DecisionSpace® Earth Modeling Software

OVERVIEW

The ability to characterize a reservoir’s physical makeup in real time while accurately understanding reservoir potential and uncertainty remains a primary priority for exploration and production operators’ efforts to develop and understand reserve replacement strategies. DecisionSpace® Earth Modeling application is an essential subsurface tool that provides an intuitive and flexible approach to assimilating dynamic mechanical and geoscience knowledge in order to best understand reservoir property distribution. The application integrates subsurface data from well logs, cores, and seismic along with qualitative data to construct a robust 3D representation of a reservoir. Using both efficient stochastic and deterministic approaches, DecisionSpace Earth Modeling software can deliver a multi-resolution geocellular model that more accurately represents the size, shape, orientation, composition, and internal arrangement of a reservoir. This model can then be leveraged for numerous downstream activities, including flow or basin simulation, well planning, stimulation, and risk analysis.

DecisionSpace Earth Modeling software is a module of the DecisionSpace Geosciences suite, a unified visualization, interpretation, and modeling workspace where asset teams can collaborate more effectively to evaluate and develop assets. It delivers a true multi-user environment with unprecedented integration across multi-domain workflows and data types—all on the award-winning, information management foundation of OpenWorks® database.

KEY BENEFITS

» Friendly for experienced and novice geomodellers:
  » Advance geostatistical algorithms
  » Unconditional simulations
  » Variogram visual validator

» Time saving moving data I/O due to an integrated environment to complete the end to end workflow
  » OSDU compatible

KEY FEATURES

» Flow simulation-ready 3D grid construction with seamless link to dynamic simulator
  » Comprehensive and intuitive geocellular model generation directly from Dynamic Frameworks to Fill® technology based on original interpretation
  » Multiple variogram computation and modeling with instant visual validation
  » Facies trend computation and modeling workflows
  » See-it-now tool generating quick static simulations for rapid results-checking
  » Built on the DecisionSpace® platform

“I am predicting that your DecisionSpace® environment should change the way we do our technical work – and for the better.”

GEOSCIENCE MANAGER, NATIONAL OIL CO.

BENEFITS

High Resolution Models Derived from Landmark Dynamic Frameworks to Fill® & Industry Standard Geostatistics Algorithms
The Earth Modeling workflow has been optimized to promote integration, usability and high science, from building geocellular models directly from a sealed structural framework, such as the Dynamic Frameworks to Fill® workflow, through intuitive facies
and petrophysical modeling, to static volumetrics and uncertainty. The application combines an intuitive design, along with innovative facies control and advanced techniques, such as lithology proportion mapping and variogram analysis. Advanced geostatistical algorithms available natively in the application, including Pluri-Gaussian, Sequential Gaussian and Sequential Indicator, enhance the horsepower of this solution.

**Full-Field Visualization Provides Unique Ability to Work in 3D & for In-Situ Understanding of Sweet Spot, Optimal Fracture Design, & Well Placement**

The ability to visualize the earth model in 2D and 3D displays within DecisionSpace Geosciences software – in the context of regional, interpretive and GIS information – provides powerful validation and quality control capabilities, as well as enhanced understanding of the reservoir. The ability to quantify petrophysical and mechanical property distribution, uncertainty, volumetrics and reserves, with the rigor of geostatistical techniques, simply and easily, can result in enhanced efficiencies throughout the acquisition to decision workflow. This is critical to several processes, including sweet spot quantification (particularly suitable for unconventional reservoirs), upscaling and zone definition analysis, well targeting and lateral placement, fracture design, and well engineering.

**Optimal Integration & Downstream Handshake with Popular Reservoir Simulation Tools**

DecisionSpace Earth Modeling software integrates seamlessly with the advanced Nexus® Reservoir simulator as well as other industry available simulation applications. Visualization and editing of non-Landmark format models is possible through the DecisionSpace Geosciences suite, as well as the ability to launch a simulation deck and/or integrate reservoir simulation models and replay the time-steps. This enables viewing the entire interpretive lifecycle from raw interpretation to static and dynamic simulation models, in a single application at the same time.

**SYSTEM AND SOFTWARE**

**Operating Systems**
- Red Hat® Enterprise Linux® Workstation 7.4, 64 bit
- Microsoft® Windows® 7, 64 bit

**Software Requirements**
- OpenWorks® 5000.10.7
- DecisionSpace® Base module
- DecisionSpace® GIS component for GIS workflows

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