
Land Seismic Static Corrections in the Rub Al-Khali Desert

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Near surface static corrections significantly impact the quality and reliability of the seismic image on many land datasets. This is particularly true for the South Rub Al-Khali desert, where hydrocarbon objectives exhibit closures of several 10's of milliseconds in the presence of significant surface anomalies (dunes, shallow karsting, buried waddi systems) that can create static anomalies of well over hundred milliseconds.

A number of test lines have been processed through the application of different methods, which all attempt to correct for the static delays as well as corrections to the final reference datum, whilst at the same time yielding a time-section and corresponding velocities that represent -as close as possible- the true subsurface after depth-conversion. One modern vibroseis line has been processed by 5 companies using 4 significantly different approaches between them. Those include: dune-modeling, refraction statics, application of tomostatics and near-surface modeling with upholes. In this article we will compare the methods used and highlight the learning points and pitfalls from each method.
