



Miocene to present tectonics and associated morphological responses in a slow deformation domain (Provence, SE France)

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The Provence region is located within the SE France basin at the foreland domain of the Pyrenean and the Alpine mountain belts. Its structural pattern results from two superimposed compressional tectonics phases: the late Cretaceous to Eocene Pyrenean phase, and the Miocene to present Alpine phase, while Oligocene is an extensional phase period characterised by W to NW-trending σ_3 . Provence is affected by numerous W-trending ramp anticlines and N- to NE-trending oblique strike-slip faults. These last one (including Salon-Cavaillon dextral strike-slip fault (SCF)) are major structures which have been emplaced during the Late Hercynian tectonic period.

In domain of slow deformation like Provence, tectonic geomorphology remains the only reliable tools to detect potential active faults. The SCF separates two major W-trending southerly-verging forced ramp anticlines, Alpilles ridge to the west and Luberon ridge to the east. Structural and quantitative geomorphological analyses of these two ridges permits to better understand geodynamic evolution of this domain. It suggests that, since Miocene, the deformation of both ridges terminations closed to the SCF is drastically different. Alpilles presents a deformation characterised by rigid bloc rotations whereas Luberon's termination is a drag fold bend. The compilation of the Plio-Quaternary deformation evidences allows constraining local Plio-Quaternary vertical displacements, and permits to establish a regional deformation pattern.

Durance River is one of the major rivers of Provence. Its story is complex, with at least two important diversions during Quaternary. We provide evidences that the tectonic

evolution of Salon-Cavaillon area is responsible of these two diversions. We use in-situ ^{10}Be cosmogenic nuclide analysis to constrain the chronological framework of these re-routing events by dating the abandonment of Durance River terraces.