*Etude géologique et géochimique de la région du Golfo Dulce (Costa Rica): genèse et évolution d'édifices océaniques accrétés à la marge caraïbe

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The region of the Golfo Dulce is described in the literature as a set of basaltic complexes frequently refered to as the "Nicoya complex": the Burica terrain, the Golfito terrain and the Rincón bloc. A melange, which forms the accretionary prism of Osa-Caño, crops out on the SW zone of the Osa Peninsula.
This study, based on detailed field observations, reunites a pluridisciplinary approach - structural, geological and geochemical. It demonstrates that the Rincón bloc is not a homogenous structure and that it could e divided in three new domains. Furthermore, the term "Nicoya complex" cannot be applied to the igneous formations of the Golfo Dulce region, because of the important geochemical and chronological differences. As a result, it should be thereafter avoided for this region.

This work describes five domains as distinct geodynamic entities:

" The Golfito domain, previously defined by Di Marco (1994), is an immerged Campanian-Paleocene tholeiitic arc, which rests on the Chorotega bloc. Detritic and hemipellagic sediments indicate a decrease in volcanism from the Maastrichtian until the Paleocene.
The detritic material reveals the presence of an active and emerged arc, whose influence increases with time. This influence continues until the Upper Eocene with the deposition of calcareous platform resediments. These limestones define a new formation: the Monita formation. The Di Marco (1994) subdivision of the older formations is maintained, with a basaltic basement, the Golfito formation and the Achiote formation.

" The Esquinas domain extends itself from the border of the Golfito domain to a major fault delimited by the Quebrada Pavon. It is an oceanic plateau, accreted to the carabean margin between hte Paleocene and the Eocene. Its geochemical characteristics and the age of the sediments indicates that it formed at the Galápagos hot spot during the Campanian.

" The Sábalo domain is in contact to the East with the Esquinas plateau and to the West with the Rancho Quemado domain. Those two contacts are strongly affected by a hydrothermal imprint. A small accretionary prism underlines the contact with the Rancho Quemado domain. This prism is termed "Salto accretionary prism".
The Sábalo domain is formed by an aseismic Eocene (?) ridge accreted to the Chorotega bloc at the Middle Eocene. This ridge's geochemical characteristics allows to related it to the Galápagos hot spot.

" The Rancho Quemado domain is in contact to the East with the Sábalo domain and to the West with the Osa-Caño accretionary prism.
It is a composite zone regrouping a number of seamounts, accreted at the Middle

Eocene. These seamounts display very varied geochemical characteristics indicating they formed at the Galápagos hot spot. Their age is Campanien to Eocene (?).

" The accretionary prism of Osa-Caño, previously described by Di Marco (1994) and Buchs & Stucki (2001) is mainly formed by igneous and calcareous blocs within a matrix of hemipellagic sediments.
The accretion model proposed by Buchs & Stucki (2001) is verified. The prism is formed by material coming from an emerged volcanic arc (volcanic sediments and shallow calcareous resediments) as well as from the backstop (igenous blocs and associated sedimentary cover). This material is deposited in the trench before having been accreted by off-scrapping from the Middle Eocene to the Middle Miocene.
The material from the backstop as well as the contact of the accretionary prism with the Rancho Quemado domain indicate that the prism's backstop at the time of the formation of the melange was already made of the Rancho Quemado and Sábalo domains. These domains' seamounts have been eroded (from top to bottom) at the time of their accretion.

The geochemical characteristics of the various accreted volcanic edifices offer new constraints regarding the dynamics of the Galápagos hot spot between the Campanian and the Eocene. The same characteristics indicate that the Farallon plate has already split in the Cocos and Nazca plates at the end of the Cretaceous.