Terrestrial colonization of the Balearic Islands: New evidence for the Mediterranean sea-level drawdown during the Messinian Salinity Crisis

Guillem Mas*, Agnès Maillard, Josep A. Alcover, Joan J. Fornós, Pere Bover and Enric Torres-Roig.

*Corresponding author now at Grup de recerca Ciències de la Terra, Universitat de les Illes Balears, E-07122 Palma (Mallorca), Spain. Email Address: guillem_mas@gmail.com

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Supplementary Figures (DR1 and DR2):

Figure DR1. Sections crossing the Eivissa and Mallorca Channels. See figure 1 for location. Section 1 displays thin MSC unit in small perched sub-basins, deformed and uplifted by recent tectonics. Seismic line (zoom of section 1) reveals large-scale flexure and small-scale folds. MSC marker and the seafloor are parallel, attesting for very
recent (Present-day) deformation. Section 2 joins the Valencia Basin to the Algerian one through the Mallorca Channel and the Mallorca Central Depression. Seismic line (zoom of section 2) shows post-MSC subsidence associated with normal faulting. This subbasin was probably closed during MSC, allowing salt precipitation in higher position compared to the deep basinal salt and explaining its poorly eroded character despite its elevated position.
**Figure DR2.** A: Bathymetric map of the Balearic Promontory with the location of the sections. In red, contour limits of the eroded areas during the sea-level drawdown (MES). B: Sections on the Balearic Promontory and their End Miocene restoration. See figure DR-1 for comment of section 1 crossing the Balearic Promontory from the Valencia Basin to the Algerian one. The end of Miocene restoration of the seismic line MAP-86, assuming important post-MSC deformation (see seismic line figure DR-1), shows that the Eivissa Channel was deep (>1,000 m) during the Messinian. Section 2 connects the Alicante to Mallorca passing across two deep sub-basins (Elche and the Central Depression sub-basins), which recorded major post-MSC subsidence. The removal of the thick Plio-Pleistocene prograding Alicante shelf is responsible for an important isostatic rebound partly compensated by the tectonic uplift (200-300 m). In the Central Mallorca Depression, subsidence is mainly due to a tectonic flexure, and stays deep enough (> 1000 m, deeper than the Elche sub-basin) at the end of Miocene to allow salt deposition. End Messinian restoration was made by: a) removing post-MSC deformation by (i) flattening the pos-MSC deformation, (ii) assuming regional uplift in the Eivissa Chanel following seismic regional interpretation (large scale flexure), and b) calculating a local isostatic rebound removal of the Plio-Pleistocene load and assuming a mean 20 km thick crust in the Balearic Promontory. The exact nature of the pre-MSC units is unknown. Crustal thickness is not precise. Both last statements lead to 100 m vertical uncertainties in the isostatic calculations.