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# Structuring of The Jurassic Basin of Chott in Gabes region (Southern Tunisia) associated to the Liassic rifting from geophysical and well data

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The graben system of El Hamma, west of Gabes in Tunisia, corresponds to a pull apart basin developed in an extensive relay zone between two principal shear corridors (PSC) with a dextral sliding of N110-120 average direction.

These PSC corresponds to two segments of the south-Atlasic shear corridor of NW-SE direction, which extends from Chott El Hodna in Algeria, to the NW, to the Libyan Djeferra to the SE (M.Hassine and al., 2015; M.Hassine and al., work in progress).

This work aims to define the basin structuring during the Jurassic, especially from the Upper Lias during the Liassic rifting. For this, we performed seismic, gravity and well data analysis.

Several wells situated in this basin and on its edges, which totally or partly crossed the Jurassic series which were described by several authors (J. Bonnefous, 1972 ; M. Soussi, 2002, 2004). These series corresponds to the Nara formation (PF Burollet, 1956) elevated to a group rank by M. Soussi (2003).

It consists of two carbonate units separated by a marl-carbonate and sandstone member, dated successively of lower Lias (Hettangian- lower Pliensbachian.), Toarcian to Callovian and Upper Callovian-Tithonian.

The correlation of this Jurassic formations along a North-South transect shows, from the South to the North, a significant variation in facies and thickness of the Jurassic series especially from the Upper Lias. Two resistant moles appears to the Northern and Southern edges of the pull-apart basin of El Hamma.
The trend reversal of the lateral evolution of this series take place on the border NW-SE faults of the basin (PSC).

The analysis of several seismic lines calibrated to well data, reveals a differentiated structuring inside the pull-apart basin itself, associated on the one hand, to the play of the N160 and N130-140 direction fault network which structure the basin in horsts and grabens of second order ( M. Hassine and al., 2015); and on the other hand, to the rise of the upper Triassic evaporates either by intrusions along major faults or as domes.

They are especially observed on the northern margin of the basin where they delimit subsiding mini-basins bordered by high zones. The Middle Jurassic seismic horizons are then billeted in these mini-basins where they show an aggradational and retrogradational onlaps between the gutters zones and the salt rise zones.

The Upper carbonate term of the series, attributed to the Upper Callovian- Tithonian sealed in unconformity the entire system.
This early salt migration, that seems to be associated to the Liassic extension, was already mentioned in the Central Atlas (Bedir M. and al., 2000; D. Tanfous and al., 2005) and along the north-south chain (C . Gourmelen, 1984; C. Abbes, 2004).

The residual gravity anomaly map shows a complex gravity field. Negative anomalies of -7.2 to -3.2 mlGal coincide with the graben structures; while positive anomalies reaching 2.2 mlGal overlap with horst structures.

Moreover, Euler solutions reveal only the deep faults sealed by the upper member Callovo- Tithonian of the series, preferentially oriented in a direction close to East-West.