

Putumayo Foothills Structures Colombia: Their Origin and Evolution

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Abstract

The Putumayo foothills of Colombia have been interpreted as a series of major parallel thrust faults related with successive phases of Andean deformation identified in the eastern Cordillera. This study presents a re-evaluation explaining the origin of structural traps identified in the Putumayo foothills. Accretion of Paleozoic terranes and subsequent back-arc extension during the Triassic-Jurassic are major events that influence the configuration and geometry of the present day structures. These early events, represented by normal faults created by lithospheric flexure, directly affect subsequent deformation. Cenozoic Andean compressional structures are characterized by thrusting and folding that appear to be followed by a more recent phase of dextral strike-slip displacement accommodated preferentially along the frontal foothills.

A series of restored structural sections were constructed through the foothills, showing Eocene- to Oligocene-aged compressional deformation overprinted by a more recent phase of Miocene deformation. Together with geochemical evidence, an earlier migration is suggested (upper Oligocene –Mid Miocene) compared with the hydrocarbon migration timing proposed for the Llanos basin or Upper Magdalena basin.

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