



Influence of a Paleozoic thrust-system on the Sub-Andean zone architecture (Southern Ucayali basin, Peru)

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The development of the southern Ucayali basin during the Neogene has been controlled by an inherited Paleozoic thrust-system. Morphostructural and seismic reflection interpretations of the Ucayali foredeep show clearly folds linked to basement-involved thrusts associated with Carboniferous growth strata. This Paleozoic contractional system has been eroded and sealed by Upper Carboniferous sediments generating discontinuous Lower Paleozoic sediments architecture capable of Neogene décollements and key targets for future hydrocarbon exploration. The Paleozoic thrust-system is responsible of the complex geometry of the Sub-Andean zone. The Sub-Andean front corresponds to the NW-SE trending Shira-Tambo-Otishi thrust which separates the Sub-Andean zone (Ene piggyback basin) from the Ucayali foredeep. The northern Shira block is characterized by basement-thrusts and the lack of the Lower Paleozoic series. The Tambo Unit developed between the Shira and Otishi Units corresponds to a backthrust-system as a result of the shortening accommodation of the Shira thrusts. In contrast, the southern Otishi Unit is essentially driven by a thin-skinned tectonic owing to preserve Lower Paleozoic décollements. The construction of balanced cross-sections suggests that the Shira Unit corresponds to a Paleozoic fault-bend fold structure developed above a deep-seated décollement located within the basement, uplifted and eroded during the Carboniferous, and subsequently reactivated during the Neogene. In the Otishi Unit, the preservation of a thick Lower Paleozoic section has generated major décollements with an excess of 30km of Neogene shortening in

comparison to the northern Shira Unit. We propose the shortening difference to be accommodated by a main sinistral tear fault (Perene fault) on the south-western flank of the Shira Unit.