New onshore/offshore evidence of the Messinian Erosion Surface from key areas: the Ibiza-Balearic Promontory and the Orosei-Eastern Sardinian margin

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As the Messinian sea-level drawdown associated with the Messinian Salinity Crisis is still questioned, we propose to show that the widely spread erosion surface affecting the Mediterranean margins is indeed linked to an exondation demonstrated from offshore and onshore data.

Our study presents for the first time a comprehensive onshore to offshore correlation of the Messinian erosional surface, and it is focused on small drainage systems or interfluve areas, outside of evaporite basins or incised canyons, where the Messinian erosion had not yet been studied previously: around Ibiza on the Balearic Promontory and around Orosei on the Eastern Sardinian margin, Tyrrhenian Basin, both areas where new offshore data were recently acquired. We show that the late Messinian erosion formed in subaerial settings, as testified by evidence of continentalization events, and attests for a regression phase that was correlated from the offshore continental slopes to the onshore paleo-platforms in both areas. Characteristics of this erosion in both study areas strengthen the scenario with at least one important low-stand sea-level for the Messinian Salinity Crisis with evaporites subbasins lying at different depths and possibly disconnected.