyclic well control through water-alternating-gas (WAG).

The INTERSECT simulator's field management controls are designed to model operational scenarios, all in terms of resources, rigs, and field-related logic. Balancing algorithms ensure that higher-level constraints from various sources are enforced and are consistent with the current state of the wells and reservoir. Restrictions on drilling rigs or operating funds can be captured to run the simulation model according to real-world operational limits.

INTERSECT simulator's performance and scalability

The INTERSECT simulator's superior scalability is a key technology enabler for increased reservoir understanding to improve reservoir management and field development planning.

By leveraging the power of multiprocessor and multicore hardware, the INTERSECT simulator significantly reduces run times even for the most complex models. This provides new possibilities for building simulation models at the resolution needed to answer project objectives, not just to fit a specific runtime.

The INTERSECT simulator was built for parallel performance, with a design that supports parallel scalability in terms of the linear solver, grid partioning, and well assignment. The parallel architecture of the INTERSECT simulator provides excellent performance and scalability. These capabilities in turn deliver more realistic geological descriptions, more accurate production forecasts, and a better assessment of uncertainty as a robust basis for decision making.

Integrated workflows through the Petrel E&P platform

The Petrel* E&P software platform integrates the multidisciplinary workflows surrounding the INTERSECT simulator, providing transparent data flows and an intuitive graphical user interface for reservoir engineering. The Petrel platform supports automated, repeatable workflows that streamline the incorporation of new data to keep the modeled subsurface live and current. In addition, the Migrator functionality of the INTERSECT simulator allows reservoir engineers to move easily from the ECLIPSE* industry-reference reservoir simulator to the INTERSECT simulator, with data validation performed by both the Migrator and INTERSECT simulator to ensure the quality of the reservoir model.

Rely on the INTERSECT simulator to deliver new insight to your reservoir models, for your environment, on workstation, laptop, in-house cluster, or through a subscription-based service in the cloud.
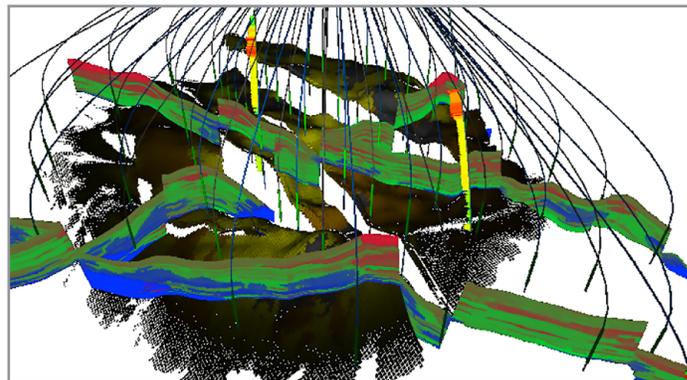
Make more realistic oilfield decisions with the INTERSECT simulator's field management capabilities.

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