

3D SEISMIC INTERPRETATION OF MAKRAN OFFSHORE , PAKISTAN

Thesis

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SHAISTA MAHMUD

Karachi, Pakistan

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ABSTRACT

Makran Accretionary Prism was formed due to the subduction of Arabian Plate under the Eurasian plate. It is an exceptionally large prism trending east to west and is formed by the sediments scrapped off the Arabian Plate. High convergence velocity coupled with a high sedimentation rate owes to its complex architecture. Presence of a petroleum system is also evident in the area and this fact has made Makran a potential area for exploration.

The structural interpretation of the Makran central block offshore Pasni/Gwadar, Pakistan is done in this thesis work. A 2100 km² of 3D seismic data, provided by Pakistan Petroleum Limited, is analyzed and interpreted. The data is analyzed and interpreted on SeisVision, an interpretation module of GeoGraphix Discovery suite, and the maps displayed on another module GeoAtlas. Data along eight inlines, four crosslines and one arbitrary lines, is analyzed and interpreted. Well data from two wells Pasni 1 and Pasni X2 is also incorporated while interpreting the lines.

The structural interpretation shows a series of imbricate thrust faults below an unconformity. Folding is fault related and has resulted in forming an anticlinal structure truncating against thrust faults. The decollement level could not be marked on the lines due to a poor quality of 3D seismic data. However, according to other studies it is located at 5-7 km below the surface. The presence of gas chimneys on the inlines also indicate an active hydrocarbon system for the Makran Offshore.

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