DecisionSpace® Velocity Modeling Software

OVERVIEW

The DecisionSpace® Velocity Modeling application provides a solution for building velocity models that incorporates raw, edited and interpreted data, as well as existing velocity model information, to build geologically sound velocity models between well control. Landmark innovative use of a multi-resolution model incorporates well and seismic information so that interpreters can easily build geologically sound models even in structurally complex geologic regimes. By incorporating seismic, well data, interpreted horizons, faulted frameworks, and multi-Z salt-body objects, as well as other attributes like density and anisotropy, velocity modeling software can be used in a multitude of workflows, such as seismic imaging, depth conversion, seismic inversion, AVO analysis, fracture detection, pore-pressure prediction, and reservoir modeling.

The Velocity Modeling software is a component of the DecisionSpace® Geosciences suite, which is a unified visualization, interpretation, and modeling workspace where asset teams can collaborate more effectively to evaluate and develop assets. This suite delivers a true multi-user environment enabling collaboration across multi-domain workflows and data types—all on the award-winning, data-management foundation of the OpenWorks® database.

KEY BENEFITS

» Able to build full 3D calibrated models or map based layered models
» Able to calibrate multiple types of 2D, 3D, well and inter-well data
» Multiple uncertainty analysis tools
» Native integration with the DecisionSpace® interpretation environment
» Native integration with the OpenWorks® database

KEY FEATURES

» Cross-domain velocity modeling workflow integrating geological and geophysical data
» Multi-resolution velocity modeling on the fly while interpreting
» Utilizes Dynamic Frameworks to Fill® technology for cross-domain velocity model building and validation
» Direct link with seismic processing environment for advanced interpreting workflows
» Built on the DecisionSpace® platform

Figure 1: Cube, map and section views of multi-z salt based velocity model.

“The technology is highly capable and user-friendly.”

GEOPHYSICIST INDEPENDENT

BENEFITS

More Value with an Integrated 3D Velocity Solution

Built in the unified DecisionSpace® interpretation workspace, velocity models are displayed and evaluated along with seismic, well, and structural interpretations. This approach leads to increased confidence in the velocity model.
Velocity Models That Assimilate Well & Seismic on the Fly
Dynamic time-to-depth workflows can tie well data, seismic data, faulted frameworks, and salt bodies to create robust imaging and depth conversion models on the fly.

Empowers True Interpretive Processing Workflows for Accurate Model Collaboration
Unique “hybrid” velocity model design provides for a memory-efficient model. This model can be shared between the processor and interpreter, enabling optimized seismic imaging activities like prestack reverse-time migrations.

Data Integrity in Complex Geology
Geologically accurate structures are built using Dynamic Frameworks to Fill® conformance technology. Velocity Modeling integrates the accurate geologic structures with all the relevant time and depth subsurface data from vertical/deviated/horizontal wells and seismic data to build a geologically optimal velocity model. This approach leads to a geologically sound model in complex geology.

Flexible Model Design can be Leveraged Across Deepwater & Unconventional Workflows
Landmark unique integrated subsurface software platform provides native access to the velocity model, enabling advanced subsurface workflows, including seismic inversion, reservoir modeling, AVO studies, 4D interpretation, pore-pressure analysis, and fracture analysis.

SYSTEM AND SOFTWARE

Operating Systems
- Red Hat® Enterprise Linux® Workstation 7.4, 64 bit
- Microsoft® Windows® 10, 64 bit

Software Requirements
- OpenWorks® 5000.10.6
- DecisionSpace® Base module

Figure 2: Cross section over one of the many uncertainty analysis tools available in DecisionSpace® Velocity Modeling.