Regional Seismic Interpretation for Understanding Thrusting Mechanisms and Its Time: An Example from Western Flank of South Oman Salt Basin

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Abstract

The western flank of South Oman Salt Basin (SOSB) is well known for it is complexity. The complexity comes from the impact of multiple thrusting events known as Western Deformation Front. In this study we use regional seismic interpretation to understand the thrusting mechanisms and its associated timing. The study started by applying advanced post-stack seismic processing to enhance available seismic and reduce noise content. Then, a detailed analysis for seismic response (amplitude and frequency) was performed for all different geological levels. After that horizon picking for major sequence boundary was carried out. Analysis of interpreted seismic by applying flattening technique and observing seismic reflection pattern helped to understand thrusting mechanisms and its time. Also, the performed regional seismic interpretation assisted to understand the “Nimr and Amin pods” mini-basin creation process. The used detailed regional seismic interpretation in this study could be used in other part of the world to understand thrusting mechanisms and its evolution through time.