



SW-NE extensional low-angle faults in Mallorca, key for integrating the Balearic Promontory in the Miocene tectonic evolution of the western Mediterranean

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Mallorca forms part of the external thrust belt of the Betics. However, presently, it is surrounded by thin crust of the Valencia Trough and the Algero-balearic basin and is disconnected from the Internal Betic domains. The main tectonic structures described in the island correspond to thrusts that structured the Tramuntana and Llevant Serres during the Late Oligocene to Middle Miocene. Meanwhile, normal faults with NW-SE transport determined the development of Serravallian to Tortonian basins. Here we present a preliminary tectonic model for Mallorca after revising the contacts between supposed thrusts in Tramuntana and Serres de Llevant. This analysis shows the existence of important low-angle extensional faults with SW-NE transport, older than the high-angle NW-SE directed extensional system. Extensional deformation is more pervasive towards the Serres de Llevant where normal faults represent most of the contacts between units. This extensional gradient is favored by ENE-WSW strike-slip transfer faults, and probably, by the faults that bound the southeastern margin of Mallorca. These faults produced the extensional collapse of Mallorca during the Late Langhian-Serravallian, dismembering the external from the internal zones, which now occupy a more westerly position in the core of the Betics.