



Evolution of the drainage system in the SE Betic Cordillera since the Tortonian

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The emersion of Betic Cordilleras (Sierra Nevada, Sierra de Gador) and associated marine neogene basins is the result of recent tectonic processes. This emersion was followed by the installation of drainage systems (rio Andarax, rio Adra) where detrital products were trapped at their outlets with morphosedimentary shapes as deltas or alluvial fans. Starting from a simple examination of the morphology of the SE Betic area, we can note that some deltaic morphologies as Campo de Dalias (south of the Sierra de Gador) do not correspond with the current upstream drainage network. We suppose, consequently, a reorganization of the drainage network between the formation of deltaic systems, and present. A sediment budget and a geomorphological analysis were performed to study this drainage evolution since this emergence in a context of high uplift (the Sierra de Gador has raised tortonian marine deposits up to 1800m). The calculated sediment budget shows that the deposits of Campo de Dalias cannot be explained only by a feeding that comes from its current source (the south side of the Sierra de Gador). Longitudinal profiles and relief maps show that rivers have responded to the uplift by incising the landscape with numerous knickpoints and by an eastward shift of the drainage network attested by windgaps in the landscape.

We conclude that the morphosedimentary shape of Campo de Dalias could be an abandoned deltaic morphology resulting from a shift of the drainage network toward the east since the Pliocene linked to the uplift of the Sierra de Gador.