

## **Seismic Traverse Sections of the Western Sirt Basin, Libya**

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Rift-type geometry of the Cretaceous-Tertiary carbonate-evaporite basin-fill of western part of the Sirt Basin (WSB) is presented on several regional seismic traverse sections and corresponding geologic cross-sections. The interpretation is based on a study of over 5800 line kilometers of 2D seismic data tied to 80 wells with sonic logs. The study is complemented by data from some 300 available wells, surface geologic maps and field studies, biostratigraphic analysis, remote sensing analysis and interpretation of gravity and magnetic data. The stratigraphic nomenclature is based on that used by the petroleum industry and by the NOC of Libya. Units of large areal extent proved to be the most useful for the stratigraphic correlation, e.g. regional units like the Kalash limestone, Facha dolomites and Hon evaporites are shown. Other units of smaller regional extent like the Sirt and Hagfa shales as well as the Satal, Dahra and Harash carbonates are also indicated on the seismic sections. The geometry and regional distribution of the stratigraphic units and the type and pattern of faults have allowed for the characterization of structural style and geologic history of the basin. Major faults zones (structural hinge zones) separate the regional structural elements of the WSB such as the Hun Graben, Uaddan Uplift, Dor Alabid Trough, Bu Tumayn Trough, Zallah Trough and Dahra Platform. Following the initial rifting of the Sirt Basin, probably in mid-Mesozoic time, the two main periods of primarily extensional faulting were early Cretaceous and then again in Late and post Eocene time, which also shows evidence of wrench faulting with accompanying transpression. The major oil fields, e.g. Dahra-Joffra, Bahi and others, appear to be associated with structural hinge zones or are stratigraphic traps (i.e., Satal carbonate bank). Additional prospective trends remain to be drilled.