



Shale Volumetrics™

Terra3E

Rigorous calculation of volumetrics for shale gas reservoirs

Estimation of Oil & Gas Initially In Place (STOIP & GIIP) is one of the priority tasks defining the reserves. The Shale Volumetrics™ plug-in extends Petrel* to support volumetrics for shale gas reservoirs using high-resolution geological models.

The calculations are based on the equilibrium between gravity and capillary forces, and Langmuir isotherms to compute the adsorbed gases.

Different quality of shales can be considered using 3D spatial distribution provided by high resolution geological model in facies and porosity built inside Petrel*.

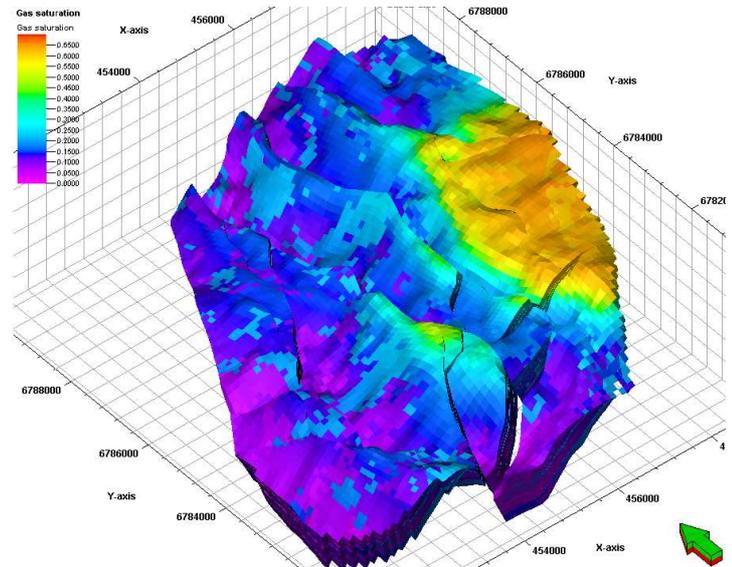
After calculations of pressures, initial gases in place are calculated in reservoir conditions. The Black-Oil representation of fluids considering liquid-rich gases, initial oil and gas in place are also given in surface conditions.

Shale Volumetrics™ plug-in provides 3D saturation grids from the thermodynamic data of oil and gas, 3D porosity distribution, capillary pressure curves and Langmuir isotherm associated to each lithofacies.

The speed of volumetrics calculation allows uncertainty analysis on multiple scenarios and parameters in particular parameters related to shales.

Being based on volumetric, it does not require dynamic data. Using the 3D saturation grids, well designs can be improved at the early stages of the field development.

These 3D volumes with saturations of each phase: oil, gas and water which can also be compared to log extracted values to cross check the geological modeling for newly discovered reservoirs or to evaluate contact changes for mature reservoirs.



3D saturations of Gas Initially In Place



Saturations along Wells

* mark of Schlumberger