



Cretaceous plate interaction during the formation of the Colombian plateau, Northandean margin

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The Cretaceous subduction cycle at the Northandean margin ends with an accretionary event that welds the plateau rocks of the present Western Cordillera to the continental margin. A suture between plateau and rock associations of the continental margin is well exposed at the western border of the Central Cordillera, but overprinted by intense block tectonics. Analyzed in detail, its evolution tracks an increased coupling between lower and upper plate, as may be accounted for by the following stages: 1) The Cretaceous plateau suite records at its onset passive margin conditions, as it encroaches on the continental margin and accounts for an extensional event that triggered the emplacement of ultramafic and mafic igneous rock suites along major faults. 2) An early subduction stage of a still moderate plate coupling is documented by the formation of a magmatic arc in an extensional setting that may have been prompted by slab retreat. Convergence direction was oblique, as attested the transfer of strike-slip displacements to the forearc region. 3) A phase of strong plate interaction entailed the delamination of narrow crustal flakes and their entrainment to depths below the petrologic Moho, as evidenced by their present association to serpentinites in a setting that bears characteristics of a subduction channel. 4) During the final collisional stage deformation is transferred to the lower plate, where the stacking of imbricate sheets, combined with their erosional unloading, led to the formation of an antiformal bulge that fed a foreland basin. - The life time of this Cretaceous subduction cycle was strictly synchronous to the construction of the Colombian plateau. With the final collisional stage magmatic activity vanished. This coincidence incites to explore a relationship between plume activity and subduction.