# THE GALAPAGOS ISLANDS
## It's right as a fragile environment in the law of the sea, and as extended insular shelf beyond 200 Nautical Miles for Ecuador.

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**Abstract**

The seafloor of the Galapagos Islands is characterized by a platform on which are settled all its islands. Geomorphologic is formed by the Carnegie ridge (CAR), Cocos Ridge (COC), and Colon Ridge (CLR), which are considerate as a natural extension of the Ecuador Insular Platform (EIP). From those ridges two are considerate as submarine ridges, and the CAR can be considerate submarine elevation part of the EIP, although they have oceanic crust formation, but their origin is different from the adjacent seabed because their origin and evolution comes from the Galapagos Hot Spot (GHS). This point of view can be observed from age paleo reconstruction, base on the origin of crust and their origin reflects the complex tectonics of the area. COC is not part of the extended continental shelf beyond 200 nautical miles due to an existent boundary with Costa Rica.

In the area or potential extension typical rates of hotspot-ridge subsidence exist in the CAR. The difficulty at CAR could be easily recognised on multibeam and seismic reflection profiles have been buried rapidly by equatorial sediment, with chert layers that impede imaging of basement relief, and been overprinted by later (submarine) volcanism that seems fairly widespread along the Ridge.

The CAR age of the formation, based on magnetic anomalies, age of samples, and reconstruction [Meschede and Barckhausen, 2001] is older moving from west to east. This increase in the age of the ridge is related to reconstruction and to anomalies in the ridge–trench junction area close to 20 Ma [Hey, 1977; Lonsdale, 1978; Wilson and Hey, 1995; and Barckhausen et al., 2001]. In the eastern area of the section that includes the Galapagos Islands, the youngest crust is associated with active volcanism.

The age pattern obtained from volcanic samples suggests that the origin of the CAR was a hotspot [Christie et al., 1992; Meschede and Barckhausen, 2001]. The CAR is clearly a physical extension of GHS. Morphologically continuous is observed from the bathymetry,

dated seamounts show an age progression, and morphological evidence of drowning[1]. Additionally, plate tectonic models, first by Duncan and Hargaves, more recently by Meschede and Barckhausen:(Meschede, M., and Barckhausen, U., 2000). Plate tectonic evolution of the Cocos-Nazca spreading center were analyzed in Silver, E.A., Kimura, G., Blum, P., and Shipley, T.H. (Eds.), Proc. ODP, Sci. Results, 170 [Online]. Some additional models can support this natural prolongation base on geochronology.

The CAR along its entire length lies inside the outer edge of the Ecuador Island Margin (EIM) and the foot of the slope of the EIS is geomorphologic located at the end of the north and south slope. It shares the geological characteristics and its origin is the GHS. In sense, the CAR is defined in this study as a submarine elevation, due to be a natural component of the GVP.

The geological continuity base on the Galapagos Island origins and basalt composition are important to understand the natural prolongation. The CAR is defined as the submerged prolongation from EIM, referred to as the principle of geological continuity. The CAR has geological, morphology, and tectonic setting related to the Galapagos Islands, therefore, it is a natural component of the EIM. The CAR, which is a hotspot trace of GHS, is considerate one of the extension of the GVP as a natural prolongation of the Ecuadorian continental shelf related to article 76 UNCLOS, moves along with the Nazca Plate in relative to the GHS. The CAR stands 1.2 to 2.7 km higher than the surrounding seafloor, and presently is being subducted beneath the South American plate. Support for the GHS as a source of material is the excessive volcanism in the GVP.

The CLR, represents the boundary where the Cocos and Nazca Plates separate, and has been constantly modified base on the moving of the GSC relative to the hot spot [Hey, 1977; Lonsdale and Klitgord, 1978; Wilson and Hey, 1995; Wilson, 1996; Barckhausen et al., 2001]. The relationship of the GHS and GSC involving geological evolution and westerly prolongation, describe seafloor relief and geometry with sustainable prolongation arguments. Ecuador due to existence of this elevation and ridges has potential continental shelf extension beyond 200 miles in the east and west of the Islands.

[1] Cristhie D., 1992, Nature