

The effect of the Palmyra trough and Mesozoic structures on the Levant margin and the evolution of the Levant restraining bend

Ramadan Ghalayini (1,2), Catherine Homberg (1), and Fadi Nader (2)

(1) UPMC, Paris VI, Paris, France (ramadanghalayini@gmail.com), (2) IFP energies nouvelles, rueil malmaison, France

The Levant margin is characterised today by a restraining bend, part of the Levant Fracture System. It has been affected throughout geological times by several tectonic events, marking this area with deep crustal faults oriented oblique to the main NNE trending sinistral strike-slip plate boundary. These faults, together with other structures along the Levant margin, are similar to those found eastward in the adjacent Palmyra Basin. However, it has been long claimed that the evolution of the Levant margin and the adjacent Palmyra Basin is independent of each other. In this study, we tested the hypothesis that the Palmyra Basin is extending westward to the Levant margin through analogue modelling. We changed the thickness of the silicone unit to simulate and examine the role of pre-existing oblique structures, believed to be part of the Palmyra Basin, on the development of the Levant restraining bend. Results indicated a great similarity between the model and the natural example asserting the effect of the pre-existing structures on the growth of the restraining bend. Consequently, the pre-existing structures must be part of the Palmyra trough and confirm that the latter is extending westward to the Levant margin which forms its westward termination.