

PETROLEUM EXPLORATION IN SUBANDEAN BASINS
“Learning from the past - Looking to the Future”

Using Seismic Inversion to Calibrate Data conditioning processes.

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This case history is an example of how a seismic reservoir characterization project can be successfully executed even in areas of very challenging seismic with a low signal to noise ratio, applicable to the Sub Andean Basins of South America. Additionally the study shows how this is achieved by close cooperation of the Inversion, Data Processing and Interpretation experts involved.

Despite the challenging quality of the seismic data, through calibration of the well data with the seismic, the Inversion could quantify the quality of the seismic data after each data processing test. This helped the data processing geophysicists define parameters and processes that could further pre-condition the pre-stack data and bring it to the point where it was suitable for the inversion process.

This not only made the subsequent Inversion process more successful, by delivering more reliable results, but the calibration process also helped quantify the need, or otherwise, for additional data processing, and to quantify the benefit then obtained. This made the pre inversion data conditioning process; often very time consuming, more efficient and also more productive.

On examination of these results, it was noted that the Vp/Vs inversion events looked very interesting and were in synclinal areas where Petrotrin are trying to gather evidence for future drilling programs

Hence, this study thus completed an integrated project that, stretching from acquisition to Reservoir Characterization and so constituted an integrated seismic solution completed by cooperation between the various disciplines in both WesternGeco and Petrotrin of Trinidad and Tobago.