Quantitative Interpretation of Clastic Reservoirs Applied to a Case Study in Tunisian South Chott Basin

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Abstract

The seismic inversion as simultaneous or stochastic becomes a common practice for reservoir characterization where extraction detailed earth information from an ensemble of seismic trace is a challenge. A real case study using South Chott Basin data demonstrates the challenge. In fact, the primary objective of this quantitative interpretation is to delineate the sandy reservoirs especially the Silurian that is becomes an important reservoir in the petroleum exploration within the area after the recent discovery. Detailed listing of input data set and the selection of starting models and quality-control workflows are crucial for a successful inversion project that the workflow was executed by Petrel software. The work is presented in three parts. The first consists of wavelets extraction using a deterministic method and well logs. The second part is focused on the model building with different interpreted horizons, the petrophysical data and the average wavelets extracted. The third part describes the inversions and analyses the output including all the petrophysic cubes. This quantitative interpretation results are valuable in the delineation of both structural and stratigraphic prospects into the seismic cube and in the future drilling guide. However, the results still depends on the seismic quality, the available drilled well logs and the reduced reservoirs thickness.