The Impact of Tectonics on the Provenance and Timing of Sediment Flux to the Levant Basin

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ABSTRACT

The Levant Basin in the eastern Mediterranean has so far yielded two proven plays: a postsalt Pliocene clastic play and a pre-salt Lower to Middle Miocene clastic play. This later play has attracted significant attention due to the large reserve sizes of the gas discoveries to date in the southern portion of the basin. For example, the Leviathan Field, with mean reserves of 17 TCF, was 2010's largest global gas field discovery and became the largest gas field so far discovered in the Mediterranean. Attention in the region has also been buoyed by the multiple opportunities to license blocks in so far undrilled territories. However, there remains a crucial question if the plays are to be justifiably expanded to the north and northwest: what is the provenance of the reservoir sediments?

There are several contenders for the source of these reservoir sediments: the Nile, the Red Sea Rift, the Sinai Peninsula, the Levant hinterland south and east of the Syrian Arc, western Syria, southern Turkey, and Cyprus. Each has been analysed in turn to establish potential ancient sediment transport pathways inherited by and discernible in Present Day drainage networks. We have further examined the climatological and tectonic history of the region in order to test and link hypothesised changes in transport pathways with dateable events. Also key to understanding how the plays have developed is an examination of the offshore transport mechanisms and pathways including ocean currents, tides and waves.

A discussion of our methodologies will be illustrated by examples from the Eastern Mediterranean and other geographies where this methodology has been successfully utilised.