Which Inversion (Pre- or Post-Stack (Model-based, Colored, Bandlimited or ...)) is the "Best" type for "*MY*" prospect?

John Fernando*

The question that invariably arises when considering the application of the inversion process is which method to use i.e. pre- or post-stack and if post-stack, which type i.e. Model-based, Bandlimited, Colored, Sparse spike or one of the other choices that are available. First answer lies in the objectives of the inversion exercise and that means whether a P-impedance volume is sufficient or a set of three volumes consisting of P-impedance, S-impedance and Density are required for further analysis. This could involve deriving other lithology or fluid attribute volumes, such Poisson's ratio, Poisson's impedance, Poisson's Dampening Factor, Lambda-Rho, Mu-Rho, etc., which could be further analyzed using crossplots. If the latter option is the desired objective then Pre-stack inversion may be the only choice. However, if a P-impedance volume is sufficient, or the only data to go forward with, then the choice will require more careful consideration of the advantages and disadvantages of each of the post-stack inversion methods such as Model-based, Band-limited (Recursive), Colored, Sparse-spike etc.

The objective of this poster presentation will be to compare the results of the various inversion methods and illustrate the advantages and disadvantages of each method so that the information could be used to choose the appropriate inversion method to apply to a given data set.

Testing of each inversion option is done using a commercial software package.