



Paleogene seismic stratigraphy of the southern Dieppe-Hampshire Basin (Eastern English Channel): New insights from the TREMOR project

Martin Jollivet-Castelot (1), Justine Briais (2), Fabien Paquet (2), Virginie Gaullier (1), Frank Chanier (1), Isabelle Thinon (2), Olivier Averbuch (1), and Jean-Jacques Châteauneuf (3)

(1) Univ. Lille, CNRS, Univ. Littoral Côte d'Opale, UMR 8187, Laboratoire d'Océanologie et de Géosciences (LOG), F59000 Lille, France (martin.jollivetcastelot@gmail.com), (2) Bureau de recherches géologiques et minières (BRGM) – Georessources Division – Sediment – GBS Unit – 3 avenue Claude Guillemin, F45060, Orléans, France, (3) BRGM (retired), 8 quai du Châtelet, F45000 Orléans, France

The Dieppe-Hampshire Basin, located in the Eastern English Channel and part of the Anglo-Paris Basin, developed during the Paleogene coeval with an overall tectonic inversion of Western European basins, in response to the opening of the North Atlantic Ocean and Pyrenean-Alpine deformation episodes. Former studies provided a first outlook of the stratigraphy of the basin, evidencing ages ranging from Thanetian to Bartonian in the southern part of the Basin. But its detailed stratigraphic framework still remains poorly constrained.

Thanks to the contribution of new very high resolution seismic data (Sparker) and coring samples, acquired during oceanographic cruises “TREMOR” (R/V “Côtes de la Manche”, 2014) and “TREMOR 2” (R/V “Thalia”, 2017), an accurate seismic stratigraphy analysis has been conducted within the southern Dieppe-Hampshire Basin. Based on the seismic facies characteristics and the sequence stratigraphy methodology, twenty-five seismic units have been identified, while biostratigraphical and sedimentological analysis of coring samples allowed to establish chronostratigraphic correlations and to attribute some depositional environment to most of the units. Our analysis of the directions of progradation also contributed to a better understanding of the paleogeography. Thereby, we propose a stratigraphic model for the Paleogene of the Dieppe-Hampshire Basin with correlation of major unconformities to adjacent basins (Southern England, Paris Basin, Belgium). We discuss the resulting model in terms of sea level variations and high wavelength deformations. It appears that the development of the NW-SE oriented Dieppe-Hampshire syncline seems to begin during the Early Bartonian stage, coeval with an uplift phase of the Weald-Artois anticline.