



Morphotectonic analysis of the Muertos Trench and the Muertos Deformed Belt, Northeastern Caribbean plate (Geoprico-Do Project).

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The Muertos Trench is located in the Northeast corner of Caribbean plate, just of the south of Hispaniola and Puerto Rico islands (Greater Antilles). This trench is a deep trough with trend E-W developed in the back-arc area, from Beata Ridge (south Hispaniola Island) to Aves Ridge (east of Lesser Antilles). In this trench the oceanic crust of Venezuelan Basin is subducting or underthrusting North-eastward beneath of the island arc (*Ladd et al*, 1977; *Byrne et al*, 1985).

As consequence of the subduction, to the north of Muertos Trench an accretionary prism or deformed belt has been developed (*Ladd et al*, 1977; *Biju-Duval et al*, 1982). This deformed belt presents a broad band of high and active deformation in the lower slope and a basin-and-ridge area in the upper slope (*Carbó et al*, 2005).

In this survey, we present the morphotectonic interpretation from the multibeam systematic survey in the Muertos Trench and Muertos Deformed Belt area, (from GEOPRICO-DO marine geophysical survey, April 2005), and the relationship with seismicity (from data recorded by Puerto Rico Seismic Network and Instituto Sismológico Universitario-Universidad Autónoma Santo Domingo, Dominican Repub-

lic) and cinematic data (from GPS data, *Mann et al, 2002* and *Calais et al, 2002*).

In the Muertos Trench area, the data show a trench that overcomes 5600 m of depth, with a flat seafloor filled by turbidite. In the seafloor appear normal faults sub-parallel to the deformation front.

Active deformation features have been widely found in the area from bathymetry model and chirp sub-bottom seismic profiles (TOPAS). This features include folded and faulted recent sediments (Holocene), many submarine landslides scars (tsunamogenic potential) and submarine canyons deflected by fault traces (active faults).

Future works will integrate potential field data and deep seismic data, which will allow us to elaborate complete tectonic models for this active and complex boundary plate.