

CHLOE

COMPUTATIONAL HYDROCARBON LABORATORY FOR OPTIMIZED ENERGY EFFICIENCY

CHLOE

Fields of application
Oil & gas industry

Research themes

Enhanced liquid hydrocarbon recovery

Core-scale modeling of chemical processes including alkaline and polymer injection

Use of gels for conformance improvement in secondary recovery mode

Pore-scale evaluation of the recovery mechanism by injection of low-salinity water using PNM tools

Injection and storage of CO₂ in geological layers

Evaluation of optimum simulation methods and tools

Evaluation of coupled flow-geomechanics models to evaluate the impacts of injecting CO₂ in sedimentary layers

Evaluation of industrial projects

Pore-scale simulations

Evaluation of the available modeling chains (PNM, etc.) to deduce absolute and relative permeabilities

Know-how

Innovative recovery mechanisms for viscous to heavy oils including

Induction heating

In-situ pyrolysis

Steam-solvent injection

Development of a coupling code for representing complex phenomena (hybrid mechanisms) combining multiple physics

Modeling and analysis of laboratory experiments

Modeling, analysis and optimization

of recovery mechanisms at the scale of representative elementary areas, the aim being to reduce energy needs and improve their efficiency

Main equipment

Computer cluster: 1 front-end server
7 blade servers with a total of 132 cores
and 1,280 GB of RAM

Simulation and modeling software: Comsol
Multiphysics, Stars & GEM (CMG), Eclipse,
Intersect, Petrel (Schlumberger), GPRS, ScanIP,
OpenFoam

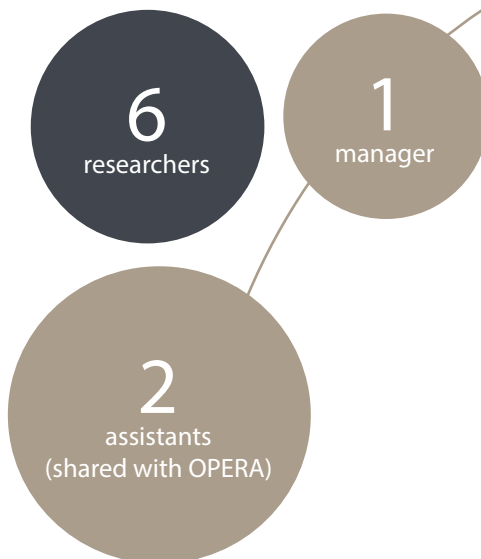
Partnership

Industrial partnership TOTAL

Spearheaded by



CHLOE in figures



Contacts:

Director and research
engineer:
Igor BOGDANOV
Manager:
Alain THOUAND

UFR Sciences et Techniques
Bâtiment B1- Avenue de
l'Université
BP 1155 - 64 013 PAU Cedex

igor.bogdanov@univ-pau.fr
+33 (0)5 59 80 74 19
alain.thouand@univ-pau.fr
+33 (0)5 59 80 74 17

<http://chloe.univ-pau.fr/live>