



## New Geological Insights in Exploration through Numerical 3D Modeling of Salt Evolution in Complex Campeche Deepwater Environments

Liubov Mulisheva, Sebastian Villarroel, Thomas Hantschel, and Raul Ysaccis

Schlumberger

### ABSTRACT

Salina del Istmo Basin dominated by complex allochthonous salt canopies with various sizes multi-Z salt geometry and extensive welding system, showing the path of salt evacuation in the past. 3D history reconstruction including complex salt tectonics is critical for basin understanding and exploration evaluation.

Novel innovative workflow to build 3D basin model (using Petrel-PetroMod) in complex Campeche deepwater environments will give new geological insights for exploration, which will help to increase knowledge of Salina del Istmo Basin evolution and petroleum system.

Present day petroleum system, including source rock maturity, pore pressure, temperature, overpressure zones, porosity, etc. are results of geological history evolving through time including sedimentary deposition, tectonics movements, and effect whole basin evolution.

Present day salt geometry as much important as salt movements through the time, and salt placement as certain time age.

Early salt movements can create cooling effect and thus delay source rock maturity. Salt movements and evacuation can also cause over pressure zones. Understanding geological history by building regional 3D basin model is the key for reducing exploration and drilling risk.

We are going to share various geological scenarios of regional 3D geological history reconstruction, including complex salt tectonics, in Salina del Istmo Basin, and their effect on petroleum system.