

Chronostratigraphic Interpretation Validation and Feature Extraction



Geoscience Insights in 30 Days

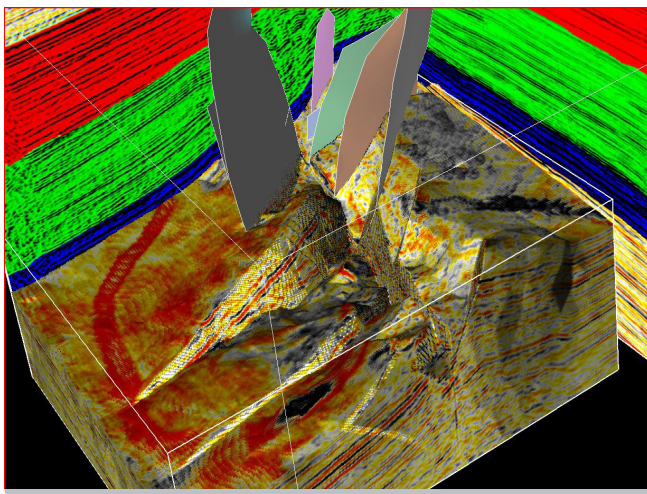
Paradigm® is committed to providing oil and gas companies with high-quality geoscience services, to help them gain deeper insight into the subsurface and maximize the value of their assets. As part of our offering, we are happy to announce the availability of “Quick Turn” services, for specialized projects where qualified, on-time delivery is critical.

In recent years, the quality and quantity of seismic volumes has increased tremendously, due to high-resolution and high-density seismic acquisitions and improved seismic processing methods. The amount of stratigraphic detail recovered in the seismic volumes has increased proportionately. These trends have created a significant challenge for seismic interpreters faced with meeting project deadlines.

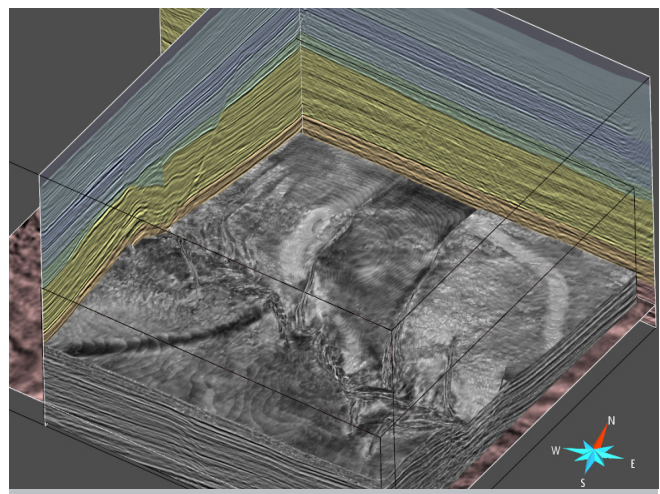
While automated interpretation procedures have advanced tremendously in the past ten years, most commercial modeling solutions cannot use all of the rich interpretation data contained in these modern seismic datasets. One of the reasons for this is that modeling solutions are primarily horizon-based and horizon-constrained. To meet this challenge, Paradigm offers the SKUA-

GOCAD™ volume-based modeler that can accept any number of partially interpreted reflectors as input and use them to produce a geologically consistent model that honors all the stratigraphic details. The solution is based on the patented UVT Transform®, a paleo-geographical transform whose theory has been published in great detail. The system not only generates a geologically consistent model; it also validates the interpretation data and allows the inclusion of interpretation details that are “exposed” in chronostratigraphic (paleo) space.

The chronostratigraphic workflow is intuitive and remarkably visual. Faults are interpreted, either manually or using automatic or semi-automatic tools, and then modeled without simplifying the complexity of the fault network. For horizon interpretation, any combination of automatic, semi-automatic and manual approaches can be applied. Using the automatic approach, seeds are placed across the entire survey and reflectors are tracked automatically, using the waveshape-based Paradigm Seismic Propagator. The fault network ensures that propagated horizon patches do not leak through the framework. Principal horizons define the stratigraphic column that guide the interpolation process. The full 3D model is created with a simple click of a button, using all available data, even the smallest patches. The final model is a full, perfectly sealed structural model, including all faults and all horizons, with no simplification of the data.



▲ Faulted chronostratigraphic slice inside UVT model



▲ A channel revealed in paleospace obtained by the UVT model using automatic intra-formation picking

Chronostratigraphic Interpretation Validation and Feature Extraction

Paradigm Chronostratigraphic Interpretation Validation and Feature Extraction Advantages

- Uses all available data, including partial reflectors
- Transforms rich interpretation data into a geologically consistent structural and stratigraphic framework
- Uses a true volumetric approach without resorting to static shifts or other non-physical transforms
- Validates a rich interpretation dataset with the chronostratigraphic UVT Transform and automatic reflector correlation
- Recovers stratigraphic detail from the chronostratigraphic Transform, where each slice in the volume represents a stratigraphic level
- Builds a geologic grid that is consistent with the seismic data
- Accelerates time from interpretation to reservoir model

The Paradigm global interpretation and modeling workflow gives interpreters the knowledge they need to make the right decisions. The innovative technologies are provided as enablers to meet today's demanding data requirements and project deadlines.

This "Quick Turn" Service provides added value to:

- Asset geoscientists challenged by time consuming horizon correlations, particularly in the presence of numerous faults
- Interpreters who need to test assumptions about their current seismic interpretation: Chronostratigraphic validation
- Stratigraphic interpreters seeking more detail about their current depositional models
- Interpreters seeking to push a rich set of interpretation data into a stratigraphic and structural model for subsequent operations
- Modeling operations that require a co-location of seismic data and geocellular data

About Paradigm Geoscience Services

For over thirty years, Paradigm has been recognized for its industry-leading integrated technology and exceptional people. Our products have played a major role in finding and developing some of the largest oilfields in the world.

Combining our R&D strength and software interoperability with expert implementation, the Paradigm Geoscience Services team collaborates with our clients to provide complete solutions, from seismic and wellbore field data, to prospects, and drilling targets. Whether using proven and field-tested methodologies or new, innovative solutions, our best and brightest geoscientists deliver a highly collaborative, interactive and quality service offering. The advanced technologies offered by our Services group deliver more insights into the subsurface, enabling you to make better informed, timelier and more accurate decisions.

For more information about Paradigm Geoscience Services, please visit our Website: pdgm.com/gs-services.