



Morphostructure of the channel/levee complexes and correlative terminal lobes of the Petit-Rhône Fan (Western Mediterranean) : Results from PROGRES cruise (EUROSTRATAFORM Project)

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Although many researches have been devoted to the Deep-Sea Fans in the last two decades, the structure and the growth pattern of the terminal lobes of these turbidite systems still remain poorly known. In the framework of a comparative study with the Danube and Amazon Fan, the work we present here focuses on the Late Quaternary distal Petit-Rhône Fan (Western Mediterranean). With the aim of improving our understanding of the sedimentary processes in such turbidite systems, we concentrate our research on the analysis of the morphostructure of the channel/levee complexes and correlative terminal lobes of this submarine fan.

This high resolution scale analysis is based on data collected during the PROGRES cruise conducted in July/August 2003, in the Gulf of Lions, onboard the R/V Le Suroit of Ifremer (EUROSTRATAFORM European Project, n° EVK3-CT-2002-00079, and French GDR-Golfe du Lion programme). PROGRES data include a complete cover of EM300 (bathymetry and acoustic imagery), regional seismic profiles and very high resolution seismic profiles (CHIRP).

The bathymetric map and acoustic imagery of the middle and lower part of the Petit-Rhone Fan show numerous channels, highly meandering. Some meanders are very tight and abandoned meanders are numerous. The most recent channel of the Petit-Rhone Fan can be followed continuously towards the southeast. Sinuosity decreases

progressively towards the termination of the channel. Acoustic imagery shows that ancient channels are identified as far as at the northern boundary of the Balearic Abyssal Plain, ie. at 2800 m water depth and 350 km from the Rhône River mouth that fed the Rhône Fan. Channel/levee systems show typical seismic facies, with high amplitude channel fill (HAR) and transparent to slightly stratified levees. In the area of avulsion points, high amplitude basal facies, evoking HARPs, are identified under the channel/levee systems.

Terminal lobes are not identifiable on the basis of backscattering level on acoustic imagery. However, analysis of the chirp data reveals distal high amplitude probably sandy accumulations at the outlet of the previously described channel/levee systems. Accurate analysis will be needed to understand the growth pattern of these potential terminal lobes.