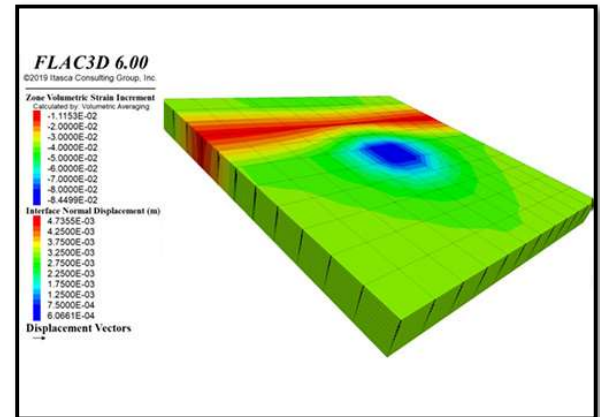


Advanced Course :: Fluid Flow Simulation

Adjusting the geological and fluid flow models.

The hands-on course provides the basics of numerical simulation based on the geological modelling of Campo Peixe. Adjusting the geological and fluid flow models must ensure that the flow model reproduces the historical production. Thus, adjusted models are robust enough to support reservoir management and implementation of new projects on production development and storage of greenhouse gases.

COURSE TYPE: LIVE STREAMING (05 DAYS, 20 HOURS)
GROUP 01: 02 - 06/JUN (PORTUGUESE)
GROUP 02: 29/SEP - 03/OCT (PORTUGUESE)
TIME: 14 - 18H (BRAZILIAN TIME ZONE)
COST: € 1000 :: + IVA



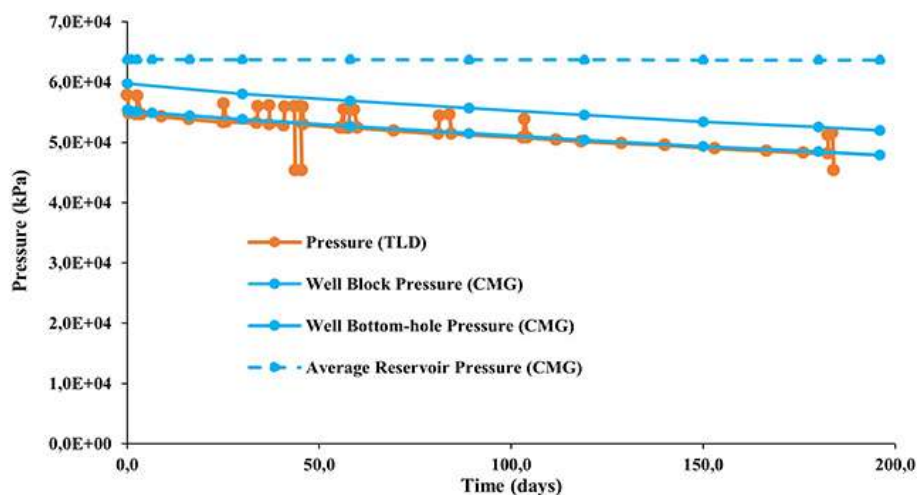
Why is geological and dynamic model tuning so important?

Often, poorly represented or neglected geological features can compromise the economic attractiveness of an asset because they generate production expectations with low predictability or are incapable of reproducing historical production.

One of the most critical factors that impact the quality of reservoir characterization is the value used as a representative of the cells of the dynamic model. Its correct value will depend on the knowledge of the energies present in the reservoir and the ability to integrate the different scales present in the variables that model, control, and simulate the reservoir system.

The fine adjustment of geological and fluid flow models must be achieved by adequately representing facies associations and their petrophysical properties directly in the geological model and from this into the dynamic model. This loop must occur as many times as required until the production simulation matches the historical production data.

This same approach is used to produce other natural resources, storage of C and H, and injection of contaminants.



TLD pressure history adjustment using a commercial simulator.

Objectives

Upon completion, participants are expected to understand and seek to optimise the flow of fluids in a heterogeneous multiphase model with numerical approaches and proper geological characterization.

Content

The Peixe synthetic field brings all the information needed for the dynamic modelling of reservoirs, such as geological, fluid, petrophysical, and relative permeability data. Data needs to be pre-treated, before uploading.

Besides, it is essential to understand the role of geological data and its different scales in flow models. On the other hand, the comparison between historical and simulated production provides elements for tuning the geological and fluid flow models.

In both models, properties must be adjusted as many times as necessary to achieve the matching between simulated and the historical production and, from this, the production forecast.

- **Day 1:** Review of geological modelling applied to production adjustment problems.
- **Day 2:** Fluid modelling.
- **Day 3:** Rock-fluid modelling and wells.
- **Day 4:** Modelling forecast scenarios.
- **Day 5:** Discussion of results and summary.

Who should attend

Engineers working in the exploration and production of petroleum and other natural resources, storage of C and H, and injection of contaminants..

Instructor

- Luis **Glauber** Rodrigues, PhD