Influence of diapir growing in carbonate deposition: The Central High Atlas Jurassic Rift Basin (Morocco)

Moragas, M.[1], Martín-Martín, J.D.[1,2], Saura, E.[1], Vergés, J.[1], Baqués, V.[1], Grélaud, C.[3], Razin, P.[3], Joussiaume, R.[3], Malaval, M.[3], Messager, G.[4], Hunt, D.[4], Casini, G.[4]

[1] *Institute of Earth Sciences Jaume Almera, ICTJA-CSIC, Lluís Solé i Sabarís s/n, 08028 Barcelona, Spain.*
[2] *Dpt. Geoquímica, Petrologia i Prospecció Geològica. Facultat de Geologia. Universitat de Barcelona (UB), Martí i Franquès s/n, 08028 Barcelona, Spain*
[3] *ENSEGID – IPB, 1 allée F. Daguin, 33607 PESSAC, France*
[4]*Statoil Research Development and Innovation, Sandsliveien 90, 5020 Bergen, Norway*

Carbonate platform development and demise can be closely related to subsidence history, clastic sediment supply and rates of carbonate growth/deposition, among other factors. Due to the impact of rapid salt movements, patterns of carbonate platform development and deposition are generally more complicated on diapiric passive margins, as are widely developed in the Gulf of Mexico and along the North- and South-Atlantic margins. Field analogue studies are a key tool in order to increase the understanding of the carbonate depositional systems developed in diapiric settings.

We have carried out integrated structural, subsidence history, sedimentological and diagenetic studies on Jurassic-aged diapiric structures superbly-exposed in the Central High Atlas, Morocco. Detailed study has been carried out on ten elongate diapiric ridges (i.e. up to **30 x 2 km**) and eight minibasins, that encompass a range of proximal and distal settings. The elongate diapirs that control the Jbel Azourki, Tazoult, Tassent, Ikkou and Toumliline ridges, and associated minibasins. These provide multiple examples of halokinetic geometries including bed thinning, onlaps and truncations that comprise composite stacks of halokinetic wedges and hook sequences.

The influence of diapir growth on the carbonate deposition is linked to rapid lateral facies changes and shallow bathymetries developed over the diapirs, as well as the rotation, karsitification and erosion of the carbonates platforms in proximity to the diapirs. Together with diapirism, increased siliciclastic supply is linked to both the demise and changes in the location of carbonate platform development on the diapirs. As such, the Central High Atlas provide valuable insights as to the intricate relationships between carbonate production, salt tectonics, clastic sediment input, and paleowater depth that be applied to the subsurface.