

Late Messinian salt deformation and erosional Surface: Impact of the associated uplift on the emersion of the Northern Levant basin, offshore Lebanon?

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A truncation surface at the top of the Messinian evaporite in the Levant Basin was identified by many authors (e.g.: Bertoni and Cartwright 2007, Feng et al; 2016, Kartveit et al. 2018 and 2019). It is clear that this surface (M horizon, IMTS or IES depending on the authors) post-dates a strong gravity salt deformation, especially in the Northern Levant basin, and is covered by the late Messinian Nahr Menashe Fluvial system, which developed on top of the salt in the Levant basin (Madof et al. 2019).

It is worth noting this deformation phase occurred at the end of the Messinian and has nothing to do with the “classical” gravity deformation of the Messinian salt, well documented at the front of the Nile delta, which is Plio-quadernary in age and induced by the Pliocene sediment load.

This Pliocene gravity deformation is also recorded in the Levant basin, and the *Intra Messinian Erosional Surface* is folded during this Pliocene phase.

This presentation deals with the deformation phase which occurred prior the IMTS.

We show 1) it resulted in overturned and recumbent W to NW verging folds from the Levant margin to the East, up to the base of Eratosthenes sea mound to the West and Latakia ridge to the NW; 2) The reliefs created by these folds were almost removed by the following erosion (IES), however they likely influenced the location of the Nahr Menashe meandering belts which developed on top of the IMTS.

The salt most likely moved westwards under its own weight. Its movement was probably triggered by an uplift and tilting of the basin, even slight.

Therefore, the present-day thickness of salt is larger than the initial salt deposit, even if part of it was removed by subsequent erosion.

The uplift and tilting of the basin together with the thickening of the salt should be considered when we try to evaluate the amount of eustatic sea level fall in the basin at the end of the MSC. It is however difficult to decipher the respective role of each parameter, eustasy, salt thickening and tectonic uplift.

Mots-Clés : Mediterranean Sea, Salinity Crisis, Eastern Mediterranean Sea, Levant basin, Intra Messinian Erosional Surface, Salt gravity deformation