



Sediment flux across the south-Pyrenean foreland basin. A contribution to the S2S-Future network.

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The early Eocene was a period of the intense collision during the formation of the Pyrenees. The flexural response to loading of the overriding European plate led to the formation of an elongated foredeep on the subducting Iberian plate which connected westward to the Atlantic Ocean. A thrust salient formed in the central Pyrenees, where Mesozoic Cover units travelled southwards on top of Triassic salt detachment. This process resulted in the sequencing of the foreland basin in different isolated sub-basins such as the Ripoll basin in the East, the Tremp-Graus and Ainsa-Jaca basins in central and western south Pyrenees and the Ager basin located south of the Tremp-Graus basin. The precise timing and surface processes associated to this reorganization of the sedimentary routing system remains not totally understood. Indeed, various sedimentary provenance studies show that the sediments of the Tremp-Graus basin were sourced from a different catchment zone than those of the Ager basin. Besides, the Ripoll basin sediments provenance analysis shows major similarities with the Ager basin, suggesting a common catchment area in the Eastern Pyrenees. However, it has been pointed out that the clastic systems feeding the rapidly subsiding sink of the Ripoll through could not find their way towards the shallower Ager basin. In this PhD project we aim at providing further constraints to the paleogeographic reconstruction and sediment routing systems of the South Eastern Pyrenees in the light of a revised chronostratigraphic scheme. A Source-to-Sink approach will be followed to study the sediment Routing Systems and to decode the climatic and tectonic signal from the sedimentary record. It will follow a volumetric quantification of the sediment budget over the entire foreland, and a comparison with eroded rock volumes of the whole Pyrenees. The resulting revised scenario will seek conciliation of all available data from the stratigraphic, structural, petrologic, geochronologic and sedimentologic datasets with new radiogenic isotopes sedimentary provenance analysis.