

Enhance precision geosteering and decision making with real-time 3D modeling using Petrel workflow tools.

Petrel™ workflow tools used in conjunction with Schlumberger Real-Time Geosteering Services are enabling exploration and production companies to enhance the accuracy of their well placement through improved real-time decision making.

With the introduction of geosteering techniques in recent years, logging while drilling (LWD) tool responses can be modeled ahead of the drill bit, helping to reduce uncertainty in complex geological settings. Teams can anticipate—in real time—lithological variations in the formation and aid the geosteering team to more accurately place deviated and horizontal wells.

Real-time geosteering with Petrel

Advanced Petrel tools synthesize the log responses of petrophysical properties along proposed horizontal well paths.

The Real-Time Geosteering team uses these pseudo-logs with customized applications to model downhole tool responses and anticipate lithology variations in horizontal wells while drilling. The expected tool responses are then compared to the actual LWD results.

During a drilling campaign, the LWD data is received from the rig and is loaded into Petrel software through an OpenSpirit® link to the company's database. The reservoir model is updated at the click of a button using the Petrel Process Manager, combining the new LWD data with the existing petrophysical logs from nearby offset wells.

This workflow enables faster decision making, with the potential to identify and reduce non-productive drilling time with optimized directional steering.

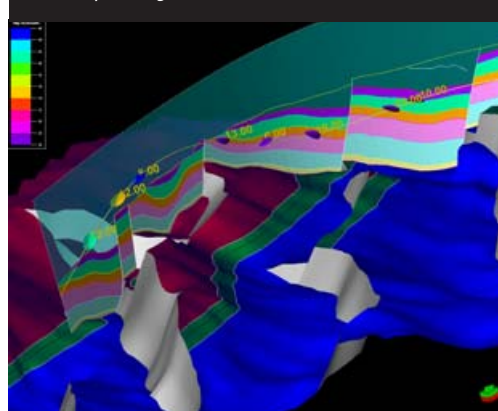
Key features and benefits

- Petrel software is used to update the model in real time, enabling faster decision making and reducing cycle time, saving time and money.
- The Petrel Well Design module enables well paths to be designed and updated immediately, reducing non-productive time.
- Proposed well paths, along with intersecting geological targets, can be used by the Real-Time Geosteering team, facilitating forward modeling of tool responses so that events can be activated and reaction time evaluated.
- Data can be ported from a database through OpenSpirit directly into the Petrel model, reducing manual data transfer and leading to an increase in interpretation time with Petrel workflow tools.
- Experienced consultants can assist in model building, well design, geosteering, and model updates for a seamless workflow.

Improve well accuracy and enhance decision making using Petrel workflow tools and Schlumberger Real-Time Geosteering services.

Decrease cycle time with rapid model updates and enhanced well placement.

3D well planning in Petrel workflow tools.



Real-time geosteering workflows with Petrel

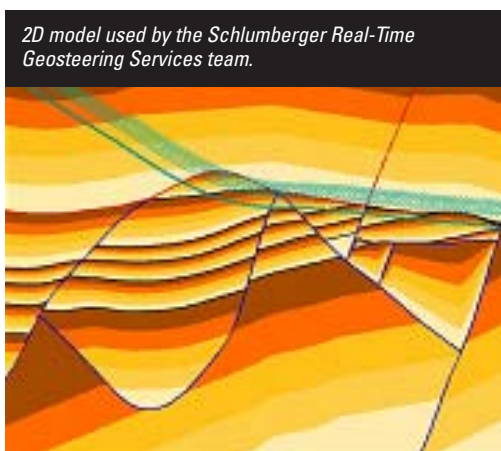
Advantages of the new workflow

While traditional geosteering workflows operate in a 2D environment, Petrel technology within real-time geosteering studies brings the workflow into the 3D domain. Synthetic log generation capabilities within Petrel software enable more accurate estimates of the log response along the proposed well path.

The Petrel model can be updated in real time, as the well path and log data are received from the rig and visualized in 3D to accurately gauge the impact of the results on the play.

Communication between team members is facilitated by the ability to visualize proposed and actual well trajectories in 3D, in conjunction with the latest petrophysical updates. As a result of the increased collaboration between team members and the enhanced visualization of newly acquired data, drilling decisions and alterations to the well plan can be made in minutes. This reduces cycle time and improves the accuracy of well placement, therefore saving time, resources, and money.

The Petrel workflow and Schlumberger Real-Time Geosteering Services provides accurate results where targeted horizontal drilling is required and where complex geological plays need to be monitored in real time.



2D model used by the Schlumberger Real-Time Geosteering Services team.



Schlumberger Information Solutions

Petrel workflow tools are licensed and supported by Schlumberger Information Solutions (SIS). SIS is an operating unit of Schlumberger that provides consulting, software, information management, and IT infrastructure services to support the core operational processes of the oil and gas industry. SIS enables oil and gas companies to drive their business performance and realize the potential of the digital oilfield. SIS is on the Internet at www.sis.slb.com.

Real-Time Geosteering Services is delivered by Schlumberger Data & Consulting Services group in collaboration with Schlumberger Drilling and Measurements (D&M).

Integrated workflow

Petrel software users combine tools from the seismic, geologic, petrophysical, and reservoir engineering domains for subsurface collaboration and interpretation. The complete workflow from seismic to simulation can now be handled within a single application. Links to OpenSpirit enable Petrel software users to access data from a corporate database.

Real-time updates

As data is received from the rig, the Petrel model can be updated within minutes, enabling faster decision making and reduced cycle time.

Full control

The Petrel workflow and Schlumberger Real-Time Geosteering Services provide accurate results where targeted horizontal drilling is required and where complex geological plays need to be monitored in real time.

Contact your local SIS office, e-mail sisinfo@slb.com, or visit www.slb.com/oilfield for more information on Petrel software and Schlumberger Real-Time Geosteering Services.

