



## Sediment transport from uppermost slope to abyssal plain in a carbonate environment

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The Carambar cruises 1, 1.5 and 2 were conducted between November 2010 and December 2016 in order to understand the sediment transfers between the platform and the deep basin in a modern carbonate environment. The large acoustic data set acquired during the Carambar cruises covers more than 20,000 km<sup>2</sup> of high resolution bathymetry and backscatter data and 5,400 km of very-high resolution seismic lines along the northeastern slope of the Little Bahama Bank (LBB). The LBB upper slope is dissected by numerous regularly spaced canyons. The lower slope corresponds to the valley feeding two giant canyons, the Great Abaco Canyon (GAC) and the Little Abaco Canyon (LAC), running parallel to the platform and with mouths fall within the Blake Bahama Escarpment (BEE). Surficial distribution of the acoustic facies and echo-facies clearly shows a wide variety of sedimentary processes along the slope. Its western part shows more evidence of deposits, such as sediment waves and base-of-slope deposits, and the eastern part, which is incised in the lower slope by the GAC and the LAC, seems to be more affected by erosion and by-pass processes. The variety in the physiography of the platform, bordered in the western part by a marine sand belt, and in the eastern part by tidal deltas and Islands, could influence the sediment export. Also, currents play an important role in sedimentation processes all along the slope and the abyssal plain. The Antilles Current, flowing northward through the LBB, appears to affect a large part of the middle and lower slope and could affect the material transiting through the canyons incising the LBB upper slope. As no sizable sediment lobe can be observed on the bathymetric map, a deep current flowing southward along the BEE, the Western Boundary UnderCurrent, seem to impact the sediment transported through the great canyons to the abyssal plain. As a sediment deposition difference between the western and the eastern part of the slope can be observed through the distribution of the acoustic facies and echo-facies, the hypothesis of a westward tectonic tilt of the bank could be reiterated.

**Mots-Clés:** Bahamas, slope, carbonates, canyons, sediment transport

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