MiVuTM

Microseismic Processing System



SURVEY DESIGN | SIGNAL PROCESSING | EVENT LOCATION | VISUALIZATION



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MiVu[™]

FEATURES

- 3D Velocity Model Builder
- Finite Difference Forward Modeling
- Event Enhancement Processing
- 3D Interferometric Migration
- 3D Traveltime Grid Search

TGM advantages

- Reduced event location uncertainty as a result of 3D velocity modeling and multiple processing methods to derive one solution.
- Integration of microseismic data with engineering tool to optimize fracture design, fracture spacing and wellbore spacing.





Microseismic Processing System

MiVu[™] is a software package designed to perform microseismic monitoring during hydraulic fracturing.

MiVu[™] offers capabilities for building simple and complex geologic models interactively, designing optimal microseismic monitoring geometry, processing data with user-defined workflows, imaging event locations with multiple techniques, visualizing and interpreting microseismic events in 3D.

MiVu[™] is designed for both field engineers and processing geophysicists with automated workflows, automated imaging methods, in addition to many options for advanced processing, imaging, and QC analysis.

MiVu[™] is developed for Linux and Windows OS with applications for single or multiple CPUs.

MiVu[™] was design for the exclusive use by Trican GeoTomo Microseismic to provide commercial microseismic monitoring services for the oil and gas industry.

Trican GeoTomo Microseismic (TGM) is a strategic partnership between Trican and GeoTomo with a primary focus of servicing the needs of its customers to understand the effectiveness of well stimulation.

TGM takes fracture mapping to a level that we believe is currently unavailable in the marketplace, offering the acquisition, processing, visualization and interpretation of microseismic data during hydraulic fracturing operations. This offering is the result of a new software package called MiVu[™], which was developed from the combined extensive experience of Trican and GeoTomo in hydraulic fracturing, seismic tomographic inversion, 3D velocity model building, and microseismic borehole data acquisition processing and interpretation.

TGM will use the full 3-Dimensional (3D) capabilities of MiVu[™] including 3D visualization tools referencing surface seismic, borehole data, 3D velocity modeling, 3D tomographic inversion, 3D structures and faults, to reduce the uncertainty in the microseismic solution by utilizing a number of processing solutions resulting in one coherent answer to the hydraulic fracture geometry.

TGM believes that MiVu[™] software combined with Trican's extensive experience with hydraulic fracturing and the Reservoir Insight[™] group can provide a customized solution visualizing a highly accurate view of the customer's fracture network which should assist the producer in determining optimal fracture performance with the expectation that production from future wells in the reservoir should improve. Microseismic data is integrated with Trican's fracture and reservoir modeling with the goal of optimizing completion design, as well as the analysis of experienced geophysicists, geologists, and fracturing and reservoir experts, should result in customers receiving an unparalleled interpretation of their reservoir and should optimize the completion of the reservoir.



Model Building and Survey Design for Microseismic Monitoring



MiVu[™] offers a robust model builder that can help users to create a velocity model using seismic images, well log, and geologic interpretation. MiVu[™] can also help to design optimal microseismic monitoring geometry through numerical testing with several different imaging algorithms and understand the imaging accuracy prior to the hydraulic fracture operation.



MiVu[™] includes a sophisticated 3-C microseismic data processing system that allows users to design an interactive processing sequence. Users may select a few processing functions and a picking method to process data in the entire project automatically on parallel CPUs. It also allows users to add on any third-party processing function or imaging method into the processing module.

Locating Microseismic Events and Estimating Focal Mechanism



MiVu[™] presents five imaging algorithms that are proven effective for microseismic monitoring. These methods utilize the traveltime and full waveform information to infer the source information of microseismic events with different geophysical assumption, and together they present a full picture of the final results and associated resolution and accuracy.



Microseismic Data Processing



	Processing S	Sequence
gy File:		
sgy File: /dat/da	ta4/projects/	Browse
Ard	ROTATE3C BANDPASS DECON BANDPASS TAPER DECON	DECON Deconvolution Type Spiking • Predictive Prediction Lag (ms) 20.0 Operator Length (ms) 120 Prewhitening (Percentage)
	Up Down	0.1
1115		

Microseismic Visualization and Interpretation



3D interactive display dynamically linked with 2D display

MiVu offers and interactively linked 2D and 3D microseismic visualization and interpretation system. It provides the capability of interactively displaying hydraulic fracturing data, seismic images, well logs, geological models, VSP corridor stacks, multiple treatment and monitor wells and many others along with microseismic events to help make data consistent and accurate interpretations.



2D map and cross section view dynamically linked with 3D display

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Surface Seismic Software Products

TomoPlusTomoStatics SolutionGeoThrust2D & 3D Data ProcessingVECONSurvey Design and Modeling

Downhole Seismic Software Products

VECONSurvey Design and ModelingMiVuMicroseismic Processing SystemTomoXProCrosshole Imaging

Geophysical Engineering Software Products

GeoCTIField QC refraction tomographyGeoCTIIFull 2D tomographyTomoEappFull 2D/3D tomography

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