IHS Markit™

Kingdom® Geophysics

Kingdom Geophysics provides faster interpretation and data analysis through streamlined functionality from prospect to production, basic and advanced interpretation.

IHS Markit provides the most widely trusted geophysical interpretation solution in the world, from basic 2D/3D interpretation and prospect generation to advanced interpretation and seismic petrophysics.

Whether you are developing unconventional assets or exploring deep water environments, with our geophysics toolkit you can predict faults and fractures with pinpoint accuracy, tie seismic as you geosteer or interpret tops, and quickly model and predict reservoir properties. Whether you need to visualize and interpret 2D and 3D seismic data, condition prestack gathers, analyze microseismic data, or model the effects of different porosity, lithology, or fluids on 1D, 2D and pre-stack seismic models, Kingdom has the tool for you.

Kingdom geophysical modules are used by many geoscientists for:

- Visualization and interpretation of 2D and 3D seismic data, pre-stack gather data and Microseismic data.

- Synthetic modeling, both 1D and 2D.

- Creating horizons and grids with the flexibility provided by basic and advanced algorithms.

- Interpreting of faults and fractures, finding bright and dim spots, identifying geobodies with a suite of more than 50 seismic attributes, powered by multiprocessing Intel libraries and CUDA technology.

- In-depth analysis of identified structures with extended surface calculator functions.

- High definition velocity modeling with uncertainty estimation.

- Efficiently creating accurate maps of the subsurface and quickly updating the well plans with the Dynamic Depth Conversion.

* Some modules are available at an additional cost, as indicated in the following pages.
Speak to an account representative for further clarification.

BENEFITS

- Uncover the hidden information from your seismic data by generating seismic attributes and visualizing them in 3D space.

- Make your data easier to interpret by processing it with de-spiking, re-sampling, scaling, filtering, algorithms.

- Quickly increase your understanding of the subsurface with advanced interpretation of seismic data.

- Gain an understanding of how fracture and fault networks impact your current and future production.

- Make more accurate decisions on whether additional project investment is needed.

- Enable maximum collaboration and efficiency of interpretation with the multi user and multi author capabilities.

- Create large regional studies and detailed prospect analyses.

- Allows you to be efficient in a variety of reservoir types such as conventional, unconventional, carbonates and deep water.

Streamlines Your Workflow

Easy to Use

– Windows based, easy to use tool that combines all the capabilities needed for basin wide exploration and advanced field evaluation.

Integrated Workflows

– Uncompromised level of integration with additional Kingdom modules for geological capabilities, microseismic data analysis, advanced attribute generation, AVO analysis and 3-dimensional interpretation.

– Scalable, multi-user, multi-author database.

Workstation Flexibility

– Network or standalone licenses.

– Portable from PC to laptop.

Technical Support & Training Staff of Experienced Geoscientists and Engineers

– Effective and responsive customer care specialists.

– Comprehensive training courses.

Features

Seismic Analysis

– Interpret in time or depth on 2D surveys and 3D survey In-lines, cross-lines, Z-slices, arbitrary lines and 3D space.

– Auto-track horizons on complex seismic data with the patented Illuminator and Seeker technologies.

– Edit seeker-tracked horizons with confidence-based or pick-order based editing tools.

– Create triangulated fault surfaces or unassigned fault segments.

– Surface calculators provide extended functions for more advanced data analysis and interpretation.

– Visualize and interpret both pre- and post-stack data.

– 3D visualization requires the VuPAK® Module and pre-stack data interpretation requires the AVOPAK® Module.

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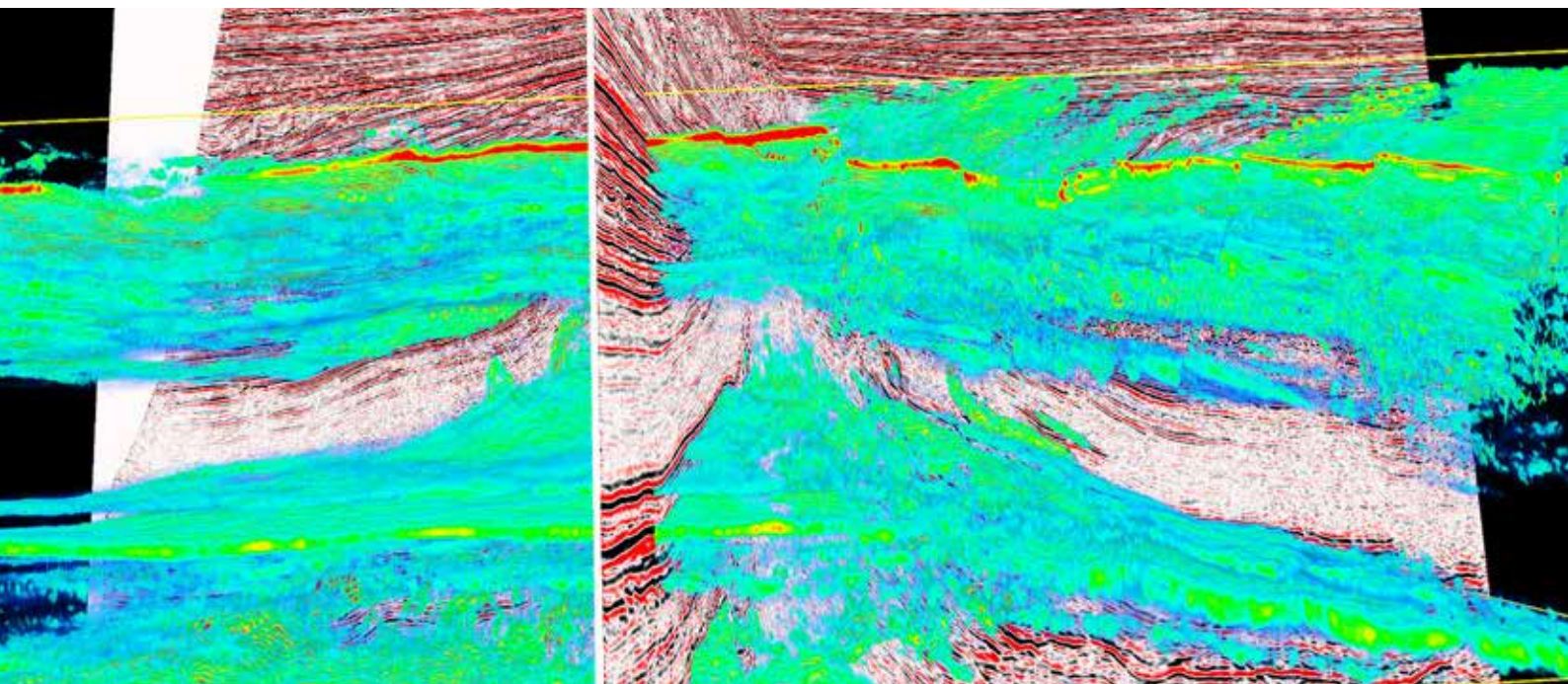
Post Stack Seismic Data Processing

– Generate advanced Illuminator-based fault attributes.

– Generate basic seismic attributes such as Envelope, Phase, Sweetness and others.

– Generate Rock Solid Attributes, such as Spectral Decomposition, Similarity, Curvature, Dip Azimuth, and others. Requires the RSA Module.

– Conduct Hilbert, Phase Rotation, Instantaneous Phase and Frequency transforms.

– Perform Seismic Inversion and generate Acoustic Impedance with Simulated Annealing and Colored Inversion algorithms.

– Calculate the survey spectrum and statistics.

– Compute or extract wavelets.

– De-spike, re-sample, and flatten seismic data.
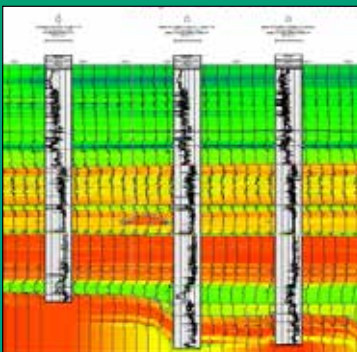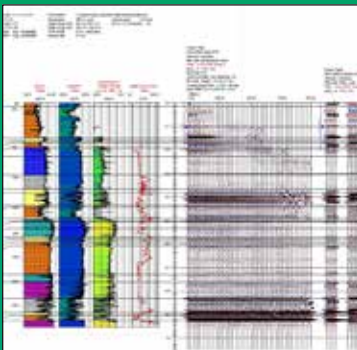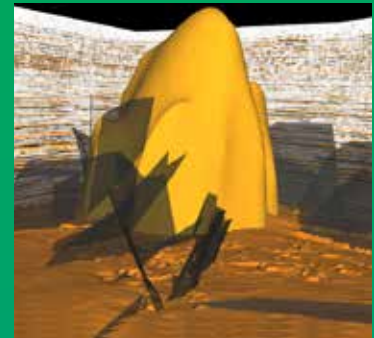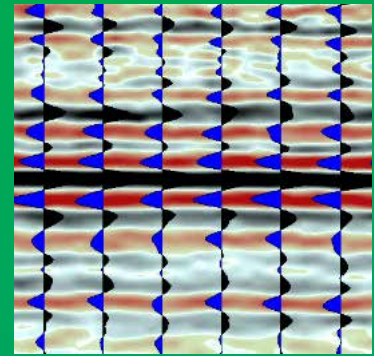
Synthetic Modeling

– Requires the GeoSyn™ 1D/2D, SynPAK®, and Kingdom 1D Forward Modeling® Modules.

– Tie well to seismic data quickly and easily with streamlined synthetics generation

– Create synthetics to view digital log data in conjunction with your seismic.

– Import and display seismic data.

– Clean up and QA your logs using a variety of log editing tools.

– Model your logs in value and depth.

– Create a variety of new logs using the log math calculator with access to a library of known equations.

– Tie your synthetics to seismic using cross correlation and stretch and squeeze functionality.

– Easily import proprietary LAS logs or IHS Digital Logs from our North American log database.

– Use fluid substitution functionality to perform in-depth AVO analysis in both 1D and 2D.

– Create multiple templates to easily display numerous data elements (directory paths, logs, traces) in your synthetic display.

– Clip any data element to create a montage.

– Create both 1D and 2D models.

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Automatic Fault Interpretation

– Optimize your fault interpretation toolbox

– Automatically pick one fault surface or segment at a time with a single mouse click

– Pick multiple fault surfaces within a defined, seismic volume

– Graphically edit faults to efficiently build a fault framework

– Use dynamic analysis tools for fault evaluation
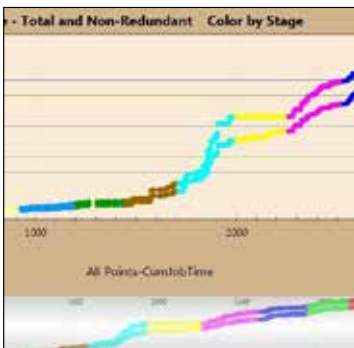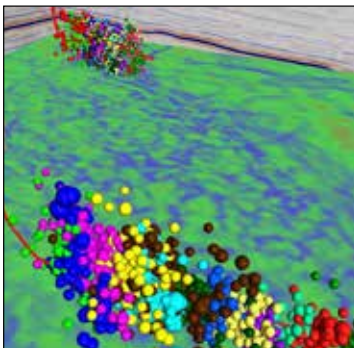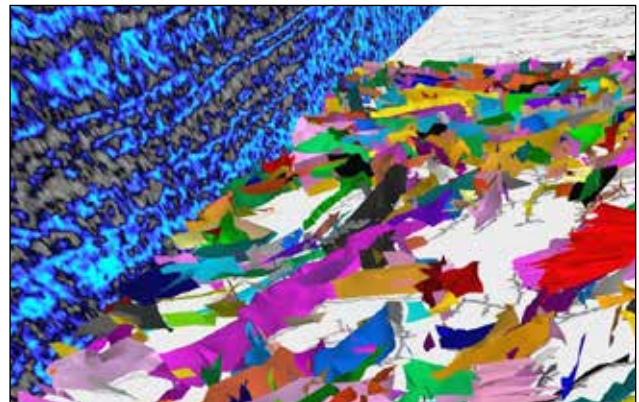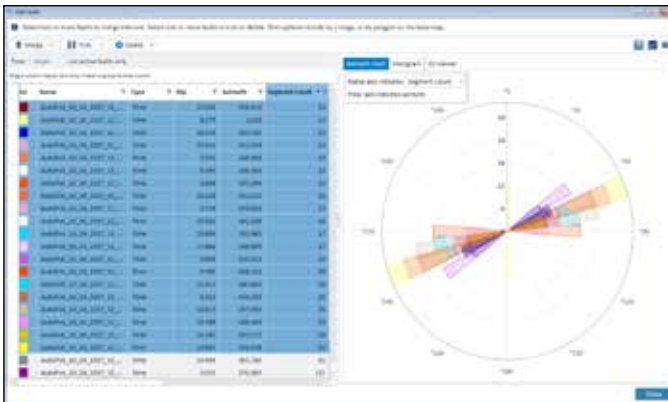
Microseismic

– Available with the advanced geophysics edition and requires the VUPAK Module.

– Visualization and interpretation in time or depth display for any 2D or 3D survey loaded into Kingdom.

– Correlate Fracture Treatment curves with Microseismic events.

– Import ASCII files or Excel spreadsheets (.xlsx files).

– Animate Treatment curves and use as a filter on the Microseismic data.

– Generate multiple attributes as defined by users.

– Analyze Microseismic and Treatment curve data using histograms, crossplots, and data spreadsheets.

– Export Microseismic data and results to Excel spreadsheets for custom work.

Dynamic Depth Conversion and Map Update

- Dynamically build velocity models by tying your well and seismic data.

- Easily incorporate geophysical and geological interpretations into a single consistent subsurface model.

- Ability to view your data in either Depth or Time domains.

- Integrated into the interpretation environment to provide rapid updates.

- Quickly define stratigraphic framework and geologic rules.

- Helps eliminate the need to perform multiple grid operations.

- Automatically builds all of the Structural and Thickness maps.
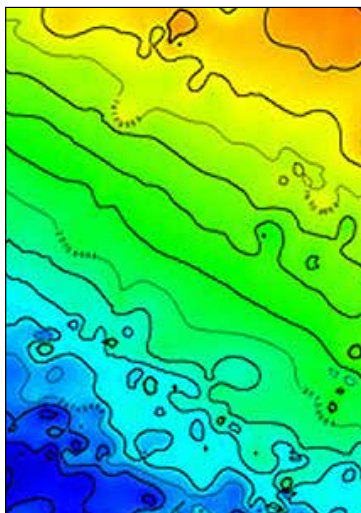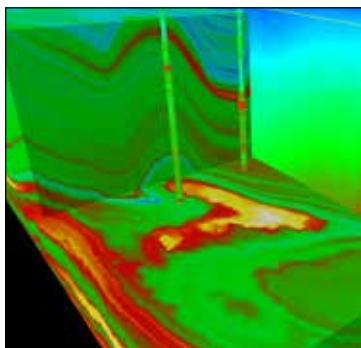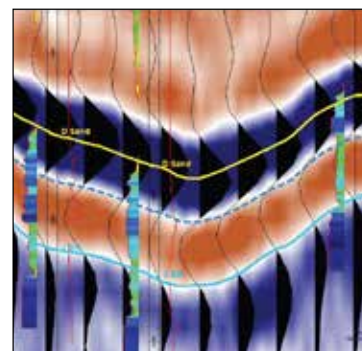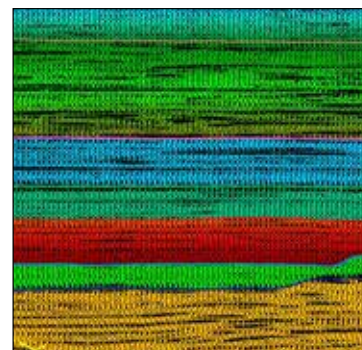

Advanced Velocity Modeling

- Requires the VelPAK® Module.

- Robust velocity modeling for complex geologic interpretation capable of handling reverse faults and salt bodies.

- Incorporate well log velocities, time-depth curves, event & fault interpretation and seismic velocities into a consistent velocity model.

- Create high resolution velocity volumes by incorporating more of the geological interpretation.

- Rapid analysis tools allow user to select from a wide variety of industry standard depth conversion techniques & methods.

- Extensible workflow system allows for rapid model construction & updating.

- Unique numerical optimization technique to derive best parameters for many depth conversion methods.

Mapping & Gridding

- Produce accurate maps with proprietary Flex Grid technology.

- Create fault polygon sets and associate them with horizons and grids for more accurate mapping.

- Relief Shading simulates sun angle and position to better highlight topography.
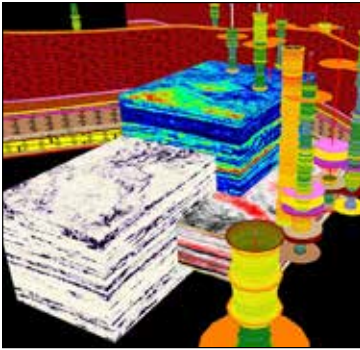
Data Management

- Manage and format 2D SEGY files centrally.
- Attach 2D seismic to any Kingdom project in any coordinate system.
- Schedule IHS data loading jobs using Direct Connect.
- Share surveys, faults and horizons from Kingdom to Petrel.
- Share data with other applications through. OpenSpirit links.
- Manage multi-project environments.
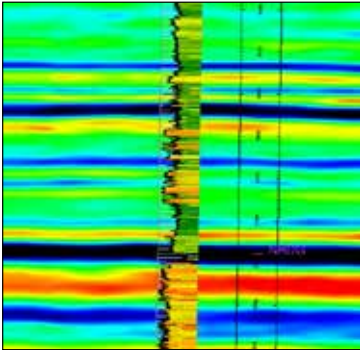
Well Control

- Utilize very large well data sets including deviated and horizontal boreholes.
- Display borehole and well log information on seismic sections in time or depth.
- Display formation tops interpreted from log curves on vertical seismic displays.
- Generate grids and contours from the formation tops in the project area.

AVO Analysis

- Requires the AVOPAK module.
- Import and display pre-stack gathers for 2D and 3D data.
- Condition the gathers for improved interpretation and analysis.
- Interpret horizons, extracting key AVO attributes as Intercept and Gradient.
- Choose from a variety of algorithms to extract the attributes.
- Create Cross plots of any extracted attributes – highlighted zones display in any interpretation view.
- Do fluid factor replacement modeling in GeoSyn to understand interpreted results.
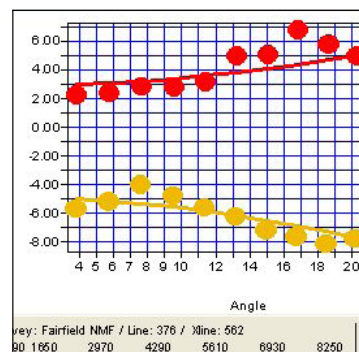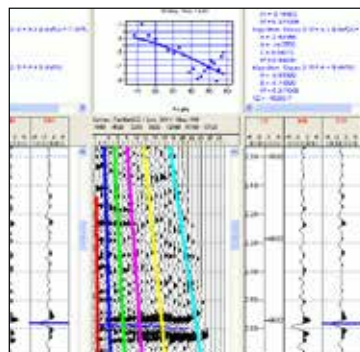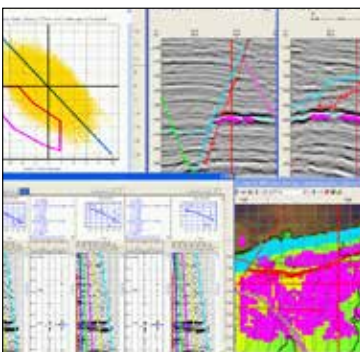
About IHS Markit

IHS Markit (Nasdaq: INFO) is a world leader in critical information, analytics and solutions for the major industries and markets that drive economies worldwide. The company delivers next-generation information, analytics and solutions to customers in business, finance and government, improving their operational efficiency and providing deep insights that lead to well-informed, confident decisions. IHS Markit has more than 50,000 key business and government customers, including 85 percent of the Fortune Global 500 and the world's leading financial institutions. Headquartered in London, IHS Markit is committed to sustainable, profitable growth.

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