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R E S U M E N
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OPTIMAL POLICIES OF WELL COMPLETION AND PRODUCTION
WITH RESPECT TO CONING EFFECTS FOR DIFFERENT
TYPES OF RESERVOIRS

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Luis Armando Acurero Salas
Escuela de Petróleo - INPELUZ
Facultad de Ingeniería
Universidad del Zulia.

Given a reservoir containing hydrocarbons, with dimensions and properties defined completely for reservoir and fluids; the problem is to maximize the present value of hydrocarbons removed from the reservoir through its economic life, by choice of the completion - and production - policy to be used during the economic life of wells drilled in that reservoir. It is subject to constraints of production and boundary conditions for the reservoir.

The problem is solved in two stages. First, a three-phases semianalytic single well model is formulated in order to determine the reservoir response to any completion - and production - policy. This model assumes that the cone of water and gas can be represented as a succession of steady - states. Second, an optimization model based in the discrete version of the Maximum principle of Pontryagin, and the Fibonacci search method is formulated to determine the optimal production - and completion - policy that will be used through the economic life of the wells.