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Onshore and offshore view of the Mellila and Boudinar Basins (Morocco)

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New field investigations in the Melilla and Boudinar Messinian basins (northern Morocco) located at the foothill of the Rif Chain, together with seismic lines interpretation in the south Alboran basin allow us to bring new insights on the late Messinian erosion and the overlying marine deposits. By combining field investigations and seismic lines interpretations, it is possible there to reconstruct the whole erosional system from emergent areas to deep sea basin.

Onshore, in littoral areas, our results show that the late Messinian erosional surface is governed by large scale ($\sim$10 km) landslides. In the Melilla basin, the erosional surface is sharp, crosscuts the Messinian reefal complex and is incised by deep (up to 70 m) paleovalleys. The minimum relative sea-level drop is estimated at 70 m in the emergent Melilla basin, but it is probably much more with regard to the indication that a large-scale landsliding has occurred (Cornée et al., 2005). The post-erosional deposits comprise one major depositional sequence composed of two high-order sedimentary subcycles. Deposits of the first subcycle are transgressive sandy marls and filled in the erosional basin and the paleovalleys; deposits of the second subcycle are sandy and overflowed the paleovalleys and the erosional plateau. In the boudinar basin, the low

angle erosional surface is located in lower messinian marls and diatomites which can be totally eroded. It is underlined by dismembered messinian reefal blocks up to tens of meters in size. The erosional scars are infilled first with conglomeratic proximal deltaic deposits, then by distal sandy deltaic formations up to 200 m thick. As the erosional surace is affected by late normal faulting, the minimum estimated sea-level drop can only be roughly estimated around 100 m in the emergent Boudinar basin. In both basins, the oldest deposits above the late messinian erosional surface constitute a thin transgressive systems tract, latest messinian or pliocene in age, and are overlain by very thick highstand systems tract.

Offshore from the Melilla basin the Messinian erosional surface is prominent and a deep canyon can be identified on the slope. The Offshore extension of the Boudinar Basin is bounded towards the east by a N-S ridge that is the submerged extension of the Ras Tarf volcanic massif. The canyon ends in the South Alboran Basin that is not connected to the deep Algerian Basin. The rifian margin of the south Alboran basin consequently provides one of the most complete erosional system of the late Messinian dessication event.

J.-J. Cornée, M. Ferrandini, J.-P. Saint-Martin, Ph. Münch, M. Moullade, A. Ribaud-Laurenti, S. Roger, S. Saint-Martin, J. Ferrandini. The late Messinian erosional surface and the subsequent reflooding in the Mediterranean: New insights from the Melilla–Nador basin (Morocco), Palaeogeography, Palaeoclimatology, Palaeoecology 230 (2006) 129– 154