



Seismic Data Optimization Services Exploration & Production November 2022.





Scope

Seismic Data Optimization Service from 2D data packages. Our methodology focuses on the generation of seismic models of an explored area, consolidating it in a 3D data package. With this conversion, we achieve a more optimal visualization that will provide more precise elements for the data interpretation process.

From 2D data, we carry out a multidimensional Fourier reconstruction, however, the most relevant aspect of our reconstruction service IS NOT AN INTERPOLATION, is to obtain a **Simple 3D seismic cube**, to carry out a cooperative interpretation with the available data that ensures a better view of the study area.



Conventional Model	PENTATEX Model
Rendering on 2D lines has many display limitations between the lines.	Our technique consists of applying a parameterization by means of an algorithm that we have developed. Once the data processing is executed, it results in a reorganization and a 3D display model automatically.
The execution time of a new 3D project in the study area would be approximately 2 years.	The execution time from this methodology in the study area would be approximately 1 month, since we start from available information.
The cost for the execution of the new 3D project, depending on the area, would be approximately \$50MM.	The cost for the execution of this methodology would be approximately 5% of a new 3D project.



Fourier Multidimensional Reconstruction Madre de Dios Basin – PERU Simple 3D



a) Studio area location



Fourier Multidimensional Reconstruction Madre de Dios Basin – PERU Simple 3D

Before



a) Plan View Original 2D Seismic Lines





b) 3D seismic data package generated from the original 2D data





a) Study area location

b) Location of original 2D lines



Fourier Multidimensional Reconstruction Madre de Dios Basin – PERU Simple 3D

Before



a) Plan View Original 2D Seismic Lines

Total Área 1.315 km²





b) 3D view of the reconstructed volume

c) Plan View Simple 3D Reconstruction stacked volume d) Plan View Simple 3D Reconstruction Volume migrated (Post-stacked Kirchhoff Algorithm)



After

b) Analysis of attributes from the Fourier Multidimensional Reconstruction, clearly indicates (red circle) the anomaly associated with the reservoir that could not be identified with the 2D data.

Similarity Texture Amplitude

Before



a) Plan View Original 2D Seismic Lines



After

b) Analysis of attributes from the Fourier Multidimensional Reconstruction, clearly indicates (red circle) the anomaly associated with the reservoir that could not be identified with the 2D data.

RGB

Before



a) Plan View Original 2D Seismic Lines





Fourier Multidimensional Reconstruction Eastern Basin (VENEZUELA) Simple 3D



a) Study area location



Fourier Multidimensional Reconstruction Eastern Basin (VENEZUELA) Simple 3D

Before



a) Plan View Original 2D Seismic Lines

Total Área 146 km²





b) 3D view of the reconstructed volume



d) Plan View Simple 3D Reconstruction Volume migrated (Post-stacked Kirchhoff Algorithm)



Fourier Multidimensional Reconstruction Barinas-Apure Basin (VENEZUELA) Simple 3D Studio



a) Study area location



Fourier Multidimensional Reconstruction Barinas-Apure Basin (VENEZUELA) Simple 3D Studio

Before



a) Plan View Original 2D Seismic Lines

Total Área 135 km²

After



b) 3D view of the reconstructed volume

c) Plan View Simple 3D Reconstruction stacked volume d) Plan View Simple 3D Reconstruction Volume migrated (Post-stacked Kirchhoff Algorithm)



Fourier Multidimensional Reconstruction Barinas-Apure Basin (VENEZUELA) Simple 3D Studio



a) Study area location



Fourier Multidimensional Reconstruction Barinas-Apure Basin (VENEZUELA) Simple 3D Studio

Before



a) Plan View Original 2D Seismic Lines

Total Área 3.961 km²

After







c) Plan View Simple 3D Reconstruction stacked volume d) Plan View Simple 3D Reconstruction Volume migrated (Post-stacked Kirchhoff Algorithm)

b) 3D view of the reconstructed volume







Fourier Multidimensional Reconstruction SOUTH SUBANDINO - BOLIVIA Simple 3D



a) Plan view of the Simple 3D Reconstruction (Stacked Volume)

Total Área 212 km²



b) Side view of Simple 3D Reconstruction (Stacked Volume)



BUSINESS MODEL

Once these preliminary results have been validated, the detailed study will continue to generate the final products, with a referential cost of \$500 X KM2 per 3D data package generated.

The fundamental objective of complementing the existing exploratory and early production studies, to guarantee the success of the production stage.



Contact

Jimmy Regalado

Geoscience Services Specialist M. jimmy.regalado@pentatexgroup.com P. +1 352.356.8956

Pedro Rodas

Executive Director M. <u>rodasp@pentatexgroup.com</u> P. +1 352.356.8956 / +1 305.333.7027

