

Cretaceous/Tertiary Rifting Along the North African Margin (Sirt Basin, Libya).

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The Sirt Basin registered three major rifting episodes: Early Cretaceous, Late Cretaceous and Paleocene. We report the analysis of backstripping 225 wells located within the Sirt Basin. The results, presented as tectonic subsidence of 13 structural basement blocks, provide new constraints on the Sirt Basin development indicating a temporal and spatial correlation between phases of rapid subsidence in the Sirt Basin (and other African Basins) and changes in plate motion. The tectonic subsidence curves have also been forward modelled with a new automated modelling technique with unlimited number of stretching phases, in order to quantify variation in timing and magnitude of rifting. Rifting was initiated in the Early Cretaceous (latest Jurassic) along the south and southeast margin of the present day outline of the Basin, resulting in E-W trending rifts. During late Cretaceous, a new stress field favoured NE-SW extension, creating a series of NW-SE trending troughs separated by platforms. The third phase, during Paleocene, is characterized by differential subsidence and fault reactivation. During the Late Eocene-Oligocene the troughs were gradually widening and the intervening platforms were disintegrating, resulting in downwarping and associated regional tilting.