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Geochemical Study of Reservoir Continuity in Cotoperí-Oritupano Field

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Introduction
The Cotoperí-Orocual field is located in Northern Monagas (Fig. 1). The reservoir is divided in five blocks by faults. The existence of those faults needs to be reevaluated, because the fault sealing and reservoir continuity of different fault blocks are very important issues for the study of oil filling histories and production (García et al., 2008; Hou et al., 2004).

Experimental
Four dead oil samples were purchased in duplicate, taken at the wellhead according to API RP 44. The samples were dried and then removed the sediment according to ASTM D1796-97. C15-fraction was analyzed in a gas chromatograph Agilent Technologies, model 6850 Series II.

Results and Discussion
Based on the basic principle that within a reservoir where there are permeability barriers occur compositional homogenization of oil therefore anywhere in the reservoir will be presented the same composition or fingerprint (Kaufman et al., 1990) and, to the extent that there are compositional differences, they may be attributed to the effect of compartmentalization (Hunt, 1995). The GC peak ratios of the oil samples were analyzed and studied. Fifteen representative parameters (P1-P15) were selected (after Thompson, 1987) and posted in a star plot (after Halpern, 1995; Fig. 2).

Conclusion
The fluid continuity between Block 4 and Block 5 is limited. Therefore, the impact on fluid of the fault B4/B5 should be taken into consideration in future development of Cotoperí-Orocual field.

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References


