



Functioning of a sediment routing system: teleconnection of sediment sources with depositional sinks (Eocene Escanilla Formation), Spanish Pyrenees

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The Escanilla Formation is the terrestrial part of an Eocene 300 km-long sediment routing system that was sourced primarily from the Axial Zone of the Pyrenees and was deposited on top of the active fold-thrust belt of the south-central Pyrenees (3, 5, 6). The sediment routing system consists of a variety of depositional environments from proximal fanglomerates and fluvial-alluvial environments to shoreline, slope and basin-floor turbidites (5). We focus our study on the fluvial segment of this sediment routing system and aim to establish teleconnections between proximal feeder systems (Gurp and Sis units) to the basinal fluvial depocenters of the Viacamp, Lascuarre and Ainsa regions (1, 2, 7, 8).

Our teleconnection exercise is aided by a range of provenance tools: clast composition and paleoflow data, heavy mineral analysis, U/Pb dating of detrital zircons and detrital apatite fission track analysis (4, 8). The data and samples have been collected along the depositional fairway with regular spacing from source to sink. This methodology aims to track compositional and chemical changes downstream within the system and to fingerprint source areas.

Regions within the Axial Zone of the Pyrenees can be pinpointed as sources for the sediment routing system. Sediment was transported from a number of catchment sources and was fluxed longitudinally, along tectonic strike. We investigate how tectonic and climatic controls in the mountain catchment source areas have impact on downstream sediment volumes, sedimentary architecture and thermochronometric indices. In this way, the teleconnections between source and sink, and the downstream transformations of supply signals preserved in stratigraphy can be evaluated.

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