SimuloNN™

Compositionnal Reservoir Simulator including a Neural Network

Objectives

SimuloNN™ is a plug-in for compositionnal reservoir simulators aiming to replace the flash calculations. This plug-in will be built before being linked to the simulator using the technology of neural network. It will allow capturing complex thermodynamic equilibrium through stand-alone thermodynamic packages.

Back-ground

Terra 3E has developped proxies to reproduce the results of a reservoir simulator using similar technology [1].

Program

The first year of the JIP **SimuloNN™** will be devoted to validated the methodology using the open source reservoir simulator eWoms[2] with the PVT data of the SPE 5 Comparative project[3].

Delivery

Results with and without **SimuloNN™** allowing to compare the efficiency of the approach.

Start date

The JIP is planned to start in January 2014.

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[1] J. Bruyelle and D.R. Guérillot: Neural Networks and their Derivatives for History Matching and other Seismic, Basin and Reservoir Optimization Problems, ECMOR XIII - 13th European Conference on the Mathematics of Oil Recovery, Biarritz France, September 2012

[2] http://www.opm-project.org/ewoms

[3] J.E. Killough and C.A. Kossack: Fifth Comparative Solution Project: Evaluation of Miscible Flood Simulators, Ninth SPE Symposium on Reservoir Simulation, 1987