

# DecisionSpace®

## Seismic Interpretation Software

**DecisionSpace®**  
Geosciences

### KEY FEATURES

*Advanced auto-tracking tools*

*Dynamic domain conversion to interpret in time, depth, or both*

*Automated mapping, fault gaps, horizon cleaning, and more built on Dynamic Frameworks to Fill technology*

*Easy horizon interpretation workflows*

*Full suite of horizon operations*

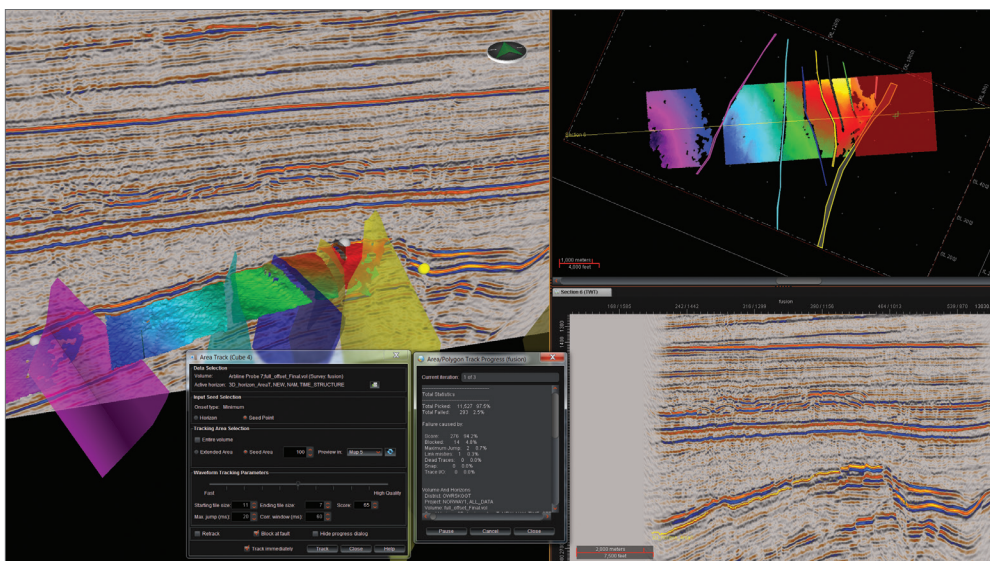
*Integrated workflows with DecisionSpace Geology and Earth Modeling software*

*Built on the DecisionSpace platform*

### OVERVIEW

The DecisionSpace® Seismic Interpretation component provides the core seismic interpretation workflows for mapping subsurface geology. The application provides the geophysical interpreter with full 2D/3D seismic interpretation workflows from basic visualization in multiple views to advanced multi-attribute analysis. The application includes robust horizon and fault interpretation for trap definition workflows along with amplitude extraction for fill prediction.

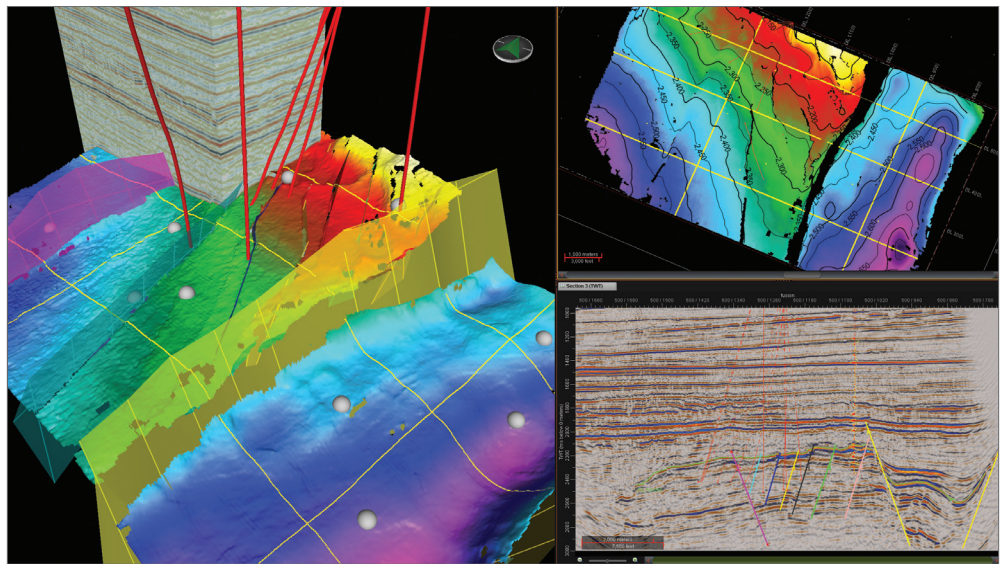
Final depth maps can be created confidently and updated throughout the project lifecycle based on DecisionSpace Geosciences software's unique "geologic rules" interpretation workflows, such as time-depth conversion and Dynamic Frameworks to Fill® workflows. By providing enhanced access to log data and well picks compared to traditional seismic interpretation packages, interpreters quickly realize a geological perspective to their geophysical interpretation workflows. A powerful topology engine, shared between geophysical and geological workflows, enables geoscientists to build a sealed structural framework while they interpret. Creating presentation-quality contour maps becomes a byproduct of the sealed model without digitizing fault polygons.



Advanced interpretation features include automated waveform tracking, multi-panel 2D and 3D displays with advanced seismic display properties, streamlined line-by-line horizon interpretation, fault picking, and increased quality control. In addition to fundamental geophysical interpretation tools, the software's tight integration in the DecisionSpace Geosciences suite offers highly innovative workflows for integrating geo-referenced images and Esri® geographic information systems (GIS) data, 3D probes, and structural validation applied to unfaulting and flattening.

DecisionSpace Seismic Interpretation software is a component 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 cross-domain workflows and data types—all on the award-winning, information management foundation of OpenWorks® database.

## BENEFITS



### ***Basin Scale Analysis to Better Understand Play Fairways and Basin Trends***

To capture the best acreage, interpreters need to understand the whole basin. Inherent in this big picture scenario is the ability to perform seismic interpretation at the continental scale. Built on the OpenWorks project data management database, DecisionSpace Seismic Interpretation excels for interpreting in large scale, complex 2D and 3D seismic projects with time and depth seismic of different vintages.

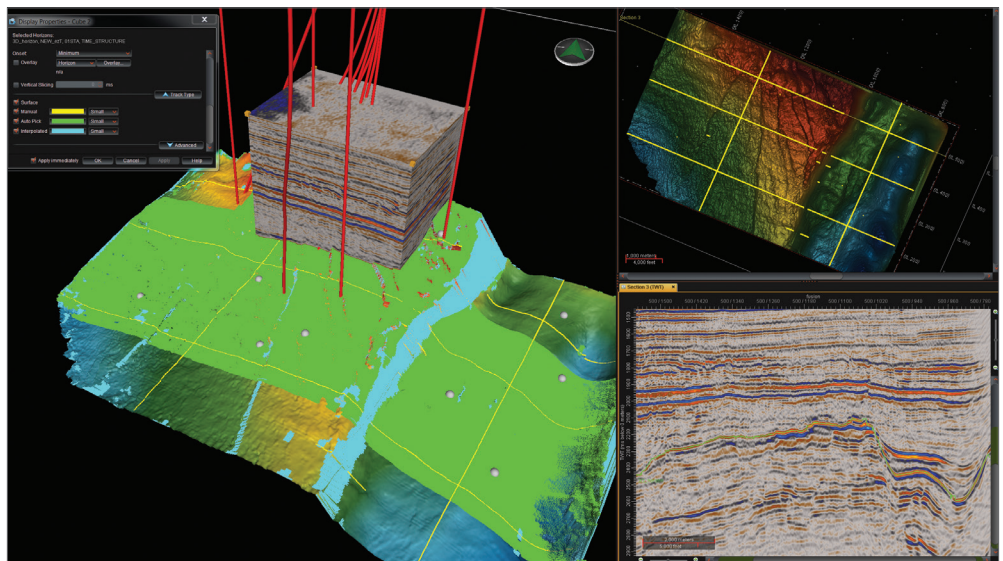
### ***Accelerates Interpretation and Reduces Rework***

Traditional framework building and mapping tools require a series of depth conversion and gridding steps for faults, well picks, and seismic horizons that quickly get out of date as new seismic data is acquired and wells are drilled. With Dynamic Frameworks to Fill workflows, the final map is tied to the original interpretation so it builds as you interpret horizons and faults, which helps the interpreter find errors in the

interpretation much earlier in the cycle when they are easier to fix. Through dynamic time-to-depth conversion the seismic can be interpreted in time while the geologist works in depth and the software integrates them into the final result using conformance technology. This approach allows immediate updates as wells are drilled and seismic data is acquired or reprocessed.

DecisionSpace software enables cross-domain collaboration to optimize all phases of the seismic interpretation workflow, from basin analysis through 4D earth modeling to appraisal well planning and drilling. As you interpret, updates to interpretations are dynamically incorporated into the structural framework, enabling asset teams to quickly optimize, present, and defend technical analyses in complex environments.

## FEATURES

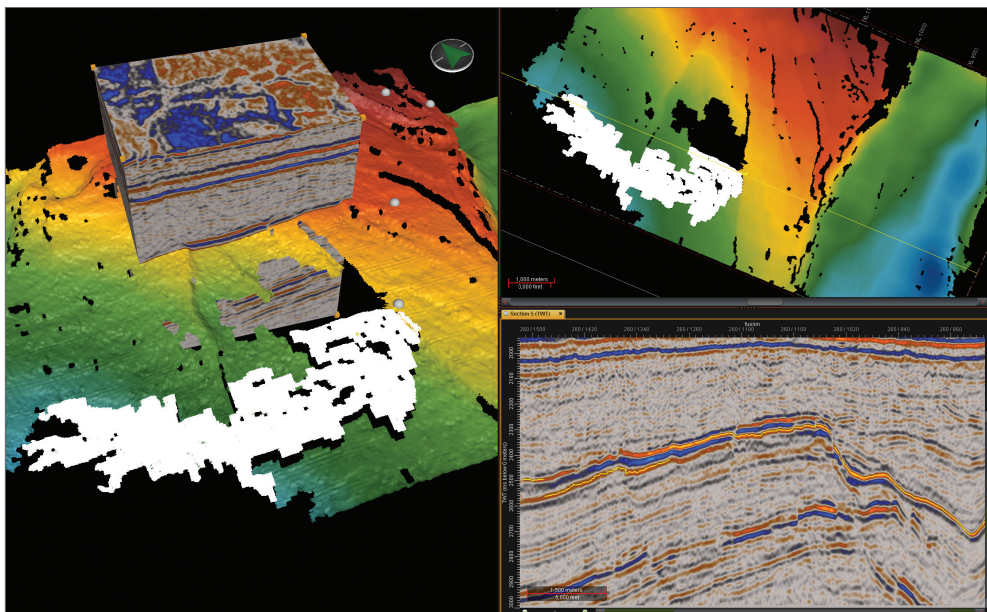


### *Visualization*

The seismic interpretation experience is enhanced with the ability, in one unified workspace, to co-visualize more than 40 types of GIS, culture, geologic, drilling, engineering, and production data in both time and depth and from multiple cartographic references systems.

Interpretation is performed with the visual aid of dynamically linked, multi-panel displays of multiple maps, sections, and 3D cube views.



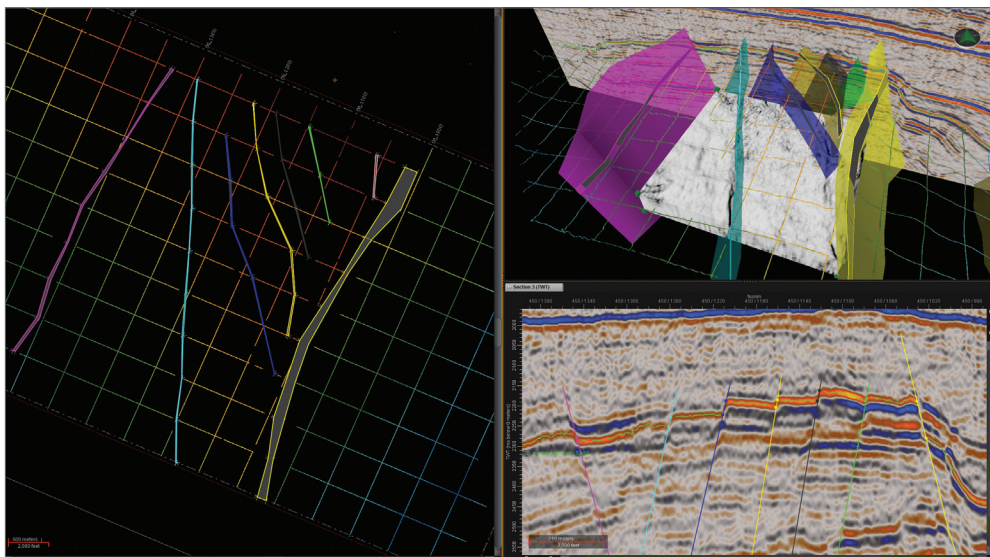


### ***Horizon Interpretation***

Core horizon interpretation workflows enable a range of techniques from manual interpretation in section and map views to seed point tracking in multiple linked cube views. All horizons can be auto-tracked using area, paintbrush, and polygon tracking. Horizon pick type is saved and can be viewed and edited by manual, auto-tracked, interpolated, or parent/child lineage. A suite of key horizon operations, such as copy, merge, interpolate, de-spike, and smooth, are available for uninterrupted workflows inside the interpretation scene.

### ***Dynamic Structural Framework Building***

The Dynamic Frameworks to Fill workflow creates a sealed structural framework, complete with fault network construction and horizon cleaning, as horizons, faults, and well picks are interpreted. Interpreters contribute directly to a shared structural framework as an integral part of an integrated workflow. New data or revised interpretations are dynamically updated in the model. Multi-user and multi-domain workflows are supported.



### ***Fault Interpretation***

Advanced fault interpretation can be performed for unassigned and assigned fault interpretation workflows using map section and cube views. The new fault heave workflow for correlating unassigned faults is especially powerful for 2D seismic interpretation. The fault QC and ezValidator™ workflows accelerate the quality of the assigned fault interpretation workflow.

### ***Geoshaper Interpretation***

Geoshaper “freehand” interpretation tools offer a method for sharing geologic ideas or interpreting in the absence of seismic or well data. This stratigraphic-oriented interpretation tool can be used to extend a lithology interpretation away from well control or to map a basin scale idea. Points, lines, or polygons can be converted to point sets, gridded, and contoured.

### ***Vertical Images***

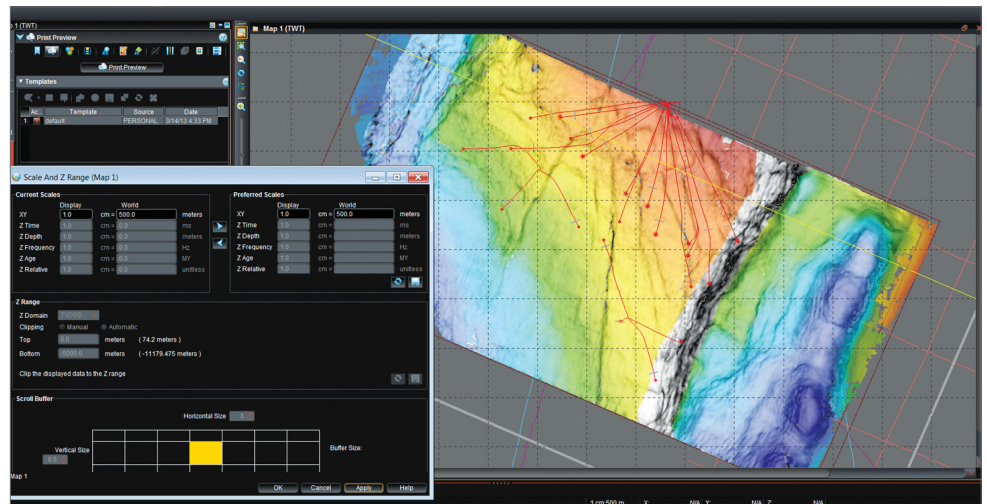
Display XYZ-referenced vertical images in the context of seismic data and regional interpretation. These can be published cross sections or scanned seismic images.

### ***New Hardcopy Mode***

At the end of the day, the interpreter needs to prepare high-quality scaled hardcopy results for partners, regulatory agencies and company compliance requirements. Extensive hardcopy workflows have been added including the ability to switch an active interpretation view into a hardcopy mode which shows what the final hard-copy would look like. No need to create a new view and add back in all the data items you need. The layout of these views can be saved and recalled when needed. Output options include .pdf, .cgm, and montage viewer.

## GIS Integration

Display geo-referenced images and Esri shape files in the context of the interpretation. Any image that can be displayed can be used as a background for interpretation.



## Interpretation Sets

Interpretation sets allow interpreters to leverage the power of large project databases while still being able to focus on the subset of data and interpretation that is relevant to them. Without data duplication, interpreters customize folders with links to the data (such as seismic wells, horizon, and faults) of importance to them. Interpreters use this to track different scenarios, share with team members, or to leave knowledge behind for the project team following behind them.

## Interpreter Notes

Many interpreters take notes on paper for decisions they make or observations they see as they work in an area. Interpretation Notes are a way for those to be stored and displayed like any other interpretation. Any information can be referenced to an XYZ location. The note can contain text, images, links to documents, or other data useful for maintaining best practices and corporate knowledge, all captured in the OpenWorks database.

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## System and Software

### SOFTWARE REQUIREMENTS

*OpenWorks 5000.8.3.0*

*DecisionSpace Base module*

*DecisionSpace GIS module  
to run GIS workflows*

### OPERATING SYSTEMS

*Red Hat® Enterprise Linux®*

*Workstation 5.3, 64 bit*

*Windows® 7, 64 bit*

### *Dynamic Time-Depth Conversion*

Interpreters can dynamically switch between time and depth domains while working using a velocity model generated in DecisionSpace Velocity Modeling or other velocity model stored in the OpenWorks database. Depth grids and structural models are generated automatically from time data. No standalone depth conversion process is required.

### *ezValidator™*

The software provides simple and practical tools to validate seismic character correlations even in complexly faulted and folded areas. The technology handles faulted topologies honoring compressional, dilatational, and shear strains. Unfolding workflows, leveraging a modified Busk method, retains bed length, stratigraphic thickness, and fault/horizon intersection angle.

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“Having Geology, Geophysics, and Earth Modeling all work from the same desktop is a big time saver.”

EXPLORATIONIST, INDEPENDENT

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