



Morphology and lithology of the continental slope north of the Demerara marginal plateau: results from the DRADEM cruise

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The DRADEM scientific cruise was carried out from July 9th to 21th 2016 on board the R/V Pourquoi Pas?, in the Exclusive Economic Zones of Suriname and French Guiana. This cruise is part of a program dedicated to geological investigations of the continental margin, including the Demerara plateau, following the GUYAPLAC (2003) and IGUANES (2013) cruises, and before the MARGATS cruise (2016). The aims of DRADEM were to map the continental slope of the transform margin north of the Demerara plateau, and to dredge the rocks outcropping on the slope.

We completed the bathymetric mapping of the continental slope, including part of the edge of the Demerara plateau. These new bathymetric data confirm the segmentation of the transform margin in three parts with very different morphologies. In addition, two circular structures were interpreted as mud volcanoes, one on the northern edge of the plateau, the other one in the distal part of the Orinoco deep sea fan.

Twelve dredges were performed between 4700 and 3500 m water depths. Four from these twelve did not recovered rocks. The eight others recovered variable amounts of rocks, often encrusted, but of various nature: sediments (breccia, coarse sandstones, sandstones with plants debris, sandstones with shells, clayey ooze), micro-granular rocks and metamorphic rocks (including mylonite). The nature of the rocks was determined from macroscopic observation of the altered rocks. Of course, these determinations need to be validated and refined by further studies onshore. In any case, most of these rocks were previously unknown in this area, and they will strongly influence our understanding of the structure and evolution of this margin. They provide evidence for large vertical displacements that brought to the surface some of these rocks, that were formed in a deep setting.