

Pyrenean breccia formations represent complex archives documenting the tectonic and





Semi-ductile syn-metamorphic breccias: The boudinage of silicic or dolomitic beds is the expression of rheologic heterogeneities during the ductile stretching of the mesozoic cover.



Hydraulic-tectonic breccias: Mid-Cretaceous stretching of the continental crust is accompanied by circulations of hot fluids. These fluids are responsible for allochemical metamorphism, metasomatic reactions and hydrothermalism.



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the North Pyrenean Zone (NPZ).



Cataclastic breccias and gouges: The clasts are barely displaced and they display a relatively monogenetic character. These tectonic breccias result from the disruption of the material under cooling conditions. The cataclastic intervals are mainly hosted by the Triassic and Liassic weaker levels.



Decoupling along the weaker evaporitic levels triggers a juxtaposition of the pre-rift sediments directly on the exhumed mantle. We re-interpret the sapphirine bearing sandstones lying around the eastern Pyrenean peridotites as remnants of these Triassic evaporites transformed by contact metamorphism with the uprising peri dotites and lower crustal units.





Polymictic sedimentary breccias: Their composition is dominated by clasts of Mesozoic metasediments. Locally, close to subcontinental mantle bodies, the sedimentary breccias include numerous clasts of





ultramafic and/or Such breccias are the witnesses of the sedimentation cover in a context of hyper-extended crust and mantl exhumation.



The Pyrenean ophicalcites and breccias are displaced toward low d18O values with respect to typical marines ones. This could be the sign of their formation in a continental lacustrine environment.

