

The Upper Ordovician Sequence in the Ghadamis Basin, Libya Seismic Expressions and Depositional Model

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The Ghadamis basin is a large intracratonic sag basin which straddles the boundaries between Libya, Algeria and Tunisia. The Area of study is focused on the BP Blocks in Western Libya.

An Upper Ordovician glaciogenic sequence is present throughout the study area with coarser sediment in the south, which then gradually fine northwards. This facies behavior is interpreted from the well correlations and is mainly attributed to the change in the glacially influenced depositional environments of the area.

Discrete Channelized features trending N-S to NNW-SSE were mapped on 2-D and 3-D seismic data. They are interpreted as glacial palaeovalleys in the south, which developed under an ice sheet in a glacio-continental environment, while in the north they are interpreted as proglacial channels deposited in front of an ice sheet in a glacio-marine environment. These interpretations are based on a comparison with surface outcrop features with similar scales. Seismic characters of the upper Ordovician show dipping reflector geometries and cross cutting relationships with dim and bright amplitudes.

Multiple phases of sedimentary cut and fill within these channels and palaeovalleys are observed on both data bases. These are also seen on the surface outcrop analogous of the Gargaf Arch and are interpreted to occur during multiple cycles of ice sheet advance and retreat.

Glacial palaeovalleys are the main means of sediment transportation during Late Ordovician and they show a northerly trend with their mouths opened to the north.

Biography:

Abdelgader Krnaf received his Bsc in Geology from Garyounis University, Libya in 2007. He worked for pioneer Service and Owner Companies such as Schlumberger, Baker Hughes, Total& BP. He also worked as Geosciences visiting lecturer at Benghazi University & University of Kurdistan, Hawler. He was awarded an Msc in Petroleum Geoscience at Royal Holloway, University of London in 2009. In 2015 was appointed by EAGE and AAPG to Chair sessions at Geoscience workshops and was a member of the third Conference on Iraq technical committee in UAE. Now is Director at NEW OIL GENERATION, Libya, Oman and Czech Republic.