

Late Cenozoic chronology and tectonic evolution of the northern Colombian forearc basin: Insights from a multidisciplinary approach

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Forearc basins are highly sensitive to modification in the subduction zones, including changes in parameters such as convergence rate and obliquity, and the nature of the subducting lithosphere (i.e. age, thickness, thermal state, etc.). Therefore, by characterizing their stratigraphic and provenance records, together with the exhumation history of adjacent massifs, it is possible to reconstruct the tectonic evolution of the subduction system such as the northwestern South-American margin. There, the late Cenozoic evolution, particularly of the northern segment of the Colombian forearc basin, resulted from interspersed collisional (arc-continent) and subduction-related regimes, including the collision/accretion of the Panama Arc in the early Neogene and the subsequent Nazca subduction.

In this contribution we present a review of available and newly obtained sedimentological and geochronological data from middle – late Miocene sedimentary sequences, as well as modern sediments from northwestern Colombia (Chocó region), which host a well-preserved record of the late Neogene tectonic evolution of the northwesternmost segment of the Andean forearc. We claim that the collision of the Panama Arc prior to ca. 12 Ma triggered exhumation/uplift of the western segment of the continental paleo-margin, and caused a major change in the provenance signature of shallow-marine forearc sequences, as well as shoaling of accumulation depths in the intra-oceanic colliding domain. Subsequently, the tectonic evolution is controlled by the subduction of a young and buoyant Nazca plate, which caused widespread mountain uplift and switching towards continental sedimentation across the northernmost Colombian Andes, as well as structural partitioning in the forearc basin, with focused uplift in the outermost segment (Pacific Coast) and subsidence with continuous sedimentation in the inner segment (Atrato Basin) through the late Miocene – Pleistocene. The latter deformational event of the forearc basin of northern Colombia resulted in the emergence of the Baudó Range, which may have major implications on the biodiversity of the region. The use of a novel Hybrid-Sequence nuclear dataset and molecular dating methods to estimate split dates of species and population of *Aiphanes* palms growing in the Western Cordillera and Baudó range, also provide an independent proxy that positions the late Miocene – Pliocene as a key moment for the establishment of mid-elevation plant life along this margin.