Generation of a computational model of fluid flow in porous media based on finite element method for modeling migration of fluids in sedimentary basins.

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The modeling of hydrocarbon migration is key in the analysis of exploration in any basin. Through this kind of analysis, which seeks in part may have been events associated with the loading process of a watershed. Faithfully reproduce achieved from this process simulation models, it would be possible to guess the location of new accumulations.

The present paper describes the operation and architecture of a computational tool in its prototype phase that allows modeling of complex geometries in 3D, fluid flow in porous media using as the base scheme of finite elements. The reason for using this scheme is to facilitate the process of fitting future of other phenomena such as structural and thermal impact.

The flow patterns that are working are biphasic (water - oil) and given a set of properties is possible to see the banks of hydrocarbon accumulation. Boundary conditions that are working to emulate the pulses for a given load, which, for purposes of modeling, is considered almost saturated half-hundred percent of water. Once the pulse of oil ventures in the porous block, the water starts to move up the simulation time is set.