



First constraints on the timing of the Ecuadorian Coastal Cordillera uplift and geodynamic implications

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The Carnegie Ridge subduction beneath the South American plate is currently considered as responsible for the acceleration of the northward escape of the North Andean Block, for the opening of the Guayaquil Gulf, and for the uplift of the coastal forearc domain of western Ecuador, since at least Late Pleistocene. However, the exact timing and amount of uplift of the coastal forearc domain and its Coastal Cordillera is poorly known.

In this study, we provide the first detrital apatite (U-Th-Sm)/He (AHe) and zircon U/Pb ages from the coastal domain in order to constrain the thermal history of both the Coastal Cordillera and its foreland basin. Our preliminary results indicate that the Middle-Late Miocene Angostura Fm was buried during Late Miocene, recording high enough temperatures to partially reset AHe ages. We show that the basin then records ~ 1 km of uplift associated to erosion and cooling since Early Pliocene (~ 5 Ma).