

# Seismic Data Compression



## INVENTION

This is a method of data compression of seismic waves using Gabor frames. This method takes advantage of the fact that geo-phones placed in a region of interest have multiple reflected-seismic signals. The method converts the seismic waves in to Gabor frames using multiple prolate-spheroidal wave functions and effectively quantized for reducing the size of data.

## MARKET SIZE AND GROWTH

The global seismic survey market was USD 7.24 Billion in 2016 and is estimated to grow at a CAGR of 4.24%, from 2017 to 2022.<sup>1</sup>.

The use of seismic technology in brownfields projects and shale gas exploration is expected to drive the market for seismic surveys.

Some of the key players in the market are Compagnie Generale de Geophysique, Schlumberger Limited-Western Geco and Tomlinson Geophysical Services, Inc

## APPLICATIONS

Seismic Data compression has applications in

1. Data processing.
2. 2D, 3D and 4D Imaging.
3. Data transmission.
4. Optimized data storage.
5. High Performance Computing and Well simulation.

## ADVANTAGES

- High Signal-to-Noise Ratio (SNR) (20-30dB) compared to DCT and Shearlet scheme
- Utilizes a mature technique to compress data
- Structured vector quantization process

## PROJECT STATUS

- Simulations have been run to confirm the SNR
- Preliminary software based on Matlab is developed.

## LOOKING FOR DEVELOPMENT PARTNER

Comparison of the technology with state-of-art in the industry.

Techno-Economic analysis needs to be performed.

KFUPM would like to talk to companies that are interested in developing this method and apparatus.

## PATENT PROTECTION

A patent application covering the method and apparatus 16/590,906 was filed in US.

## ABOUT KFUPM

KFUPM was established in year 1963 and is located in Dhahran city of Saudi Arabia. KFUPM currently ranks at 186 in QS World University Rankings 2021. KFUPM's Innovation & Technology Transfer office strives for taking innovation from lab to market place.

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<sup>1</sup>Seismic Survey Market, Markets & Markets