Geophysical Research Abstracts
Vol. 19, EGU2017-19235, 2017
EGU General Assembly 2017
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Carbonate slope morphology revealing bank-to-slope sediment transfer in Little Bahama Bank, Bahamas

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New high-quality multibeam data depict the area located between Little Bahama Bank (LBB, Bahamas) and Blake Plateau. The survey details the morphology of a giant 135-km-long canyon, the Great Abaco Canyon (GAC) and its main characteristics. The canyon main axis runs parallel to the margin. The pathway shows several knickpoints and plunge pools. The most important knickpoint is underlined by an abrupt change in slope of the canyon thalweg. The last one leads to the opening towards the Blake Basin. Its morphologic head forms a vast receptacle but does not represent the main source of material at present. The material supplied through the LBB canyon systems does not reach this area which only shows lineaments related to the pathway of the Antilles current and restricted failure scars. Most of the supply comes from the canyon flanks. In the north, tributary canyons drain the contourite deposits forming large flat plateaus above the drowned carbonate platform of the Blake Plateau. In addition, these contourite plateaus are subjected to translational slides moving towards the northern edge of the canyon forming a dissymmetric debris accumulation along the toe of the north canyon edge. Another source of sediment are two large tributaries connecting the GAC directly to the LBB upper slope. Sub bottom profiles suggest the presence of a turbiditic levee on the tributary canyon sides and inferred turbiditic activity. Little Abaco Canyon (LAC) shows morphologic similarities with GAC but at a smaller size. However, the canyon seems more active in terms of sediment transport. Canyons draining the eastern part of LBB show fresh sedimentary structures (sediment waves) suggesting active sedimentary processes. These structures are made of clean sand with shallow water organisms suggesting a direct supply from the carbonate platform edge. In term of size and morphology, the GAC compares to the largest canyons in siliciclastic environments. Its originality comes from the fact it is only supplied by carbonate sources.