

Evolution of the Western Margin of the Sirt Basin of Libya in Late Cretaceous time

T. Jerzykiewicz

Teknica Petroleum Services, Calgary, Canada

M.A. Ghummed, M.M. Abugares and S.O. Tshakreen

Petroleum Research Centre, Tripoli, Libya

Based on surface and subsurface studies, the western margin of the Sirt Basin (WMSB) prior to the Late Cretaceous regression in Campanian and Early Maastrichtian times, was covered by an open and relatively deep-water seaway. This is supported by the presence of Campanian pelagic sediments with rich assemblages of planktonic foraminifers (*Globotruncana aegyptiaca* and *Gansserina gansseri* assemblages). The Late Cretaceous regression, however, dramatically changed the paleogeography of the WMSB resulting in separation between the Sirt and Ghadamis basins. The existence of a shoreline at the WMSB is evidenced from sedimentologic and biostratigraphic data. Sedimentologic studies have allowed a precise reconstruction of beach and coastal dune environments that were gradually replaced by tidally-influenced and storm-dominated shoreface facies which, in turn, passed into a storm-dominated inner shelf setting. Eastward of the WMSB and within the latest Cretaceous and K/T boundary time interval, the environment of deposition was an outer shelf and transitional shelf/slope setting as indicated by a rich assemblage of pelagic foraminifers (*Abathomphalus mayaroensis* assemblage). The WMSB was subsequently covered by the Paleocene marine transgression with the development of an extensive carbonate platform (Upper Tar and Had Members) that extended both to the west (Satal carbonates) and into the middle part of the basin (lower Satal carbonates). These platform carbonates are important reservoirs for potential hydrocarbon accumulations in the basin.

¹Teknica Petroleum Services, Suite 2500, 530-8th Avenue S.W.,
Calgary, Alberta, Canada, T2P 3S8

²Petroleum Research Centre, Tripoli, Libya