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Improved facies and property modelling in Barton 3D static model

NOR AZUAIRI CHE SIDIK AND JELANI RANGGON

Sabah Business Unit
Sarawak Shell Berhad/Sabah Shell Petroleum Co. Ltd.
98100 Lutong, Sarawak, Malaysia

A good reservoir model requires detailed understanding of both structural and sedimentological controls that have impact on reservoir development and distribution. Knowledge of lithology distribution is important in field development planning to predict reservoir property trends. In Barton field where core data is limited, good calibration between lithofacies from core and wireline log properties will allow consistent facies calibration in the uncored wells, thus improved property modelling in the static model.

In Barton 3D static modelling study using GEOCAP, improved core to log facies calibration was carried out using Shell's proprietary neural net software NEUROLOGIC. The software integrates the core lithofacies with log based on a non-liner relation between geological properties and wireline log characteristics. NEUROLOGIC facies calibration showed good correlation between core lithofacies and electrofacies derived by the program, thus providing confidence for predicting facies distribution over the uncored wells.

In this paper, the approach in the use of NEUROLOGIC to perform core/log calibration will be discussed. In addition, key assumptions and results from the study will be highlighted.

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