



The active sink of the Danube river Basin: The Danube deep-sea fan

Gilles Lericolais (1), Julien Bourget (2), Paul Jermannaud (3), Stephan Jorry (1), Thierry Mulder (2), and Irina Popescu (4)

(1) IFREMER, Geosciences Marines, BP 70, 29280 Plouzané, France (Gilles.Lericolais@ifremer.fr), (2) UMR 5805 EPOC - OASU, Université Bordeaux 1, Avenue des Facultés, Cedex, Talence, F 33405, France, (3) BEICIP-FRANLAB, 232, Avenue Napoléon Bonaparte, P.O. BOX 213, F 92502 Rueil-Malmaison, France, (4) GeoEcoMar, 23-25 Dimitrie Onciu Street, RO-024053 Bucharest, Romania

The Danube River Basin-Black Sea area represents a unique natural laboratory for studying the interplay between lithosphere to surface, source to sink relationships and their impact on global change. Here we address some information on the "Active sink" of the system which represents the areas of active deposition: sea level variation, sediment balance and neotectonics. This abstract discuss the evolution and quantification of climate, tectonic and eustasy forcing on the sedimentation in the western Black Sea basin, along both southern and northern margins obtained from understanding the Danube deep sea fan processes and sedimentation.

Nevertheless, during the last decade, many of the geosciences studies except oil prospection carried out in the Black Sea have focused mainly on the Holocene marine invasion. This topic has been fully discussed and is still a matter of debates. Positively, these recent studies have demonstrated that the Black Sea semi-enclosed basin constitutes one of the most interesting research zones for paleoclimatological and paleoenvironmental high-resolution studies. Since the DSDP drillings, the lithology and mineralogy of deep sediments from the Black Sea have been well studied. But, only few recent studies have focused on the deep-sea morphology and gravity sedimentation in the western Black Sea basin, where the main depositional feature is the Danube submarine fan. In the last decade, oceanographic surveys in the Black Sea in 1998, 2002 and 2004 carried out in the framework of French-Romanian joint project and the European ASSEMBLAGE (EVK3-CT-2002-00090) project have collected a large amount of data (Multibeam echosounder data, Chirp seismic, HR multichannel seismic, Kullenberg and Calypso cores).

This discussion is based on new insights from recent coring and seismic data recovered at the boundary of influence of both the distal part of the Danube turbidite system and the Turkish margin. This dataset provide a good record of changes in the sedimentary supply and climatic-eustatic changes in the surrounding Black Sea during the last 25 ka. Based on this study, we demonstrate that the deep basin deposits bear the record of the Late Quaternary paleoenvironmental changes.

Finally, the western Black Sea basin constitutes an asymmetric subsident basin bordered by a northern passive margin with confined mid-size, mud-rich turbidite systems, and a southern, tectonically active, ramp margin.