

### **3D Modeling of Reservoir Classes Using Seismic Acoustic Impedance Data**

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Conditioning the geological facies to seismic data is being practiced in the industry for quiet some time now however; conditioning of Reservoir Classes is not that common yet. Compared to geological facies the Reservoir Classes represent flow behavior of fluids inside the reservoir in a more specific way. In heterogeneous reservoirs it is difficult to have a reliable lateral distribution of a large number of geological facies. Therefore the large number of geological facies based upon their porosity and permeability characteristics are combined into few Reservoir Classes. These Reservoir Classes are then laterally distributed guided by seismic data in the 3D reservoir static model.

3D seismic Acoustic impedance data volume was generated for the Sawan field. This data volume was then converted into depth. The primary reservoir of Lower Goru “C” sands was divided into 2-3 Reservoir Classes. These Reservoir Classes were conditioned to average seismic Acoustic impedance of the C sands through probability distribution curves and up-scaled logs. The lateral distribution was then controlled using variograms. History matching process in simulation model further fine tuned the lateral distribution of the Reservoir Classes, by optimizing variograms parameters and weighting of different Reservoir Classes.