

Regional Stratigraphy of the Southern Tethyan Margin, Lithofacies, Sequence Stratigraphy, Source, Seal, and Reservoir Rocks

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Paleozoic, Mesozoic through Cenozoic sedimentary fill of the Tethys southern margin is subdivided stratigraphically by the beat of second & third order changes in eustasy, tectonic movement, sediment supply & Wilsonian cycles of plate movement. This northeastern flank of Gondwanaland extends from the Arabian Plate through Zagros & Taurus Mountains, Levant & North Africa. Regional chronostratigraphic charts & cross-sections detail products of these processes & major petroleum production from carbonates & evaporites interbedded with clastic sequences; with flatter lying horizons in Arabia, folded in the Zagros & Taurus Mountains of Iran & Turkey, wrenched margin through the Levant & disrupted block faulted terrains in North Africa from Egypt through Libya.

In Arabia during late Paleozoic & Mesozoic deposition was in tropical settings & on an extensional passive Tethyan margin which by the late Cretaceous to Tertiary was a foreland basin flanking the Zagros & Taurus uplift. Contrasting deposition on the North African plate also occurred in tropical settings, but followed an extensional passive margin through late Paleozoic, to Mesozoic, & Tertiary.

A detailed & flexible sequence stratigraphic framework tracks & predicts distribution of evolving sedimentary facies on smaller spatial & temporal scales explaining regional spread of source-reservoir-seal, thermal maturation, modes of migration and accumulation and location of oil & gas fields & future plays of Middle East & North African basins. Tectonic mega-sequence events governed low frequency accommodation of sedimentary fill interrupted by surfaces formed by periods of non-deposition, and/or unconformities. Maximum flooding surfaces (MFS) express the maximum regional transgressions of fluctuations in eustasy. Both surfaces provide chronostratigraphic order to sedimentary fill dated by radiometric & biologic markers.