

Late Cretaceous Construction of the SW Margin of the Caribbean Plate

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The Caribbean Plateau (CP) is regarded as an archetypal example of a “Large Igneous Province”, and is believed to extend over the entire Caribbean Plate. Current debate focused on the origin of the CP centers around two hypotheses: (1) *In situ* (Caribbean) formation; (2) Pacific formation, involving a possible link between CP genesis as a plume head associated with a paleo-Galapagos Hotspot. The evolution of the CP involves in part the formation of island arcs on top of the Plateau at its western and eastern margins during the Tertiary. However, the construction of the CP along these margins from the Late Cretaceous onwards is complex, and this complexity has to be considered in any overall model for the evolution of the Plateau.

Excellent exposures of the southwestern margin of the CP occur along the margins of Costa Rica and Panama. The sections reveal a complex history of net accretion along this margin including occurrences of plateau- and seamount-like igneous rocks. The Golfito Complex (GC) is an example of one of these sections, outcropping in southern Costa Rica.

The GC comprises lava flows and minor amounts of interbedded hemipelagic limestones. The geochemistry of the lavas was reported to be CP-like [2]. Campanian-Maastrichtian ages were determined for foraminiferal associations [1]. Our new data indicate however, that marked differences exist between the GC and the CP: 1. The Golfito lavas are geochemically distinctive relative to the CP in the co-variations between SiO₂, MgO, FeO(t), TiO₂, and alkalis. 2. On the basis of numerous interbedded sediment horizons, it is clear Golfito volcanism had much lower effusive rates than those reported for oceanic plateaus. 3. The Golfito sediments also contain island arc-related clasts.

In summary, we conclude that the GC has arc-proximal affinities. Similarities between the GC and exposures in the Azuero Peninsula indicates extensive arc development along the strike of this CP margin during the Late Cretaceous.

References

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- [2] Di Marco, G., Baumgartner, P.O., Chanell, J.E.T. (1995) *GSA Special Paper*, **295**, 1-27.