

THE CARIBBEAN VOLCANIC PLATEAU

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ABSTRACT

The Caribbean plate is formed by a Cretaceous volcanic plateau moving relative to the Americas plates eastwards along the northern left-lateral and the southern right-lateral transform margins. A compressive motion is recorded in the Muertos Trough and on the north of South America. These prisms are Middle Miocene in age. The B'' horizon and its late Cretaceous to early Miocene sedimentary cover are dipping to the north and to the south on the Muertos Trough and South American prisms respectively. In the Venezuela basin, the Cretaceous volcanic plateau thins southwards and near the Venezuelan prism, a rough basement has clear characteristics of oceanic crust. This crust is still very deep even if the sediment loading is removed, and according to some studies, it is a good argument to suspect a Jurassic crust forming the foundation of the volcanic crust. However, these studies did not take into account the southward dip related to the convergence.

The Beata Ridge is a topographic high placed between the Venezuelan and Colombian Basins and has a 20 km thick crust formed by a thick volcanic pile. The multichannel seismic profile recorded during the Casis cruise indicates that the edge of this plateau has been reactivated during the Middle Miocene with a strong component of strike-slip, and several flower structures are evident at the boundary between the ridge and the Colombian or Venezuelan Basin. Analyses of the deformation indicate an E-W to NE-SW stress that increases northwards and a differential motion between the Colombian Basin and the Venezuela Basin; the former moving faster towards the east than the latter. The intraplate deformation is replaced in the Caribbean plate tectonic framework.