



What is the evidence for subduction in the Caribbean Margin of Colombia?

E. Rossello (1) and S. Cossey (2)

(1) CONICET - Buenos Aires University, Geological Sciences, Buenos Aires, Argentina (ea_rossello@yahoo.com.ar), (2) Cossey & Associates Inc. P.O. Box 1510, Durango, CO, USA.

In recent years, there has been a growing interest in the origin and evolution of the Colombian Caribbean Margin (CMC) by both academia and the petroleum industry. Conflicting hypotheses have emerged of the regional tectonic context and nature of the boundary of the Caribbean and South American plates.

Many authors describe the subduction of the Caribbean plate under the South American plate with sutures and other related tectonic phenomena, such as the subsequent development of an accretionary prism. However, there is no clear surface morphological evidence such as a trench or onshore mountains to support this hypothesis. Nor is there any subsurface evidence such as a magmatic arc or dipping seismicity that is typically seen in other known subduction margins (e.g. Chile-Peru, Indonesia, Aleutians, etc).

It is proposed that the CMC is a result of the dynamic balance of an early extensional margin related to a Mesozoic to Cenozoic passive margin style where the continental platform progrades onto the oceanic plate and a late transpressional inversion is associated with oblique convergence.

The controversy over the tectonic setting of the CMC is extremely important because it impacts the petroleum potential of the region. It could be resolved by incorporating tectono-sedimentary and 4D deformational analyses with recent surface and subsurface data.