



Cenozoic right-lateral transpressional tectonics in the south-verging Western Pyrenees

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The western portion of the Mesozoic Basque-Cantabrian Basin and the Asturian Massif (western Pyrenees) represent a key zone for understanding the alpine evolution of the northern Iberia margin. Different structural trends are present in this area and result from the yet unclear interplay between dip-slip and strike-slip Cenozoic movements and Paleozoic and Mesozoic structural inheritances. Mesostructural dataset presented in this work provide an additional constraint for the understanding of the tectonic evolution of this area. Presented data are consistent with a post-Hercynic evolution including Permian to Late Cretaceous extensional (at places transtensive) stages along roughly WNW-ESE extensional fault systems. During the Cenozoic the tectonic framework changed. The presence of multiple inherited trends strongly controlled the development of Alpine structures, at both macro- and mesoscale, and determined a complex compartmentalisation of the deformation and the partitioning between dip-slip and both right-lateral and left lateral strike-slip movements. Despite this complexity, from our data clearly arise the presence of two distinct belts in the study area: an eastern thin-skinned, roughly dip-slip, belt and a western deeply rooted right-lateral transpressive one. The main structures of the western transpressive belt are the Ubierna-Ventaniella Fault System and the Leon fault. The first one is a 400 km long NW-SE striking fault system that, in its south-eastern portion (i.e. the Ubierna segment), accommodated for about 20 km of right-lateral displacement. To the north-west, part of this displacement is transferred to the NW-SE striking Ventaniella Fault and part to the E-W striking Leon Fault.