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Turbidite Pinchouts: Relative Influence of Palaeotopography, Timing of Deformation and Sedimentary Dynamics on the Geometry and Net-to-Gross Evolution

Stratigraphic pinchouts are frequent in turbidite systems and make thin but laterally extensive reservoirs. A large uncertainty is associated to the estimation of recoverable reserves in such thin reservoirs, because they are often below seismic resolution close to the pinchout border.

These stratigraphic pinchouts present a great variability of configuration: they can be related to lateral and longitudinal facies changes (channels passing to levees, lobes shaling out towards the basin plain) or to onlap configuration (border of canyon walls, pinching of lobes on basin margins).

In this study, we describe and quantify the evolution of the pinchouts (in terms of geometry, facies and net-to-gross) in function of several control parameters: - the basin topography, which controls the itinerary and velocity of the deep-marine gravity flows, - the timing of deformation, which controls the rate of evolution of this topography, - the sedimentary dynamics, which controls the nature of the gravity flows, their ability of sedimentation or erosion, and thus the resulting facies.

This quantification work of different pinchout configurations has been done on characteristic outcrop examples, located in the South Pyrenean and South Alpine foreland basins.

The final aim of this preliminary study is to be more predictive on the evolution of the geometry and reservoir characteristics of such pinchouts, by integrating facies information given by wells and global basin configuration and evolution given by seismic interpretation.