Geophysical Research Abstracts
Vol. 19, EGU2017-8872, 2017
EGU General Assembly 2017

Investigating the deep internal structure and the heterogeneous margins of the enigmatic Demerara plateau using deep penetrating seismic methods: first results of the MARGATS cruise

David Graindorge (1), Roest Walter (2), Frauke Klingelhoefer (2), Lies Loncke (3), Christophe Basile (4), Ewald Poetisi (5), Jacques Deverchère (1), Jean Frédéric Lebrun (6), Arnauld Heuret (7), Julie Perrot (1), Ronan Apprioual (2), Jacques Crozon (2), Maud Fabre (6), Philippe Fernagu (2), Pierre Guyavarch (2), and Christophe Prunier (1)

(1) IUEM, Université de Bretagne Occidentale, Brest, France (david.graindorge@univ-brest.fr), (2) IFREMER, Brest, France, (3) CEFREM, Perpignan, France , (4) ISTERRE, Université de Grenoble, Grenoble, France, (5) Anton de Kom University of Suriname, Paramaribo, Suriname, (6) Geosciences Montpellier, Université des Antilles, Pointe à Pitre, France, (7) Geosciences Montpellier, Université de Guyane, Cayenne, France

The MARGATS scientific cruise was carried out from October 20th to November 16th 2016 on board the R/V L'Atalante, 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), IGUANES (2013) and DRADEMcruises (2016). The aim of MARGATS was to image the internal structure of the Demerara plateau and its different margins using coincident deep penetrating wide angle refraction and multi channel reflection seismic (MCS) methods. During the MARGATS experiment 171 OBSs were deployed distributed along 4 wide-angle lines. Along each wide angle line we also recorded coincident MCS data using a 3 km 480 channel streamer. The dataset was completed by three MCS lines along the eastern part of the Demerara plateau. MCS MAR007 line which is coincident with line OBS MAR-3 was extended on land by a set of 13 land stations deployed along the Maroni River. This line, together with MCS MAR001 and the coincident OBS MAR-1 line reveal the highly homogeneous deep structure of the internal part of the plateau. MCS MAR005 line, which is coincident with OBS MAR-2, MCS MAR006 line coincident with OBS MAR-4, MCS MAR002, MCS MAR003 and MCS MAR004 help to elucidate the structural complexity of the northern transform margin and the eastern divergent margin of the plateau. These new datasets will be highly complementary to the DRADEM dredges results which provide evidence for huge vertical displacements along the transform margin. This EGU session will be the first opportunity to reveal the exceptional quality of the seismic data, after the initial processing steps and the new emergent results conditioning our understanding of the Demarara plateau and its margins.